Air Quality Technical Report

for the East San Fernando Valley Transit Corridor

May 2017

Metro

Prepared by the
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Acronyms and Abbreviations

2008 RCP	2008 Regional Comprehensive Plan
2012 RTP	2012–2035 Regional Transportation Plan/Sustainable Communities Strategy
AA	Alternatives Analysis
BRT	bus rapid transit
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CPA	Community Plan Area
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FTA	Federal Transit Administration
Growth Vision	2004 Compass Blueprint Growth Vision
HOV	high-occupancy vehicle
I	Interstate [I]
LADOT	Los Angeles Department of Transportation
LRT	light rail transit
LRTP	Long-Range Transportation Plan
Metro	Los Angeles County Metropolitan Transportation Authority
MPO	Metropolitan Planning Organization
MSF	maintenance and storage facility
NEPA	National Environmental Policy Act
RCP	Regional Comprehensive Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SR	State Route
TSM	Transportation System Management
U.S.C.	United States Code

Executive Summary

This technical report evaluates the project impacts on air quality that would result from the construction and long-term operation of the proposed East San Fernando Valley Transit Corridor Project. The project options evaluated include No-Build, Transportation Systems Management (TSM), and two Bus Rapid Transit (BRT) and two Light Rail Transit (LRT) Alternatives. The BRT Alternatives include both a curb-running and median-running option. The LRT Alternatives include a Low-Floor Tram and standard Light Rail option.

The No-Build Alternative would not involve construction emissions, nor would it result in operational emissions that would exceed South Coast Air Quality Management District (SCAQMD) thresholds. The operational emissions of the build alternatives are evaluated against the No-Build Alternative for the determination of CEQA and NEPA impacts. As such, no impacts under CEQA or NEPA would result from the No-Build Alternative.

Similar to the No-Build Alternative, the TSM Alternative would not involve construction emissions. Operational emissions of criteria pollutants and mobile source air toxics (MSAT) would not exceed regional thresholds. Impacts would be less than significant under CEQA and not adverse under NEPA.

The operation of Build Alternative 1, the curb-running BRT, would result in a negligible increase in the emission of criteria and MSAT pollutants, but operational emissions would not exceed regional thresholds. In addition, no localized operational impacts related to hot-spots for carbon monoxide or particulate matter were identified. Operational impacts under Build Alternative 1 would be less than significant under CEQA and not adverse under NEPA. Construction of Build Alternative 1 would not result in the emission of criteria pollutants in excess of regional thresholds, but emissions would be higher than SCAQMD localized significance thresholds (LST) for PM10 and PM2.5. Construction impacts under Build Alternative 1 would be significant under CEQA and not adverse under NEPA after the implementation of mitigation measures.

The operation of Build Alternative 2, the median-running BRT, would result in a decrease in the emission of all criteria pollutants with the exception of reactive organic gases (ROG) and would have no or minimal effects on the emission of MSAT pollutants. In addition, no localized operational impacts related to hot-spots for carbon monoxide or particulate matter were identified. Operational impacts under Build Alternative 2 would be less than significant under CEQA and not adverse under NEPA. Construction of Build Alternative 2 would not result in the emission of criteria pollutants in excess of regional thresholds, but emissions would be higher than SCAQMD LSTs for PM10 and PM2.5. Construction impacts under Build Alternative 2 would be significant under CEQA and not adverse under NEPA after the implementation of mitigation measures.

The operation of Build Alternative 3, the low-floor LRT or tram, would result in increased regional emissions of criteria and MSAT pollutants, but regional emissions would be less than significant. No localized operational impacts related to hot-spots for carbon monoxide or particulate matter were identified. Overall, regional and localized impacts would be less than significant under CEQA and not adverse under NEPA. Construction of Build Alternative 3 would result in the emission of ROG and NOx in excess of regional thresholds. The emission of ROG would be reduced to below the threshold with the implementation of mitigation measures, but NOx would remain above the regional threshold after mitigation. In addition, construction of Build Alternative 3 would exceed the LSTs for ROG, PM10, and PM2.5 after the implementation of mitigation measures. Construction impacts under Build Alternative 3 would be significant under CEQA and adverse under NEPA after the implementation of mitigation measures.

The operation of Build Alternative 4, the LRT, would result in decreased emissions of criteria and MSAT pollutants. In addition, no localized operational impacts related to hot-spots for carbon monoxide or particulate matter were identified. Therefore, operational impacts under Build Alternative 4 would be less than significant under CEQA and not adverse under NEPA. Construction of Build Alternative 4 would result in the emission of ROG and NOx in excess of regional thresholds, neither of which would be reduced below the thresholds following the implementation of mitigation. In addition, construction of Build Alternative 3 would exceed the LSTs for ROG, PM10, and PM2.5 after the implementation of mitigation measures. Construction impacts under Build Alternative 4 would be significant under CEQA and adverse under NEPA after the implementation of mitigation measures.

Chapter 1
Introduction

1.1 Study Background

What Is the East San Fernando Valley Transit Corridor?

The Federal Transit Administration (FTA) and Los Angeles County Metropolitan Transportation Authority (Metro) have initiated a Draft Environmental Impact Statement (DEIS)/Environmental Impact Report (DEIR) for the East San Fernando Valley Transit Corridor Project. The DEIS/DEIR is being prepared with the FTA as the Lead Agency under the National Environmental Policy Act (NEPA) and Metro as the Lead Agency under the California Environmental Quality Act (CEQA).

The DEIS/DEIR and related engineering are being undertaken by Metro, in close coordination with the Cities of Los Angeles and San Fernando. The DEIS/DEIR will be a combined document complying with the most recent state and federal environmental laws. The project's public/community outreach component is being undertaken as an integrated parallel effort to the DEIS/DEIR.

Prior to the initiation of the DEIS/DEIR, an Alternatives Analysis (AA) was received by the Metro Board in January 2013 to study the East San Fernando Valley Transit Corridor and define, screen, and recommend alternatives for future study. This study enabled Metro, the City of Los Angeles, and the City of San Fernando to evaluate a range of new public transit service alternatives that can accommodate future population growth and transit demand, while being compatible with existing land uses and future development opportunities. The study considered the Sepulveda Pass Corridor, which is another Measure R project, and the proposed California High Speed Rail Project. Both of these projects may be directly served by a future transit project in the project study area. The Sepulveda Pass Corridor could eventually link the West Los Angeles area to the eastern San Fernando Valley and the California High Speed Rail Project via the project corridor. As part of the January 2013 Alternatives Analysis, most of Sepulveda Boulevard was eliminated as an alignment option, as well as the alignment extending to Lakeview Terrace. As a result of the Alternatives Analysis, the recommended modes were Bus Rapid Transit (BRT) and Light Rail Transit (LRT).

As a result of the alternatives screening process and feedback received during the public scoping period, a curb-running BRT, median-running BRT, median-running low-floor LRT/tram, and a median-running LRT, were identified as the four build alternatives, along with the Transportation Systems Management (TSM) and No-Build Alternatives to be carried forward for analysis in this DEIS/DEIR.

1.1.1 Study Area

Where Is the Study Area Located?

The East San Fernando Valley Transit Corridor Project study area is located in the San Fernando Valley in Los Angeles County. Generally, the project study area extends from the city of San Fernando and the Sylmar/San Fernando Metrolink Station in the north to the Van Nuys Metro Orange Line

Station within the city of Los Angeles in the south. However, the project study area used for the environmental issue described in this report could vary from this general project study area, depending on the needs of the analysis. For the purposes of the analysis contained in this report, the project study area coincides with the general project study area.

The eastern San Fernando Valley includes the two major north-south arterial roadways of Sepulveda and Van Nuys Boulevards, spanning approximately 10 to 12 miles and the major north/west arterial roadway of San Fernando Road.

Several freeways traverse or border the eastern San Fernando Valley. These include the Ventura Freeway (US-101), the San Diego Freeway (Interstate [I] 405), the Golden State Freeway (I-5), the Ronald Reagan Freeway (State Route [SR] 118), and the Foothill Freeway (I-210). The Hollywood Freeway (SR-170) is located east of the project study area. In addition to Metro Local and Metro Rapid bus service, the Metro Orange Line (Orange Line) BRT service, the Metrolink Ventura Line commuter rail service, Amtrak inter-city rail service, and the Metrolink Antelope Valley Line commuter rail service are the major transit corridors that provide interregional trips in the project study area.

Land uses in the project study area include neighborhood and regional commercial land uses, as well as government and residential land uses. Specifically, land uses in the project study area include government services at the Van Nuys Civic Center, retail shopping along the project corridor, and medium- to high-density residential uses throughout the project study area. Notable land uses in the eastern San Fernando Valley include: The Village at Sherman Oaks, Panorama Mall, Whiteman Airport, Van Nuys Airport, Mission Community Hospital, Kaiser Permanente Hospital, Van Nuys Auto Row, and several schools, youth centers, and recreational centers.

1.1.2 Alternatives Considered

What Alternatives Are under Consideration?

The following six alternatives, including four build alternatives, a TSM Alternative, and the No-Build Alternative, are being evaluated as part of this study:

- No-Build Alternative;
- TSM Alternative;
- Build Alternative 1 – Curb-Running BRT Alternative;
- Build Alternative 2 – Median-Running BRT Alternative;
- Build Alternative 3 – Low-Floor LRT/Tram Alternative; and
- Build Alternative 4 – LRT Alternative.

All build alternatives would operate over 9.2 miles, either in a dedicated bus lane or guideway (6.7 miles) and/or in mixed-flow traffic lanes (2.5 miles), from the Sylmar/San Fernando Metrolink station to the north to the Van Nuys Metro Orange Line station to the south, with the exception of Build Alternative 4 which includes a 2.5-mile segment within Metro-owned railroad right-of-way adjacent to San Fernando Road and Truman Street and a 2.5-mile underground segment beneath portions of Panorama City and Van Nuys.

1.1.2.1 No-Build Alternative

The No-Build Alternative represents projected conditions in 2040 without implementation of the project. No new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. These projects include highway and transit projects funded by Measure R and specified in the current constrained element of the Metro 2009 Long-Range Transportation Plan (LRTP) and the 2012 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Existing infrastructure and future planned and funded projects assumed under the No-Build Alternative include:

- Existing Freeways – I-5, and I-105, SR-118, and US-101;
- Existing Transitway – Metro Orange Line;
- Existing Bus Service – Metro Rapid and Metro Local Shuttle;
- Los Angeles Department of Transportation Commuter Express, and DASH;
- Existing and Planned Bicycle Projects – Bicycle facilities on Van Nuys Boulevard and connecting east/west facilities; and
- Other Planned Projects – Various freeway and arterial roadway upgrades, expansions to the Metro Rapid bus system, upgrades to the Metrolink system and proposed California High Speed Rail project.

This alternative establishes a baseline for comparison to other alternatives in terms of potential environmental effects, including adverse and beneficial environmental effects.

1.1.2.2 TSM Alternative

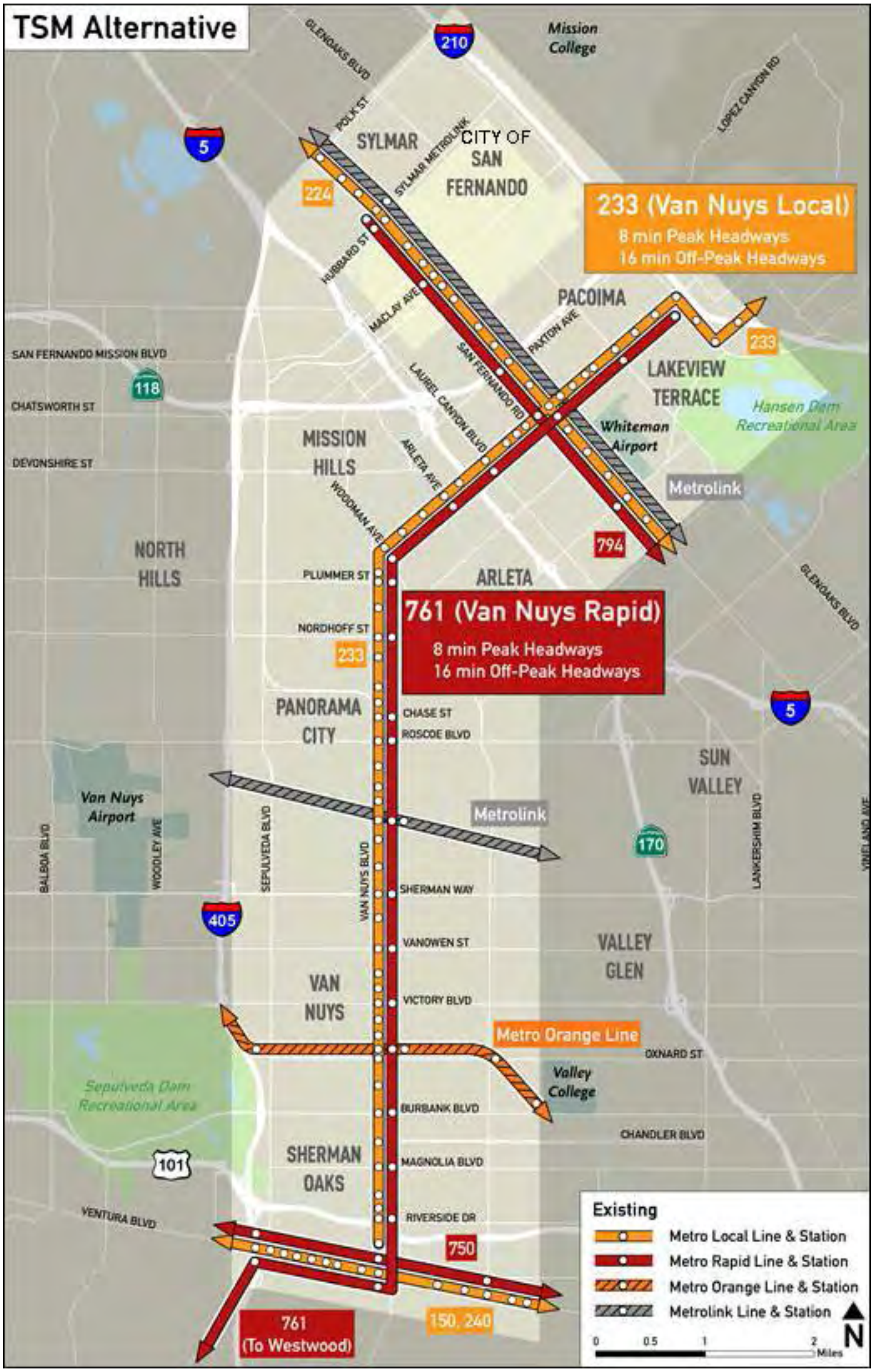
The TSM Alternative enhances the No-Build Alternative by emphasizing transportation systems upgrades that focus on relatively low-cost transit service improvements. It represents efficient and feasible improvements to transit service, such as increased bus frequencies and minor modifications to the roadway network. Additional TSM Alternative transit improvements that may be considered include, but are not limited to, traffic signalization improvements, bus stop amenities/improvements, and bus schedule restructuring (Figure 1-1).

The TSM Alternative considers the existing bus network, enhanced operating hours, and increased bus frequencies for Metro Rapid Line 761 and Local Line 233. Under this alternative, the Metro Rapid Line 761 and Metro Local Line 233 bus routes would retain existing stop locations. This alternative would add 20 additional buses to the existing Metro Local 233 and Metro Rapid 761 bus routes. These buses would be similar to existing Metro 60-foot articulated buses, and each bus would have the capacity to serve up to 75 passengers (57 seats x 1.30 passenger loading standard). Buses would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

The existing Metro Division 15 maintenance and storage facility (MSF) located in Sun Valley would be able to accommodate the 20 additional buses with the implementation of the TSM Alternative. Operational changes would include reduced headway (elapsed time between buses) times for Metro Rapid Line 761 and Metro Local Line 233, as follows:

- Metro Rapid Line 761 would operate with headways reduced from 10 minutes to 8 minutes during peak hours (7 a.m. to 9 a.m. and 4 p.m. to 7 p.m. on weekdays) and from 17.5 minutes to 12 minutes during off-peak hours.
- Metro Local Line 233 would operate with headways reduced from 12 minutes to 8 minutes during peak hours and from 20 minutes to 16 minutes during off-peak hours.

Figure 1-1: TSM Alternative



Source: KOA and ICF International, 2014.

1.1.2.3 Build Alternative 1 – Curb-Running BRT Alternative

Under the Curb-Running BRT Alternative, the BRT alignment would incorporate 6.7 miles of existing curb lanes (i.e., lanes closest to the curb) along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line. This alternative would be similar to the Metro Wilshire BRT project and would operate similarly. The lanes would be dedicated curb-running bus lanes for Metro Rapid Line 761 and Metro Local Line 233, and for other transit lines that operate on short segments of Van Nuys Boulevard. In addition, this alternative would incorporate 2.5 miles of mixed-flow lanes, where buses would operate in the curb lane along San Fernando Road and Truman Street between Van Nuys Boulevard and Hubbard Avenue for Metro Line 761. Metro Line 233 would continue north on Van Nuys Boulevard to Lakeview Terrace. These improvements would result in an improved Metro Rapid Line 761 (hereafter referred to as 761X) and an improved Metro Local Line 233 (hereafter referred to as 233X). The route of the Curb-Running BRT Alternative is illustrated in Figure 1-2.

From the Sylmar/San Fernando Metrolink station:

- Metro Rapid Line 761X would operate within roadway travel lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, Metro Rapid Line 761X would turn southwest and travel south within a curb-running dedicated bus lane along Van Nuys Boulevard.
- The alternative would continue to be curb running along Van Nuys Boulevard until reaching the Metro Orange Line Van Nuys station where Metro Rapid Line 761X service would be integrated into mixed-flow traffic.
- Metro Line 761X would then continue south to Westwood as under existing conditions, though it should be noted that in December 2014 the Metro Rapid Line 761 will be re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 would travel from Van Nuys Boulevard through the Sepulveda Pass to Westwood as part of a Metro demonstration project.

Metro Local Line 233X would operate similar to how it currently operates between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. However, Metro Local Line 233X would operate with improvements over existing service because it would utilize the BRT lanes where its route overlaps with the alignment along Van Nuys Boulevard.

Transit service would not be confined to only the dedicated curb lanes. Buses would still have the option to operate within the remaining mixed-flow lanes to bypass right-turning vehicles, a bicyclist, or another bus at a bus stop.

The Curb-Running BRT Alternative would operate in dedicated bus lanes, sharing the lanes with bicycles and right turning vehicles. However, on San Fernando Road and Truman Street, no dedicated bus lanes would be provided. The Curb-Running BRT Alternative would include 18 bus stops.

Figure 1-2: Build Alternative 1 – Curb-Running BRT Alternative

Source: KOA and ICF International, 2014.

1.1.2.4 Build Alternative 2 – Median-Running BRT Alternative

The Median-Running BRT Alternative consists of approximately 6.7 miles of dedicated median-running bus lanes between San Fernando Road and the Metro Orange Line, and would have operational standards similar to the Metro Orange Line. The remaining 2.5 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard. The Median-Running BRT Alternative is illustrated in Figure 1-3.

Similar to the Curb-Running BRT Alternative, the Median-Running BRT (Metro Rapid Line 761X) would operate as follows from the Sylmar/San Fernando Metrolink station:

- Metro Rapid Line 761X would operate within mixed-flow lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, the route would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- Upon reaching the Van Nuys Metro Orange Line Station, the dedicated guideway would end and the Metro Rapid Line 761X service would then be integrated into mixed-flow traffic.
- The route would then continue south to Westwood, similar to the existing route. Similar to Build Alternative 1, it should be noted that in December 2014 the Metro Rapid Line 761 will be re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 would travel from Van Nuys Boulevard through the Sepulveda Pass to Westwood as part of a Metro demonstration project.

Metro Local Line 233 would operate similar to existing conditions between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. Metro Rapid bus stops that currently serve the 794 and 734 lines on the northern part of the alignment along Truman Street and San Fernando Road would be upgraded and have design enhancements that would be Americans with Disabilities Act (ADA) compliant. These stops would also serve the redirected 761X line:

1. Sylmar/San Fernando Metrolink Station;
2. Hubbard Station;
3. Maclay Station;
4. Paxton Station; and
5. Van Nuys/San Fernando Station.

Along the Van Nuys Boulevard segment, bus stop platforms would be constructed in the median. Seventeen new median bus stops would be included.

Figure 1-3: Build Alternative 2 – Median-Running BRT Alternative

Source: KOA and ICF International, 2014

1.1.2.5 Build Alternative 3 – Low-Floor LRT/Tram Alternative

The Low-Floor LRT/Tram Alternative would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink station to the north, to the Van Nuys Metro Orange Line station to the south. The Low-Floor LRT/Tram Alternative would operate in a median dedicated guideway for approximately 6.7 miles along Van Nuys Boulevard between San Fernando Road and the Van Nuys Metro Orange Line station. The low-floor LRT/tram alternative would operate in mixed-flow traffic lanes on San Fernando Road between the intersection of San Fernando Road/Van Nuys Boulevard and just north of Wolfskill Street. Between Wolfskill Street and the Sylmar/San Fernando Metrolink station, the low-floor LRT/tram would operate in a median dedicated guideway. It would include 28 stations. The route of the Low-Floor LRT/Tram Alternative is illustrated in Figure 1-4.

The Low-Floor LRT/Tram Alternative would operate along the following route:

- From the Sylmar/San Fernando Metrolink station, the low-floor LRT/tram would operate within a median dedicated guideway on San Fernando Road.
- At Wolfskill Street, the low-floor LRT/tram would operate within mixed-flow travel lanes on San Fernando Road to Van Nuys Boulevard.
- At Van Nuys Boulevard, the low-floor LRT/tram would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- The low-floor LRT/tram would continue to operate in the median along Van Nuys Boulevard until reaching its terminus at the Van Nuys Metro Orange Line Station.

Based on Metro's *Operations Plan for the East San Fernando Valley Transit Corridor Project,* the Low-Floor LRT/Tram Alternative would assume a similar travel speed as the Median-Running BRT Alternative, with speed improvements of 18% during peak hours/peak direction and 15% during off-peak hours.

The Low-Floor LRT/Tram Alternative would operate using low-floor articulated vehicles that would be electrically powered by overhead wires. This alternative would include supporting facilities, such as an overhead contact system (OCS), traction power substations (TPSS), signaling, and a maintenance and storage facility (MSF).

Because the Low-Floor LRT/Tram Alternative would fulfill the current functions of the existing Metro Rapid Line 761 and Metro Local Line 233, these bus routes would be modified to maintain service only to areas outside of the project corridor. Thus, Metro Rapid Line 761 (referred to as 761S with reduced service) would operate only between the Metro Orange Line and Westwood, and Metro Local Line 233 (referred to as 233S with reduced service) would operate only between San Fernando Road and Glenoaks Boulevard. It should be noted that in December 2014 the Metro Rapid Line 761 will be re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 would travel from Van Nuys Boulevard through the Sepulveda Pass to Westwood as part of a Metro demonstration project.

Stations for the Low-Floor LRT/Tram Alternative would be constructed at various intervals along the entire route. There are portions of the route where stations are closer together and other portions where they are located further apart. Twenty-eight stations are proposed with the Low-Floor LRT/Tram Alternative. The 28 proposed low-floor LRT/tram stations would be ADA compliant.

Figure 1-4: Build Alternative 3 – Low-Floor LRT/Tram Alternative

Source: KOA and ICF International, 2014.

1.1.2.6 Build Alternative 4 – LRT Alternative

Similar to the Low-Floor LRT/Tram Alternative, the LRT would be powered by overhead electrical wires (Figure 1-5). Under Build Alternative 4, the LRT would travel in a dedicated guideway from the Sylmar/San Fernando Metrolink station along San Fernando Road south to Van Nuys Boulevard, from San Fernando Road to the Van Nuys Metro Orange Line Station, over a distance of approximately 9.2 miles. The LRT Alternative includes a segment in exclusive right-of-way through the Antelope Valley Metrolink railroad corridor, a segment with semi-exclusive right-of-way in the middle of Van Nuys Boulevard, and an underground segment beneath Van Nuys Boulevard from just north of Parthenia Street to Hart Street.

The LRT Alternative would be similar to other street-running LRT lines that currently operate in the Los Angeles area, such as the Metro Blue Line, Metro Gold Line, and Metro Exposition Line. The LRT would travel along the median for most of the route, with a subway of approximately 2.5 miles in length between Vanowen Street and Nordhoff Street. On the surface-running segment, the LRT Alternative would operate at prevailing traffic speeds and would be controlled by standard traffic signals.

Stations would be constructed at approximately 1-mile intervals along the entire route. There would be 14 stations, three of which would be underground near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard. Entry to the three underground stations would be provided from an entry plaza and portal. The entry portals would provide access to stairs, escalators, and elevators leading to an underground LRT station mezzanine level, which, in turn, would be connected via additional stairs, escalators, and elevators to the underground LRT station platforms

Similar to the Low-Floor LRT/Tram Alternative, the LRT Alternative would require a number of additional elements to support vehicle operations, including an OCS, TPSS, communications and signaling buildings, and an MSF.

Figure 1-5: Build Alternative 4 – LRT Alternative

Source: KOA and ICF International, 2014.

Chapter 2

Regulatory Framework/Methodology

2.1 Regulatory Framework

2.1.1 Federal Regulations

The federal regulations listed below were considered during evaluation of impacts to local and regional air quality.

2.1.1.1 Federal Clean Air Act

The federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS), and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met. The City of Los Angeles is within the South Coast Air Basin (Basin) and, as such, is in an area designated a nonattainment area for certain pollutants that are regulated under the CAA.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that would most substantially affect the development of the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions). Title III (Air Toxics) also has provisions that apply to the development of the proposed project.

Title I provisions were established with the goal of attaining the NAAQS for criteria pollutants. Table 2-1 shows the NAAQS currently in effect for each criteria pollutant. The Los Angeles County portion of the Basin fails to meet national standards for ozone (O_3), particulate matter (PM10 and PM2.5) and lead (Pb); and therefore is considered a federal nonattainment area for those pollutants. The attainment status for each criteria pollutant is also provided in Table 2-1.

2.1.1.2 Transportation Conformity Requirements

The concept of transportation conformity was introduced in the 1977 federal CAA. However, the conformity requirements were made substantially more rigorous with the Clean Air Act Amendments of 1990 (CAAA 1990). Under CAAA 1990, the U.S. Department of Transportation (DOT) cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to an U.S. Environmental Protection Agency– (EPA-) approved SIP for achieving NAAQS goals. CAAA 1990 requires states to address in the SIP how federal standards will be achieved for areas designated as nonattainment areas for the NAAQS. DOT and EPA developed the transportation conformity regulations, which details requirements for determining conformity of transportation plans, programs, and projects (40 CFR 51 and 40 CFR 93).

Table 2-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[1] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Study Area Attainment Status
Ozone (O_3)[2]	1 hour 8 hours	0.09 ppm 0.070 ppm	--[3] 0.070 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic volatile organic compounds (VOC) may also contribute.	Low-altitude ozone is almost entirely formed from ROG or VOC and NO_X in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Federal: Non-attainment State: Non-attainment
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[4] 6 ppm	35 ppm 9 ppm --	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment/ Maintenance State: Attainment
Respirable Particulate Matter (PM10)[2]	24 hours Annual	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ -- [2] (expected number of days above standard ≤1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM10.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Federal: Attainment/ Maintenance State: Non-attainment

Pollutant	Averaging Time	State[1] Standard	Federal[1] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Study Area Attainment Status
Fine Particulate Matter (PM2.5)[2]	24 hours Annual 24 hours (conformity process[5]) Secondary Standard (annual; also for conformity process[5])	-- 12 µg/m^3 -- --	35 µg/m^3 12 µg/m^3 65 µg/m^3 15 µg/m^3 (98th percentile over 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter is in the PM2.5 size range. Many toxic and other aerosol and solid compounds are part of PM2.5.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO$_X$, sulfur oxides (SO$_X$), ammonia, and ROG.	Federal: Non-attainment State: Non-attainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[6] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of stormwater. Part of the “NO$_X$” group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Federal: Attainment/Maintenance State: Non-attainment
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.25 ppm -- 0.04 ppm	0.075 ppm[7] (99th percentile over 3 years) 0.5 ppm[8] 0.14 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, and steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources such as active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment State: Attainment

Pollutant	Averaging Time	State[1] Standard	Federal[1] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Study Area Attainment Status
Lead (Pb)[9]	Monthly Rolling 3-month average	1.5 μg/m³ --	-- 0.15 μg/m³ [10]	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes such as battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	Federal: Non-attainment State: Non-attainment
Sulfate	24 hours	25 μg/m³	--	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources such as volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Federal: n/a State: Attainment
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	--	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources such as volcanic areas and hot springs.	Federal: n/a State: Unclassified
Visibility-Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more at relative humidity less than 70%	--	Reduces visibility. Produces haze. Note: not directly related to the Regional Haze program under the federal CAA, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.	Federal: n/a State: Unclassified

Pollutant	Averaging Time	State[1] Standard	Federal[1] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Study Area Attainment Status
Vinyl Chloride[9]	24 hours	0.01 ppm	--	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Federal: n/a State: Unclassified

Adapted from California Air Resources Board (2013a); California Air Resources Board (2012); and U.S. Environmental Protection Agency (2013a).

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; ppb=parts per billion (thousand million); n/a = not applicable

[1] State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.

[2] Annual PM10 NAAQS revoked October 2006; was 50 $\mu g/m^3$. The 24-hour PM2.5 NAAQS were tightened in October 2006; was 65 $\mu g/m^3$. Annual PM2.5 NAAQS were tightened from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ in December 2012, and the secondary annual standard was set at 15 $\mu g/m^3$.

[3] Prior to June 2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still in use in some areas where 8-hour ozone emission budgets have not been developed, such as the San Francisco Bay area.

[4] Rounding to an integer value is not allowed for the state 8-hour CO standard. A violation occurs at or above 9.05 ppm.

[5] The 65 $\mu g/m^3$ PM2.5 (24-hour) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual PM2.5 standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (July 20, 2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

[6] Final 1-hour NO_2 NAAQS published in the *Federal Register* on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot-spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

[7] EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of September 2012.

[8] Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

[9] The California Air Resources Board (CARB) has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM10 and, in larger proportion, PM2.5. Both CARB and EPA have identified lead and various organic compounds that are precursors to ozone and PM2.5 as toxic air contaminants. There are no exposure criteria for adverse health effects due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

[10] Lead NAAQS are not considered in the transportation conformity analysis.

Failing to submit a SIP that addresses nonattainment or to secure approval could lead to denial of federal funding and permits (in cases where a state-submitted SIP fails to demonstrate achievement of the federal standards, EPA prepares a federal implementation plan).

In addition to the SIP, Section 93.114 of the EPA transportation conformity regulations requires a currently conforming RTP and transportation improvement program (TIP) to be in place at the time of project approval. The RTP and TIP are comprehensive listings of all transportation projects planned for a region over a period of years, usually about 20, that will receive federal funds or be subject to a federally required action, such as a review for effects on air quality. The TIP also lists non-federal, regionally significant projects for information and air quality modeling purposes. The RTP and TIP include projects whose emissions are within the budget planned in the SIP, with the goal of attaining the NAAQS.

Using the projects included in the RTP, an air quality model is run to determine whether the implementation of those projects would conform to emission budgets or other tests showing that federal CAA attainment requirements would be met. If the conformity analysis is successful, regional planning organizations and the appropriate federal agencies, such as FHWA, make the determination that the RTP is in conformity with the SIP for achieving the goals of the NAAQS. Otherwise, the projects in the RTP must be modified until conformity is attained.

If the design and scope of the proposed transportation project are the same as the design and scope described in the RTP, the proposed project is deemed to be a project that meets the regional conformity requirements for purposes of project-level analysis. Conformity with the NAAQS goals of the federal CAA is determined at both the regional and project level. A proposed project must conform at both the regional and project level to be approved.

Typically, a regional transportation conformity determination is made by evaluating whether a project is included in a conforming RTP and/or TIP. Any project listed in an RTP and/or TIP must demonstrate conformity with the SIP because the SIP demonstrates how federal standards will be achieved for the region. The design and scope of the proposed project being evaluated must match the design and scope of the project listed in the RTP and/or TIP. Regional-level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, and particulate matter. Project-level conformity determinations for CO, PM10, and PM2.5 are made to verify that a project would not exacerbate an existing NAAQS violation or create a new exceedance and trigger the requirement for a hot-spot analysis.

Conformity at the project level requires hot-spot analysis if a region is designated a nonattainment or maintenance area for CO and/or particulate matter. Hot-spot analysis is essentially the same, for technical purposes, as a CO or particulate matter analysis performed for NEPA purposes. In general, projects must not cause the CO standard to be violated, and in nonattainment regions, the project must not cause any increase in the number and severity of violations. If known CO or particulate matter violations are located in the project vicinity, the project must include measures to reduce or eliminate the existing violations as well.

In California, the federal EPA has delegated authority to prepare SIPs to the California Air Resources Board (CARB), which, in turn, has delegated that authority to individual air districts and planning entities. SCAG is the designated metropolitan planning agency (MPO) and state Regional Transportation Planning Agency for Los Angeles County. As such, SCAG coordinates the region’s major transportation projects and programs and develops the RTP and FTIP. Previous transportation improvement programs were called Regional Transportation Improvement Programs (RTIPs). The FTIP sets forth SCAG's investment priorities for transit and transit-related improvements, highways and roadways, and other surface transportation improvements in the South Coast region. The FTIP is in accord with EPA's Transportation Conformity Rule as it pertains to attainment of air quality standards in the South Coast area.

2.1.1.3 Mobile-Source Air Toxics

The federal CAA has identified 188 pollutants as being air toxics, which are also known as hazardous air pollutants (HAP). From this list, EPA identified a group of 93 compounds as Mobile-Source Air Toxics (MSATs) in its latest rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (Federal Register [FR], volume 72, No. 37, page 8430) on February 26, 2007. In addition, EPA identified seven priority MSATs:

- acrolein;
- benzene;
- 1,3-butadiene;
- diesel particulate matter/diesel exhaust organic gases;
- formaldehyde;
- naphthalene; and
- polycyclic organic matter.

To address emissions of MSATs, EPA has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines.

The area of air toxics analysis is a relatively new and emerging issue and is an area of continuing research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs are limited. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context. FHWA is preparing guidance as to how mobile-source health risks should factor into project-level decision-making under NEPA. In addition, EPA has not established regulatory concentration targets for the priority MSAT pollutants appropriate for use in the project development process. In light of the recent development regarding MSATs, FHWA has issued interim guidance for the assessment of MSATs in NEPA documents.[1]

2.1.2 State Regulations

Responsibility for achieving the California Ambient Air Quality Standards (CAAQS), which for certain pollutants and averaging periods are more health protective than federal standards, is placed on CARB and local air pollution control districts. State standards, shown earlier in Table 2-1, are to be achieved through district-level air quality management plans that are incorporated into the SIP. Traditionally, CARB has established state air quality standards, maintained oversight authority in air

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[1] Federal Highway Administration. 2016. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. December.

quality planning, developed programs for reducing emissions from motor vehicles, developed air emissions inventories, collected air quality and meteorological data, and approved SIPs developed by the individual air districts.

Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required under CEQA.

2.1.2.1 California Clean Air Act

The California Clean Air Act (California CAA) of 1988 substantially added to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures.

The California CAA focuses on attainment of the state ambient air quality standards and requires designation of attainment and nonattainment areas with respect to these standards. The California CAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan (Clean Air Plan) if the district violates state air quality standards for ozone, CO, Sulfur Dioxide (SO_2), or NO_2. These plans are specifically designed to attain state standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards; CARB is responsible for developing plans and projects that achieve compliance with the state PM10 standards.

The California CAA requires the state air quality standards to be met as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment deadlines. Instead, it establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

The California CAA emphasizes the control of indirect and area-wide sources of air pollutant emissions. The California CAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and establish Transportation Control Measures (TCMs). The California CAA does not define the terms indirect [sources] and area-wide sources. However, Section 110 of the federal CAA defines an indirect source as

> ...a facility, building, structure, installation, real property, road, or highway that attracts, or may attract, mobile sources of pollution. Such terms include parking lots, parking garages, and other facilities subject to any measure for management of parking supply....

TCMs are defined in the California CAA as “any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions.”

2.1.3 Local Regulations

2.1.3.1 South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, and the non-desert portions of Los Angeles County, San Bernardino County, and Riverside County, as well as the Coachella Valley portions of Riverside County. The Basin is a subregion of the SCAQMD jurisdiction. Although air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

SCAQMD has adopted a series of air quality management plans (AQMPs) to meet the CAAQS and NAAQS. These plans require, among other emissions-reducing activities, control technology for existing sources, control programs for area sources and indirect sources, a SCAQMD permitting system to ensure no net increase in emissions from any new or modified (i.e., previously permitted) emission sources, and transportation control measures. The 2016 AQMP was adopted on March 3, 2017.[2] In addition, SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, SCAQMD Rule 403 requires implementing the best available fugitive dust control measures during active operations capable of generating fugitive dust emissions from onsite earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

2.1.3.2 Regional Comprehensive Plan

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties. SCAG addresses regional issues relating to transportation, economy, community development, and environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan (RCP) for the SCAG region, which includes Growth Management and Regional Mobility chapters, which form the basis for the land use and transportation components of the AQMP. These chapters are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

2.2 Methodology

The proposed project would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.

2.2.1 Evaluation of Construction-Period Impacts

Project construction would be a source of fugitive dust and exhaust emissions that could have temporary effects on local air quality. Such emissions would result from earthmoving and the use of heavy equipment as well as land clearing, ground excavation, cut-and-fill operations, and the re-construction of roadways. Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the proposed project would most likely be caused by construction traffic in temporary construction areas.

Construction emissions are quantified using the California Emissions Estimator Model (CalEEMod), which has been approved by the SCAQMD for emissions estimation within the Basin. To determine the significance of potential construction air quality impacts, the calculated daily emissions were measured against applicable SCAQMD local and regional significance thresholds.

The durations of construction used for the purposes of calculating construction-period emissions are shorter or equal to those discussed in the February 2015 Construction Methods and Impacts Report. Although they may differ, the compressed construction schedule for the purposes of calculating

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[2] South Coast Air Quality Management District. 2016. *Final 2016 Air Quality Management Plan.*

emissions represents a conservative approach in that emissions are concentrated into a shorter timeframe, thereby yielding higher estimates of single-day maximums. Actual single-day emissions could be less than those identified in Chapter 4, but this DEIS/DEIR assumes a “worst-case” scenario, with construction occurring under a compressed schedule. If construction actually occurs under a longer schedule, single-day emissions would be less than the levels analyzed for this DEIS/DEIR.

2.2.2 Evaluation of Operations-Period Impacts

The primary operational emissions associated with the proposed project would be CO, PM10 and PM2.5, ozone precursors (reactive organic gases [ROG] and nitrogen oxides [NO_X]), and carbon dioxide (CO_2) emitted as vehicle exhaust. In addition to emissions from vehicle exhaust, PM10 and PM2.5 can result from vehicular travel on paved roads (entrained dust). With respect to criteria pollutants, the evaluation of transportation conformity is done by affirming that the proposed project is included in the currently conforming RTP and FTIP modeling lists. In addition, estimates of criteria pollutant exhaust emissions (ozone precursors, CO, PM10, and PM2.5) are quantified by using CT-EMFAC2014 emissions factors. Re-entrained dust emissions are calculated using the emission factor equation found in the EPA’s Compilation of Air Pollutant Emission Factors, AP-42, Section 13.2.1.[3]

Each of the build alternatives was compared against existing conditions, which “normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant,” under Section 15125(a) of the CEQA Guidelines. Because Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents the worst case for air quality relative to any of the other “Existing Plus Project” scenarios. Thus, to evaluate, analyze, and compare each of the alternatives, the qualitative analysis for the other build alternatives extrapolates from the quantitative analysis for the Existing with Alternative 3 scenario. In addition, emissions from each build alternative have been evaluated against the No-Build Alternative for a future baseline (2040) analysis.

The potential impacts related to localized CO hot-spot emissions are evaluated following the methodology prescribed in the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) developed for the California Department of Transportation (Caltrans) by the Institute of Transportation Studies at the University of California, Davis.[4] The potential impacts related to localized particulate matter were evaluated using the EPA and FHWA’s guidance manual, Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.[5] MSAT emissions were evaluated using FHWA’s Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents[6] and California-specific guidance from Caltrans.[7,8]

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[3] U.S. Environmental Protection Agency. 2013b. *Compilation of Air Pollutant Emission Factors*. AP-42, Section 13.2.1.

[4] Garza, V., P. Graney, D. Sperling. 1997. *Transportation Project-level Carbon Monoxide Protocol.* Developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis.

[5] U.S. Environmental Protection Agency and Federal Highway Administration. 2010. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.*

[6] Federal Highway Administration. 2012. *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. December.

[7] Brady, Mike. January 6, 2010—email to ICF regarding the analysis of MSATs in Caltrans documents.

[8] California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* Available: <http://www.arb.ca.gov/ch/landuse.htm>. April.

2.2.3 Transportation Conformity

2.2.3.1 Regional Conformity

The proposed project is located in an extreme nonattainment area for the federal eight-hour ozone standard (Table 2-1). The "extreme nonattainment" designation differs from other nonattainment designations because the Basin has greater pollutant concentrations than other nonattainment areas and therefore has been granted a longer compliance schedule under the federal CAA. Because ozone and its precursors are regional pollutants, the proposed project must be evaluated under the transportation conformity requirements described earlier. An affirmative regional conformity determination must be made before the proposed project can proceed. A determination of conformity can be made if the proposed project is described, as currently proposed, in an EPA-approved RTP and FTIP.

2.2.3.2 Project-level Conformity

Carbon Monoxide

The proposed project is located in an attainment/maintenance area for the federal CO standard (Table 2-1). Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on the CO Protocol. The CO Protocol details a qualitative step-by-step procedure to determine whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO. If the screening procedure reveals that such a potential may exist, then the CO protocol details a quantitative method to ascertain project-related CO impacts.

Particulate Matter

The proposed project is located in an attainment/maintenance area for the federal PM10 standard and a nonattainment area for the federal PM2.5 standard (Table 2-1). On March 10, 2006, EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality effects in PM2.5 and PM10 nonattainment and maintenance areas. The final rule requires PM10 and PM2.5 hot-spot analyses to be performed for any Project of Air Quality Concern (POAQC) or any other project identified by the PM2.5 SIP as a localized air quality concern.

In December 2010, FHWA and EPA issued a guidance document titled *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.*[9] POAQCs are certain highway and transit projects that involve significant levels of diesel traffic or any projects identified in the PM2.5 or PM10 SIP as localized air quality concerns.

Because the proposed project would be located in an area classified as a nonattainment area for the federal PM2.5 standard, a determination must be made as to whether it would result in a PM10 or PM2.5 hot spot. This determination will be made by the SCAG Transportation Conformity Working Group (TCWG).

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[9] U.S. Environmental Protection Agency and Federal Highway Administration. 2010. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.*

2.3 Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect. The significance thresholds, as defined by federal and state regulations are described below.

2.3.1 Federal

NEPA does not include specific significance thresholds. According to the *Council on Environmental Quality (CEQ) Regulations for Implementing NEPA*, the determination of significance under NEPA is based on context and intensity.[10] Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected, the proximity of a project to sensitive resources, and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

The state CEQA thresholds (described below) encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. Therefore, the CEQA thresholds listed below also apply to NEPA for the project and its alternatives.

2.3.2 State

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are the discretion of the Lead Agency and are the levels at which the Lead Agency finds the effects of the project to be significant.[11]

2.3.2.1 State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for deterring impact significance.

As outlined in Appendix G, a project may have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality management plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

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[10] Code of Federal Regulations. *CEQ – Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR Part 1508, Terminology and Index.*

[11] State of California, Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance.* September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 21, 2013.

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The State CEQA Guidelines also state that the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the determinations above.

Based on the SCAQMD's regulatory role in the Basin, the significance thresholds and analysis methodologies outlined in the SCAQMD *CEQA Air Quality Handbook* (as updated per their website), *Localized Significance Threshold Methodology for CEQA Evaluations* and *Particulate Matter (PM)2.5 Significance Thresholds and Calculation Methodology* guidance documents were used in evaluating project impacts.[12,13]

Construction Emissions

According to criteria set forth in the SCAQMD *CEQA Air Quality Handbook, Localized Significance Threshold Methodology for CEQA Evaluations, and Particulate Matter (PM)2.5 Significance Thresholds and Calculation Methodology* guidance documents, the project would have a significant impact on construction emissions if any of the following were to occur:

- Regional emissions from both direct and indirect sources exceed any of the following SCAQMD prescribed threshold levels: (1) 75 pounds a day for ROG, (2) 100 pounds per day for NO_X, (3) 550 pounds per day for CO, (4) 150 pounds per day for PM10 or SO_X, and (5) 55 pounds per day for PM2.5; or
- Localized emissions from on-site construction equipment and site disturbance activity exceed any of the following SCAQMD-prescribed threshold levels: (1) 80 pounds per day for NO_X, (2) 498 pounds per day for CO, (3) 5 pounds per day for PM10, and (4) 3 pounds per day for PM2.5.[14]

Operations Emissions

According to criteria set forth in the SCAQMD *CEQA Air Quality Handbook*, the project would have a significant impact with regard to operational emissions if:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 55 pounds a day for ROG, (2) 55 pounds per day for NO_X, (3) 550 pounds per day for CO, (4) 150 pounds per day for PM10 or SO_X, and (5) 55 pounds per day for PM2.5 (South Coast Air Quality Management District 1993 and 2006);

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[12] South Coast Air Quality Management District. 2003. *Localized Significance Threshold Methodology for CEQA Evaluations*. June.

[13] South Coast Air Quality Management District. 2006. *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology.* October.

[14] Derived from SCAQMD Localized Significance Threshold Tables—SRA 7 (East San Fernando Valley), 1-acre site, 25-meter receptor distance.

- Localized emissions from on-site sources exceed any of the following SCAQMD prescribed threshold levels: (1) 80 pounds per day for NO_X, (2) 498 pounds per day for CO, (3) 1 pounds per day for PM10, and (4) 1 pounds per day for PM2.5;[15] or
- The project would cause an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9 ppm, respectively, at an intersection or roadway within 0.25 mile of a sensitive receptor.[16]

The SCAQMD thresholds are used as the basis for the determination of significance for operational emissions.

Toxic Air Contaminant Emissions

According to guidelines provided in the SCAQMD *CEQA Air Quality Handbook*, the project would have a significant impact from toxic air contaminants (TACs) if:

- On-site stationary sources emit carcinogenic or TACs that individually or cumulatively exceed the maximum individual cancer risk of ten in one million (1.0 x 10-5) or an acute or chronic hazard index of 1.0;
- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials, posing a threat to public health and safety; or
- The project would be occupied primarily by sensitive individuals within 0.25 mile of any existing facility that emits TACs, which could result in a health risk from pollutants identified in District Rule 1401.[17]

2.3.2.2 City of Los Angeles CEQA Thresholds Guide

The Los Angeles CEQA Thresholds Guide identifies the SCAQMD significance criteria, described above, to determine impacts.

2.4 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Sensitive receptors within the project vicinity include multi-family residential land uses and schools located along the routes. Proposed construction activities would occur adjacent to sensitive receptors in some instances; for analysis purposes, however, a 25-meter receptor distance was used in the evaluation of localized impacts, because the SCAQMD localized significance threshold for a 25-meter receptor distance is the most conservative published threshold. The 25-meter receptor distance allows for the lowest emissions and is therefore most protective of health.

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[15] Ibid.

[16] Where the CO standard is exceeded at the intersection, a project would result in a significant impact if the incremental increase due to the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard or 0.45 ppm for the 8-hour CO standard.

[17] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. November.

Chapter 3
Affected Environment/Existing Conditions

3.1 Description of Relevant Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as “criteria air pollutants” and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. CO, ROGs, NO_X, SO_2, and most fine particulate matter (i.e., PM10 and PM2.5), including Pb and fugitive dust, are primary air pollutants. Of these, CO, SO_2, PM10, and PM2.5 are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. O_3 and NO_2 are the principal secondary pollutants. The proposed project is located within the Los Angeles County portion of the Basin that fails to meet federal standards for O_3, PM2.5, and Pb and therefore is considered a federal nonattainment area for those pollutants.

Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.[18]

Reactive Organic Gases (ROG) are compounds made up primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG but rather by reactions of ROG to form secondary pollutants such as ozone.[19]

Nitrogen Oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Nitrogen Dioxide (NO_2) is a by-product of fuel combustion. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in

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[18] South Coast Air Quality Management District. 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*.

[19] *Ibid*.

bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM10. NO_X are also precursors to the formation of both O_3 and PM2.5.[20,21]

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At high concentrations SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. A primary source of SO_2 emissions is high sulfur content coal. Gasoline and natural gas have very low sulfur content and hence do not release significant quantities of SO_2.[22]

Particulate Matter (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized. Inhalable course particles, or PM10, include the particulate matter with a diameter of 10 microns (10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or PM2.5, have a diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Both PM10 and PM2.5 may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.[23]

Fugitive dust primarily poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the particulates suspended in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (much like sandblasting).[24]

Ozone (O_3), or smog, is one of a number of substances called photochemical oxidants that are formed when ROG and NO_X (both by-products of the internal combustion engine) react with sunlight. O_3 is present in relatively high concentrations in the Basin, and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, O_3 has been tied to crop damage, typically in the form of stunted growth and premature death. O_3 can also act as a corrosive, resulting in property damage such as the degradation of rubber products.[25]

3.1.1 Toxic Air Contaminants

With respect to criteria pollutants, federal and state ambient air quality standards (AAQS) represent the exposure level (with an adequate margin of safety) deemed safe for humans. No AAQS exist for TACs because there is no exposure level deemed safe for humans. Pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic

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[20] *Ibid.;* South Coast Air Quality Management District. 2007 *Air Quality Management Plan.*
[21] South Coast Air Quality Management District. 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.*
[22] Ibid.
[23] Ibid.
[24] Ibid.
[25] Ibid.

health risks. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (AB 1807, CARB 1999) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, CARB 1999) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM10 emissions and the associated health risk by 85% by 2020.

3.2 Regional Setting

The project site is located within the Basin, an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) and human influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The greatest air pollution impacts throughout the Basin occur from June through September. These are attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing, which frequently reduce pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California.

The SCAQMD has recently completed the Multiple Air Toxics Exposure Study IV (MATES IV), which was an ambient air monitoring and evaluation study conducted in the Basin.[26] MATES IV was a follow on to previous air toxics studies in the Basin and is part of the SCAQMD Governing Board

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[26] South Coast Air Quality Management District. 2014. *Draft Multiple Air Toxics Exposure Study IV*. October.

Environmental Justice Initiative. Compared to previous studies of air toxics in the Basin, MATES IV found a decreasing risk for air toxics exposure, with the population weighted risk down by 57% from the analysis in MATES III. While there has been improvement in air quality regarding air toxics, the risks are still unacceptable and are higher near sources of emissions such as ports and transportation corridors. Diesel particulate matter continues to dominate the risk from air toxics. The highest risks are found near the port area, an area near central Los Angeles, and near transportation corridors. The results from the MATES IV study underscore that a continued focus on reduction of toxic emissions, particularly from diesel engines, is needed to reduce air toxics exposure.

The MATES IV study concluded that the average carcinogenic risk throughout the Basin, attributed to TACs, is approximately 418 in 1 million. As the MATES-IV study was being prepared, the California Office of Environmental Health Hazard Assessment (OEHHA) adopted revised methods for estimating cancer risks, which resulted in a Basin-wide cancer risk of 1,023 in 1 million. This revised figure represents a change in the methodology for risk calculations, taking into account age sensitivity factors and breathing rates to a greater extent than previous efforts. Mobile sources (e.g., cars, trucks, trains, ships, aircraft) represent the greatest contributors, at 90%. About 68% of all risk is attributed to diesel particulate matter emissions.

3.3 Local Climate

Local climate conditions are considered because they affect the dispersion and chemical reactions of air pollutants. Data from the Western Regional Climate Center's San Fernando climate monitoring station were used to characterize the eastern project vicinity climate conditions because it is nearest to the project alignment. The average project study area summer (August) high and low temperatures are 92.2 degrees Fahrenheit (°F) and 56.3°F, respectively, while the average winter (January) high and low temperatures are 65.0°F and 42.8°F, respectively. The average annual rainfall is 17.7 inches.[27]

The wind monitoring station located nearest to the project site is in Reseda; therefore, data from the Reseda wind monitoring station was used to characterize project study area wind conditions. Wind patterns (provided in the appendix to this report) in the project vicinity display a multi directional flow, with winds primarily from the east–southeast, at an average speed of 4 miles per hour. Calm wind conditions are present 12% of the time.

3.4 Project Vicinity Mobile-Source Emissions

The estimate of daily vehicle miles traveled (VMT) that occurs within the project vicinity under the existing/baseline condition is approximately 5.3 million. The estimate of local mobile source emissions generated this existing level of VMT is presented below in Table 3-1.

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[27] Western Regional Climate Center. 2013. *Los Angeles Area, California Climate Summaries.* San Fernando, California (047759). Available: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5115>. Accessed: July 29, 2013.

Table 3-1: Existing Project Vicinity Mobile-Source Emissions in Pounds per Day

Criteria Pollutants	
Reactive Organic Gas	2,378
Carbon Monoxide	26,449
Nitrogen Oxides	8,048
PM10	751
PM2.5	382
Mobile-Source Air Toxics	
Benzene	50
Acrolein	2
Acetaldehyde	26
Formaldehyde	64
Butadiene	8
Naphthalene	3
Polycyclic Organic Matter	1
Diesel Particulate Matter	130
Diesel Organic Gas	270

Source: Generated by ICF using project traffic data and EMFAC2011 emissions factors, 2013.

3.5 Local Ambient Pollutant Concentrations

SCAQMD has divided the Basin into air monitoring areas and maintains a network of air quality monitoring stations located throughout the Basin. The project site is located in the Eastern San Fernando Valley Monitoring Area (i.e., Source Receptor Area [SRA] Number 7), which is served by the Burbank-West Palm Avenue monitoring station. Monitoring data is presented below in Table 3-2.

Table 3-2: Air Quality Data from Burbank-West Palm Avenue Station (CARB 70069)

Pollutant Standards	2013	2014	2015
Ozone (O_3)			
State Standard (1-hour Average = 0.09 ppm); National Standard (8-hour Average = 0.075 ppm)			
Maximum Concentration 1-hour Period (ppm)	0.110	0.091	N/A
Maximum Concentration 8-hour Period (ppm)	0.083	0.079	N/A
Days State 1-hour Standard Exceeded	4	0	N/A
Days National 8-hour Standard Exceeded	6	1	N/A
Nitrogen Dioxide (NO_2)			
State Standard (1-hour Average = 0.18 ppm)			
Maximum 1-hour Concentration	0.072	0.073	N/A
Days State Standard Exceeded	0	0	N/A
Suspended Particulates (PM10)			
State Standard (24-hour Average = 50 µg/m^3); National Standard (24-hour Average = 150 µg/m^3)			
Maximum State 24-hour Concentration	51	58	N/A
Maximum National 24-hour Concentration	53	68	N/A
Days Exceeding State Standard	1	1	N/A
Days Exceeding National Standard	0	0	N/A
Suspended Particulates (PM2.5)			
National Standard (24-hour Average = 35 µg/m^3)			
Maximum 24-hour Concentration	45.1	64.6	N/A
Days Exceeding National Standard	4	2	N/A

Notes:
Monitoring data summaries provided in the appendix.
ppm = parts per million
µg/m^3 = microgram per cubic meter
N/A = data not available; the Burbank-West Palm Avenue Station closed June 30, 2014.
Source: California Air Resources Board, 2016.

Using existing (2013) traffic data, local CO concentrations were calculated at the most congested intersections within the project vicinity. Of the 83 intersections that were evaluated for project traffic impacts, 14 were selected for the CO hot-spot assessment. Intersections that currently operate at congested levels of service (LOS) D, E, and/or F during either the AM or PM peak hour were modeled. If the intersection was LOS D, E, or F during either the AM or PM peak hour, that intersection was modeled for both periods. The local CO concentrations are presented below in Table 3-3. As shown therein, 1-hour and 8-hour concentrations are below the respective CAAQS of 20 parts per million (ppm) and 9.0 ppm, respectively, at all intersection locations.

Table 3-3: Baseline Conditions (Year 2013) at Congested Intersections—Local Area Carbon Monoxide Concentrations

Intersection	Peak Period[a]	Maximum 1-Hour Concentration (ppm)[b]	Maximum 8-Hour Concentration (ppm)[e]
San Fernando Rd & Paxton St	AM	7.9	6.5
	PM	8.1	6.6
Laurel Canyon Blvd & Van Nuys Blvd	AM	8.2	6.7
	PM	8.2	6.7
Arleta Ave & Van Nuys Blvd	AM	8.1	6.6
	PM	8.2	6.7
Van Nuys Blvd & Nordhoff St	AM	8.0	6.6
	PM	8.2	6.7
Van Nuys Blvd & Chase St	AM	8.0	6.6
	PM	7.7	6.3
Van Nuys Blvd & Saticoy St	AM	8.2	6.7
	PM	8.2	6.7
Van Nuys Blvd & Sherman Way	AM	7.9	6.5
	PM	8.2	6.7
Van Nuys Blvd & Vanowen St	AM	8.0	6.6
	PM	8.2	6.7
Van Nuys Blvd & Burbank Blvd	AM	8.4	6.8
	PM	8.7	7.0
Van Nuys Blvd & Magnolia Blvd	AM	8.3	6.8
	PM	8.2	6.7
Van Nuys Blvd & Ventura Blvd	AM	8.0	6.6
	PM	8.0	6.6
Sepulveda Blvd & Burbank Blvd	AM	8.5	6.9
	PM	8.6	7.0
Sepulveda Blvd & Magnolia Blvd	AM	7.8	6.4
	PM	7.9	6.5
Sepulveda Blvd & Ventura Blvd	AM	7.9	6.5
	PM	8.7	7.0

Notes: ppm = parts per million
Source: ICF Caline4 and EMFAC Emissions Modeling, SCAQMD 2003, KOA 2013.

3.6 Existing Health Risk in Surrounding Area

According to the most current SCAQMD inhalation cancer risk data (Mobile Air Toxics Exposure Study, MATES IV Carcinogenic Interactive Map), the project study area is within a cancer risk zone of approximately 640 to 1,040 cases per 1 million people.[28] This is largely due to the project study area's proximity to Interstate 405, Interstate 5, State Route 210 and State Route 118. The alignment travels through 11 different areas that have been mapped by MATES-IV; the alignment travels through only one area that has a higher cancer risk than the Basin-wide average. For comparison, the average cancer risk in the Basin is 1,023 cases per 1 million people. The purpose of the comparison is to demonstrate that existing risks in the study area are not substantially different from the Basin-wide average. The alignment runs through 11 different areas (from the MATES-IV interactive map), each with its own cancer risk. Only one of the 11 areas through which the alignment runs would have a risk that would be greater than the Basin-wide average cancer risk.

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[28] South Coast Air Quality Management District. n.d. *Draft Mobile Air Toxics Exposure Study, MATES IV, Carcinogenic Risk Interactive Map. Available*: http://www3.aqmd.gov/webappl/OI.Web/OI.aspx?jurisdictionID=AQMD.gov&shareID=73f55d6b-82cc-4c41-b779-4c48c9a8b15b. Accessed: July 11, 2016.

Chapter 4

Environmental Consequences/ Environmental Impacts

4.1 Operational Impacts

4.1.1 No-Build Alternative

The No-Build Alternative is the condition that would result if the proposed project did not move forward. This alternative, however, does not preclude the construction of other future improvements or general maintenance to improve the operation of the facility or incorporate safety enhancements. Describing and analyzing a No-Build Alternative helps decision-makers and the public compare the impacts of approving the proposed project with the consequences of not approving the proposed project.

4.1.1.1 Regional Criteria Pollutant Emissions

The No-Build Alternative would not include any project improvements and would not generate any operational air quality impacts. However, under the No-Build Alternative, emissions would continue to be generated in the future by motor vehicles operating in the study area. The regional VMT and travel speed profile predicted to occur under the No-Build Alternative (i.e., 2012 and 2040 baseline scenarios) would generate the regional emissions estimates presented in Table 4-1. The emissions of each of the build alternatives have been evaluated against the No-Build Alternative (i.e., future 2040 baseline) emissions (see Table 4-1) to determine the impacts of the build alternatives under CEQA and NEPA.

Table 4-1: No-Build Alternative Regional Criteria Pollutant Emissions

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
2012 No Build	187,764	2,223,083	707,749	63,339	33,706
2040 No Build	60,862	530,143	168,455	62,523	25,606

Source: ICF International, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.1.2 Localized Criteria Pollutant Emissions

Within an urban setting, vehicle exhaust is the primary source of localized pollutant concentrations. The primary localized pollutants of concern are CO and PM. Discussions of each pollutant are provided below.

Carbon Monoxide Hot-spot Analysis

The highest CO concentrations are generally found close to congested intersections. Local CO concentrations are a function of intersection LOS. Higher CO concentrations are found at poor LOS intersection locations (i.e., LOS D through F). Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., congested intersection) increases. For purposes of providing a conservative worst-case impact analysis, CO concentrations are typically analyzed at the most congested intersection locations. If impacts are less than significant at congested intersection locations, impacts would also be less than significant at more distant sensitive receptor locations.

The No-Build Alternative proposes no project improvements and, thus, would not result in any CO impacts. However, No-Build Alternative (i.e., future 2040 baseline) conditions provide the basis against which to compare the proposed build alternatives. Specifically, the potential for local traffic redistribution to occur as a result of improvements under the build alternatives and could result in changes in LOS and delay. As a consequence, in the discussions for the build alternatives below, the intersection LOS and delay statistics for the build alternatives have been compared to No-Build Alternative (future year 2040 baseline) conditions to identify intersections where LOS and delay would worsen. Identified intersection locations have been evaluated for local CO impacts under each build alternative discussion below. No-Build Alternative intersection LOS and delay information is provided in Table 4-2.

Particulate Matter Hot-spot Analysis

EPA specifies in 40 CFR 93.123(b)(1) that only “projects of air quality concern” are required to undergo a PM2.5 and PM10 hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM2.5 SIP as a localized air quality concern. Because the No-Build Alternative is not considered to be a “project” under CEQA or NEPA, no evaluation of the impacts of the No-Build Alternative is required.

Table 4-2: No-Build Alternative Intersection LOS and Delay Statistics

Study Intersections		Jurisdiction	AM Peak Hour		PM Peak Hour	
			Delay (secs)	LOS	Delay (secs)	LOS
1	San Fernando Rd & Astoria St	Los Angeles	4.2	A	4.7	A
2	San Fernando Rd & Hubbard St	San Fernando	22.6	C	45.7	D
3	Truman St & Hubbard St	San Fernando	45.3	D	72.2	E
4	San Fernando Rd & Workman St	San Fernando	8.3	A	11.5	B
5	Truman St & Workman St	San Fernando	4.7	A	8.1	A
6	San Fernando Rd & San Fernando Mission Blvd	San Fernando	8.1	A	51.4	D
7	Truman St & San Fernando MissionBlvd	San Fernando	14.4	B	30.1	C
8	San Fernando Rd & Maclay Ave	San Fernando	12.6	B	19.9	B
9	Truman St & Maclay Ave	San Fernando	87.6	F	122.8	F
10	San Fernando Rd & Brand Blvd	San Fernando	13.5	B	34.8	C
11	Truman St & Brand Blvd	San Fernando	117.3	F	73.0	E
12	San Fernando Rd & Wolfskill St	San Fernando	8.0	A	8.2	A
13	Truman St & Wolfskill St	San Fernando	36.4	D	26.2	C
14	San Fernando Rd & Truman St	San Fernando	1.0	A	1.0	A
15	San Fernando Rd & Desmond St	Los Angeles	31.1	C	196.3	F
16	San Fernando Rd & SR-118 WB on-off Ramps	Los Angeles	35.4	D	42.3	D
17	San Fernando Rd & Paxton St	Los Angeles	99.7	F	76.6	E
18	San Fernando Rd & SR-118 EB on-off Ramps	Los Angeles	47.3	D	27.0	C
19	San Fernando Rd & Van Nuys Blvd	Los Angeles	100.4	F	128.9	F
20	Telfair Ave & Van Nuys Blvd	Los Angeles	11.6	B	12.3	B
21	Kewen Ave & Van Nuys Blvd	Los Angeles	5.9	A	4.8	A
22	Haddon Ave & Van Nuys Blvd	Los Angeles	8.0	A	14.6	B
23	Laurel Canyon Blvd & Van Nuys Blvd	Los Angeles	157.2	F	124.0	F
24	Bartee Ave & Van Nuys Blvd	Los Angeles	17.1	B	11.7	B
25	Arleta Ave & Van Nuys Blvd	Los Angeles	65.2	E	75.1	E
26	Beachy Ave & Van Nuys Blvd	Los Angeles	14.2	B	10.7	B
27	Woodman Ave & Van Nuys Blvd	Los Angeles	40.0	D	50.3	D
28	Van Nuys Blvd & Plummer St	Los Angeles	32.9	C	38.9	D
29	Van Nuys Blvd & Tupper St	Los Angeles	7.5	A	3.5	A
30	Van Nuys Blvd & Nordhoff St	Los Angeles	72.0	E	76.7	E
31	Van Nuys Blvd & Rayen St	Los Angeles	6.1	A	17.5	B
32	Van Nuys Blvd & Parthenia St	Los Angeles	11.9	B	11.9	B
33	Van Nuys Blvd & Parthenia St/Vesper Ave	Los Angeles	25.4	C	49.4	D
34	Van Nuys Blvd & Chase St	Los Angeles	23.7	C	72.2	E
35	Van Nuys Blvd between Chase St & Roscoe Blvd	Los Angeles	3.3	A	11.9	B
36	Van Nuys Blvd & Roscoe Blvd	Los Angeles	52.9	D	53.8	D
37	Van Nuys Blvd & Titus St	Los Angeles	11.9	B	11.4	B
38	Van Nuys Blvd & Lanark St	Los Angeles	29.4	C	33.0	C
39	Van Nuys Blvd & Blythe St	Los Angeles	18.6	B	20.1	C
40	Van Nuys Blvd & Arminta St	Los Angeles	14.6	B	24.8	C

Study Intersections		Jurisdiction	AM Peak Hour		PM Peak Hour	
			Delay (secs)	LOS	Delay (secs)	LOS
41	Van Nuys Blvd & Keswick St	Los Angeles	21.6	C	24.5	C
42	Van Nuys Blvd & Saticoy St	Los Angeles	92.4	F	128.0	F
43	Van Nuys Blvd & Valerio St	Los Angeles	15.5	B	23.6	C
44	Van Nuys Blvd & Sherman Way	Los Angeles	57.5	E	120.3	F
45	Van Nuys Blvd & Vose St	Los Angeles	13.3	B	18.3	B
46	Van Nuys Blvd & Hartland St	Los Angeles	1.2	A	4.0	A
47	Van Nuys Blvd & Vanowen St	Los Angeles	70.4	E	89.3	F
48	Van Nuys Blvd & Kittridge St	Los Angeles	5.4	A	4.9	A
49	Van Nuys Blvd & Haynes St	Los Angeles	4.4	A	3.5	A
50	Van Nuys Blvd & Hamlin St	Los Angeles	4.1	A	2.7	A
51	Van Nuys Blvd & Gilmore St	Los Angeles	3.1	A	2.9	A
52	Van Nuys Blvd & Victory Blvd	Los Angeles	35.2	D	20.7	C
53	Van Nuys Blvd & Friar St	Los Angeles	1.6	A	3.2	A
54	Van Nuys Blvd & Sylvan St	Los Angeles	3.8	A	4.7	A
55	Van Nuys Blvd & Erwin St	Los Angeles	2.0	A	1.5	A
56	Van Nuys Blvd & Delano St	Los Angeles	3.4	A	4.3	A
57	Van Nuys Blvd & Calvert St	Los Angeles	3.8	A	4.1	A
58	Van Nuys Blvd & Metro Orange Line Busway	Los Angeles	1.0	A	0.9	A
59	Van Nuys Blvd & Aetna St	Los Angeles	2.7	A	6.0	A
60	Van Nuys Blvd & Oxnard St	Los Angeles	45.9	D	55.5	E
61	Van Nuys Blvd & Hatteras St	Los Angeles	2.3	A	3.5	A
62	Van Nuys Blvd & Burbank Blvd	Los Angeles	149.9	F	104.9	F
63	Van Nuys Blvd & Clark St	Los Angeles	17.4	B	3.6	A
64	Van Nuys Blvd & Magnolia Blvd	Los Angeles	58.4	E	80.9	F
65	Van Nuys Blvd & Addison St	Los Angeles	5.3	A	14.7	B
66	Van Nuys Blvd & Huston St	Los Angeles	10.8	B	9.7	A
67	Van Nuys Blvd & Riverside Dr	Los Angeles	17.0	B	42.0	D
68	Van Nuys Blvd & WB 101 On-Off Ramps	Los Angeles	22.1	C	24.5	C
69	Van Nuys Blvd & EB 101 On-Off Ramps	Los Angeles	20.6	C	26.3	C
70	Van Nuys Blvd & Hortense St	Los Angeles	4.0	A	6.5	A
71	Van Nuys Blvd & Milbank St	Los Angeles	3.8	A	6.9	A
72	Van Nuys Blvd & Moorpark St	Los Angeles	21.2	C	39.1	D
73	Van Nuys Blvd & Ventura Blvd	Los Angeles	29.0	C	41.0	D

Source: LADOT, KOA, 2014.

4.1.1.3 Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under the No-Build Alternative (i.e., future 2040 baseline conditions) would generate the regional MSAT emissions estimates presented in Table 4-3. Build alternative MSAT emissions will be evaluated (see discussions below for Alternatives 1 to 4) against these No-Build Alternative (future 2040 baseline conditions) MSAT emissions to determine the build alternatives' impacts under CEQA and NEPA.

Table 4-3: No-Build Alternative MSAT Emissions

Pollutant Name	Daily Emissions
	Pounds per Day[29]
Benzene	1,302
Acrolein	39
Acetaldehyde	1,053
Formaldehyde	2,379
Butadiene	196
Naphthalene	75
POM	38
Diesel PM	497
DEOG	12,356
Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.	

4.1.2 TSM Alternative

Air quality impacts evaluated under the TSM Alternative considers the existing plus project regional VMT and local traffic circulation scenario that incorporates bus service enhancements for Metro Rapid Line 761 and Local Line 233 applied to baseline roadway configurations.

4.1.2.1 Regional Criteria Pollutant Emissions

Under the TSM Alternative, the existing Metro Division 15 MSF would be used to support bus service enhancements without major modifications; therefore, no increase in criteria pollutant emissions from stationary sources would occur.

With respect to mobile-source emissions, operation of the TSM Alternative would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4-12, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 no-build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3, relative to the other build alternatives, Alternative 3 represents a worst-case scenario with respect to traffic flow. By extension, traffic operations under the TSM Alternative would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 TSM Alternative scenario would be no more than those identified in Table 4-12.

The proposed project's requirement to demonstrate transportation conformity would ensure that project emissions would be accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 TSM Alternative scenario and operational emissions would be accounted for in the SIP, impacts would be less than significant under CEQA and minor adverse under NEPA.

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[29] It should be noted that there are quantitative thresholds for MSATs, just as there are for criteria pollutants. This analysis follows FHWA guidance by quantifying project impacts with respect to MSATs and then making a determination based on the relative contribution to an issue. In cases where MSAT emissions would be more substantial than those of this project, a health risk assessment would be conducted.

As shown in Table 4-4, regional criteria pollutant emissions under the 2040 TSM Alternative scenario would not exceed any of the SCAQMD thresholds for criteria pollutants.

Table 4-4: TSM Alternative Regional Criteria Pollutant Emissions

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
2040 TSM	60,870	530,155	168,480	62,523	25,606
2040 No Build	60,862	530,143	168,455	62,523	25,606
Net Project Emissions	8	12	25	(< 1)	< 1
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	No	No	No	No	No

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.2.2 Localized Criteria Pollutant Emissions

Traffic redistribution effects anticipated to occur under the TSM Alternative would be negligible. As such, there would be no material change in intersection traffic volumes and peak-hour LOS occurring under the TSM Alternative when compared to the No-Build Alternative. Since localized emissions concentrations are a function of traffic volumes and peak-hour LOS, no meaningful change in localized pollutant concentrations are anticipated to occur under the TSM Alternative when compared to the No-Build Alternative. Impacts, if they occur, would be less than significant under CEQA and minor adverse under NEPA. No mitigation measures are necessary.

4.1.2.3 Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under the TSM Alternative would generate the regional MSAT emissions estimates presented in Table 4-5. As shown therein, there would be no material change in regional MSAT pollutant emissions under the TSM Alternative when compared to the No-Build Alternative. Moreover, EPA 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 EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emissions rate for the priority MSAT emissions from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-5: TSM Alternative MSAT Emissions

Pollutant Name	Daily Emissions (pounds per day)		
	TSM Alternative	No-Build Alternative	Net Emissions
Benzene	1,302	1,302	< 1
Acrolein	39	39	< 1
Acetaldehyde	1,053	1,053	< 1
Formaldehyde	2,380	2,379	< 1
Butadiene	196	196	< 1
Naphthalene	75	75	< 1
POM	38	38	< 1
Diesel PM	497	397	< 1
DEOG	12,358	12,356	2

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.3 Alternative 1 – Curb-Running BRT Alternative

Air quality impacts evaluated under Build Alternative 1 considers the existing plus project regional VMT and local traffic circulation scenario that incorporates the proposed curb-running BRT improvements applied to baseline roadway configurations.

4.1.3.1 Regional Criteria Pollutant Emissions

Under Alternative 1, the existing Metro Division 15 MSF would be used to support bus service enhancements without major modifications; therefore, no increase in criteria pollutant emissions from stationary sources would occur.

With respect to mobile-source emissions, operation of Alternative 1 would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4-12, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 no-build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3, relative to the other build alternatives, Alternative 3 represents a worst-case scenario with respect to traffic flow. By extension, traffic operations under Alternative 1 would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 Alternative 1 scenario would be no more than those identified in Table 4-12.

The proposed project's requirement to demonstrate transportation conformity would ensure that project emissions would be accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 1 scenario and operational emissions would be accounted for in the SIP, impacts would be less than significant under CEQA and minor adverse under NEPA.

As shown in Table 4-6, regional criteria pollutant emissions under the 2040 Alternative 1 scenario would exceed the SCAQMD threshold for NO_X but would not exceed the thresholds for any other pollutant. Such increases would occur as a result of changes in auto circulation patterns and speeds.

Table 4-6: Build Alternative 1 Regional Criteria Pollutant Emissions

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
2040 Build Alternative 1	60,912	530,156	168,528	62,519	25,604
2040 No Build	60,862	530,143	168,455	62,523	25,606
Net Project Emissions	49	12	73	(4)	(1)
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	No	No	Yes	No	No

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.3.2 Localized Emissions

Discussions of localized CO and PM impacts anticipated to occur under Build Alternative 1 are provided below.

Carbon Monoxide Hot-Spot Analysis

Based on ambient air monitoring data collected by SCAQMD, the Basin has continually met state and federal ambient air quality standards for CO since 2003. As such, the Basin was reclassified to attainment/maintenance status from serious nonattainment, effective June 11, 2007. While the *Final 2016 Air Quality Management Plan* (AQMP) is the most recent AQMP, no additional regional or hot-spot CO modeling has been conducted to demonstrate attainment of the 8-hour average CO standard since the analysis provided in the 2003 AQMP.

Since local CO concentrations are a function of 1) intersection traffic volumes, 2) peak-hour intersection LOS, 3) CO emissions factors [idle and grams/mile], and 4) the ambient CO background concentration; it is possible to identify which, if any, of the most congested intersection locations anticipated to exist under Alternative 1 have a potential to violate state or federal CO standards. The Alternative 1 intersections presented below in Table 4-7 meet the following criteria: 1) intersection LOS and/or delay would worsen under Alternative 1 when compared to the No-Build Alternative, and 2) the intersection would operate at LOS F.

Total intersection approach volumes under Alternative 1 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection, during the AM or PM peak-hour period. In addition, the eastern San Fernando Valley is predicted to have an 8-hour CO background concentration of 5.5 ppm in 2020 (farthest SCAQMD prediction), compared to an 8-hour background concentration of 7.8 ppm used for the 2003 attainment demonstration analysis. And finally, the CO idle and 5 mph emissions factors for year 2035(farthest year emissions factors available) are predicted to be 8.7 grams/hour and 1.5 grams/mile, respectively. This compares to CO idle and 5 mph emissions factors of 341.4 grams/hour and 13.9 grams/mile, respectively, used for the 2003 AQMP attainment demonstration.

Table 4-7: Build Alternative 1 Comparison of Intersection Total Approach Volumes

Build Alternative Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
Laurel Canyon Boulevard/Van Nuys Boulevard	1,620	1,873	2,367	1,264	7,124	1,747	1,395	1,779	2,122	7,043
Arleta Avenue/Van Nuys Boulevard	1,447	1,309	1,024	1,606	5,386	910	1,277	1,418	1,609	5,214
Van Nuys Boulevard/Nordhoff Street	1,241	1,379	934	1,319	4,873	1,220	1,238	1,580	1,559	5,597
Van Nuys Boulevard/Saticoy Street	1,363	148	1,313	1,131	3,955	2,040	120	1,838	1,005	5,003
Van Nuys Boulevard/Sherman Way	1,374	1,832	981	1,865	6,052	1,839	1,903	1,538	2,076	7,356
Van Nuys Boulevard/Vanowen Street	1,521	1,407	1,110	1,339	5,377	1,221	1,207	1,172	1,216	4,816
Van Nuys Boulevard/Oxnard Street	2,095	1,390	1,996	1,238	6,719	1,607	1,155	1,470	1,268	5,500
Maximum Volumes					7,124					7,356
Attainment Demonstration Intersection										
Wilshire Boulevard/Veteran Avenue	721	1,830	560	4,951	8,062	1,400	3,317	933	2,069	7,719
Sunset Boulevard/Highland Avenue	2,304	1,342	1,551	1,417	6,614	1,832	1,540	2,238	1,764	7,374
La Cienega Boulevard/Century Boulevard	1,384	1,890	821	2,540	6,635	2,029	2,728	1,674	2,243	8,674
Long Beach Boulevard/Imperial Highway	479	1,760	756	1,217	4,212	944	1,400	1,150	2,020	5,514
Maximum Volumes					8,062					8,674
Percent Change: Maximum Build Alternative vs Maximum Attainment Demonstration Total Approach Volumes					-12%					-15%

To summarize, 1) maximum intersection approach volumes under Alternative 1 would be less than the maximum intersection approach volume used for the 2003 AQMP attainment demonstration, 2) idle emissions would be considerably less (97% reduction) than those used for the 2003 AQMP attainment demonstration, and 3) grams/mile emissions would be considerably less (89% reduction) than those used for the 2003 AQMP attainment demonstration. As such, there would be no potential for Alternative 1 CO emissions at any intersection location to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Particulate Matter Hot-Spot Analysis

The EPA has specified a quantitative method for analyzing localized PM2.5 or PM10 concentrations from operational traffic titled, *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* in November 2013. EPA specifies in 40 CFR 93.123(b)(1) that only "projects of air quality concern" are required to undergo a PM2.5 and PM10 hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM2.5 SIP as a localized air quality concern. A discussion of the proposed project compared to projects of air quality concern, as defined by 40 CFR 93.123(b)(1), is provided below:

1. **New or expanded highway projects that have a significant number of or significant increase in diesel vehicles**. Alternative 1 proposes to add curb-running BRT service along selected roadway corridors in the eastern San Fernando Valley. While the proposed improvements would have some effect on local traffic volumes, the effect on the number of diesel-powered vehicles that use the affected roadway facility or any adjacent facilities would be negligible.
2. **Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.** Alternative 1 is proposing to add curb-running BRT service to eastern San Fernando Valley. The primary project objective is to improve both existing and future mobility, and reduce congestion. Alternative 1 would have no effect on diesel truck traffic volumes.
3. **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.** Alternative 1 would not use any diesel-powered vehicles. In addition, the Metro bus fleet contains no diesel-powered buses, and Metro does not intend to acquire any diesel-powered buses. No diesel-powered transit buses would service any project vicinity bus or rail terminal.
4. **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.** Alternative 1 would not expand any bus terminal, rail terminal, or related transfer point that would increase the number of diesel vehicles congregating at any single location.
5. **Projects in or affecting locations, areas, or categories of sites that are identified in the PM2.5- or PM10-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.** The project vicinity is not in or affecting an area or location identified in any PM10 or PM2.5 implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

The discussion provided above indicates that Alternative 1 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 1 would generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for PM2.5 and PM10. Potential impacts would be less than significant under CEQA and minor adverse under NEPA.

4.1.3.3 Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under Alternative 1 would generate the regional MSAT emissions estimates presented in Table 4-8, below. As shown in the table, there would be no material change in regional MSAT pollutant emissions under Alternative 1 when compared to the No-Build Alternative. Moreover, EPA 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 EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emissions rate for the priority MSAT emissions from 2010 to 2050 while vehicle-miles of travel are projected to increase by more than 100%. This will both reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-8: Build Alternative 1 MSAT Emissions

Pollutant Name	Daily Emissions (pounds per day)		
	Alternative 1	No-Build Alternative	Net Emissions
Benzene	1,303	1,302	1
Acrolein	39	39	< 1
Acetaldehyde	1,053	1,053	< 1
Formaldehyde	2,380	2,379	1
Butadiene	196	196	< 1
Naphthalene	75	75	< 1
POM	38	38	< 1
Diesel PM	497	497	(< 1)
DEOG	12,359	12,356	3

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.4 Alternative 2 – Median-Running BRT Alternative

Air quality impacts evaluated under Build Alternative 2 considers the 2035 regional VMT and local traffic circulation scenario that incorporates the proposed median-running BRT improvements.

4.1.4.1 Regional Criteria Pollutant Emissions

Under Alternative 2, the existing Metro Division 15 MSF would be used to support bus service enhancements without major modifications; therefore, no increase in criteria pollutant emissions from stationary sources would occur.

With respect to mobile-source emissions, operation of Alternative 2 would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4-12, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 no-build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3, relative to the other build alternatives, Alternative 3 represents a worst-case scenario with respect to traffic flow. By extension, traffic operations under Alternative 2 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 Alternative 2 scenario would be no more than those identified in Table 4-12.

The proposed project's requirement to demonstrate transportation conformity would ensure that project emissions would be accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 2 scenario and operational emissions would be accounted for in the SIP, impacts would be less than significant under CEQA and minor adverse under NEPA.

As shown in Table 4-9, regional criteria pollutant emissions under the 2040 Alternative 2 scenario would exceed the SCAQMD threshold for NO_X but would not exceed the thresholds for any other pollutant. Such increases would occur as a result of changes in auto circulation patterns and speeds.

Table 4-9: Alternative 2 Regional Criteria Pollutant Emissions

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
2040 Alternative 2	60,874	530,144	168,527	62,518	25,604
2040 No Build	60,862	530,143	168,455	62,523	25,606
Net Project Emissions	11	1	71	(4)	(2)
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	No	No	Yes	No	No

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.4.2 Localized Criteria Pollutant Emissions

Discussions of localized CO and PM impacts anticipated to occur under Build Alternative 2 are provided below.

Carbon Monoxide Hot-Spot Analysis

As discussed in Section 4.1.3.2, above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Because high-volume congested intersections are primary determinants of CO impacts, the intersections that are projected to experience the most congested conditions under Alternative 2 were identified.

As shown in Table 4-10, total intersection approach volumes under Alternative 2 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection during the AM or PM peak-hour period. In addition, as discussed in the CO hot-spot analysis for Alternative 1, above, the eastern San Fernando Valley is predicted to have lower background CO concentrations in the future, and idle emissions and 5 mph emissions would be lower than those of the 2003 AQMP attainment demonstration.

Based on Alternative 2's lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 2 CO emissions at any intersection location to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Particulate Matter Hot-Spot Analysis

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1 in Section 4.1.3.2, above, Alternative 2 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 2 would generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for PM2.5 and PM10. Potential impacts would be less than significant under CEQA and not adverse under NEPA.

4.1.4.3 Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under Alternative 2 would generate the regional MSAT emissions estimates presented in Table 4-11. As shown therein, there would be no material change in regional MSAT pollutant emissions under Alternative 2 when compared to the No-Build Alternative. Moreover, EPA 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 EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT emissions from 2010 to 2050, while vehicle miles traveled is projected to increase by over 100%. This will both reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and minor adverse under NEPA.

4.1.5 Alternative 3 – Low-Floor LRT/Tram Alternative

Air quality impacts evaluated under Build Alternative 3 considers the existing plus project regional VMT and local traffic circulation scenario that incorporates the proposed Low-Floor LRT/Tram improvements applied to baseline roadway configurations.

Table 4-10: Alternative 2 Comparison of Intersection Total Approach Volumes

Build Alternative Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
San Fernando Road/Wolfskill Street	441	395	456	281	1,573	738	519	448	236	1,941
San Fernando Road/Paxton Street	1,497	1,690	1,657	1,027	5,871	1,759	1,266	1,493	1,109	5,627
San Fernando Road/Van Nuys Boulevard	1,389	2,062	1,009	1,304	5,764	1,450	1,286	1,252	1,906	5,894
Laurel Canyon Boulevard/Van Nuys Boulevard	1,626	1,951	2,382	1,518	7,477	1,764	1,469	1,794	2,181	7,208
Arleta Avenue/Van Nuys Boulevard	1,450	1,362	1,014	1,601	5,427	919	1,330	1,426	1,616	5,291
Woodman Avenue/Van Nuys Boulevard	1,401	1,141	1,201	899	4,642	1,311	1,337	1,265	1,173	5,086
Van Nuys Boulevard/Nordhoff Street	1,234	1,394	895	1,430	4,953	1,237	1,263	1,551	1,605	5,656
Van Nuys Boulevard/Chase Street	1,504	711	870	370	3,455	1,631	842	1,329	478	4,280
Van Nuys Boulevard/Roscoe Boulevard	1,222	1,748	1,243	1,495	5,708	1,355	1,399	1,450	1,304	5,508
Van Nuys Boulevard/Saticoy Street	1,328	151	1,289	856	3,624	2,021	120	1,742	1,137	5,020
Van Nuys Boulevard/Sherman Way	1,356	1,864	1,001	1,870	6,091	1,845	1,929	1,550	2,099	7,423
Van Nuys Boulevard/Vanowen Street	1,511	1,442	1,131	1,339	5,423	1,672	1,523	1,505	1,432	6,132
Van Nuys Boulevard/Oxnard Street	2,073	1,374	2,018	1,238	6,703	1,610	1,152	1,515	1,368	5,645
Maximum Volumes					7,477					7,423

Attainment Demonstration Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
Wilshire Boulevard/Veteran Avenue	721	1,830	560	4,951	8,062	1,400	3,317	933	2,069	7,719
Sunset Boulevard/Highland Avenue	2,304	1,342	1,551	1,417	6,614	1,832	1,540	2,238	1,764	7,374
La Cienega Boulevard/Century Boulevard	1,384	1,890	821	2,540	6,635	2,029	2,728	1,674	2,243	8,674
Long Beach Boulevard/Imperial Highway	479	1,760	756	1,217	4,212	944	1,400	1,150	2,020	5,514
Maximum Volumes					8,062					8,674
Percent Change: Maximum Build Alternative vs Maximum Attainment Demonstration Total Approach Volumes					-17%					-35%

Table 4-11: Build Alternative 2 MSAT Emissions

Pollutant Name	Daily Emissions (pounds per day)		
	Alternative 2	No-Build Alternative	Net Emissions
Benzene	1,303	1,302	< 1
Acrolein	39	39	< 1
Acetaldehyde	1,053	1,053	< 1
Formaldehyde	2,380	2,379	1
Butadiene	196	196	<1
Naphthalene	75	75	< 1
POM	38	38	< 1
Diesel PM	497	497	(< 1)
DEOG	12,359	12,356	3

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.6 Regional Criteria Pollutant Emissions

Operation of Alternative 3 would involve criteria pollutant emissions from the new MSF, transit vehicle propulsion, and motor vehicles operating in the vicinity of the project, as shown for the 2012 Alternative 3 scenario in Table 4-12. Most of the emissions related to the MSF and transit vehicle propulsion would occur outside the Basin, because much of the electricity consumed in the region is produced elsewhere. Emissions from motor vehicles operating in the project vicinity, however, would occur entirely within the Basin. As shown in Table 4-12, compared to the 2012 no-build scenario, the 2012 Alternative 3 scenario would result in a net decrease in emissions of ROG, CO, and NO_X and negligible increases in PM10 and PM2.5 emissions. However, no SCAQMD thresholds would be exceeded. The proposed project's requirement to demonstrate transportation conformity would ensure that project emissions would be accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 3 scenario and operational emissions would be accounted for in the SIP, impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-12: Alternative 3 – Regional Criteria Pollutant Emissions (2012)

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
Maintenance Facility	2	< 1	< 1	< 1	< 1
Transit Vehicle Propulsion	1	7	8	1	1
Traffic Emissions					
2012 Alternative 3	187,173	2,223,028	707,736	63,338	33,706
2012 No Build	187,182	2,223,083	707,749	63,339	33,706
2012 Net Project Emissions	(9)	(55)	(13)	(1)	(< 1)
Net Project Emissions	**(6)**	**(48)**	**(4)**	**< 1**	**< 1**
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	No	No	No	No	No

Source: ICF, 2016; calculated using CalEEMod and 2014 Metro Rail energy data.

As shown in Table 4.13, ROG and NOx emissions are anticipated to exceed the SCAQMD thresholds under the 2040 Alternative 3 scenario due to changes in automobile circulation patterns and speeds. All other criteria pollutant emissions under the 2040 Alternative 3 scenario would not exceed SCAQMD thresholds.

Table 4-13: Alternative 3 – Regional Criteria Pollutant Emissions (2040)

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
Maintenance Facility	2	< 1	< 1	< 1	< 1
Transit Vehicle Propulsion	1	7	8	1	1
Traffic Emissions					
2040 Alternative 3	61,008	530,592	168,966	62,524	25,607
2040 No Build	60,862	530,143	168,455	62,523	25,606
2040 Net Project Emissions	**148**	**456**	**519**	**2**	**2**
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	Yes	No	Yes	No	No

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.7 Localized Criteria Pollutant Emissions

Discussions of localized CO and PM impacts anticipated to occur under Build Alternative 3 are provided below.

4.1.7.1 Carbon Monoxide Hot-Spot Analysis

As discussed in Section 4.1.3.2 above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Because high-volume congested intersections are the primary determinants of CO impacts, the intersections that are projected to experience the most congested conditions under Alternative 3 in 2012 and 2040 were identified.

As shown in Table 4-14, total intersection approach volumes under Alternative 3 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection during the AM or PM peak-hour period. In addition, as discussed in the CO hot-spot analysis for Alternative 1, above, the eastern San Fernando Valley is predicted to have lower future background CO concentrations, and idle and 5 mph emissions factors would be lower than those used for the 2003 AQMP attainment demonstration.

Based on Alternative 3's lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 3 CO emissions at any intersection location to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-14: Build Alternative 3 Comparison of Intersection Total Approach Volumes

Build Alternative Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
San Fernando Road/Hubbard Street	628	1,847	407	888	3,770	910	1,134	465	1,628	4,137
Truman Street/Hubbard Street	549	2,185	846	907	4,487	713	1,455	881	1,666	4,715
Truman Street/Maclay Street	997	1,296	1,306	459	4,058	1,130	327	649	449	2,555
Truman Street/Brand Boulevard	1,023	984	1,479	1,078	4,564	1,814	789	894	1,611	5,108
San Fernando Road/Wolfskill Street	381	456	475	278	1,590	305	532	443	248	1,528
San Fernando Road/Paxton Street	1,568	1,666	1,674	1,000	5,908	1,776	2,044	1,471	1,406	6,697
San Fernando Road/Van Nuys Boulevard	1,410	2,062	1,139	1,259	5,870	1,493	1,374	1,252	1,980	6,099
Laurel Canyon Boulevard/Van Nuys Boulevard	1,651	1,951	2,382	1,268	7,252	1,817	1,565	1,794	2,262	7,438
Arleta Avenue/Van Nuys Boulevard	1,450	1,339	1,014	1,601	5,404	902	1,313	1,417	1,638	5,270
Woodman Avenue/Van Nuys Boulevard	1,401	1,140	1,201	899	4,641	1,287	1,337	1,257	1,189	5,070
Van Nuys Boulevard/Nordhoff Street	1,234	1,345	892	1,514	4,985	1,253	1,280	1,569	1,639	5,741
Van Nuys Boulevard/Chase Street	1,485	711	870	372	3,438	1,582	853	1,343	478	4,256
Van Nuys Boulevard/Roscoe Boulevard	1,257	1,748	1,251	1,503	5,759	1,424	1,417	1,475	1,304	5,620
Van Nuys Boulevard/Saticoy Street	1,342	153	1,298	1,179	3,972	2,033	122	1,797	1,150	5,102
Van Nuys Boulevard/Sherman Way	1,371	1,880	1,010	1,907	6,168	1,855	1,958	1,597	2,122	7,532
Van Nuys Boulevard/Vanowen Street	1,518	1,455	1,131	1,366	5,470	1,674	1,547	1,542	1,450	6,213
Van Nuys Boulevard/Oxnard Street	2,096	1,374	2,031	1,241	6,742	1,762	1,205	1,616	1,437	6,020
Van Nuys Boulevard/Burbank Boulevard	1,976	1,383	2,137	1,940	7,436	1,824	1,549	1,905	1,913	7,191
Maximum Volumes					7,436					7,532

Attainment Demonstration Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
Wilshire Boulevard/Veteran Avenue	721	1,830	560	4,951	8,062	1,400	3,317	933	2,069	7,719
Sunset Boulevard/Highland Avenue	2,304	1,342	1,551	1,417	6,614	1,832	1,540	2,238	1,764	7,374
La Cienega Boulevard/Century Boulevard	1,384	1,890	821	2,540	6,635	2,029	2,728	1,674	2,243	8,674
Long Beach Boulevard/Imperial Highway	479	1,760	756	1,217	4,212	944	1,400	1,150	2,020	5,514
Maximum Volumes					8,062					8,674
Percent Change: Maximum Build Alternative vs Maximum Attainment Demonstration Total Approach Volumes					-8%					-13%

Particulate Matter Hot-Spot Analysis

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1, above, Alternative 3 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 3 would not generate new air quality violations, worsen existing violations, or delay attainment of the NAAQS for PM2.5 and PM10. Potential impacts would be less than significant under CEQA and minor adverse under NEPA.

4.1.8 Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under Alternative 3 would generate the regional MSAT emissions estimates presented in Table 4-15 for the 2012 Alternative 3 scenario and in Table 4-16 for the 2040 Alternative 3 scenario. As shown in the tables, there would be reductions in MSAT emissions under the 2012 scenario and no material change in regional MSAT pollutant emissions under the 2040 Alternative 3 scenario compared to the corresponding No-Build Alternative scenarios. Moreover, EPA 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 EPA's MOVES model forecasts a combined reduction of more than 80% in the total annual emission rate for the priority MSAT emissions between 2010 and 2050, while vehicle miles traveled is projected to increase by more than 100%. This will both reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-15: Alternative 3 MSAT Emissions (2012)

Pollutant Name	Daily Emissions (pounds per day)		
	Build Alternative 3	No-Build Alternative	Net Emissions
Benzene	4,326	4,326	(< 1)
Acrolein	146	146	(< 1)
Acetaldehyde	3,238	3,238	(< 1)
Formaldehyde	7,503	7,503	(< 1)
Butadiene	714	714	(< 1)
Naphthalene	220	220	(< 1)
POM	183	183	(< 1)
Diesel PM	12,973	12,973	(< 1)
DEOG	36,944	36,946	(2)

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

Table 4-16: Alternative 3 – MSAT Emissions (2040)

Pollutant Name	Daily Emissions (pounds per day)		
	Alternative 3	No-Build Alternative	Net Emissions
Benzene	1,305	1,302	3
Acrolein	40	39	0
Acetaldehyde	1,056	1,053	3
Formaldehyde	2,385	2,379	6
Butadiene	197	196	< 1
Naphthalene	75	75	< 1
POM	38	38	< 1
Diesel PM	497	497	< 1
DEOG	12,389	12,356	33
Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.			

4.1.9 Alternative 4 – LRT Alternative

Air quality impacts evaluated under Build Alternative 4 considers the existing plus project regional VMT and local traffic circulation scenario that incorporates the proposed LRT improvements applied to baseline roadway configurations.

4.1.9.1 Regional Criteria Pollutant Emissions

Operation of Alternative 4 would involve criteria pollutant emissions from the maintenance facility, transit vehicle propulsion, and motor vehicles operating in the vicinity of the project. Most of the emissions related to the maintenance facility and transit vehicle propulsion would occur outside the Basin, because much of the electricity consumed in the region is produced elsewhere. Emissions from motor vehicles operating in the project vicinity, however, would occur entirely within the Basin.

As demonstrated for the 2012 Alternative 3 scenario in Table 4-12, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 no-build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case scenario with respect to traffic flow. By extension, traffic operations under Alternative 4 would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. Furthermore, Alternative 4 would result in the greatest ridership of any of the build alternatives and displace the greatest number of vehicle trips. On the basis of the less extensive traffic impacts and greatest transit ridership relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 Alternative 4 scenario would be no more than those identified in Table 4-12. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 4 scenario and operational emissions would be accounted for in the SIP, impacts would be less than significant under CEQA and minor adverse under NEPA.

The regional VMT and travel speed profile predicted to occur under the 2040 Alternative 4 scenario would generate the regional criteria pollutant emissions estimates in Table 4-17. As shown in the table, regional criteria pollutant emissions under Alternative 4 would not exceed SCAQMD thresholds.

Table 4-17: Build Alternative 4 Regional Criteria Pollutant Emissions

Project Alternative	Daily Emissions in Pounds per Day				
	ROG	CO	NO_X	PM10	PM2.5
Maintenance Facility	2	< 1	< 1	< 1	< 1
Vehicle Propulsion	1	7	8	1	1
Traffic Emissions					
2040 Alternative 4	60,787	529,989	168,313	62,514	25,602
2040 No Build	60,862	530,143	168,455	62,523	25,606
Net Project Emissions	(73)	(134)	(147)	(8)	(3)
SCAQMD Thresholds	55	550	55	150	55
Exceed Threshold	No	No	No	No	No

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

4.1.9.2 Localized Criteria Pollutant Emissions

Discussions of localized CO and PM impacts anticipated to occur under Build Alternative 4 are provided below.

Carbon Monoxide Hot-Spot Analysis

As discussed under the CO hot-spot analysis for Alternative 1, above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Because high-volume congested intersections are primary determinants of CO impacts, the intersections that are projected to experience the most congested conditions under Alternative 4 were identified.

As shown in Table 4-18, total intersection approach volumes under Alternative 4 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection during the AM or PM peak-hour period. In addition, as discussed in the CO hot-spot analysis for Alternative 1, above, the eastern San Fernando Valley is predicted to have lower future background CO concentrations, and idle and 5 mph emissions factors would be lower than those used for the 2003 AQMP attainment demonstration.

Based on Alternative 4’s lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 4 CO emissions at any intersection to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and not adverse under NEPA.

Particulate Matter Hot-Spot Analysis

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1, above, Alternative 4 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 4 would not generate new air quality violations, worsen existing violations, or delay attainment of the NAAQS for PM2.5 and PM10. Potential impacts would be less than significant under CEQA and not adverse under NEPA.

Table 4-18: Alternative 4 Comparison of Intersection Total Approach Volumes

Build Alternative Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
Truman Street/Hubbard Street	492	2,193	783	913	4,381	670	1,363	806	1,603	4,442
San Fernando Road/Paxton Street	1,501	1,748	1,646	1,151	6,046	1,776	1,193	1,450	1,056	5,475
San Fernando Road/Van Nuys Boulevard	1,389	2,062	1,139	1,276	5,866	1,450	1,271	1,252	1,887	5,860
Laurel Canyon Boulevard/Van Nuys Boulevard	1,733	1,749	2,382	1,395	7,259	1,869	1,269	1,794	2,275	7,207
Arleta Avenue/Van Nuys Boulevard	1,507	1,356	1,022	1,496	5,381	923	1,313	1,492	1,561	5,289
Woodman Avenue/Van Nuys Boulevard	1,401	1,064	1,186	928	4,579	1,311	1,237	1,282	1,225	5,055
Van Nuys Boulevard/Plummer Street	1,434	849	863	1,177	4,323	1,541	471	1,405	1,187	4,604
Van Nuys Boulevard/Nordhoff Street	1,181	1,440	940	1,413	4,974	1,102	1,263	1,776	1,145	5,286
Van Nuys Boulevard/Parthenia St/Vesper Ave	1,663	1,277	—	788	3,728	1,384	1,685	—	721	3,790
Van Nuys Boulevard/Sherman Way	1,793	1,832	992	1,949	6,566	1,990	1,964	1,999	2,052	8,005
Van Nuys Boulevard/Vanowen Street	1,983	1,425	1,153	1,400	5,961	1,795	1,575	2,010	1,416	6,796
Van Nuys Boulevard/Oxnard Street	2,104	1,374	2,034	1,234	6,746	1,604	1,134	1,538	1,350	5,626
Maximum Volumes					7,259					8,005

Attainment Demonstration Intersection	AM Peak-Hour Approach Volumes					PM Peak-Hour Approach Volumes				
	SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
Wilshire Boulevard/Veteran Avenue	721	1,830	560	4,951	8,062	1,400	3,317	933	2,069	7,719
Sunset Boulevard/Highland Avenue	2,304	1,342	1,551	1,417	6,614	1,832	1,540	2,238	1,764	7,374
La Cienega Boulevard/Century Boulevard	1,384	1,890	821	2,540	6,635	2,029	2,728	1,674	2,243	8,674
Long Beach Boulevard/Imperial Highway	479	1,760	756	1,217	4,212	944	1,400	1,150	2,020	5,514
Maximum Volumes					8,062					8,674
Percent Change: Maximum Build Alternative vs Maximum Attainment Demonstration Total Approach Volumes					-10%					-8%

4.1.9.3 Toxic Air Contaminant Emissions

The regional VMT and travel-speed profile predicted to occur under Alternative 4 would generate the regional MSAT emissions estimates presented in Table 4-19. As shown in the table, there would be no material change in regional MSAT pollutant emissions under Alternative 4 compared to emissions under the No-Build Alternative. Moreover, EPA 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 EPA's MOVES model forecasts a combined reduction of more than 80% in the total annual emissions rate for the priority MSAT emissions from 2010 to 2050, while vehicle miles traveled is projected to increase by more than 100%. This will both reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-19: Alternative 4 MSAT Emissions

Pollutant Name	Daily Emissions (pounds per day)		
	Alternative 4	No-Build Alternative	Net Emissions
Benzene	1,301	1,302	(1)
Acrolein	39	39	(< 1)
Acetaldehyde	1,052	1,053	(1)
Formaldehyde	2,378	2,379	(2)
Butadiene	196	196	(< 1)
Naphthalene	75	75	(< 1)
POM	38	38	(< 1)
Diesel PM	497	497	(< 1)
DEOG	12,347	12,356	(9)
Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.			

4.2 Construction Impacts

Project construction for each of the build alternatives would result in the short-term generation of criteria pollutant emissions. Emissions would include (1) fugitive dust generated from curb/pavement demolition, site work, and other construction activities; (2) hydrocarbon (ROG) emissions related to the application of architectural coatings and asphalt pavement; (3) exhaust emissions from powered construction equipment; and (4) motor vehicle emissions associated with construction equipment, commuting workers, and debris hauling.

During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust). SCAQMD Rule 403 does not require a permit for construction activities, per se, but, rather, sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin. In general, Rule 403 prohibits a project from causing or allowing emissions of fugitive dust from construction (or another fugitive dust source) to remain visible in the atmosphere beyond the property line of the emissions source.

The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial effect on the amount of daily construction pollutant emissions, pollutant concentrations, and the resulting impacts occurring at any one time. As such, the emissions forecasts provided herein reflect a specific set of conservative assumptions, based on an expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of these conservative assumptions, actual emissions could be less than those forecast. For example, if construction is delayed or occurs over a longer time period, emissions would be reduced because of (1) a more modern and cleaner burning construction equipment fleet and/or (2) a less intensive build-out schedule (i.e., fewer daily emissions occurring over a longer time interval).

4.2.1 No-Build Alternative

Although the No-Build Alternative would not preclude 1) future construction of other transportation system improvements, 2) general maintenance to improve local transportation system operation, or 3) incorporation of safety enhancements, none of the project improvements proposed under the TSM Alternative or Alternatives 1 to 4 would occur under the No-Build Alternative. Because no improvements would be constructed under the No-Build Alternative, and because it is not considered to be a “project” under CEQA or NEPA, it would not result in any construction impacts, and no further analysis is required.

4.2.2 TSM Alternative

Bus service enhancements anticipated to occur under the TSM Alternative would not require construction of a new or expansion of an existing MSF, and no substantial physical improvements would be constructed. Consequently, no or very minor amounts of criteria pollutant emissions or toxic air contaminant emissions would be generated. No significant or substantial adverse construction-related impacts under CEQA or NEPA would occur as result of the TSM Alternative.

4.2.3 Alternative 1 – Curb-Running BRT Alternative

Project construction under Alternative 1 would result in the short-term generation of criteria pollutant emissions. Emissions would include (1) fugitive dust generated from curb/pavement demolition, site work, and other construction activities; (2) hydrocarbon (ROG) emissions related to the application of architectural coatings and asphalt pavement; (3) exhaust emissions from powered construction equipment; and (4) motor vehicle emissions associated with construction equipment, commuting workers, and debris hauling.

During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust). SCAQMD Rule 403 does not require a permit for construction activities, per se, but, rather, sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin. In general, Rule 403 prohibits a project from causing or allowing emissions of fugitive dust from construction (or another fugitive dust source) to remain visible in the atmosphere beyond the property line of the emissions source.

The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial effect on the amount of daily construction pollutant emissions, pollutant concentrations, and resulting impacts occurring at any one time. As such, the emissions forecasts provided herein reflect a specific set of conservative assumptions, based on an expected construction scenario wherein a relatively large amount of construction would occur in a relatively intensive manner. Because of these conservative assumptions, actual emissions would very likely be less than those forecast. For example, if construction is delayed or occurs over a longer time period, emissions would be reduced because of (1) a more modern and cleaner burning construction equipment fleet and/or (2) a less intensive build-out schedule (i.e., lower daily emissions occurring over a longer time interval).

For the purpose of this impact analysis, Alternative 1 construction assumes an 18-month construction period. However, it should be noted that work would generally proceed in a linear sequence; therefore, most locations would be affected for a shorter period than 18 months. Combustion exhaust and fugitive dust mass emissions (PM10 and PM2.5) were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to this air quality report. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with SCAQMD Rule 403. Construction-period emissions anticipated to occur under Alternative 1 are discussed below.

4.2.3.1 Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4-20. As shown therein, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and not adverse under NEPA. No mitigation measures are necessary.

With respect to local impacts, SCAQMD developed a set of local mass emissions thresholds to evaluate localized impacts. According to SCAQMD, only emissions that occur on-site are to be considered in the localized significance threshold (LST) analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul trucks and employee commuting during construction are not considered in the evaluation of localized impacts. As shown in Table 4-21, localized PM10 and PM2.5 emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA without implementation of mitigation measures.

Table 4-20: Alternative 1 Estimate of Worst-case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Roadway Improvements, Sidewalks/Curbs, and Stations	6	63	49	<1	10	6
Year 2018						
Roadway Improvements, Sidewalks/Curbs, and Stations	39	56	46	<1	10	6
Maximum Daily Emissions	39	63	49	<1	10	6
Regional Construction Threshold	75	100	550	150	150	55
Exceed Thresholds?	No	No	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

Table 4-21: Alternative 1 Estimate of Maximum Localized Construction Mass Emissions (pounds per day)

Construction Phase	NO_X	CO	PM10 [a]	PM2.5 [a]
Median Improvements, Sidewalks/Curbs, and Stations	63	49	10	6
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	No	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

4.2.3.2 Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 1 construction is anticipated to have a duration of approximately 18 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons because of the short-term nature of construction. As such, project-related toxic emissions impacts during construction would be less than significant under CEQA and minor adverse under NEPA.

4.2.4 Alternative 2 – Median-Running BRT Alternative

Project construction under Alternative 2 would result in the short-term generation of criteria pollutant emissions, similar to those described for Alternative 1. Similar to Alternative 1, during construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but, rather, sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 2 construction assumes a 24-month construction period. However, it should be noted that work would generally proceed in a linear sequence; therefore, most locations would be affected for a period of less than 24 months. Combustion exhaust and fugitive dust (PM10 and PM2.5) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2, as described for Alternative 1. The construction-period emissions anticipated to occur under Alternative 2 are discussed below.

4.2.4.1 Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4-22. As shown therein, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and minor adverse under NEPA.

Table 4-22: Alternative 2 Estimate of Worst-case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Median Improvements, Sidewalks/Curbs, and Stations	6	73	56	<1	11	7
Year 2018						
Median Improvements, Sidewalks/Curbs, and Stations	6	66	53	<1	10	6
Year 2019						
Median Improvements, Sidewalks/Curbs, and Stations	34	15	19	<1	2	1
Maximum Daily Emissions	34	73	56	<1	11	6
Regional Construction Threshold	75	100	550	150	150	55
Exceed Thresholds?	No	No	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4-23, localized PM10 and PM2.5 emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

Table 4-23: Build Alternative 2 Estimate of Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Median Improvements, Sidewalks/Curbs, and Stations	73	56	11	7
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	No	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

4.2.4.2 Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 2 construction is anticipated to have a duration of approximately two years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and minor adverse under NEPA.

4.2.5 Alternative 3 – Low-Floor LRT/Tram Alternative

Construction of Alternative 3 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1, above. Similar to Alternative 1, during construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but, rather, sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 3 construction assumes a 24-month construction period. However, it should be noted that work would generally proceed in a linear sequence along the project corridors; therefore, most locations would be affected by construction for a period of less than 24 months. Combustion exhaust and fugitive dust mass emissions (PM10 and PM2.5) were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to this air quality report. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with SCAQMD Rule 403. Construction-period emissions anticipated to occur under Alternative 3 are discussed below.

4.2.5.1 Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is provided in Table 4-24. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on-site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul trucks and employee commuting during construction are not considered in the evaluation of localized impacts. As shown in Table 4-25, localized PM10 and PM2.5 emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

Table 4-24: Alternative 3 Estimate of Worst-case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Maintenance Facility	6	67	53	<1	11	14
Track Installation, Sidewalks/Curbs, and Stations	8	91	70	<1	13	8
Pedestrian Bridge and TPSS Facilities	3	20	16	<1	1	1
Concurrent Year 2017 Emissions	17	178	139	<1	25	22
Year 2018						
Maintenance Facility	81	24	20	<1	2	2
Track Installation, Sidewalks/Curbs, and Stations	7	82	66	<1	12	7
Pedestrian Bridge and TPSS Facilities	3	18	16	<1	1	1
Concurrent Year 2018 Emissions	91	124	102	<1	15	10
Year 2019						
Maintenance Facility **(Complete)**	-	-	-	-	-	-
Track Installation, Sidewalks/Curbs, and Stations	36	18	34	<1	2	1
Pedestrian Bridge and TPSS Facilities **(Complete)**	-	-	-	-	-	-
Concurrent Year 2019 Emissions	36	18	34	<1	2	1
Maximum Daily Emissions	91	178	139	<1	25	22
Regional Construction Threshold	75	100	550	150	150	55
Exceed Thresholds?	Yes	Yes	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

Table 4-25: Build Alternative 3 Estimate of Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Maintenance Facility	67	53	11	14
Track Installation, Sidewalks/Curbs, and Stations	91	70	13	8
Pedestrian Bridge and TPSS Facilities	20	16	1	1
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	Yes	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

4.2.5.2 Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 3 construction is anticipated to have a duration of approximately 2 years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons because of the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and minor adverse under NEPA.

4.2.6 Build Alternative 4 – Light Rail Transit Alternative

Construction of Alternative 4 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1. Similar to Alternative 1, during construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but, rather, sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 4 construction assumes a 30-month construction period. Work would generally proceed in a linear sequence along the project corridors; therefore, most locations would be affected for a period of less than 30 months. However, extensive work would occur at underground station locations. Combustion exhaust and fugitive dust mass emissions (PM10 and PM2.5) were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to this air quality report. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with SCAQMD Rule 403. Both cut-and-cover and tunnel boring construction methods are included in the analysis below. Construction-period emissions anticipated to occur under Alternative 4 are also discussed below.

4.2.6.1 Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4-26. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds under the cut-and-cover and tunnel boring options. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on-site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul trucks and employee commuting during construction are not considered in the evaluation of localized impacts. As shown in Table 4-27, localized NOx, PM10, and PM2.5 emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA without implementation of mitigation measures.

Table 4-26: Build Alternative 4 Estimate of Worst-case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Maintenance Facility	6	67	53	<1	14	8
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	8	101	77	<1	16	8
Bridges and TPSS Facilities	3	20	16	<1	1	1
Underground Stations and Tunnel (Cut-and-Cover)	24	307	232	1	33	16
Underground Stations and Tunnel (Bore)	11	118	91	0	17	10
Concurrent Year 2017 Emissions – cut and cover	41	495	378	1	64	33
Concurrent Year 2017 Emissions – tunnel boring	28	306	237	<1	48	27
Year 2018						
Maintenance Facility	81	24	20	<1	2	1
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	8	92	73	<1	15	8
Bridges and TPSS Facilities	3	18	16	<1	1	1
Underground Stations and Tunnel (Cut-and-Cover)	23	281	224	1	28	14
Underground Stations and Tunnel (Bore)	10	107	86	0	16	10
Concurrent Year 2018 Emissions – cut and cover	115	415	333	1	46	24
Concurrent Year 2018 Emissions – tunnel boring	102	241	195	<1	34	20
Year 2019						
Maintenance Facility **(Complete)**	--	--	--	--	--	--
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	30	15	21	<1	3	1
Bridges and TPSS Facilities **(Complete)**	--	--	--	--	--	--
Underground Stations and Tunnel (Cut-and-Cover)	5	38	36	<1	3	1
Underground Stations and Tunnel (Bore)	5	38	36	<1	2	1
Concurrent Year 2019 Emissions – cut and cover	35	53	57	<1	4	2
Concurrent Year 2019 Emissions – tunnel boring	35	53	57	<1	4	2
Maximum Daily Emissions – cut and cover	112	462	353	<1	49	29
Maximum Daily Emissions – tunnel boring	102	302	234	<1	38	20
Regional Construction Threshold	75	100	550	150	150	55
Exceed Threshold (cut and cover)?	Yes	Yes	No	No	No	No
Exceed Threshold (tunnel boring)?	Yes	Yes	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

Table 4-27: Build Alternative 4 Estimate of Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Maintenance Facility	67	53	11	6
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	101	77	13	6
Bridges and TPSS Facilities	20	16	1	1
Underground Stations and Tunnel (Cut-and-Cover)	274	207	24	1116
Underground Stations and Tunnel (Bore)	118	91	17	10
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	Yes	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

4.2.6.2 Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 4 construction is anticipated to have duration of approximately 30 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and minor adverse under NEPA.

4.3 Cumulative Impacts

This cumulative impacts discussion is applicable to each of the proposed project build alternatives.

California is divided geographically into 15 air basins for the purpose of managing the air resources of the State on a regional basis. Each air basin generally has similar meteorological and geographic conditions throughout. Local districts are responsible for preparing the portion of the SIP applicable within their boundaries.

The proposed project is located in the South Coast Air Basin (Basin); and as such, the Basin is the appropriate study area for evaluation of cumulative impacts for air quality. The South Coast Air Quality Management District (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 air quality management plan (AQMP) every 4 years.

The "on-road emissions" AQMP budgets are based on the regional transportation planning documents prepared by SCAG. The proposed project is included in the SCAG 2016–2040 RTP/SCS under Project ID 1TR0706 (for BRT Alternatives) and ID S1160326 (for all build alternatives). The proposed project has been incorporated into amendment 17-02 to the SCAG 2017 FTIP under project ID LA0G1301. The 2016–2040 RTP/SCS was found by FHWA and FTA to be in conformity with the SIP on June 1, 2016. The 2017 FTIP amendment in which the project is listed was found to be in conformity on February 21, 2017.

Per State CEQA Guidelines Section 15130 (d), when a project is included in an approved regional transportation plan (among other land use plans) that adequately addresses the affected resource area, no additional analysis is required. Because the proposed project is listed in the region's currently conforming SCAG 2016–2040 RTP/SCS and 2017 FTIP regional transportation planning documents, project emissions would not be cumulatively considerable.

Mitigation Measures

5.1 Compliance Requirements and Design Features

The project would comply with all applicable SCAQMD Rules, which include Rule 403 (fugitive dust), Rule 431.2 (sulfur content of liquid fuels) and Rule 1113 (architectural coatings), among other rules.

5.2 Operational Mitigation Measures

All impacts would be less than significant under CEQA and not adverse under NEPA. No mitigation measures are necessary.

5.3 Construction Mitigation Measures

The following measures are prescribed and shall be implemented to reduce short-term construction emissions that exceed SCAQMD significance thresholds:

MM-AQ-1 (All Build Alternatives): Construction vehicle and equipment trips and use shall be minimized to the extent feasible, and unnecessary idling of heavy equipment shall be avoided.

MM-AQ-2 (All Build Alternatives): Solar-powered, instead of diesel-powered, changeable message signs shall be used.

MM-AQ-3 (All Build Alternatives): Electricity from power poles rather than generators shall be used where feasible.

MM-AQ-4 (All Build Alternatives): Engines shall be maintained and tuned per the manufacturer's specifications to perform at EPA certification levels and the verified standards applicable to retrofit technologies. Periodic, unscheduled inspections shall be conducted to limit unnecessary idling and ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

MM-AQ-5 (All Build Alternatives): Any tampering with engines shall be prohibited, and continuing adherence to manufacturer's recommendations shall be required.

MM-AQ-6 (All Build Alternatives): New, clean (diesel or retrofitted diesel) equipment that meets the most stringent applicable federal or state standards shall be used, and the best available emissions control technology shall be employed. Tier 4 engines shall be used for all construction equipment. If non-road construction equipment that meets Tier 4 engine standards is not available, the construction contractor shall be required to use best available emissions control technologies on all equipment.

MM-AQ-7 (All Build Alternatives): EPA-registered particulate traps and other appropriate controls shall be used where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.

Chapter 6

Impacts Remaining After Mitigation

As discussed above, operational impacts would not be significant under CEQA or adverse under NEPA for the No-Build Alternative, TSM Alternative, or any of the build alternatives. Consequently, no mitigation measures are needed for project operation.

During the construction period, significant impacts under CEQA and adverse effects under NEPA were identified for each of the four build alternatives, and mitigation measures for construction-period impacts are identified in Section 5.3. The following sections quantify the reduction in emissions that would occur as a result of implementation of the mitigation measures and identify the determination of impacts under CEQA and NEPA.

6.1 Alternative 1 – Curb-Running BRT Alternative

With the implementation of the mitigation measures identified in Section 5.3, construction emissions under Alternative 1 would be reduced, but would exceed the LSTs for PM10 and PM2.5, as shown in Table 6-1. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of PM10 and PM2.5 exceeding LST, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

Table 6-1: Build Alternative 1 Estimate of Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Median Improvements, Sidewalks/Curbs, and Stations	14	31	8	4
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	No	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

6.2 Alternative 2 – Median-Running BRT Alternative

With the implementation of the mitigation measures identified in Section 5.3, construction emissions under Alternative 2 would be reduced, but would exceed the LSTs for PM10 and PM2.5, as shown in Table 6-2. Based on the reduction of emissions, effects under NEPA would be minor adverse. However, based on the emissions of PM10 and PM2.5 exceeding the LSTs, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

Table 6-2: Build Alternative 2 Estimate of Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Median Improvements, Sidewalks/Curbs, and Stations	24	38	9	5
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	No	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

6.3 Alternative 3 – Low-Floor LRT/Tram Alternative

Without implementation of proposed mitigation measures, construction-period emissions for ROG and NO_x were forecast to exceed the SCAQMD regional emissions thresholds under Alternative 3. As shown in Table 6-3, with implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, NO_x emissions would be reduced to below regional thresholds. ROG emissions, however, would exceed regional emissions thresholds. Although emissions would be reduced, regional effects under NEPA would be adverse after mitigation because of the exceedance of the NO_x regional threshold. Regional impacts would remain significant under CEQA after implementation of the proposed mitigation measures.

Table 6-3: Build Alternative 3 Estimate of Mitigated Worst-Case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Maintenance Facility	2	27	43	<1	10	4
Track Installation, Sidewalks/Curbs, and Stations	3	41	51	<1	11	5
Pedestrian Bridge and TPSS Facilities	<1	4	15	<1	<1	<1
Concurrent Year 2017 Emissions	6	72	109	<1	21	9
Year 2018						
Maintenance Facility	81	3	20	<1	<1	<1
Track Installation, Sidewalks/Curbs, and Stations	3	39	51	<1	10	5
Pedestrian Bridge and TPSS Facilities	<1	4	15	<1	<1	<1
Concurrent Year 2018 Emissions	85	46	86	<1	11	5
Year 2019						
Maintenance Facility **(Complete)**	—	—	—	—	—	—
Track Installation, Sidewalks/Curbs, and Stations	35	3	37	<1	2	1
Pedestrian Bridge and TPSS Facilities **(Complete)**	—	—	—	—	—	—
Concurrent Year 2019 Emissions	35	3	37	<1	2	1
Maximum Daily Emissions	85	72	109	<1	21	9
Regional Construction Threshold	75	100	550	150	150	55
Exceed Thresholds?	Yes	No	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

With implementation of mitigation measures MM-AQ-1 through MM-AQ-7, construction emissions under Alternative 3 would be reduced but would exceed the LSTs for ROG, PM10 and PM2.5, as shown in Table 6-4. Given the reduction of emissions, effects under NEPA would not be adverse. However, with emissions of ROG, PM10, and PM2.5 exceeding the LSTs, localized impacts would remain significant under CEQA after implementation of the proposed mitigation measures.

Table 6-4: Build Alternative 3 Estimate of Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Maintenance Facility	67	53	11	14
Track Installation, Sidewalks/Curbs, and Stations	91	70	13	8
Pedestrian Bridge and TPSS Facilities	20	16	1	1
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	Yes	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

6.4 Alternative 4 – Light Rail Transit Alternative

Without implementation of mitigation measures, construction-period emissions for ROG and NO_x were forecast to exceed the SCAQMD regional emissions thresholds under Alternative 4. As shown in Table 6-5, with implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, ROG and NO_x emissions would continue to exceed regional emissions thresholds. Although emissions would be reduced with mitigation, regional effects under NEPA would be adverse because of the exceedances of the ROG and NO_x regional thresholds. Impacts would remain significant under CEQA after implementation of mitigation measures.

Table 6-5: Build Alternative 4 Estimate of Mitigated Worst-case Regional Construction Mass Emissions (pounds per day)

Construction Year/Facility	ROG	NO_X	CO	SO_X	PM10	PM2.5
Year 2017						
Maintenance Facility	2	27	43	<1	10	4
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	4	52	59	<1	11	5
Bridges and TPSS Facilities	<1	4	15	<1	<1	<1
Underground Stations and Tunnel (Cut-and-Cover)	16	231	213	1	29	12
Underground Stations and Tunnel (Bore)	4	49	71	<1	11	6
Concurrent Year 2017 Emissions – cut and cover	22	313	331	1	50	21
Concurrent Year 2017 Emissions – tunnel boring	10	132	188	1	32	14
Year 2018						
Maintenance Facility	81	3	20	<1	<1	<1
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	4	48	58	<1	11	5
Bridges and TPSS Facilities	0	4	15	<1	<1	<1
Underground Stations and Tunnel (Cut-and-Cover)	15	215	210	1	24	11
Underground Stations and Tunnel (Bore)	4	46	70	<1	11	5
Concurrent Year 2018 Emissions – cut and cover	101	271	303	1	36	16
Concurrent Year 2018 Emissions – tunnel boring	89	102	164	<1	22	10
Year 2019						
Maintenance Facility **(Complete)**	--	--	--	--	--	--
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	29	2	21	<1	2	1
Bridges and TPSS Facilities **(Complete)**	--	--	--	--	--	--
Underground Stations and Tunnel (Cut-and-Cover)	1	9	36	<1	1	<1
Underground Stations and Tunnel (Bore)	1	9	36	<1	1	<1
Concurrent Year 2019 Emissions – cut and cover	31	10	57	<1	3	1
Concurrent Year 2019 Emissions – tunnel boring	31	10	57	<1	3	1
Maximum Daily Emissions – cut and cover	101	313	331	1	50	21
Maximum Daily Emissions – tunnel boring	89	132	188	1	32	14
Regional Construction Threshold	75	100	550	150	150	55
Exceed Threshold (cut and cover)?	Yes	Yes	No	No	No	No
Exceed Threshold (tunnel boring)?	Yes	Yes	No	No	No	No

Source: CalEEMod emissions modeling by ICF International 2015.

With the implementation of the mitigation measures identified in Section 5.3, construction emissions under Alternative 4 would be reduced, but would exceed the LSTs for ROG, PM10 and PM2.5, as shown in Table 6-6. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of PM10 and PM2.5 exceeding the LSTs, localized impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

Table 6-6: Alternative 4 Estimate of Maximum Localized Construction Mass Emissions (pounds per day)

Construction Activity	NO_X	CO	PM10 [a]	PM2.5 [a]
Maintenance Facility	27	43	10	4
At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations	52	59	11	5
Bridges and TPSS Facilities	4	15	<1	<1
Underground Stations and Tunnel (Cut-and-Cover)	231	213	29	12
Underground Stations and Tunnel (Bore)	49	71	11	6
Localized Significance Thresholds [b]	80	498	4	3
Exceed Thresholds?	Yes	No	Yes	Yes

[a] PM10 and PM2.5 emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

CEQA Determination

7.1 No-Build Alternative

No impacts under CEQA would result from the No-Build Alternative.

7.2 TSM Alternative

No or less-than-significant impacts would occur under CEQA.

7.3 Alternative 1 – Curb-Running BRT Alternative

Construction of Alternative 1 would not result in emissions of criteria pollutants in excess of regional thresholds, but emissions would be higher than the SCAQMD LSTs for PM10 and PM2.5. Therefore, construction impacts under Alternative 1 would be significant under CEQA after implementation of the proposed mitigation measures.

Operation of Alternative 1 would result in a decrease, or a minor increase, in emissions of criteria pollutants but would have no or minimal effects on emissions of MSAT pollutants. In addition, no localized operational impacts related to hot spots for CO or particulate matter were identified. Operational impacts under Alternative 1 would be less than significant under CEQA.

7.4 Alternative 2 – Median-Running BRT Alternative

Construction of Alternative 2 would not result in emissions of criteria pollutants in excess of regional thresholds, but emissions would be higher than the SCAQMD LSTs for PM10 and PM2.5. Therefore, construction impacts under Alternative 2 would be significant under CEQA after implementation of the proposed mitigation measures.

Operation of Alternative 2 would result in a decrease, or a minor increase, in emissions of criteria pollutants but would have no or minimal effects on emissions of MSAT pollutants. In addition, no localized operational impacts related to hot spots for CO or particulate matter were identified. Operational impacts under Alternative 2 would be less than significant under CEQA.

7.5 Alternative 3 – Low-Floor LRT/Tram Alternative

Construction impacts under Alternative 3 would be significant under CEQA after implementation of mitigation measures. Operational impacts under Alternative 3 would be less than significant under CEQA.

7.6 Alternative 4 – Light Rail Transit Alternative

Construction of Alternative 4 would result in emissions of ROGs and NO_x in excess of regional thresholds and would not be reduced below the thresholds following implementation of mitigation measures. In addition, construction of Alternative 4 would exceed the LSTs for ROG, PM10, and PM2.5 after implementation of mitigation measures. Construction impacts under Alternative 4 would be significant under CEQA after implementation of mitigation measures.

Chapter 8
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Personal Communication

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Appendix East San Fernando Valley Transit Corridor Air Quality Technical Report

- Local Climate Data
- Baseline Ambient Air Quality Monitoring Data
- Mobile Emissions Inventory Modeling Output
- Construction Emissions Modeling Output

SAN FERNANDO, CALIFORNIA (047759)

Period of Record Monthly Climate Summary

Period of Record : 3/ 1/1906 to 3/31/1974

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	65.0	66.8	70.1	74.7	78.5	84.4	92.4	92.2	88.9	81.1	73.4	66.1	77.8
Average Min. Temperature (F)	42.9	43.3	43.9	46.5	49.6	52.4	56.1	56.3	54.4	50.7	47.6	44.6	49.0
Average Total Precipitation (in.)	3.78	3.46	2.71	1.49	0.39	0.39	0.02	0.03	0.17	0.52	1.73	2.96	17.66
Average Total SnowFall (in.)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

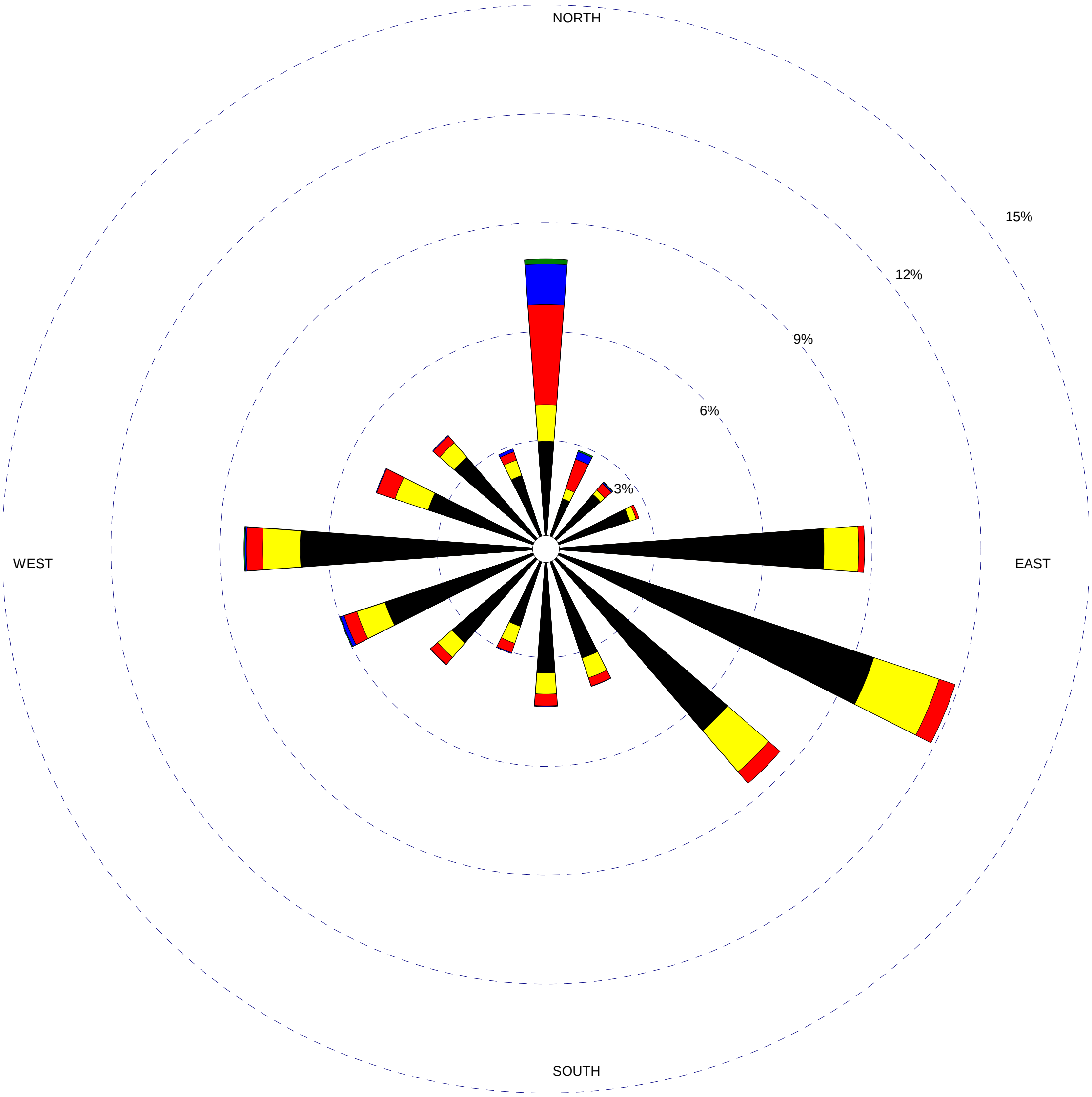
Percent of possible observations for period of record.
Max. Temp.: 98.4% Min. Temp.: 98.5% Precipitation: 99% Snowfall: 95.3% Snow Depth: 95.3%
Check Station Metadata or Metadata graphicsfor more detail about data completeness.

Western Regional Climate Center,wrcc@dri.edu

WIND ROSE PLOT

Station #51107 - , 1981

Reseda, SCAQMD



Wind Speed (m/s)

🟦	> 11.06
🟩	8.49 - 11.06
🟦	5.40 - 8.49
🟥	3.34 - 5.40
🟨	1.80 - 3.34
⬛	0.51 - 1.80

MODELER

DATE
5/29/2003

COMPANY NAME

DISPLAY
Wind Speed

UNIT
m/s

COMMENTS

AVG. WIND SPEED
1.79 m/s

CALM WINDS
12.84%

ORIENTATION
Direction
(blowing from)

PLOT YEAR-DATE-TIME
1981
Jan 1 - Dec 31
Midnight - 11 PM

PROJECT/PLOT NO.
1981

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

California Environmental Protection Agency
Air Resources Board

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Burbank-W Palm Avenue

	2013		2014		2015	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National:						
First High:	Jun 29	0.083	Jun 8	0.079		*
Second High:	May 12	0.081	Jun 1	0.072		*
Third High:	Sep 15	0.081	May 31	0.070		*
Fourth High:	May 3	0.079	May 1	0.069		*
California:						
First High:	Jun 29	0.083	Jun 8	0.079		*
Second High:	May 12	0.082	Jun 1	0.073		*
Third High:	Sep 15	0.081	May 31	0.070		*
Fourth High:	May 3	0.079	May 1	0.069		*
National:						
# Days Above the Standard:		6		1		*
Nat'l Standard Design Value:		0.080		0.076		*
National Year Coverage:		90		21		*
California:						
# Days Above the Standard:		17		2		*
California Designation Value:		0.088		0.089		*
Expected Peak Day Concentration:		0.088		*		*
California Year Coverage:		87		21		*

Notes:

Eight-hour ozone averages and related statistics are available at Burbank-W Palm Avenue between 1978 and 2014. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Available Pollutants:

8-Hour Ozone | Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | State Sulfur Dioxide | Hydrogen Sulfide

California Environmental Protection Agency
Air Resources Board

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Burbank-W Palm Avenue

iADAM

	2013		2014		2015	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jun 29	0.110	Jun 8	0.091		*
Second High:	Jun 30	0.103	Jun 9	0.090		*
Third High:	Sep 15	0.101	May 2	0.087		*
Fourth High:	Sep 14	0.095	Jun 14	0.081		*
California:						
# Days Above the Standard:		4		0		*
California Designation Value:		0.11		0.12		*
Expected Peak Day Concentration:		0.110		*		*
National:						
# Days Above the Standard:		*0*		*0*		*
Nat'l Standard Design Value:		*0.110*		*0.103*		*
Year Coverage:		90		20		*

Notes:

Hourly ozone measurements and related statistics are available at Burbank-W Palm Avenue between 1978 and 2014. Some years in this range may not be represented.
All concentrations expressed in parts per million.
The national 1-hour ozone standard was revoked in June 2005 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics* .
An exceedance of a standard is not necessarily related to a violation of the standard.
Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.
* means there was insufficient data available to determine the value.

Available Pollutants:

8-Hour Ozone | Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | State Sulfur Dioxide | Hydrogen Sulfide

California Environmental Protection Agency
Air Resources Board

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Burbank-W Palm Avenue

	2013		2014		2015	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 17	72.4	Feb 14	73.2		*
Second High:	Nov 11	71.4	Jan 3	69.4		*
Third High:	Nov 12	71.1	Jan 23	66.4		*
Fourth High:	May 3	62.5	Jan 18	65.2		*
California:						
First High:	Dec 17	72	Feb 14	73		*
Second High:	Nov 11	71	Jan 3	69		*
Third High:	Nov 12	71	Jan 23	66		*
Fourth High:	May 3	62	Jan 18	65		*
National:						
1-Hour Standard Design Value:		*		*		*
1-Hour Standard 98th Percentile:		60.0		66.4		*
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		*		*		*
California:						
1-Hour Std Designation Value:		80		80		*
Expected Peak Day Concentration:		*		*		*
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		*		*		*
Annual Average:		*		*		*
Year Coverage:		71		45		*

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Burbank-W Palm Avenue between 1963 and 2014. Some years in this range may not be represented.

All concentrations expressed in parts per billion.

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Available Pollutants:

8-Hour Ozone | Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | State Sulfur Dioxide | Hydrogen Sulfide

California Environmental Protection Agency
Air Resources Board

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Burbank-W Palm Avenue

	2013		2014		2015	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Apr 8	53.3	Jan 1	68.6		*
Second High:	Dec 31	48.4	Jan 24	46.0		*
Third High:	Dec 17	48.0	Jan 21	44.3		*
Fourth High:	Nov 12	47.9	May 16	44.3		*
California:						
First High:	Nov 12	51.0	Mar 18	58.0		*
Second High:	Oct 25	45.0	Jan 23	46.0		*
Third High:	Dec 18	40.0	Jan 11	45.0		*
Fourth High:	Dec 30	39.0	Jan 29	44.0		*
National:						
Estimated # Days > 24-Hour Std:		0.0		*		*
Measured # Days > 24-Hour Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		0.0		*		*
Annual Average:		*25.8*		*28.8*		*
3-Year Average:		*25*		*26*		*
California:						
Estimated # Days > 24-Hour Std:		5.7		*		*
Measured # Days > 24-Hour Std:		1		1		0
Annual Average:		28.0		*		*
3-Year Maximum Annual Average:		28		28		*
Year Coverage:		0		0		*

Notes:

Daily PM10 averages and related statistics are available at Burbank-W Palm Avenue between 1988 and 2014. Some years in this range may not be represented.
All averages expressed in micrograms per cubic meter.
The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics* .
An exceedance of a standard is not necessarily related to a violation of the standard.
All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.
State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Available Pollutants:

8-Hour Ozone | Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | State Sulfur Dioxide | Hydrogen Sulfide

California Environmental Protection Agency
Air Resources Board

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Burbank-W Palm Avenue

	2013		2014		2015	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Jan 1	45.1	Jan 1	64.6		*
Second High:	Feb 5	40.9	Jan 4	37.6		*
Third High:	Mar 5	36.3	Jan 9	34.7		*
Fourth High:	Mar 16	36.2	Feb 15	29.0		*
California:						
First High:	Jan 1	49.7	Jan 1	74.7		*
Second High:	Mar 16	44.0	Jan 4	40.9		*
Third High:	Feb 5	43.7	Jan 9	39.1		*
Fourth High:	Jul 5	39.3	Jan 10	37.3		*
National:						
Estimated # Days > 24-Hour Std:		4.4		*		*
Measured # Days > 24-Hour Std:		4		2		0
24-Hour Standard Design Value:		31		*		*
24-Hour Standard 98th Percentile:		30.4		*		*
2006 Annual Std Design Value:		12.5		*		*
2013 Annual Std Design Value:		12.5		*		*
Annual Average:		12.1		*		*
California:						
Annual Std Designation Value:		18		18		*
Annual Average:		17.6		*		*
Year Coverage:		95		40		*

Notes:

Daily PM2.5 averages and related statistics are available at Burbank-W Palm Avenue between 1999 and 2014. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Available Pollutants:

8-Hour Ozone | Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | State Sulfur Dioxide | Hydrogen Sulfide

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: 17 SAN FERNANDO RD AND PAXTON ST EX AM
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=   .0 CM/S
      CLAS=     7 (G)             VS=   .0 CM/S
      MIXH= 1000. M              AMB=   .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*-----------------------------
 A. NF          *     9  -450     9  -150 *  AG   1195   2.3     .0  24.0
 B. NA          *     9  -150     9     0 *  AG   1176   3.3     .0  18.0
 C. ND          *     5     0     5   150 *  AG   1294   2.5     .0   9.9
 D. NE          *     5   150     5   450 *  AG   1294   2.3     .0  15.0
 E. SF          *    -9   450    -9   150 *  AG   1171   2.3     .0  24.0
 F. SA          *    -9   150    -9     0 *  AG    988   3.3     .0  18.0
 G. SD          *   -14     0   -14  -150 *  AG   1064   2.5     .0   9.9
 H. SE          *   -14  -150   -14  -450 *  AG   1064   2.3     .0  15.0
 I. WF          *   450     7   150     7 *  AG    951   2.3     .0  24.0
 J. WA          *   150     7     0     7 *  AG    792   4.0     .0  18.0
 K. WD          *     0     2  -150     2 *  AG    729   2.9     .0   9.9
 L. WE          *  -150     2  -450     2 *  AG    729   2.3     .0  15.0
 M. EF          *  -450     0  -150     0 *  AG    796   2.3     .0  19.5
 N. EA          *  -150     0     0     0 *  AG    677   4.0     .0  13.5
 O. ED          *     0   -14   150   -14 *  AG   1026   4.9     .0   9.9
 P. EE          *   150   -14   450   -14 *  AG   1026   2.3     .0  10.5
 Q. NL          *     0     0     2  -150 *  AG     19   3.3     .0   9.9
 R. SL          *     0     0    -2   150 *  AG    183   3.3     .0   9.9
 S. WL          *     0     0   150     0 *  AG    159   4.0     .0   9.9
 T. EL          *     0     0  -150    -5 *  AG    119   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     21    -10   1.8
 3. SW3      *    -12    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*---------------------------------------
 1. NE3      *  182. *   1.0 *   .1   .5   .0   .0   .0   .0   .0   .0
 2. SE3      *  274. *   1.4 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    3. *   1.3 *   .0   .0   .0   .2   .1   .4   .3   .0
 4. NW3      *  108. *   1.0 *   .0   .0   .0   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .0   .0   .3   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .1   .0   .0   .1   .3   .0   .0   .0   .0   .0
```

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          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 17 SAN FERNANDO RD AND PAXTON ST PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *     9  -450     9  -150 *  AG   1324   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG   1274   4.0     .0  18.0
 C. ND           *     5     0     5   150 *  AG   1394   2.9     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1394   2.3     .0  15.0
 E. SF           *    -9   450    -9   150 *  AG   1102   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG    873   4.0     .0  18.0
 G. SD           *   -14     0   -14  -150 *  AG    975   2.5     .0   9.9
 H. SE           *   -14  -150   -14  -450 *  AG    975   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG   1162   2.3     .0  24.0
 J. WA           *   150     7     0     7 *  AG    966   4.0     .0  18.0
 K. WD           *     0     2  -150     2 *  AG    783   2.5     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG    783   2.3     .0  15.0
 M. EF           *  -450     0  -150     0 *  AG    817   2.3     .0  19.5
 N. EA           *  -150     0     0     0 *  AG    698   4.0     .0  13.5
 O. ED           *     0   -14   150   -14 *  AG   1253   4.9     .0   9.9
 P. EE           *   150   -14   450   -14 *  AG   1253   2.3     .0  10.5
 Q. NL           *     0     0     2  -150 *  AG     50   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    229   4.0     .0   9.9
 S. WL           *     0     0   150     0 *  AG    196   4.0     .0   9.9
 T. EL           *     0     0  -150    -5 *  AG    119   4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     21    -10   1.8
 3. SW3      *    -12    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *   182. *   1.3 *   .1   .6   .0   .0   .0   .0   .0   .0
 2. SE3      *   274. *   1.6 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *    85. *   1.6 *   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   107. *   1.2 *   .0   .0   .1   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .2   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .0   .0   .3   .5   .0   .0   .0   .0   .0
 3. SW3      *   .1   .0   .0   .0   .0   .0  1.0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .1   .1   .0   .0   .1   .3   .0   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 23 LAUREL CYN BL AND VAN NUYS BL AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     7  -450     7  -150 *  AG   1367   2.3     .0  19.5
 B. NA           *     7  -150     7     0 *  AG   1202   4.0     .0  13.5
 C. ND           *     5     0     5   150 *  AG   1379   2.9     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1379   2.3     .0  15.0
 E. SF           *    -7   450    -7   150 *  AG   1305   2.3     .0  19.5
 F. SA           *    -7   150    -7     0 *  AG   1191   4.0     .0  13.5
 G. SD           *    -9     0    -9  -150 *  AG   1155   2.5     .0   9.9
 H. SE           *    -9  -150    -9  -450 *  AG   1155   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG   1095   2.3     .0  19.5
 J. WA           *   150     7     0     7 *  AG    977   4.0     .0  13.5
 K. WD           *     0     5  -150     5 *  AG   1287   3.3     .0   9.9
 L. WE           *  -150     5  -450     5 *  AG   1287   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG    942   2.3     .0  19.5
 N. EA           *  -150    -2     0    -2 *  AG    776   4.0     .0  13.5
 O. ED           *     0    -9   150    -9 *  AG    888   2.9     .0   9.9
 P. EE           *   150    -9   450    -9 *  AG    888   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG    165   3.3     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    114   3.3     .0   9.9
 S. WL           *     0     0   150     2 *  AG    118   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    166   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*----------------------
 1. NE3      *     12     17   1.8
 2. SE3      *     17    -12   1.8
 3. SW3      *    -12    -17   1.8
 4. NW3      *    -17     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  184. *    1.4 *   .1   .7   .0   .0   .0   .0   .0   .1
 2. SE3      *  277. *    1.5 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *    4. *    1.7 *   .0   .0   .0   .2   .1   .7   .3   .0
 4. NW3      *  172. *    1.2 *   .1   .2   .0   .0   .0   .0   .4   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .0   .0   .4   .3   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .1   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .3   .0   .0   .1   .0   .0   .0   .0   .0   .0
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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 23 LAUREL CYN BL AND VAN NUYS BL PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=    .0 CM/S
     CLAS=     7 (G)             VS=    .0 CM/S
     MIXH= 1000. M              AMB=    .0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*-----------------------------
 A. NF          *     7  -450     7  -150 *  AG   1378   2.3     .0  19.5
 B. NA          *     7  -150     7     0 *  AG   1237   4.0     .0  13.5
 C. ND          *     5     0     5   150 *  AG   1398   2.9     .0   9.9
 D. NE          *     5   150     5   450 *  AG   1398   2.3     .0  15.0
 E. SF          *    -7   450    -7   150 *  AG   1033   2.3     .0  19.5
 F. SA          *    -7   150    -7     0 *  AG    868   4.0     .0  13.5
 G. SD          *    -9     0    -9  -150 *  AG    962   2.5     .0   9.9
 H. SE          *    -9  -150    -9  -450 *  AG    962   2.3     .0  15.0
 I. WF          *   450     7   150     7 *  AG   1097   2.3     .0  19.5
 J. WA          *   150     7     0     7 *  AG    952   4.0     .0  13.5
 K. WD          *     0     5  -150     5 *  AG   1145   2.9     .0   9.9
 L. WE          *  -150     5  -450     5 *  AG   1145   2.3     .0  15.0
 M. EF          *  -450    -2  -150    -2 *  AG   1301   2.3     .0  19.5
 N. EA          *  -150    -2     0    -2 *  AG   1103   4.0     .0  13.5
 O. ED          *     0    -9   150    -9 *  AG   1304   2.9     .0   9.9
 P. EE          *   150    -9   450    -9 *  AG   1304   2.3     .0  15.0
 Q. NL          *     0     0     2  -150 *  AG    141   4.0     .0   9.9
 R. SL          *     0     0    -2   150 *  AG    165   4.0     .0   9.9
 S. WL          *     0     0   150     2 *  AG    145   4.0     .0   9.9
 T. EL          *     0     0  -150    -2 *  AG    198   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     17   1.8
 2. SE3      *     17    -12   1.8
 3. SW3      *    -12    -17   1.8
 4. NW3      *    -17     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-------------------------------------------
 1. NE3      *  183. *   1.4 *   .1   .7   .0   .0   .0   .0   .0   .1
 2. SE3      *  276. *   1.7 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *    4. *   1.5 *   .0   .0   .0   .2   .0   .5   .2   .0
 4. NW3      *  171. *   1.1 *   .0   .2   .0   .0   .0   .0   .3   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-----------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .1   .0   .5   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
```

```
             CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 25 ARIETA AVE AND VAN NUYS BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S            Z0= 100. CM           ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     9  -450     9  -150 *  AG    886   2.3     .0  19.5
 B. NA           *     9  -150     9     0 *  AG    770   4.0     .0  13.5
 C. ND           *     7     0     7   150 *  AG    904   2.9     .0   9.9
 D. NE           *     7   150     7   450 *  AG    904   2.3     .0  15.0
 E. SF           *    -7   450    -7   150 *  AG   1195   2.3     .0  24.0
 F. SA           *    -7   150    -7     0 *  AG    954   4.0     .0  18.0
 G. SD           *   -11     0   -11  -150 *  AG   1016   2.9     .0   9.9
 H. SE           *   -11  -150   -11  -450 *  AG   1016   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG   1132   2.3     .0  19.5
 J. WA           *   150     7     0     7 *  AG   1057   4.0     .0  13.5
 K. WD           *     0     5  -150     5 *  AG   1199   2.5     .0   9.9
 L. WE           *  -150     5  -450     5 *  AG   1199   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1304   2.3     .0  19.5
 N. EA           *  -150    -2     0    -2 *  AG   1186   4.0     .0  13.5
 O. ED           *     0    -9   150    -9 *  AG   1398   2.9     .0   9.9
 P. EE           *   150    -9   450    -9 *  AG   1398   2.3     .0  15.0
 Q. NL           *     0     0     5  -150 *  AG    116   4.0     .0   9.9
 R. SL           *     0     0     0   150 *  AG    241   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG     75   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    118   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     14     17   1.8
 2. SE3      *     19    -12   1.8
 3. SW3      *    -10    -17   1.8
 4. NW3      *    -19     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  261. *   1.0 *   .0   .0   .2   .0   .0   .1   .0   .0
 2. SE3      *  276. *   1.6 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    3. *   1.5 *   .0   .0   .0   .1   .1   .5   .3   .0
 4. NW3      *   94. *   1.3 *   .0   .0   .0   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .3   .0   .0   .3   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .5   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .6   .0   .0   .0   .0   .0   .2   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 25 ARIETA AVE AND VAN NUYS BLVD PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=    .0 CM/S
       CLAS=     7 (G)             VS=    .0 CM/S
       MIXH= 1000. M              AMB=    .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *             EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*-----------------------------
 A. NF          *     9  -450     9  -150 *  AG   1212   2.3     .0  19.5
 B. NA          *     9  -150     9     0 *  AG   1058   4.0     .0  13.5
 C. ND          *     7     0     7   150 *  AG   1192   3.3     .0   9.9
 D. NE          *     7   150     7   450 *  AG   1192   2.3     .0  15.0
 E. SF          *    -7   450    -7   150 *  AG    639   2.3     .0  24.0
 F. SA          *    -7   150    -7     0 *  AG    508   4.0     .0  18.0
 G. SD          *   -11     0   -11  -150 *  AG    550   2.5     .0   9.9
 H. SE          *   -11  -150   -11  -450 *  AG    550   2.3     .0  15.0
 I. WF          *   450     7   150     7 *  AG   1081   2.3     .0  19.5
 J. WA          *   150     7     0     7 *  AG   1015   4.0     .0  13.5
 K. WD          *     0     5  -150     5 *  AG   1161   2.5     .0   9.9
 L. WE          *  -150     5  -450     5 *  AG   1161   2.3     .0  15.0
 M. EF          *  -450    -2  -150    -2 *  AG   1403   2.3     .0  19.5
 N. EA          *  -150    -2     0    -2 *  AG   1268   4.0     .0  13.5
 O. ED          *     0    -9   150    -9 *  AG   1432   2.9     .0   9.9
 P. EE          *   150    -9   450    -9 *  AG   1432   2.3     .0  15.0
 Q. NL          *     0     0     5  -150 *  AG    154   4.0     .0   9.9
 R. SL          *     0     0     0   150 *  AG    131   4.0     .0   9.9
 S. WL          *     0     0   150     2 *  AG     66   3.3     .0   9.9
 T. EL          *     0     0  -150    -2 *  AG    135   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     14     17   1.8
 2. SE3      *     19    -12   1.8
 3. SW3      *    -10    -17   1.8
 4. NW3      *    -19     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*--------------------------------------------
 1. NE3      *  183. *   1.2 *   .1   .6   .0   .0   .0   .0   .0   .0
 2. SE3      *  276. *   1.7 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *   83. *   1.1 *   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   94. *   1.2 *   .0   .0   .1   .0   .0   .1   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .6   .4   .0   .0   .0   .0   .0
 3. SW3      *   .1   .1   .0   .0   .0   .0   .5   .0   .0   .0   .0   .0
 4. NW3      *   .0   .6   .0   .0   .0   .0   .0   .2   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 30 VAN NUYS BLVD AND NORDHOFF ST AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=    .0 CM/S
     CLAS=     7 (G)             VS=    .0 CM/S
     MIXH= 1000. M              AMB=    .0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*-----------------------------
 A. NF          *     9  -450     9  -150 *  AG    765   2.3     .0  24.0
 B. NA          *     9  -150     9     0 *  AG    596   4.0     .0  18.0
 C. ND          *     5     0     5   150 *  AG    660   2.5     .0   9.9
 D. NE          *     5   150     5   450 *  AG    660   2.3     .0  15.0
 E. SF          *    -9   450    -9   150 *  AG   1067   2.3     .0  24.0
 F. SA          *    -9   150    -9     0 *  AG    980   4.0     .0  18.0
 G. SD          *   -14     0   -14  -150 *  AG   1233   3.3     .0   9.9
 H. SE          *   -14  -150   -14  -450 *  AG   1233   2.3     .0  15.0
 I. WF          *   450     9   150     9 *  AG   1169   2.3     .0  19.5
 J. WA          *   150     9     0     9 *  AG    984   4.0     .0  13.5
 K. WD          *     0     2  -150     2 *  AG   1258   2.5     .0   9.9
 L. WE          *  -150     2  -450     2 *  AG   1258   2.3     .0  15.0
 M. EF          *  -450    -2  -150    -2 *  AG   1295   2.3     .0  24.0
 N. EA          *  -150    -2     0    -2 *  AG   1144   4.0     .0  18.0
 O. ED          *     0   -11   150   -11 *  AG   1145   2.5     .0   9.9
 P. EE          *   150   -11   450   -11 *  AG   1145   2.3     .0  15.0
 Q. NL          *     0     0     2  -150 *  AG    169   4.0     .0   9.9
 R. SL          *     0     0    -2   150 *  AG     87   4.0     .0   9.9
 S. WL          *     0     0   150     5 *  AG    185   3.3     .0   9.9
 T. EL          *     0     0  -150     0 *  AG    151   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     21    -14   1.8
 3. SW3      *    -12    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *    A    B    C    D    E    F    G    H
-------------*-------*-------*---------------------------------------
 1. NE3      *  261. *    .9 *   .0   .0   .1   .0   .0   .2   .0   .0
 2. SE3      *  276. *   1.4 *   .0   .1   .0   .0   .0   .0   .1   .0
 3. SW3      *    2. *   1.5 *   .0   .0   .0   .0   .1   .5   .4   .0
 4. NW3      *  173. *   1.2 *   .0   .0   .0   .0   .0   .0   .6   .0


             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .5   .3   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 30 VAN NUYS BLVD AND NORDHOFF ST PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     9  -450     9  -150 *  AG   1297   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG   1103   4.0     .0  18.0
 C. ND           *     5     0     5   150 *  AG   1178   2.9     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1178   2.3     .0  15.0
 E. SF           *    -9   450    -9   150 *  AG   1004   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG    926   4.0     .0  18.0
 G. SD           *   -14     0   -14  -150 *  AG   1127   2.9     .0   9.9
 H. SE           *   -14  -150   -14  -450 *  AG   1127   2.3     .0  15.0
 I. WF           *   450     9   150     9 *  AG   1212   2.3     .0  19.5
 J. WA           *   150     9     0     9 *  AG   1044   4.0     .0  13.5
 K. WD           *     0     2  -150     2 *  AG   1336   2.9     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG   1336   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1351   2.3     .0  24.0
 N. EA           *  -150    -2     0    -2 *  AG   1165   4.0     .0  18.0
 O. ED           *     0   -11   150   -11 *  AG   1223   2.9     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG   1223   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG    194   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG     78   4.0     .0   9.9
 S. WL           *     0     0   150     5 *  AG    168   4.0     .0   9.9
 T. EL           *     0     0  -150     0 *  AG    186   4.0     .0   9.9


III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*----------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     21    -14   1.8
 3. SW3      *    -12    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  183. *   1.2 *   .1   .6   .0   .0   .0   .0   .0   .0
 2. SE3      *  277. *   1.7 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    3. *   1.5 *   .0   .0   .0   .1   .0   .5   .3   .0
 4. NW3      *  171. *   1.2 *   .1   .0   .0   .0   .0   .0   .4   .0


             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .0   .0   .5   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 34 VAN NUYS BLVD AND CHASE ST AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     9  -450     9  -150 *  AG    778   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG    730   3.3     .0  18.0
 C. ND           *     5     0     5   150 *  AG   1051   2.5     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1051   2.3     .0  15.0
 E. SF           *    -9   450    -9   150 *  AG   1704   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG   1418   3.3     .0  18.0
 G. SD           *   -14     0   -14  -150 *  AG   1569   2.5     .0   9.9
 H. SE           *   -14  -150   -14  -450 *  AG   1569   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG    641   2.3     .0  19.5
 J. WA           *   150     7     0     7 *  AG    544   4.9     .0  13.5
 K. WD           *     0     0  -150     0 *  AG    242   2.9     .0   9.9
 L. WE           *  -150     0  -450     0 *  AG    242   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG    326   2.3     .0  19.5
 N. EA           *  -150    -2     0    -2 *  AG    272   4.9     .0  13.5
 O. ED           *     0   -11   150   -11 *  AG    587   4.9     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG    587   2.3     .0  10.5
 Q. NL           *     0     0     2  -150 *  AG     48   3.3     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    286   3.3     .0   9.9
 S. WL           *     0     0   150     2 *  AG     97   4.9     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG     54   4.9     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     17   1.8
 2. SE3      *     21    -12   1.8
 3. SW3      *    -12    -17   1.8
 4. NW3      *    -21      8   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  185. *    .8 *   .0   .3   .0   .0   .0   .0   .0   .2
 2. SE3      *  276. *    .9 *   .0   .1   .0   .0   .0   .0   .1   .0
 3. SW3      *    3. *   1.5 *   .0   .0   .0   .1   .1   .6   .4   .0
 4. NW3      *   92. *   1.0 *   .0   .0   .0   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .0   .0   .0   .2   .3   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .4   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 34 VAN NUYS BLVD AND CHASE ST PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     9  -450     9  -150 *  AG   1444   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG   1317   3.3     .0  18.0
 C. ND           *     5     0     5   150 *  AG   1697   2.5     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1697   2.3     .0  15.0
 E. SF           *    -9   450    -9   150 *  AG   1196   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG    908   3.3     .0  18.0
 G. SD           *   -14     0   -14  -150 *  AG   1046   2.5     .0   9.9
 H. SE           *   -14  -150   -14  -450 *  AG   1046   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG    780   2.3     .0  19.5
 J. WA           *   150     7     0     7 *  AG    671   4.0     .0  13.5
 K. WD           *     0     0  -150     0 *  AG    457   2.9     .0   9.9
 L. WE           *  -150     0  -450     0 *  AG    457   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG    441   2.3     .0  19.5
 N. EA           *  -150    -2     0    -2 *  AG    338   4.0     .0  13.5
 O. ED           *     0   -11   150   -11 *  AG    661   4.9     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG    661   2.3     .0  10.5
 Q. NL           *     0     0     2  -150 *  AG    127   3.3     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    288   3.3     .0   9.9
 S. WL           *     0     0   150     2 *  AG    109   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    103   4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     17   1.8
 2. SE3      *     21    -12   1.8
 3. SW3      *    -12    -17   1.8
 4. NW3      *    -21      8   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  183. *   1.1 *   .1   .6   .0   .0   .0   .0   .0   .0
 2. SE3      *  276. *   1.1 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    4. *   1.2 *   .0   .0   .0   .2   .0   .4   .3   .0
 4. NW3      *   92. *   1.0 *   .0   .0   .1   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .0   .0   .2   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .4   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
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                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 42 VAN NUYS BLVD AND SATICOY ST AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=   .0 CM/S
     CLAS=     7 (G)             VS=   .0 CM/S
     MIXH= 1000. M              AMB=   .0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

     LINK      *  LINK COORDINATES (M)   *              EF     H     W
  DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*------------------------*------------------------------
 A. NF          *     9  -450     9  -150 *  AG   1153   2.3     .0  24.0
 B. NA          *     9  -150     9     0 *  AG    873   3.3     .0  18.0
 C. ND          *     7     0     7   150 *  AG   1257   2.5     .0  13.5
 D. NE          *     7   150     7   450 *  AG   1257   2.3     .0  19.5
 E. SF          *    -9   450    -9   150 *  AG   1379   2.3     .0  24.0
 F. SA          *    -9   150    -9     0 *  AG   1367   3.3     .0  18.0
 G. SD          *   -11     0   -11  -150 *  AG   1633   2.5     .0  13.5
 H. SE          *   -11  -150   -11  -450 *  AG   1633   2.3     .0  19.5
 I. WF          *   450     7   150     7 *  AG    125   2.3     .0  15.0
 J. WA          *   150     7     0     7 *  AG     73   4.9     .0   9.9
 K. WD          *     0     0  -150     0 *  AG    564   4.9     .0   9.9
 L. WE          *  -150     0  -450     0 *  AG    564   2.3     .0  10.5
 M. EF          *  -450     0  -150     0 *  AG    862   2.3     .0  19.5
 N. EA          *  -150     0     0     0 *  AG    470   4.9     .0  13.5
 O. ED          *     0    -9   150    -9 *  AG     65   2.9     .0   9.9
 P. EE          *   150    -9   450    -9 *  AG     65   2.3     .0  10.5
 Q. NL          *     0     0     2  -150 *  AG    280   3.3     .0   9.9
 R. SL          *     0     0    -2   150 *  AG     12   3.3     .0   9.9
 S. WL          *     0     0   150     5 *  AG     52   4.9     .0   9.9
 T. EL          *     0     0  -150     0 *  AG    392   4.9     .0   9.9

 III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     17     14   1.8
 2. SE3      *     21    -10   1.8
 3. SW3      *    -17    -14   1.8
 4. NW3      *    -21      5   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  262. *   1.0 *   .0   .0   .2   .0   .0   .2   .0   .0
 2. SE3      *  276. *   1.3 *   .0   .2   .0   .0   .0   .0   .1   .0
 3. SW3      *    4. *   1.5 *   .0   .0   .0   .1   .1   .6   .3   .0
 4. NW3      *  266. *   1.7 *   .0   .0   .0   .0   .0   .0   .0   .0

            *                          CONC/LINK
            *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .2
 2. SE3      *   .0   .0   .3   .0   .0   .3   .0   .0   .0   .0   .0   .2
 3. SW3      *   .0   .0   .1   .0   .0   .1   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .6   .0   .1   .5   .0   .0   .0   .0   .0   .4
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 42 VAN NUYS BLVD AND SATICOY ST PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=    .0 CM/S
       CLAS=     7 (G)             VS=    .0 CM/S
       MIXH= 1000. M              AMB=    .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *     9  -450     9  -150 *  AG   1811   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG   1533   3.3     .0  18.0
 C. ND           *     7     0     7   150 *  AG   1961   2.5     .0  13.5
 D. NE           *     7   150     7   450 *  AG   1961   2.3     .0  19.5
 E. SF           *    -9   450    -9   150 *  AG   1558   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG   1547   3.3     .0  18.0
 G. SD           *   -11     0   -11  -150 *  AG   1612   2.5     .0  13.5
 H. SE           *   -11  -150   -11  -450 *  AG   1612   2.3     .0  19.5
 I. WF           *   450     7   150     7 *  AG     95   2.3     .0  15.0
 J. WA           *   150     7     0     7 *  AG     63   4.9     .0   9.9
 K. WD           *     0     0  -150     0 *  AG    622   4.9     .0   9.9
 L. WE           *  -150     0  -450     0 *  AG    622   2.3     .0  10.5
 M. EF           *  -450     0  -150     0 *  AG    784   2.3     .0  19.5
 N. EA           *  -150     0     0     0 *  AG    347   4.9     .0  13.5
 O. ED           *     0    -9   150    -9 *  AG     53   2.9     .0   9.9
 P. EE           *   150    -9   450    -9 *  AG     53   2.3     .0  10.5
 Q. NL           *     0     0     2  -150 *  AG    278   3.3     .0   9.9
 R. SL           *     0     0    -2   150 *  AG     11   3.3     .0   9.9
 S. WL           *     0     0   150     5 *  AG     32   4.9     .0   9.9
 T. EL           *     0     0  -150     0 *  AG    437   4.9     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     17     14   1.8
 2. SE3      *     21    -10   1.8
 3. SW3      *    -17    -14   1.8
 4. NW3      *    -21      5   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  262. *   1.1 *   .0   .0   .3   .0   .0   .2   .0   .0
 2. SE3      *  276. *   1.3 *   .0   .3   .0   .0   .0   .0   .1   .0
 3. SW3      *    5. *   1.6 *   .0   .0   .0   .2   .1   .7   .3   .0
 4. NW3      *  266. *   1.7 *   .0   .0   .0   .0   .0   .0   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .3   .0   .0   .2   .0   .0   .0   .0   .0   .2
 2. SE3      *   .0   .0   .3   .0   .0   .2   .0   .0   .0   .0   .0   .3
 3. SW3      *   .0   .0   .1   .0   .0   .0   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .7   .0   .0   .4   .0   .0   .0   .0   .0   .5
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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 44 VAN NUYS BLVD AND SHERMAN WAY AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=     .5 M/S            Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)  *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *    11  -450    11  -150 *  AG    861   2.3     .0  28.5
 B. NA           *    11  -150    11     0 *  AG    706   4.0     .0  22.5
 C. ND           *     7     0     7   150 *  AG    945   2.5     .0  13.5
 D. NE           *     7   150     7   450 *  AG    945   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG   1391   2.3     .0  28.5
 F. SA           *   -11   150   -11     0 *  AG   1140   4.0     .0  22.5
 G. SD           *   -16     0   -16  -150 *  AG   1356   2.9     .0  13.5
 H. SE           *   -16  -150   -16  -450 *  AG   1356   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG   1564   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG   1315   4.0     .0  22.5
 K. WD           *     0     7  -150     7 *  AG   1418   2.5     .0  13.5
 L. WE           *  -150     7  -450     7 *  AG   1418   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG   1422   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG   1243   3.3     .0  22.5
 O. ED           *     0   -16   150   -16 *  AG   1519   2.5     .0  13.5
 P. EE           *   150   -16   450   -16 *  AG   1519   2.3     .0  19.5
 Q. NL           *     0     0     2  -150 *  AG    155   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    251   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG    249   3.3     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    179   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     17     26   1.8
 2. SE3      *     26    -17   1.8
 3. SW3      *    -17    -26   1.8
 4. NW3      *    -26     17   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  254. *     .9 *   .0   .0   .1   .0   .0   .2   .0   .0
 2. SE3      *  277. *    1.3 *   .0   .1   .0   .0   .0   .0   .0   .0
 3. SW3      *    4. *    1.4 *   .0   .0   .0   .1   .1   .4   .4   .0
 4. NW3      *   94. *    1.1 *   .0   .0   .0   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .4   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .1   .5   .0   .0   .0   .0   .0   .1   .0   .0   .0   .0
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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 44 VAN NUYS BLVD AND SHERMAN WAY PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=    .0 CM/S
       CLAS=     7 (G)             VS=    .0 CM/S
       MIXH= 1000. M              AMB=    .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *    11  -450    11  -150 *  AG   1515   2.3     .0  28.5
 B. NA           *    11  -150    11     0 *  AG   1297   4.0     .0  22.5
 C. ND           *     7     0     7   150 *  AG   1598   2.9     .0  13.5
 D. NE           *     7   150     7   450 *  AG   1598   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG   1404   2.3     .0  28.5
 F. SA           *   -11   150   -11     0 *  AG   1043   4.0     .0  22.5
 G. SD           *   -16     0   -16  -150 *  AG   1126   2.5     .0  13.5
 H. SE           *   -16  -150   -16  -450 *  AG   1126   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG   1530   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG   1352   4.0     .0  22.5
 K. WD           *     0     7  -150     7 *  AG   1531   2.5     .0  13.5
 L. WE           *  -150     7  -450     7 *  AG   1531   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG   1620   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG   1351   4.0     .0  22.5
 O. ED           *     0   -16   150   -16 *  AG   1814   2.9     .0  13.5
 P. EE           *   150   -16   450   -16 *  AG   1814   2.3     .0  19.5
 Q. NL           *     0     0     2  -150 *  AG    218   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    361   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG    178   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    269   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     17     26   1.8
 2. SE3      *     26    -17   1.8
 3. SW3      *    -17    -26   1.8
 4. NW3      *    -26     17   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*---------------------------------------
 1. NE3      *  254. *   1.1 *   .0   .0   .3   .0   .0   .1   .0   .0
 2. SE3      *  277. *   1.7 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *    5. *   1.4 *   .0   .0   .0   .2   .0   .4   .3   .0
 4. NW3      *   95. *   1.2 *   .0   .0   .1   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-----------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .3   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .5   .5   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .5   .0   .0   .0   .0   .0   .2   .0   .0   .0   .0
```

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: 47 VAN NUYS BLVD AND VANOWEN ST AM
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

  I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=   .0 CM/S
      CLAS=     7 (G)             VS=   .0 CM/S
      MIXH= 1000. M              AMB=   .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
----------------*-------------------------*-------------------------------
A. NF           *    11  -450    11  -150 *  AG    975   2.3     .0  24.0
B. NA           *    11  -150    11     0 *  AG    895   4.0     .0  18.0
C. ND           *     9     0     9   150 *  AG    982   2.5     .0  13.5
D. NE           *     9   150     9   450 *  AG    982   2.3     .0  19.5
E. SF           *    -9   450    -9   150 *  AG   1540   2.3     .0  28.5
F. SA           *    -9   150    -9     0 *  AG   1397   4.0     .0  22.5
G. SD           *   -14     0   -14  -150 *  AG   1481   2.5     .0  13.5
H. SE           *   -14  -150   -14  -450 *  AG   1481   2.3     .0  19.5
I. WF           *   450     7   150     7 *  AG   1201   2.3     .0  19.5
J. WA           *   150     7     0     7 *  AG   1108   4.0     .0  13.5
K. WD           *     0     5  -150     5 *  AG   1209   2.9     .0   9.9
L. WE           *  -150     5  -450     5 *  AG   1209   2.3     .0  15.0
M. EF           *  -450    -2  -150    -2 *  AG   1021   2.3     .0  19.5
N. EA           *  -150    -2     0    -2 *  AG    939   4.0     .0  13.5
O. ED           *     0    -9   150    -9 *  AG   1065   2.9     .0   9.9
P. EE           *   150    -9   450    -9 *  AG   1065   2.3     .0  15.0
Q. NL           *     0     0     5  -150 *  AG     80   4.0     .0   9.9
R. SL           *     0     0     0   150 *  AG    143   4.0     .0   9.9
S. WL           *     0     0   150     2 *  AG     93   4.0     .0   9.9
T. EL           *     0     0  -150    -2 *  AG     82   4.0     .0   9.9

III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. NE3      *     19     17   1.8
2. SE3      *     23    -12   1.8
3. SW3      *    -14    -17   1.8
4. NW3      *    -23     12   1.8

 IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
 RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*---------------------------------------
1. NE3      *  253. *   1.1 *   .0   .0   .1   .0   .0   .2   .0   .0
2. SE3      *  276. *   1.5 *   .0   .2   .0   .0   .0   .0   .0   .0
3. SW3      *    3. *   1.5 *   .0   .0   .0   .0   .2   .6   .3   .0
4. NW3      *   94. *   1.3 *   .0   .0   .0   .0   .0   .3   .0   .0

            *                          CONC/LINK
            *                            (PPM)
 RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
------------*------------------------------------------------------------
1. NE3      *   .0   .1   .3   .0   .0   .2   .0   .0   .0   .0   .0   .0
2. SE3      *   .0   .0   .2   .1   .0   .4   .4   .0   .0   .0   .0   .0
3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
4. NW3      *   .0   .6   .0   .0   .0   .0   .0   .1   .0   .0   .0   .0
```

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: 47 VAN NUYS BLVD AND VANOWEN ST PM
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

  I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=    .0 CM/S
      CLAS=     7 (G)             VS=    .0 CM/S
      MIXH= 1000. M              AMB=    .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)    *              EF     H     W
   DESCRIPTION  *    X1    Y1    X2    Y2  * TYPE   VPH (G/MI)  (M)   (M)
----------------*--------------------------*------------------------------
A. NF           *     11  -450    11  -150 * AG    1456   2.3     .0  24.0
B. NA           *     11  -150    11     0 * AG    1317   4.0     .0  18.0
C. ND           *      9     0     9   150 * AG    1397   2.5     .0  13.5
D. NE           *      9   150     9   450 * AG    1397   2.3     .0  19.5
E. SF           *     -9   450    -9   150 * AG    1209   2.3     .0  28.5
F. SA           *     -9   150    -9     0 * AG    1053   4.0     .0  22.5
G. SD           *    -14     0   -14  -150 * AG    1093   2.5     .0  13.5
H. SE           *    -14  -150   -14  -450 * AG    1093   2.3     .0  19.5
I. WF           *    450     7   150     7 * AG    1205   2.3     .0  19.5
J. WA           *    150     7     0     7 * AG    1124   4.0     .0  13.5
K. WD           *      0     5  -150     5 * AG    1231   2.9     .0   9.9
L. WE           *   -150     5  -450     5 * AG    1231   2.3     .0  15.0
M. EF           *   -450    -2  -150    -2 * AG    1118   2.3     .0  19.5
N. EA           *   -150    -2     0    -2 * AG    1029   4.0     .0  13.5
O. ED           *      0    -9   150    -9 * AG    1267   2.9     .0   9.9
P. EE           *    150    -9   450    -9 * AG    1267   2.3     .0  15.0
Q. NL           *      0     0     5  -150 * AG     139   4.0     .0   9.9
R. SL           *      0     0     0   150 * AG     156   4.0     .0   9.9
S. WL           *      0     0   150     2 * AG      81   4.0     .0   9.9
T. EL           *      0     0  -150    -2 * AG      89   4.0     .0   9.9


III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. NE3      *     19     17   1.8
2. SE3      *     23    -12   1.8
3. SW3      *    -14    -17   1.8
4. NW3      *    -23     12   1.8

 IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
 RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
1. NE3      *  253. *   1.1 *   .0   .0   .2   .0   .0   .1   .0   .0
2. SE3      *  276. *   1.7 *   .0   .3   .0   .0   .0   .0   .0   .0
3. SW3      *    5. *   1.3 *   .0   .0   .0   .2   .0   .5   .2   .0
4. NW3      *   94. *   1.3 *   .0   .0   .1   .0   .0   .2   .0   .0

            *                          CONC/LINK
            *                            (PPM)
 RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
------------*------------------------------------------------------------
1. NE3      *   .0   .1   .3   .0   .0   .3   .0   .0   .0   .0   .0   .0
2. SE3      *   .0   .0   .2   .1   .0   .5   .4   .0   .0   .0   .0   .0
3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
4. NW3      *   .0   .6   .0   .0   .0   .0   .0   .1   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 62 VAN NUYS BLVD AND BURBANK BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=     .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE             VD=    .0 CM/S
       CLAS=     7 (G)              VS=    .0 CM/S
       MIXH= 1000. M               AMB=    .0 PPM
      SIGTH=    5. DEGREES        TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *     9  -450     9  -150 *  AG    1385  2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG    1145  4.0     .0  18.0
 C. ND           *     7     0     7   150 *  AG    1294  2.5     .0  13.5
 D. NE           *     7   150     7   450 *  AG    1294  2.3     .0  19.5
 E. SF           *    -9   450    -9   150 *  AG    1635  2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG    1458  4.0     .0  18.0
 G. SD           *   -11     0   -11  -150 *  AG    1752  2.9     .0  13.5
 H. SE           *   -11  -150   -11  -450 *  AG    1752  2.3     .0  19.5
 I. WF           *   450     9   150     9 *  AG    1225  2.3     .0  19.5
 J. WA           *   150     9     0     9 *  AG    1114  4.0     .0  13.5
 K. WD           *     0     2  -150     2 *  AG    1326  3.3     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG    1326  2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG    1472  2.3     .0  24.0
 N. EA           *  -150    -2     0    -2 *  AG    1348  4.0     .0  18.0
 O. ED           *     0   -11   150   -11 *  AG    1345  3.3     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG    1345  2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG     240  4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG     177  4.0     .0   9.9
 S. WL           *     0     0   150     5 *  AG     111  4.0     .0   9.9
 T. EL           *     0     0  -150     0 *  AG     124  4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *     X      Y      Z
 ------------*---------------------
 1. NE3      *     17     19   1.8
 2. SE3      *     21    -14   1.8
 3. SW3      *    -17    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *    A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  254. *   1.2 *   .0   .0   .2   .0   .0   .2   .0   .0
 2. SE3      *  277. *   1.9 *   .0   .2   .0   .0   .0   .0   .1   .0
 3. SW3      *    5. *   1.8 *   .0   .0   .0   .2   .1   .7   .4   .0
 4. NW3      *  171. *   1.4 *   .1   .0   .0   .0   .0   .0   .6   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *    I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .1   .3   .0   .0   .3   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .0   .0   .5   .5   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .3   .0   .0   .3   .0   .0   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 62 VAN NUYS BLVD AND BURBANK BLVD PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *   LINK COORDINATES (M)  *              EF     H     W
    DESCRIPTION  *    X1    Y1    X2    Y2 * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *     9  -450     9  -150 *  AG   1632   2.3     .0  24.0
 B. NA           *     9  -150     9     0 *  AG   1284   4.0     .0  18.0
 C. ND           *     7     0     7   150 *  AG   1251   2.5     .0  13.5
 D. NE           *     7   150     7   450 *  AG   1251   2.3     .0  19.5
 E. SF           *    -9   450    -9   150 *  AG   1216   2.3     .0  24.0
 F. SA           *    -9   150    -9     0 *  AG   1007   4.0     .0  18.0
 G. SD           *   -11     0   -11  -150 *  AG   1171   2.5     .0  13.5
 H. SE           *   -11  -150   -11  -450 *  AG   1171   2.3     .0  19.5
 I. WF           *   450     9   150     9 *  AG   1228   2.3     .0  19.5
 J. WA           *   150     9     0     9 *  AG   1137   4.0     .0  13.5
 K. WD           *     0     2  -150     2 *  AG   1505   4.0     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG   1505   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1382   2.3     .0  24.0
 N. EA           *  -150    -2     0    -2 *  AG   1313   4.0     .0  18.0
 O. ED           *     0   -11   150   -11 *  AG   1531   4.0     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG   1531   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG    348   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    209   4.0     .0   9.9
 S. WL           *     0     0   150     5 *  AG     91   4.0     .0   9.9
 T. EL           *     0     0  -150     0 *  AG     69   4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *     X      Y     Z
 ------------*---------------------
 1. NE3      *     17     19   1.8
 2. SE3      *     21    -14   1.8
 3. SW3      *    -17    -19   1.8
 4. NW3      *    -21     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                 CONC/LINK
             *  BRG  * CONC  *                   (PPM)
  RECEPTOR   * (DEG) * (PPM) *    A    B    C    D    E    F    G    H
-------------*-------*-------*------------------------------------------
 1. NE3      *  254. *   1.2 *   .0   .0   .2   .0   .0   .1   .0   .0
 2. SE3      *  277. *   2.2 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *   84. *   1.4 *   .0   .2   .0   .0   .0   .0   .2   .0
 4. NW3      *  122. *   1.5 *   .0   .2   .0   .0   .0   .2   .0   .0

             *                           CONC/LINK
             *                             (PPM)
  RECEPTOR   *    I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .1   .4   .0   .0   .3   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .3   .0   .0   .5   .7   .0   .0   .0   .0   .0
 3. SW3      *   .1   .0   .0   .0   .0   .0   .8   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .5   .0   .0   .2   .3   .0   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 64 VAN NUYS BLVD AND MAGNOLIA BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H      W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     7  -450     7  -150 *  AG   1012   2.3     .0  19.5
 B. NA           *     7  -150     7     0 *  AG    918   4.0     .0  13.5
 C. ND           *     5     0     5   150 *  AG   1015   2.5     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1015   2.3     .0  15.0
 E. SF           *    -7   450    -7   150 *  AG   1423   2.3     .0  19.5
 F. SA           *    -7   150    -7     0 *  AG   1286   4.0     .0  13.5
 G. SD           *    -9     0    -9  -150 *  AG   1461   2.9     .0   9.9
 H. SE           *    -9  -150    -9  -450 *  AG   1461   2.3     .0  15.0
 I. WF           *   450     7   150     7 *  AG   1157   2.3     .0  19.5
 J. WA           *   150     7     0     7 *  AG   1041   4.0     .0  13.5
 K. WD           *     0     5  -150     5 *  AG   1101   2.9     .0   9.9
 L. WE           *  -150     5  -450     5 *  AG   1101   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1083   2.3     .0  19.5
 N. EA           *  -150    -2     0    -2 *  AG   1012   4.0     .0  13.5
 O. ED           *     0    -9   150    -9 *  AG   1098   2.9     .0   9.9
 P. EE           *   150    -9   450    -9 *  AG   1098   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG     94   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    137   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG    116   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG     71   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     17   1.8
 2. SE3      *     17    -12   1.8
 3. SW3      *    -12    -17   1.8
 4. NW3      *    -17     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  184. *   1.3 *   .0   .6   .0   .0   .0   .0   .0   .2
 2. SE3      *  276. *   1.5 *   .0   .2   .0   .0   .0   .0   .1   .0
 3. SW3      *    3. *   1.8 *   .0   .0   .0   .1   .1   .8   .4   .0
 4. NW3      *  173. *   1.2 *   .1   .0   .0   .0   .0   .0   .6   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .1   .1   .0   .5   .3   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
```

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: 64 VAN NUYS BLVD AND MAGNOLIA BLVD PM
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

  I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=   .0 CM/S
      CLAS=     7 (G)             VS=   .0 CM/S
      MIXH= 1000. M              AMB=   .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
----------------*-------------------------*------------------------------
A. NF           *     7  -450     7  -150 *  AG   1663   2.3     .0  19.5
B. NA           *     7  -150     7     0 *  AG   1530   4.0     .0  13.5
C. ND           *     5     0     5   150 *  AG   1560   2.9     .0   9.9
D. NE           *     5   150     5   450 *  AG   1560   2.3     .0  15.0
E. SF           *    -7   450    -7   150 *  AG   1147   2.3     .0  19.5
F. SA           *    -7   150    -7     0 *  AG   1055   4.0     .0  13.5
G. SD           *    -9     0    -9  -150 *  AG   1194   2.5     .0   9.9
H. SE           *    -9  -150    -9  -450 *  AG   1194   2.3     .0  15.0
I. WF           *   450     7   150     7 *  AG    997   2.3     .0  19.5
J. WA           *   150     7     0     7 *  AG    906   4.0     .0  13.5
K. WD           *     0     5  -150     5 *  AG   1033   2.9     .0   9.9
L. WE           *  -150     5  -450     5 *  AG   1033   2.3     .0  15.0
M. EF           *  -450    -2  -150    -2 *  AG   1221   2.3     .0  19.5
N. EA           *  -150    -2     0    -2 *  AG   1130   4.0     .0  13.5
O. ED           *     0    -9   150    -9 *  AG   1241   2.9     .0   9.9
P. EE           *   150    -9   450    -9 *  AG   1241   2.3     .0  15.0
Q. NL           *     0     0     2  -150 *  AG    133   3.3     .0   9.9
R. SL           *     0     0    -2   150 *  AG     92   3.3     .0   9.9
S. WL           *     0     0   150     2 *  AG     91   4.0     .0   9.9
T. EL           *     0     0  -150    -2 *  AG     91   4.0     .0   9.9


III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. NE3      *     12     17   1.8
2. SE3      *     17    -12   1.8
3. SW3      *    -12    -17   1.8
4. NW3      *    -17     12   1.8

 IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
 RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
------------*-------*-------*----------------------------------------
1. NE3      *  183. *   1.6 *   .2   .9   .0   .0   .0   .0   .0   .1
2. SE3      *  276. *   1.7 *   .0   .3   .0   .0   .0   .0   .0   .0
3. SW3      *    4. *   1.7 *   .0   .0   .1   .2   .0   .6   .3   .0
4. NW3      *  171. *   1.2 *   .1   .2   .0   .0   .0   .0   .4   .0

            *                          CONC/LINK
            *                            (PPM)
 RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
------------*------------------------------------------------------------
1. NE3      *   .0   .2   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
2. SE3      *   .0   .0   .1   .0   .0   .5   .4   .0   .0   .0   .0   .0
3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
```

```
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 73 VAN NUYS BLVD AND VENTURA BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     7  -450     7  -150 *  AG    500   2.3     .0  19.5
 B. NA           *     7  -150     7     0 *  AG    476   4.0     .0  13.5
 C. ND           *     5     0     5   150 *  AG    726   2.9     .0   9.9
 D. NE           *     5   150     5   450 *  AG    726   2.3     .0  15.0
 E. SF           *    -7   450    -7   150 *  AG   1077   2.3     .0  19.5
 F. SA           *    -7   150    -7     0 *  AG    897   4.0     .0  13.5
 G. SD           *   -11     0   -11  -150 *  AG    695   4.0     .0   9.9
 H. SE           *   -11  -150   -11  -450 *  AG    695   2.3     .0  10.5
 I. WF           *   450     9   150     9 *  AG   1139   2.3     .0  19.5
 J. WA           *   150     9     0     9 *  AG   1031   3.3     .0  13.5
 K. WD           *     0     2  -150     2 *  AG   1401   2.5     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG   1401   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1340   2.3     .0  24.0
 N. EA           *  -150    -2     0    -2 *  AG   1109   3.3     .0  18.0
 O. ED           *     0   -11   150   -11 *  AG   1234   2.5     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG   1234   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG     24   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    180   4.0     .0   9.9
 S. WL           *     0     0   150     5 *  AG    108   3.3     .0   9.9
 T. EL           *     0     0  -150     0 *  AG    231   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     17    -14   1.8
 3. SW3      *     -8    -19   1.8
 4. NW3      *    -17     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  262. *     .9 *   .0   .0   .1   .0   .0   .1   .0   .0
 2. SE3      *  276. *    1.3 *   .0   .1   .0   .0   .0   .0   .0   .0
 3. SW3      *    2. *    1.5 *   .0   .0   .0   .0   .1   .5   .3   .0
 4. NW3      *   92. *    1.1 *   .0   .0   .0   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .1   .0   .4   .3   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .1   .5   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 73 VAN NUYS BLVD AND VENTURA BLVD PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF      H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *     7  -450     7  -150 *  AG    778   2.3     .0  19.5
 B. NA           *     7  -150     7     0 *  AG    695   4.0     .0  13.5
 C. ND           *     5     0     5   150 *  AG   1333   4.0     .0   9.9
 D. NE           *     5   150     5   450 *  AG   1333   2.3     .0  15.0
 E. SF           *    -7   450    -7   150 *  AG    953   2.3     .0  19.5
 F. SA           *    -7   150    -7     0 *  AG    777   4.0     .0  13.5
 G. SD           *   -11     0   -11  -150 *  AG    580   3.3     .0   9.9
 H. SE           *   -11  -150   -11  -450 *  AG    580   2.3     .0  10.5
 I. WF           *   450     9   150     9 *  AG   1168   2.3     .0  19.5
 J. WA           *   150     9     0     9 *  AG   1087   3.3     .0  13.5
 K. WD           *     0     2  -150     2 *  AG   1300   2.5     .0   9.9
 L. WE           *  -150     2  -450     2 *  AG   1300   2.3     .0  15.0
 M. EF           *  -450    -2  -150    -2 *  AG   1685   2.3     .0  24.0
 N. EA           *  -150    -2     0    -2 *  AG   1226   3.3     .0  18.0
 O. ED           *     0   -11   150   -11 *  AG   1371   2.5     .0   9.9
 P. EE           *   150   -11   450   -11 *  AG   1371   2.3     .0  15.0
 Q. NL           *     0     0     2  -150 *  AG     83   4.0     .0   9.9
 R. SL           *     0     0    -2   150 *  AG    176   4.0     .0   9.9
 S. WL           *     0     0   150     5 *  AG     81   3.3     .0   9.9
 T. EL           *     0     0  -150     0 *  AG    459   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     12     19   1.8
 2. SE3      *     17    -14   1.8
 3. SW3      *     -8    -19   1.8
 4. NW3      *    -17     10   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  261. *   1.1 *   .0   .0   .3   .0   .0   .1   .0   .0
 2. SE3      *  276. *   1.5 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    3. *   1.5 *   .0   .0   .2   .2   .0   .4   .2   .0
 4. NW3      *   92. *   1.2 *   .0   .0   .2   .0   .0   .2   .0   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .1
 2. SE3      *   .0   .0   .1   .1   .1   .4   .3   .0   .0   .0   .0   .1
 3. SW3      *   .0   .0   .1   .0   .0   .2   .0   .0   .0   .1   .0   .0
 4. NW3      *   .1   .6   .0   .0   .0   .0   .0   .1   .0   .0   .0   .0
```

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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 77 SEPULVEDA BLVD AND BURBANK BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=    .0 CM/S
       CLAS=     7 (G)             VS=    .0 CM/S
       MIXH= 1000. M              AMB=    .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *    14  -450    14  -150 *  AG    1192   2.3     .0  28.5
 B. NA           *    14  -150    14     0 *  AG     698   4.0     .0  22.5
 C. ND           *     9     0     9   150 *  AG     983   2.5     .0  13.5
 D. NE           *     9   150     9   450 *  AG     983   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG    1883   2.3     .0  33.0
 F. SA           *   -11   150   -11     0 *  AG    1627   4.0     .0  27.0
 G. SD           *   -18     0   -18  -150 *  AG    1784   2.9     .0  13.5
 H. SE           *   -18  -150   -18  -450 *  AG    1784   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG    1341   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG    1265   4.0     .0  22.5
 K. WD           *     0     7  -150     7 *  AG    2183   2.9     .0  13.5
 L. WE           *  -150     7  -450     7 *  AG    2183   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG    2196   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG    1886   4.0     .0  22.5
 O. ED           *     0   -16   150   -16 *  AG    1662   2.9     .0  13.5
 P. EE           *   150   -16   450   -16 *  AG    1662   2.3     .0  19.5
 Q. NL           *     0     0     5  -150 *  AG     494   4.0     .0   9.9
 R. SL           *     0     0     0   150 *  AG     256   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG      76   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG     310   4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *      19     26   1.8
 2. SE3      *      28    -17   1.8
 3. SW3      *     -14    -26   1.8
 4. NW3      *     -28     17   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  256. *   1.3 *   .0   .0   .1   .0   .0   .2   .0   .0
 2. SE3      *  277. *   2.0 *   .0   .1   .0   .0   .0   .0   .1   .0
 3. SW3      *    3. *   1.8 *   .0   .0   .0   .0   .2   .5   .5   .0
 4. NW3      *  173. *   1.5 *   .1   .0   .0   .0   .0   .0   .6   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .4   .0   .0   .4   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .2   .1   .6   .5   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .2   .0   .0   .3   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .4   .0   .0   .3   .0   .0   .0   .0   .0   .0
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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 77 SEPULVEDA BLVD AND BURBANK BLVD PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A. NF           *    14  -450    14  -150 *  AG   1824   2.3     .0  28.5
 B. NA           *    14  -150    14     0 *  AG   1282   4.0     .0  22.5
 C. ND           *     9     0     9   150 *  AG   1716   2.9     .0  13.5
 D. NE           *     9   150     9   450 *  AG   1716   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG   1696   2.3     .0  33.0
 F. SA           *   -11   150   -11     0 *  AG   1388   4.0     .0  27.0
 G. SD           *   -18     0   -18  -150 *  AG   1436   2.5     .0  13.5
 H. SE           *   -18  -150   -18  -450 *  AG   1436   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG   1430   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG   1355   4.0     .0  22.5
 K. WD           *     0     7  -150     7 *  AG   2293   3.3     .0  13.5
 L. WE           *  -150     7  -450     7 *  AG   2293   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG   2259   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG   1811   4.0     .0  22.5
 O. ED           *     0   -16   150   -16 *  AG   1764   2.9     .0  13.5
 P. EE           *   150   -16   450   -16 *  AG   1764   2.3     .0  19.5
 Q. NL           *     0     0     5  -150 *  AG    542   4.0     .0   9.9
 R. SL           *     0     0     0   150 *  AG    308   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG     75   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    448   4.0     .0   9.9


 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *      19     26   1.8
 2. SE3      *      28    -17   1.8
 3. SW3      *     -14    -26   1.8
 4. NW3      *     -28     17   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *    A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  256. *   1.5 *   .0   .0   .3   .0   .0   .2   .0   .0
 2. SE3      *  277. *   2.1 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    5. *   1.7 *   .0   .0   .0   .2   .0   .4   .3   .0
 4. NW3      *  166. *   1.5 *   .0   .1   .0   .0   .0   .0   .3   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .4   .0   .0   .4   .0   .0   .0   .0   .0   .1
 2. SE3      *   .0   .0   .2   .2   .1   .6   .5   .0   .0   .0   .0   .1
 3. SW3      *   .0   .0   .2   .0   .0   .3   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .4   .0   .0   .3   .0   .0   .1   .0   .0   .0
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           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 79 SEPULVEDA BLVD AND MAGNOLIA BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

    I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM           ALT=     0. (M)
       BRG= WORST CASE            VD=   .0 CM/S
      CLAS=     7 (G)             VS=   .0 CM/S
      MIXH= 1000. M              AMB=   .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

   II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
  ---------------*-------------------------*------------------------------
  A. NF          *     9  -450     9  -150 *  AG    796   2.3     .0  24.0
  B. NA          *     9  -150     9     0 *  AG    738   3.3     .0  18.0
  C. ND          *     7     0     7   150 *  AG    960   2.5     .0  13.5
  D. NE          *     7   150     7   450 *  AG    960   2.3     .0  19.5
  E. SF          *    -9   450    -9   150 *  AG   1735   2.3     .0  24.0
  F. SA          *    -9   150    -9     0 *  AG   1426   3.3     .0  18.0
  G. SD          *   -11     0   -11  -150 *  AG   1638   2.5     .0  13.5
  H. SE          *   -11  -150   -11  -450 *  AG   1638   2.3     .0  19.5
  I. WF          *   450     7   150     7 *  AG    753   2.3     .0  15.0
  J. WA          *   150     7     0     7 *  AG    472   4.9     .0   9.9
  K. WD          *     0     0  -150     0 *  AG    305   2.9     .0   9.9
  L. WE          *  -150     0  -450     0 *  AG    305   2.3     .0  10.5
  M. EF          *  -450     0  -150     0 *  AG    223   2.3     .0  19.5
  N. EA          *  -150     0     0     0 *  AG    145   4.9     .0  13.5
  O. ED          *     0    -9   150    -9 *  AG    604   4.9     .0   9.9
  P. EE          *   150    -9   450    -9 *  AG    604   2.3     .0  10.5
  Q. NL          *     0     0     2  -150 *  AG     58   3.3     .0   9.9
  R. SL          *     0     0    -2   150 *  AG    309   3.3     .0   9.9
  S. WL          *     0     0   150     5 *  AG    281   4.9     .0   9.9
  T. EL          *     0     0  -150     0 *  AG     78   4.9     .0   9.9


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
  ------------*----------------------
  1. NE3      *     17     14   1.8
  2. SE3      *     21    -10   1.8
  3. SW3      *    -17    -14   1.8
  4. NW3      *    -21      5   1.8

   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. NE3      *  186. *    .9 *   .0   .3   .0   .0   .0   .0   .0   .2
  2. SE3      *  275. *    .9 *   .0   .1   .0   .0   .0   .0   .1   .0
  3. SW3      *    4. *   1.3 *   .0   .0   .0   .1   .2   .6   .3   .0
  4. NW3      *   92. *   1.3 *   .0   .0   .0   .0   .0   .2   .0   .0

              *                           CONC/LINK
              *                             (PPM)
   RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
  ------------*------------------------------------------------------------
  1. NE3      *   .0   .1   .0   .0   .0   .0   .1   .0   .0   .0   .0   .0
  2. SE3      *   .0   .0   .1   .0   .0   .1   .3   .0   .0   .0   .0   .0
  3. SW3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
  4. NW3      *   .0   .3   .0   .0   .0   .0   .0   .0   .0   .0   .2   .0
```

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: 79 SEPULVEDA BLVD AND MAGNOLIA BLVD PM
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

  I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=    .0 CM/S
      CLAS=     7 (G)             VS=    .0 CM/S
      MIXH= 1000. M              AMB=    .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
----------------*-------------------------*------------------------------
A. NF           *     9  -450     9  -150 *  AG   1959   2.3     .0  24.0
B. NA           *     9  -150     9     0 *  AG   1920   3.3     .0  18.0
C. ND           *     7     0     7   150 *  AG   1892   2.5     .0  13.5
D. NE           *     7   150     7   450 *  AG   1892   2.3     .0  19.5
E. SF           *    -9   450    -9   150 *  AG   1339   2.3     .0  24.0
F. SA           *    -9   150    -9     0 *  AG   1000   3.3     .0  18.0
G. SD           *   -11     0   -11  -150 *  AG   1299   2.5     .0  13.5
H. SE           *   -11  -150   -11  -450 *  AG   1299   2.3     .0  19.5
I. WF           *   450     7   150     7 *  AG    646   2.3     .0  15.0
J. WA           *   150     7     0     7 *  AG    389   4.9     .0   9.9
K. WD           *     0     0  -150     0 *  AG    149   2.9     .0   9.9
L. WE           *  -150     0  -450     0 *  AG    149   2.3     .0  10.5
M. EF           *  -450     0  -150     0 *  AG    316   2.3     .0  19.5
N. EA           *  -150     0     0     0 *  AG    213   4.9     .0  13.5
O. ED           *     0    -9   150    -9 *  AG    920   4.9     .0   9.9
P. EE           *   150    -9   450    -9 *  AG    920   2.3     .0  10.5
Q. NL           *     0     0     2  -150 *  AG     39   3.3     .0   9.9
R. SL           *     0     0    -2   150 *  AG    339   3.3     .0   9.9
S. WL           *     0     0   150     5 *  AG    257   4.9     .0   9.9
T. EL           *     0     0  -150     0 *  AG    103   4.9     .0   9.9
III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. NE3      *      17     14   1.8
2. SE3      *      21    -10   1.8
3. SW3      *     -17    -14   1.8
4. NW3      *     -21      5   1.8

 IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *    A    B    C    D    E    F    G    H
-------------*-------*-------*-----------------------------------------
 1. NE3      *  184. *    1.4 *   .2   .8   .0   .0   .0   .0   .0   .1
 2. SE3      *  276. *    1.3 *   .0   .3   .0   .0   .0   .0   .0   .0
 3. SW3      *   85. *    1.4 *   .0   .2   .0   .0   .0   .0   .2   .0
 4. NW3      *   93. *    1.3 *   .0   .0   .1   .0   .0   .2   .0   .0


            *                          CONC/LINK
            *                            (PPM)
 RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
------------*------------------------------------------------------------
1. NE3      *   .0   .1   .0   .0   .0   .0   .2   .0   .0   .0   .0   .0
2. SE3      *   .0   .0   .0   .0   .0   .2   .5   .0   .0   .0   .0   .0
3. SW3      *   .0   .0   .0   .0   .0   .0   .7   .0   .0   .0   .0   .0
4. NW3      *   .0   .2   .0   .0   .0   .0   .1   .1   .0   .0   .2   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 83 SEPULVEDA BLVD AND VENTURA BLVD AM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=   .0 CM/S
       CLAS=     7 (G)             VS=   .0 CM/S
       MIXH= 1000. M              AMB=   .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *    14  -450    14  -150 *  AG    793   2.3     .0  28.5
 B. NA           *    14  -150    14     0 *  AG    524   4.0     .0  22.5
 C. ND           *     9     0     9   150 *  AG    717   2.5     .0  13.5
 D. NE           *     9   150     9   450 *  AG    717   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG   1276   2.3     .0  33.0
 F. SA           *   -11   150   -11     0 *  AG   1034   4.0     .0  27.0
 G. SD           *   -18     0   -18  -150 *  AG   1338   2.9     .0  13.5
 H. SE           *   -18  -150   -18  -450 *  AG   1338   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG   1582   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG   1131   3.3     .0  22.5
 K. WD           *     0     2  -150     2 *  AG   1759   2.5     .0  13.5
 L. WE           *  -150     2  -450     2 *  AG   1759   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG   1433   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG   1078   3.3     .0  22.5
 O. ED           *     0   -18   150   -18 *  AG   1270   2.5     .0   9.9
 P. EE           *   150   -18   450   -18 *  AG   1270   2.3     .0  15.0
 Q. NL           *     0     0     5  -150 *  AG    269   4.0     .0   9.9
 R. SL           *     0     0     0   150 *  AG    242   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG    451   3.3     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    355   3.3     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *      19     26   1.8
 2. SE3      *      28    -17   1.8
 3. SW3      *     -14    -26   1.8
 4. NW3      *     -28     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  258. *    .9 *   .0   .0   .1   .0   .0   .1   .0   .0
 2. SE3      *  276. *   1.4 *   .0   .1   .0   .0   .0   .0   .0   .0
 3. SW3      *    3. *   1.3 *   .0   .0   .0   .0   .1   .4   .4   .0
 4. NW3      *  173. *   1.1 *   .0   .0   .0   .0   .0   .0   .5   .0

             *                          CONC/LINK
             *                            (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .2   .2   .1   .3   .4   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .1   .0   .0   .1   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: 83 SEPULVEDA BLVD AND VENTURA BLVD PM
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

          U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
        BRG= WORST CASE            VD=    .0 CM/S
       CLAS=     7 (G)             VS=    .0 CM/S
       MIXH= 1000. M              AMB=    .0 PPM
      SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*-------------------------------
 A. NF           *    14  -450    14  -150 *  AG   1613   2.3     .0  28.5
 B. NA           *    14  -150    14     0 *  AG   1239   4.0     .0  22.5
 C. ND           *     9     0     9   150 *  AG   1760   2.9     .0  13.5
 D. NE           *     9   150     9   450 *  AG   1760   2.3     .0  19.5
 E. SF           *   -11   450   -11   150 *  AG   1338   2.3     .0  33.0
 F. SA           *   -11   150   -11     0 *  AG   1131   4.0     .0  27.0
 G. SD           *   -18     0   -18  -150 *  AG   1062   2.5     .0  13.5
 H. SE           *   -18  -150   -18  -450 *  AG   1062   2.3     .0  19.5
 I. WF           *   450    11   150    11 *  AG   1480   2.3     .0  28.5
 J. WA           *   150    11     0    11 *  AG   1256   4.0     .0  22.5
 K. WD           *     0     2  -150     2 *  AG   1992   2.9     .0  13.5
 L. WE           *  -150     2  -450     2 *  AG   1992   2.3     .0  19.5
 M. EF           *  -450    -2  -150    -2 *  AG   2127   2.3     .0  28.5
 N. EA           *  -150    -2     0    -2 *  AG   1542   4.0     .0  22.5
 O. ED           *     0   -18   150   -18 *  AG   1744   3.3     .0   9.9
 P. EE           *   150   -18   450   -18 *  AG   1744   2.3     .0  15.0
 Q. NL           *     0     0     5  -150 *  AG    374   4.0     .0   9.9
 R. SL           *     0     0     0   150 *  AG    207   4.0     .0   9.9
 S. WL           *     0     0   150     2 *  AG    224   4.0     .0   9.9
 T. EL           *     0     0  -150    -2 *  AG    585   4.0     .0   9.9

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     19     26   1.8
 2. SE3      *     28    -17   1.8
 3. SW3      *    -14    -26   1.8
 4. NW3      *    -28     12   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. NE3      *  256. *   1.3 *   .0   .0   .3   .0   .0   .1   .0   .0
 2. SE3      *  276. *   2.2 *   .0   .2   .0   .0   .0   .0   .0   .0
 3. SW3      *    5. *   1.5 *   .0   .0   .0   .2   .0   .4   .2   .0
 4. NW3      *  261. *   1.5 *   .0   .0   .0   .0   .0   .0   .0   .0

             *                          CONC/LINK
             *                           (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*-------------------------------------------------------------
 1. NE3      *   .0   .0   .3   .0   .0   .3   .0   .0   .0   .0   .0   .1
 2. SE3      *   .0   .0   .2   .2   .1   .5   .7   .0   .0   .0   .0   .1
 3. SW3      *   .0   .0   .2   .0   .0   .2   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .6   .0   .1   .5   .0   .0   .0   .0   .0   .2
```

ESFV 2040 VMT/VHT SUMMARY

PEAK PERIODS

	VMT	Y40 No Build				Y40 TSM				Y40 Alt1				Y40 Alt2				Y40 Alt3				Y40 Alt4			
Bin Name	**Speed Bins**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**
5	0.0 - 4.99	8,349,722	3.04%	2,953,125	20.99%	8,350,915	3.04%	2,955,653	21.01%	8,450,667	3.07%	2,969,103	21.11%	8,363,952	3.04%	2,958,615	21.03%	8,438,043	3.07%	2,965,170	21.08%	8,242,105	3.00%	2,930,287	20.83%
10	5.0 - 9.99	12,408,550	4.51%	1,670,416	11.87%	12,523,379	4.56%	1,680,370	11.94%	12,243,426	4.45%	1,644,523	11.69%	12,519,278	4.56%	1,678,578	11.93%	12,479,982	4.54%	1,672,695	11.89%	12,431,994	4.52%	1,681,122	11.95%
15	10.0 - 14.99	17,778,914	6.47%	1,427,390	10.15%	17,520,628	6.37%	1,406,382	10.00%	17,972,565	6.54%	1,442,583	10.26%	17,622,478	6.41%	1,414,261	10.05%	17,747,438	6.46%	1,422,414	10.11%	17,866,776	6.50%	1,437,115	10.22%
20	15.0 - 19.99	27,598,895	10.04%	1,575,272	11.20%	27,840,632	10.13%	1,591,524	11.31%	27,504,607	10.01%	1,570,263	11.16%	27,857,294	10.14%	1,588,110	11.29%	28,144,442	10.24%	1,603,322	11.40%	27,725,559	10.09%	1,582,958	11.25%
25	20.0 - 24.99	35,830,284	13.04%	1,587,256	11.28%	35,827,042	13.03%	1,585,353	11.27%	35,829,899	13.04%	1,586,436	11.28%	35,779,070	13.02%	1,582,334	11.25%	36,026,747	13.11%	1,589,249	11.30%	35,599,401	12.95%	1,576,690	11.21%
30	25.0 - 29.99	48,209,221	17.54%	1,741,653	12.38%	48,022,348	17.47%	1,733,909	12.33%	47,912,426	17.43%	1,732,142	12.31%	47,867,401	17.42%	1,727,969	12.28%	48,013,858	17.47%	1,728,547	12.29%	47,880,467	17.42%	1,730,567	12.30%
35	30.0 - 34.99	46,564,705	16.94%	1,427,737	10.15%	46,826,252	17.04%	1,435,190	10.20%	46,905,668	17.07%	1,439,060	10.23%	46,648,491	16.97%	1,430,568	10.17%	46,334,046	16.86%	1,416,106	10.07%	46,918,293	17.07%	1,439,693	10.24%
40	35.0 - 39.99	25,378,308	9.23%	674,657	4.80%	25,245,184	9.18%	670,556	4.77%	25,336,294	9.22%	673,443	4.79%	25,474,582	9.27%	676,999	4.81%	25,371,433	9.23%	671,715	4.78%	25,521,361	9.29%	678,533	4.82%
45	40.0 - 44.99	13,343,121	4.85%	314,319	2.23%	13,290,148	4.84%	312,918	2.22%	13,190,178	4.80%	310,889	2.21%	13,308,009	4.84%	313,403	2.23%	13,100,877	4.77%	307,453	2.19%	13,227,641	4.81%	311,560	2.22%
50	45.0 - 49.99	12,027,237	4.38%	252,816	1.80%	12,077,352	4.39%	253,780	1.80%	12,121,533	4.41%	255,000	1.81%	12,069,579	4.39%	253,611	1.80%	12,011,823	4.37%	251,433	1.79%	12,062,422	4.39%	253,562	1.80%
55	50.0 - 54.99	5,702,577	2.07%	108,932	0.77%	5,597,016	2.04%	106,913	0.76%	5,648,070	2.05%	107,958	0.77%	5,614,729	2.04%	107,205	0.76%	5,458,354	1.99%	104,064	0.74%	5,634,837	2.05%	107,646	0.77%
60	55.0 - 59.99	4,464,262	1.62%	77,610	0.55%	4,549,920	1.66%	79,127	0.56%	4,526,668	1.65%	78,750	0.56%	4,566,634	1.66%	79,366	0.56%	4,822,533	1.75%	83,655	0.59%	4,611,810	1.68%	80,123	0.57%
65	60.0 - 64.99	6,014,675	2.19%	96,614	0.69%	6,008,882	2.19%	96,456	0.69%	6,019,653	2.19%	96,710	0.69%	5,967,283	2.17%	95,779	0.68%	5,804,942	2.11%	92,772	0.66%	5,926,756	2.16%	95,123	0.68%
70	65.0 - 69.99	4,542,083	1.65%	66,761	0.47%	4,533,763	1.65%	66,604	0.47%	4,528,088	1.65%	66,580	0.47%	4,531,612	1.65%	66,587	0.47%	4,488,811	1.63%	65,748	0.47%	4,534,348	1.65%	66,633	0.47%
75	70.0 - 74.99	6,653,691	2.42%	93,063	0.66%	6,651,473	2.42%	92,998	0.66%	6,657,966	2.42%	93,146	0.66%	6,655,047	2.42%	93,053	0.66%	6,618,417	2.41%	92,225	0.66%	6,646,522	2.42%	92,945	0.66%
80	75.0 - 80.00	737	0.00%	9	0.00%	742	0.00%	9	0.00%	736	0.00%	9	0.00%	737	0.00%	9	0.00%	740	0.00%	9	0.00%	742	0.00%	9	0.00%
	TOTAL	**274,866,981**	**100.0%**	**14,067,630**	**100.0%**	**274,865,675**	**100.0%**	**14,067,743**	**100.0%**	**274,848,444**	**100.0%**	**14,066,598**	**100.0%**	**274,846,178**	**100.0%**	**14,066,447**	**100.0%**	**274,862,485**	**100.0%**	**14,066,576**	**100.0%**	**274,831,032**	**100.0%**	**14,064,565**	**100.0%**

OFF-PEAK PERIODS

	VMT	Y40 No Build				Y40 TSM				Y40 Alt1				Y40 Alt2				Y40 Alt3				Y40 Alt4			
Bin Name	**Speed Bins**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**
5	0.0 - 4.99	1,436,521	0.55%	571,637	8.83%	1,424,275	0.54%	569,122	8.79%	1,436,759	0.55%	571,972	8.83%	1,423,046	0.54%	568,947	8.79%	1,442,386	0.55%	572,894	8.85%	1,442,268	0.55%	572,777	8.85%
10	5.0 - 9.99	710,993	0.27%	98,413	1.52%	718,524	0.27%	100,598	1.55%	708,106	0.27%	97,927	1.51%	711,421	0.27%	99,633	1.54%	720,126	0.27%	98,999	1.53%	743,628	0.28%	101,171	1.56%
15	10.0 - 14.99	1,184,602	0.45%	96,230	1.49%	1,184,782	0.45%	96,400	1.49%	1,156,831	0.44%	94,442	1.46%	1,156,821	0.44%	94,493	1.46%	1,144,482	0.44%	93,261	1.44%	1,168,582	0.44%	96,611	1.49%
20	15.0 - 19.99	1,774,890	0.67%	98,647	1.52%	1,766,675	0.67%	98,356	1.52%	1,830,058	0.70%	102,024	1.58%	1,809,056	0.69%	101,170	1.56%	1,770,445	0.67%	98,748	1.53%	1,687,690	0.64%	93,937	1.45%
25	20.0 - 24.99	4,828,274	1.84%	207,894	3.21%	4,910,231	1.87%	211,193	3.26%	4,875,172	1.85%	209,463	3.24%	4,849,270	1.84%	208,871	3.23%	4,796,678	1.82%	206,833	3.19%	4,870,619	1.85%	210,055	3.24%
30	25.0 - 29.99	16,000,817	6.08%	560,661	8.66%	15,956,861	6.07%	558,676	8.63%	15,903,775	6.05%	556,956	8.60%	15,892,573	6.04%	556,806	8.60%	15,993,040	6.08%	560,336	8.65%	15,953,592	6.07%	558,822	8.63%
35	30.0 - 34.99	37,000,684	14.07%	1,093,560	16.89%	37,070,368	14.10%	1,095,424	16.92%	37,100,721	14.11%	1,096,125	16.93%	37,212,211	14.15%	1,099,629	16.98%	37,112,569	14.11%	1,096,288	16.93%	37,147,311	14.13%	1,096,633	16.94%
40	35.0 - 39.99	31,383,264	11.93%	834,180	12.88%	31,194,239	11.86%	829,123	12.80%	31,134,925	11.84%	827,611	12.78%	31,265,541	11.89%	830,847	12.83%	31,345,624	11.92%	833,019	12.87%	31,251,421	11.89%	830,081	12.82%
45	40.0 - 44.99	15,645,313	5.95%	366,664	5.66%	15,703,336	5.97%	368,241	5.69%	15,773,290	6.00%	370,028	5.71%	15,689,655	5.97%	367,739	5.68%	15,816,430	6.01%	370,699	5.73%	15,786,170	6.00%	369,853	5.71%
50	45.0 - 49.99	24,481,024	9.31%	509,296	7.87%	24,614,161	9.36%	512,017	7.91%	24,653,162	9.38%	512,812	7.92%	24,429,049	9.29%	508,213	7.85%	24,393,342	9.28%	507,226	7.83%	24,655,502	9.38%	512,283	7.91%
55	50.0 - 54.99	17,700,484	6.73%	338,049	5.22%	17,637,158	6.71%	336,736	5.20%	17,645,815	6.71%	336,894	5.20%	17,821,590	6.78%	340,454	5.26%	17,935,158	6.82%	342,416	5.29%	17,867,837	6.80%	340,815	5.26%
60	55.0 - 59.99	18,091,857	6.88%	314,496	4.86%	18,032,099	6.86%	313,470	4.84%	18,019,320	6.85%	313,194	4.84%	17,998,635	6.84%	312,875	4.83%	17,678,122	6.72%	307,169	4.74%	17,898,776	6.81%	310,583	4.80%
65	60.0 - 64.99	29,538,331	11.23%	471,269	7.28%	29,594,725	11.25%	472,156	7.29%	29,601,861	11.26%	472,256	7.29%	29,551,002	11.24%	471,512	7.28%	29,658,234	11.28%	473,267	7.31%	29,504,530	11.22%	470,283	7.26%
70	65.0 - 69.99	36,344,480	13.82%	537,438	8.30%	36,311,338	13.81%	536,943	8.29%	36,266,660	13.79%	536,280	8.28%	36,267,927	13.79%	536,344	8.28%	36,277,768	13.80%	536,410	8.28%	36,103,692	13.73%	533,389	8.24%
75	70.0 - 74.99	26,840,781	10.21%	376,833	5.82%	26,842,287	10.21%	376,866	5.82%	26,838,097	10.21%	376,806	5.82%	26,864,571	10.22%	377,190	5.83%	26,873,578	10.22%	377,219	5.83%	26,846,204	10.21%	376,560	5.82%
80	75.0 - 80.00	7,572	0.00%	98	0.00%	7,577	0.00%	99	0.00%	7,594	0.00%	99	0.00%	7,604	0.00%	99	0.00%	7,618	0.00%	99	0.00%	7,609	0.00%	99	0.00%
	TOTAL	**262,969,885**	**100.0%**	**6,475,366**	**100.0%**	**262,968,636**	**100.0%**	**6,475,417**	**100.0%**	**262,952,147**	**100.0%**	**6,474,890**	**100.0%**	**262,949,971**	**100.0%**	**6,474,821**	**100.0%**	**262,965,600**	**100.0%**	**6,474,884**	**100.0%**	**262,935,431**	**100.0%**	**6,473,951**	**100.0%**

ESFV 2012 Sunnyvale VMT/VHT SUMMARY

PEAK PERIODS

	VMT	Y12 No Build				Y12 Build (Alt 3)			
Bin Name	**Speed Bins**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**
5	0.0 - 4.99	1,336,887	0.62%	567,477	7.38%	1,335,782	0.62%	565,183	7.35%
10	5.0 - 9.99	2,666,487	1.23%	345,309	4.49%	2,673,976	1.23%	351,287	4.57%
15	10.0 - 14.99	5,401,389	2.49%	430,339	5.60%	5,392,087	2.49%	425,187	5.53%
20	15.0 - 19.99	10,031,671	4.63%	567,903	7.38%	10,041,154	4.63%	571,179	7.43%
25	20.0 - 24.99	24,885,926	11.49%	1,085,479	14.11%	24,878,711	11.48%	1,083,425	14.09%
30	25.0 - 29.99	42,811,006	19.76%	1,567,114	20.38%	42,792,392	19.75%	1,563,311	20.33%
35	30.0 - 34.99	42,919,182	19.81%	1,304,877	16.97%	42,949,364	19.82%	1,310,593	17.04%
40	35.0 - 39.99	23,907,364	11.04%	635,227	8.26%	23,891,249	11.03%	632,571	8.23%
45	40.0 - 44.99	12,298,662	5.68%	290,093	3.77%	12,307,586	5.68%	291,377	3.79%
50	45.0 - 49.99	15,215,923	7.02%	318,282	4.14%	15,212,238	7.02%	317,714	4.13%
55	50.0 - 54.99	9,154,638	4.23%	175,943	2.29%	9,153,371	4.23%	175,759	2.29%
60	55.0 - 59.99	6,662,205	3.08%	116,030	1.51%	6,660,470	3.07%	115,819	1.51%
65	60.0 - 64.99	5,526,244	2.55%	88,642	1.15%	5,517,246	2.55%	87,790	1.14%
70	65.0 - 69.99	5,377,948	2.48%	79,548	1.03%	5,389,402	2.49%	80,593	1.05%
75	70.0 - 74.99	8,450,102	3.90%	118,127	1.54%	8,446,494	3.90%	117,815	1.53%
80	75.0 - 80.00	997	0.00%	13	0.00%	996	0.00%	12	0.00%
	TOTAL	216,646,632	100.0%	7,690,403	100.0%	216,642,517	100.0%	7,689,616	100.0%

OFF-PEAK PERIODS

	VMT	Y12 No Build				Y12 Build (Alt 3)			
Bin Name	**Speed Bins**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**
5	0.0 - 4.99	351,099	0.17%	140,128	3.08%	351,114	0.17%	140,207	3.08%
10	5.0 - 9.99	200,108	0.10%	26,743	0.59%	200,083	0.10%	26,680	0.59%
15	10.0 - 14.99	279,333	0.14%	21,509	0.47%	279,266	0.14%	21,462	0.47%
20	15.0 - 19.99	794,918	0.39%	44,372	0.97%	794,729	0.39%	44,340	0.97%
25	20.0 - 24.99	6,866,764	3.40%	291,982	6.41%	6,868,117	3.40%	292,191	6.42%
30	25.0 - 29.99	16,169,968	8.02%	593,450	13.03%	16,167,250	8.01%	593,064	13.03%
35	30.0 - 34.99	25,041,807	12.41%	732,913	16.10%	25,039,390	12.41%	732,656	16.09%
40	35.0 - 39.99	19,932,711	9.88%	535,473	11.76%	19,931,769	9.88%	535,403	11.76%
45	40.0 - 44.99	6,014,140	2.98%	141,090	3.10%	6,013,094	2.98%	141,022	3.10%
50	45.0 - 49.99	12,696,914	6.29%	262,992	5.78%	12,692,998	6.29%	262,709	5.77%
55	50.0 - 54.99	13,966,089	6.92%	268,359	5.89%	13,974,168	6.93%	268,958	5.91%
60	55.0 - 59.99	13,533,376	6.71%	235,410	5.17%	13,528,194	6.71%	235,063	5.16%
65	60.0 - 64.99	15,946,119	7.90%	254,302	5.59%	15,947,802	7.91%	254,414	5.59%
70	65.0 - 69.99	32,669,580	16.19%	481,688	10.58%	32,671,105	16.20%	481,773	10.58%
75	70.0 - 74.99	37,261,262	18.47%	522,309	11.47%	37,261,275	18.47%	522,310	11.47%
80	75.0 - 80.00	11,659	0.01%	151	0.00%	11,659	0.01%	151	0.00%
	TOTAL	201,735,848	100.0%	4,552,870	100.0%	201,732,015	100.0%	4,552,404	100.0%

TOTAL DAILY

	VMT	Y12 No Build				Y12 Build (Alt 3)			
Bin Name	**Speed Bins**	**VMT**	**%**	**VHT**	**%**	**VMT**	**%**	**VHT**	**%**
5	0.0 - 4.99	1,687,986	0.40%	707,605	5.78%	1,686,896	0.40%	705,390	5.76%
10	5.0 - 9.99	2,866,596	0.69%	372,052	3.04%	2,874,059	0.69%	377,967	3.09%
15	10.0 - 14.99	5,680,722	1.36%	451,848	3.69%	5,671,353	1.36%	446,650	3.65%
20	15.0 - 19.99	10,826,589	2.59%	612,275	5.00%	10,835,883	2.59%	615,519	5.03%
25	20.0 - 24.99	31,752,690	7.59%	1,377,462	11.25%	31,746,828	7.59%	1,375,616	11.24%
30	25.0 - 29.99	58,980,974	14.10%	2,160,564	17.65%	58,959,642	14.09%	2,156,376	17.61%
35	30.0 - 34.99	67,960,989	16.24%	2,037,790	16.64%	67,988,754	16.25%	2,043,249	16.69%
40	35.0 - 39.99	43,840,075	10.48%	1,170,700	9.56%	43,823,018	10.47%	1,167,974	9.54%
45	40.0 - 44.99	18,312,802	4.38%	431,183	3.52%	18,320,679	4.38%	432,399	3.53%
50	45.0 - 49.99	27,912,837	6.67%	581,275	4.75%	27,905,236	6.67%	580,423	4.74%
55	50.0 - 54.99	23,120,728	5.53%	444,302	3.63%	23,127,539	5.53%	444,717	3.63%
60	55.0 - 59.99	20,195,581	4.83%	351,439	2.87%	20,188,664	4.83%	350,882	2.87%
65	60.0 - 64.99	21,472,363	5.13%	342,943	2.80%	21,465,049	5.13%	342,204	2.80%
70	65.0 - 69.99	38,047,528	9.09%	561,236	4.58%	38,060,507	9.10%	562,366	4.59%
75	70.0 - 74.99	45,711,365	10.93%	640,436	5.23%	45,707,769	10.93%	640,124	5.23%
80	75.0 - 80.00	12,656	0.00%	164	0.00%	12,655	0.00%	164	0.00%
	TOTAL	418,382,480	100.00%	12,243,273	100.00%	418,374,532	100.00%	12,242,019	100.00%

2040

	No Build		TSM		Alt 1		Alt 2		Alt 3		Alt 4	
Bin Name	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	9,786,243	1.82%	9,775,190	1.82%	9,887,427	1.84%	9,786,998	1.82%	9,880,429	1.84%	9,684,373	1.80%
10	13,119,543	2.44%	13,241,903	2.46%	12,951,532	2.41%	13,230,699	2.46%	13,200,108	2.45%	13,175,622	2.45%
15	18,963,516	3.53%	18,705,410	3.48%	19,129,395	3.56%	18,779,299	3.49%	18,891,919	3.51%	19,035,358	3.54%
20	29,373,785	5.46%	29,607,307	5.50%	29,334,666	5.45%	29,666,350	5.52%	29,914,887	5.56%	29,413,249	5.47%
25	40,658,558	7.56%	40,737,272	7.57%	40,705,071	7.57%	40,628,340	7.55%	40,823,425	7.59%	40,470,020	7.53%
30	64,210,038	11.94%	63,979,209	11.90%	63,816,202	11.87%	63,759,974	11.86%	64,006,898	11.90%	63,834,059	11.87%
35	83,565,389	15.54%	83,896,620	15.60%	84,006,388	15.62%	83,860,702	15.59%	83,446,615	15.52%	84,065,604	15.63%
40	56,761,571	10.55%	56,439,423	10.49%	56,471,219	10.50%	56,740,123	10.55%	56,717,057	10.55%	56,772,782	10.56%
45	28,988,434	5.39%	28,993,484	5.39%	28,963,469	5.39%	28,997,664	5.39%	28,917,307	5.38%	29,013,811	5.40%
50	36,508,261	6.79%	36,691,513	6.82%	36,774,695	6.84%	36,498,627	6.79%	36,405,166	6.77%	36,717,924	6.83%
55	23,403,060	4.35%	23,234,174	4.32%	23,293,885	4.33%	23,436,319	4.36%	23,393,512	4.35%	23,502,673	4.37%
60	22,556,119	4.19%	22,582,019	4.20%	22,545,987	4.19%	22,565,269	4.20%	22,500,655	4.18%	22,510,586	4.19%
65	35,553,006	6.61%	35,603,606	6.62%	35,621,514	6.62%	35,518,285	6.60%	35,463,176	6.59%	35,431,286	6.59%
70	40,886,563	7.60%	40,845,101	7.59%	40,794,748	7.59%	40,799,540	7.59%	40,766,579	7.58%	40,638,039	7.56%
70+	33,502,781	6.23%	33,502,079	6.23%	33,504,393	6.23%	33,527,958	6.23%	33,500,352	6.23%	33,501,076	6.23%
Total	**537,836,867**	100.00%	**537,834,311**	100.00%	**537,800,591**	100.00%	**537,796,149**	100.00%	**537,828,085**	100.00%	**537,766,463**	100.00%

2012

	No Build		Alt 3	
Bin Name	VMT	%	VMT	%
5	1,687,986	0.40%	1,686,896	0.40%
10	2,866,596	0.69%	2,874,059	0.69%
15	5,680,722	1.36%	5,671,353	1.36%
20	10,826,589	2.59%	10,835,883	2.59%
25	31,752,690	7.59%	31,746,828	7.59%
30	58,980,974	14.10%	58,959,642	14.09%
35	67,960,989	16.24%	67,988,754	16.25%
40	43,840,075	10.48%	43,823,018	10.47%
45	18,312,802	4.38%	18,320,679	4.38%
50	27,912,837	6.67%	27,905,236	6.67%
55	23,120,728	5.53%	23,127,539	5.53%
60	20,195,581	4.83%	20,188,664	4.83%
65	21,472,363	5.13%	21,465,049	5.13%
70	38,047,528	9.09%	38,060,507	9.10%
70+	45,724,021	10.93%	45,720,424	10.93%
Total	**418,382,480**	**100.00%**	**418,374,532**	**100.00%**

Project Traffic Operation Emissions Summary (2040)

Pounds per Day	Project Emissions						Alternative - No Build Emissions				
Pollutant Name	No Build	TSM	Alt 1	Alt 2	Alt 3	Alt 4	TSM	Alt 1	Alt 2	Alt 3	Alt 4
HC	65,742	65,751	65,791	65,754	65,896	65,664	8	49	12	154	(78)
ROG	60,862	60,870	60,912	60,874	61,008	60,787	8	49	11	146	(76)
TOG	72,515	72,524	72,567	72,528	72,685	72,429	9	53	14	170	(85)
CO	530,143	530,155	530,156	530,144	530,592	529,989	12	12	1	449	(154)
NOx	168,455	168,480	168,528	168,527	168,966	168,313	25	73	71	510	(143)
CO2	368,122,873	368,141,193	368,139,867	368,123,810	368,388,190	367,947,946	18,319	16,993	937	265,317	(174,927)
CH4	9,974	9,975	9,977	9,976	9,994	9,965	1	3	2	21	(8)
PM10	62,523	62,523	62,519	62,518	62,524	62,514	(0)	(4)	(4)	1	(9)
PM2.5	25,606	25,606	25,604	25,604	25,607	25,602	0	(1)	(2)	2	(4)
Benzene	1,302	1,302	1,303	1,303	1,305	1,301	0	1	0	3	(1)
Acrolein	39	39	39	39	40	39	0	0	0	0	(0)
Acetaldehyde	1,053	1,053	1,053	1,053	1,056	1,052	0	0	0	3	(1)
Formaldehyde	2,379	2,380	2,380	2,380	2,385	2,378	0	1	1	6	(2)
Butadiene	196	196	196	196	197	196	0	0	0	0	(0)
Naphthalene	75	75	75	75	75	75	0	0	0	0	(0)
POM	38	38	38	38	38	38	0	0	0	0	(0)
Diesel PM	497	497	497	497	497	497	0	(0)	(0)	0	(0)
DEOG	12,356	12,358	12,359	12,359	12,389	12,347	2	3	3	33	(9)

g/lb
453.592

Tons per Year	Project Emissions						Alternative - No Build Emissions					
Pollutant Name	No Build	TSM	Alt 1	Alt 2	Alt 3	Alt 4	TSM	Alt 1	Alt 2	Alt 3	Alt 4	
HC	11,998	11,999	12,007	12,000	12,026	11,984	1	9	2	28	(14)	
ROG	11,107	11,109	11,116	11,110	11,134	11,093	1	9	2	27	(14)	
TOG	13,234	13,236	13,244	13,236	13,265	13,218	2	10	3	31	(15)	
CO	96,751	96,753	96,753	96,751	96,833	96,723	2	3	0	82	(28)	
NOx	30,743	30,748	30,756	30,756	30,836	30,717	4	13	13	93	(26)	
CO2	60,946,837	60,949,870	60,949,651	60,946,992	60,990,763	60,917,876	3,033	2,814	155	43,926	(28,961)	metric tons
CH4	1,651	1,651	1,652	1,652	1,655	1,650	-	0	0	3	(1)	metric tons
CO2e	60,993,074	60,996,107	60,995,897	60,993,238	61,037,093	60,964,076	3,033	2,823	165	44,019	(28,998)	metric tons
PM10	11,410	11,410	11,410	11,410	11,411	11,409	-	(0)	(1)	0	(1)	
PM2.5	4,673	4,673	4,673	4,673	4,673	4,672	-	(0)	(0)	0	(1)	
Benzene	238	238	238	238	238	237	-	0	-	1	(0)	
Acrolein	7	7	7	7	7	7	-	-	-	-	-	
Acetaldehyde	192	192	192	192	193	192	0	0	0	1	-	
Formaldehyde	434	434	434	434	435	434	-	-	-	1	(0)	
Butadiene	36	36	36	36	36	36	-	-	-	-	-	
Naphthalene	14	14	14	14	14	14	-	-	-	-	-	
POM	7	7	7	7	7	7	-	-	-	-	-	
Diesel PM	91	91	91	91	91	91	-	-	-	0	-	
DEOG	2,255	2,255	2,256	2,256	2,261	2,253	0	1	1	6	(2)	
						Increase in CO2e	0.005%	0.005%	0.0004%	0.096%	-0.023%	

* GWP of 28 used for CH4 per Myhre et al. 2013

Project Traffic Operation Emissions Summary (2012)

Pounds per Day	Project Emissions		Alternative - No Build Emissions
Pollutant Name	No Build	Alt 3	Alt 3
ROG	187,182	187,173	(9)
CO	2,223,083	2,223,028	(55)
NOx	707,749	707,736	(13)
PM10	63,339	63,338	(1)
PM2.5	33,706	33,706	(0)
Benzene	4,326	4,326	(0)
Acrolein	146	146	(0)
Acetaldehyde	3,238	3,238	(0)
Formaldehyde	7,503	7,503	(0)
Butadiene	714	714	(0)
Naphthalene	220	220	(0)
POM	183	183	(0)
Diesel PM	12,973	12,973	(0)
DEOG	36,946	36,944	(2)

Tons per Year	Project Emissions		Alternative - No Build Emissions	
Pollutant Name	No Build	Alt 3	Alt 3	
HC	36,269	36,268	(1)	
ROG	34,161	34,159	(2)	
TOG	40,321	40,319	(2)	
CO	405,712	405,702	(10)	
NOx	129,164	129,162	(2)	
CO2	71,812,679	71,811,919	(760)	metric tons
CH4	4,624	4,624	-	metric tons
CO2e	71,942,145	71,941,386	(760)	metric tons
PM10	11,560	11,559	(0)	
PM2.5	6,151	6,151	-	
Benzene	789	789	-	
Acrolein	27	27	-	
Acetaldehyde	591	591	-	
Formaldehyde	1,369	1,369	-	
Butadiene	130	130	-	
Naphthalene	40	40	-	
POM	34	34	-	
Diesel PM	2,368	2,368	-	
DEOG	6,743	6,742	(0)	

* GWP of 28 used for CH4 per Myhre et al. 2013

Fiscal Year 2014 Propulsion Power and Station Consumption Report

Light Rail Energy Consumption (KWh) for FY 2014	**139,376,756**		Source: Metro 2014
Increase to Account for 24-Hour Operation*	**153,314,432**	**KWh**	

Assumptions: Depending on the line and current timetables, Metro would need to operate from 5 to 12% more trains to operate 24 hours per day with 20-minute headways during late-night hours. A 10% increase in energy is assumed to be conservative. Actual energy consumption required for 24-hour operation may be less.

LRT Lines		**Distance**	
Blue Line		22.17	miles
Expo Line		8.83	miles
Green Line		19.64	miles
Gold Line		19.51	miles
	Total	**70.15**	**miles**
LRT Energy Consumption/Mile/Year (24-Hour Operation)		2,185,522.90	KWh

ESFV Tram/LRT Distance	**9.2**	**miles**
Projected Annual Energy Consumption for ESFV Propulsion and Stations	**20,106,811**	**KWh**

	Emission Factors for LADWP Electricity						
	ROG	**Nox**	**CO**	**Sox**	**PM10**	**PM2.5**	**C02e**
	0.0071	0.0645	0.0542	0.00039	0.00491	0.00491	491.0958904
Factors	8.41731E-09	7.64671E-08	6.42561E-08	4.62359E-10	5.82098E-09	5.82098E-09	0.000582212
	Annual Emissions (tons)						
	ROG	**Nox**	**CO**	**Sox**	**PM10**	**PM2.5**	**C02e**
	0.169	1.538	1.292	0.009	0.117	0.117	11,706.428
	Daily Emissions (pounds per day)						
	ROG	**Nox**	**CO**	**Sox**	**PM10**	**PM2.5**	**C02e**
	0.93	8.42	7.08	0.05	0.64	0.64	64,144.81
Maintenance Facility Operational Emissions *Calculations from CalEEMod, mobile emissions from the site accounted for in the regional emissions calculations based on*	***Daily Emissions (pounds per day)***						
	ROG	**Nox**	**CO**	**Sox**	**PM10**	**PM2.5**	**C02e**
Area	1.8311	0.00007	0.00725	0	0.00003	0.00003	0.02
Energy	0.0389	0.3537	0.2971	0.00212	0.0269	0.0269	426.9825
Maintenance Facility Total	1.87	0.35377	0.30435	0.00212	0.02693	0.02693	426.9987
	Daily Emissions (pounds per day)						
	ROG	**Nox**	**CO**	**Sox**	**PM10**	**PM2.5**	**C02e**
Total Stationary-Source Operational Emissions	2.80	8.78	7.38	0.05	0.67	0.67	64,571.81
2040 Total Mobile-Source Operational Emissions (Alternative 3, Net)	145.65	510.34	448.54		1.22	1.65	265,316.87
2040 Total Operational Emissions (Alternative 3, Net)	148.44	519.12	455.93	0.05	1.89	2.32	329,888.68
2040 Total Mobile-Source Operational Emissions (Alternative 4, Net)	-75.65234837	-142.647798	-154.4211538		-9.057258505	-4.157701194	-174927.2915
2040Total Operational Emissions (Alternative 4, Net)	(72.85)	(133.87)	(147.04)	0.05	(8.39)	(3.49)	(110,355.48)

ESFV Alt 1 Roadway, Sidewalks, and Stations

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	4,500.00	1000sqft	103.31	4,500,000.00	0
Other Non-Asphalt Surfaces	6.20	1000sqft	0.14	6,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2019
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 - Curb-running BRT with construction starting in June 2017 for an 18-month duration

Land Use - Roadway: 4.5 million square feet of road to be repaved
Sidewalks/Stations: Removal of curbs and gutters, addition of curbs and gutters, additions of sidewalks and ramps ~ 6,200 sf

Construction Phase - 18-month construction starting in June 2017, construction to occur 6 days/week ~ 470 days of construction
Approximately 2/3 of construction apportioned to site preparation and the remaining 1/3 apportioned to paving/striping

Grading - Material Imported: 500 cy paving materials + 4.5 M sf- 4 inch dpt (55,556 cy) + 1,050 cy PCC pads = 57,106 cy
Material Exported: 4.5 M sf with 4" dept (55,556 cy) + 1,050 cy 9 PCC pads + 1,218 cy for SW/curb/Misc removal = 57,824 cy

Architectural Coating - Striping for roadway ~ 2 square feet of striping for every linear foot (9.2 miles) = 97,152 sf

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,253,100.00	97,152.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,759,300.00	0.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
tblConstructionPhase	NumDays	220.00	120.00
tblConstructionPhase	NumDays	120.00	320.00
tblConstructionPhase	NumDays	220.00	30.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	104.00
tblGrading	MaterialExported	0.00	57,824.00
tblGrading	MaterialImported	0.00	57,106.00
tblProjectCharacteristics	OperationalYear	2014	2019

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					
2017	5.6580	63.4036	49.0856	0.0752	19.8790	2.9263	22.8053	10.3506	2.6922	13.0427	0.0000	7,540.2444	7,540.2444	1.2622	0.0000	7,566.7499
2018	39.1893	56.4318	45.6390	0.0752	20.2277	2.5373	22.7649	10.4362	2.3343	12.7704	0.0000	7,414.5374	7,414.5374	1.2617	0.0000	7,441.0325
Total	**44.8473**	**119.8354**	**94.7245**	**0.1504**	**40.1067**	**5.4635**	**45.5702**	**20.7868**	**5.0264**	**25.8132**	**0.0000**	**14,954.7817**	**14,954.7817**	**2.5238**	**0.0000**	**15,007.7824**

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					
2017	1.2955	13.7116	30.9300	0.0752	8.0172	0.2355	8.2527	4.1176	0.2217	4.3393	0.0000	7,540.2444	7,540.2444	1.2622	0.0000	7,566.7499
2018	38.9204	12.8846	30.6459	0.0752	8.1916	0.2353	8.4269	4.1604	0.2215	4.3819	0.0000	7,414.5373	7,414.5373	1.2617	0.0000	7,441.0325
Total	**40.2159**	**26.5962**	**61.5759**	**0.1504**	**16.2088**	**0.4708**	**16.6795**	**8.2780**	**0.4432**	**8.7212**	**0.0000**	**14,954.7817**	**14,954.7817**	**2.5238**	**0.0000**	**15,007.7824**

	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	**10.33**	**77.81**	**34.99**	**0.00**	**59.59**	**91.38**	**63.40**	**60.18**	**91.18**	**66.21**	**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	117.8781	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423
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	**117.8781**	**4.3200e-003**	**0.4646**	**3.0000e-005**	**0.0000**	**1.6700e-003**	**1.6700e-003**	**0.0000**	**1.6700e-003**	**1.6700e-003**		**0.9862**	**0.9862**	**2.6700e-003**	**0.0000**	**1.0423**

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	117.8781	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423
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	**117.8781**	**4.3200e-003**	**0.4646**	**3.0000e-005**	**0.0000**	**1.6700e-003**	**1.6700e-003**	**0.0000**	**1.6700e-003**	**1.6700e-003**		**0.9862**	**0.9862**	**2.6700e-003**	**0.0000**	**1.0423**

	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	Site Preparation	Site Preparation	6/1/2017	6/8/2018	6	320	
2	Paving	Paving	6/9/2018	10/26/2018	6	120	
3	Architectural Coating	Architectural Coating	10/27/2018	12/7/2018	5	30	Striping

Acres of Grading (Site Preparation Phase): 104

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 97,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40

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
Site Preparation	7	18.00	0.00	14,366.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	379.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					18.4515	0.0000	18.4515	9.9741	0.0000	9.9741			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.4515**	**2.7542**	**21.2058**	**9.9741**	**2.5339**	**12.5079**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	0.7477	11.5588	8.5572	0.0335	1.2263	0.1702	1.3965	0.3232	0.1566	0.4798		3,324.2135	3,324.2135	0.0245		3,324.7280
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	0.0720	0.0913	1.1313	2.6200e-003	0.2012	1.8200e-003	0.2030	0.0534	1.6800e-003	0.0550		212.9450	212.9450	0.0111		213.1787
Total	**0.8198**	**11.6501**	**9.6885**	**0.0361**	**1.4275**	**0.1721**	**1.5996**	**0.3765**	**0.1583**	**0.5348**		**3,537.1585**	**3,537.1585**	**0.0356**		**3,537.9067**

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					7.1961	0.0000	7.1961	3.8899	0.0000	3.8899			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1961**	**0.0634**	**7.2595**	**3.8899**	**0.0634**	**3.9533**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	0.7477	11.5588	8.5572	0.0335	0.7074	0.1702	0.8776	0.1958	0.1566	0.3524		3,324.2135	3,324.2135	0.0245		3,324.7280
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	0.0720	0.0913	1.1313	2.6200e-003	0.1137	1.8200e-003	0.1156	0.0319	1.6800e-003	0.0336		212.9450	212.9450	0.0111		213.1787
Total	**0.8198**	**11.6501**	**9.6885**	**0.0361**	**0.8211**	**0.1721**	**0.9931**	**0.2277**	**0.1583**	**0.3860**		**3,537.1585**	**3,537.1585**	**0.0356**		**3,537.9067**

3.2 Site Preparation - 2018

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					18.4515	0.0000	18.4515	9.9741	0.0000	9.9741			0.0000			0.0000
Off-Road	4.2921	45.6088	36.2346	0.0391		2.3654	2.3654		2.1762	2.1762		3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**4.2921**	**45.6088**	**36.2346**	**0.0391**	**18.4515**	**2.3654**	**20.8170**	**9.9741**	**2.1762**	**12.1502**		**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	0.7348	10.7402	8.3764	0.0335	1.5749	0.1701	1.7450	0.4088	0.1565	0.5652		3,269.6118	3,269.6118	0.0248		3,270.1332
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	0.0649	0.0828	1.0280	2.6200e-003	0.2012	1.7700e-003	0.2030	0.0534	1.6300e-003	0.0550		205.1524	205.1524	0.0103		205.3695
Total	**0.7996**	**10.8231**	**9.4044**	**0.0361**	**1.7761**	**0.1719**	**1.9480**	**0.4621**	**0.1581**	**0.6202**		**3,474.7642**	**3,474.7642**	**0.0352**		**3,475.5027**

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					7.1961	0.0000	7.1961	3.8899	0.0000	3.8899			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1961**	**0.0634**	**7.2595**	**3.8899**	**0.0634**	**3.9533**	**0.0000**	**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	0.7348	10.7402	8.3764	0.0335	0.8817	0.1701	1.0518	0.2386	0.1565	0.3951		3,269.6118	3,269.6118	0.0248		3,270.1332
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	0.0649	0.0828	1.0280	2.6200e-003	0.1137	1.7700e-003	0.1155	0.0319	1.6300e-003	0.0335		205.1524	205.1524	0.0103		205.3695
Total	**0.7996**	**10.8231**	**9.4044**	**0.0361**	**0.9955**	**0.1719**	**1.1673**	**0.2705**	**0.1581**	**0.4286**		**3,474.7642**	**3,474.7642**	**0.0352**		**3,475.5027**

3.3 Paving - 2018

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	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	2.2556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.8670**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.1677	1.4700e-003	0.1691	0.0445	1.3600e-003	0.0458		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.1677**	**1.4700e-003**	**0.1691**	**0.0445**	**1.3600e-003**	**0.0458**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	2.2556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.5301**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.0948	1.4700e-003	0.0963	0.0266	1.3600e-003	0.0279		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.0948**	**1.4700e-003**	**0.0963**	**0.0266**	**1.3600e-003**	**0.0279**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

3.4 Architectural Coating - 2018

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	37.5250					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**37.8236**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.4 Architectural Coating - 2018

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	1.3657	1.7440	21.6449	0.0551	4.2363	0.0372	4.2735	1.1235	0.0344	1.1579		4,319.5986	4,319.5986	0.2177		4,324.1698
Total	**1.3657**	**1.7440**	**21.6449**	**0.0551**	**4.2363**	**0.0372**	**4.2735**	**1.1235**	**0.0344**	**1.1579**		**4,319.5986**	**4,319.5986**	**0.2177**		**4,324.1698**

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	37.5250					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**37.5547**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.4 Architectural Coating - 2018

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	1.3657	1.7440	21.6449	0.0551	2.3949	0.0372	2.4320	0.6715	0.0344	0.7059		4,319.5986	4,319.5986	0.2177		4,324.1698
Total	**1.3657**	**1.7440**	**21.6449**	**0.0551**	**2.3949**	**0.0372**	**2.4320**	**0.6715**	**0.0344**	**0.7059**		**4,319.5986**	**4,319.5986**	**0.2177**		**4,324.1698**

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
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	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
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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530902	0.057841	0.178699	0.124790	0.039063	0.006298	0.016951	0.033908	0.002496	0.003149	0.003689	0.000536	0.001678

4.4 Fleet Mix

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					
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
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
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					
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
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
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	117.8781	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423
Unmitigated	117.8781	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423

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	28.6113					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	89.2228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0440	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423
Total	**117.8781**	**4.3200e-003**	**0.4646**	**3.0000e-005**		**1.6700e-003**	**1.6700e-003**		**1.6700e-003**	**1.6700e-003**		**0.9862**	**0.9862**	**2.6700e-003**		**1.0423**

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	28.6113					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	89.2228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0440	4.3200e-003	0.4646	3.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003		0.9862	0.9862	2.6700e-003		1.0423
Total	**117.8781**	**4.3200e-003**	**0.4646**	**3.0000e-005**		**1.6700e-003**	**1.6700e-003**		**1.6700e-003**	**1.6700e-003**		**0.9862**	**0.9862**	**2.6700e-003**		**1.0423**

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 Vegetation

ESFV Alt 2 Roadway, Sidewalks, and Stations

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3,600.00	1000sqft	82.64	3,600,000.00	0
Other Non-Asphalt Surfaces	310.00	1000sqft	7.12	310,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
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 - Median-running BRT with construction starting in June 2017 for an 24-month duration

Land Use - 3.6 million square feet of road to be repaved
Sidewalks/Stations: Removal of curbs and gutters, addition of curbs and gutters, additions of sidewalks, ramps, and stations ~ 310,000 sf

Construction Phase - 24-month construction starting in June 2017, construction to occur 6 days/week ~ 625 days of construction
Approximately 2/3 of construction apportioned to site preparation and the remaining 1/3 apportioned to paving/striping

Grading - Material Imported: 118,944 cy paving/PCC excavation + 8,815 cy SW/curbs + 3,006 plaforms/canopy = 130,765 cy
Material Exported: 59,932 cy for paving/PCC + 1,429 cy platform/canopy + 80,359 cy for SW/curb/Misc removal = 141,720 cy

Architectural Coating - Striping for roadway ~ 2 square feet of striping for every linear foot (9.2 miles) = 97,152 sf

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,955,000.00	97,152.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	5,865,000.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
tblConstructionPhase	NumDays	110.00	35.00
tblConstructionPhase	NumDays	110.00	180.00
tblConstructionPhase	NumDays	60.00	410.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	90.00

tblGrading	MaterialExported	0.00	141,720.00
tblGrading	MaterialImported	0.00	130,765.00
tblProjectCharacteristics	OperationalYear	2014	2020

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					
2017	6.2939	73.2343	56.3634	0.1037	21.3848	3.0711	24.4559	10.7512	2.8253	13.5765	0.0000	10,367.4676	10,367.4676	1.2830	0.0000	10,394.4107
2018	5.7166	65.5663	52.7630	0.1037	20.9081	2.6819	23.5900	10.6342	2.4674	13.1015	0.0000	10,195.3222	10,195.3222	1.2828	0.0000	10,222.2608
2019	33.5168	14.9986	19.0428	0.0505	3.6663	0.8109	3.8264	0.9723	0.7460	1.1302	0.0000	3,873.3119	3,873.3119	0.7070	0.0000	3,888.1578
Total	**45.5273**	**153.7992**	**128.1692**	**0.2578**	**45.9592**	**6.5638**	**51.8723**	**22.3577**	**6.0387**	**27.8082**	**0.0000**	**24,436.1017**	**24,436.1017**	**3.2728**	**0.0000**	**24,504.8293**

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					
2017	1.9315	23.5423	38.2078	0.1037	8.8587	0.3803	9.2390	4.3477	0.3549	4.7026	0.0000	10,367.4676	10,367.4676	1.2830	0.0000	10,394.4107
2018	1.9002	22.0191	37.7699	0.1037	8.6205	0.3799	9.0004	4.2893	0.3546	4.6439	0.0000	10,195.3222	10,195.3222	1.2828	0.0000	10,222.2608
2019	33.2800	1.5126	19.0339	0.0505	2.0726	0.0380	2.1079	0.5811	0.0379	0.6142	0.0000	3,873.3119	3,873.3119	0.7070	0.0000	3,888.1578
Total	**37.1117**	**47.0740**	**95.0117**	**0.2578**	**19.5518**	**0.7982**	**20.3473**	**9.2181**	**0.7474**	**9.9607**	**0.0000**	**24,436.1017**	**24,436.1017**	**3.2728**	**0.0000**	**24,504.8293**

	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	18.48	69.39	25.87	0.00	57.46	87.84	60.77	58.77	87.62	64.18	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	102.2816	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039
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	**102.2816**	**3.7100e-003**	**0.4018**	**3.0000e-005**	**0.0000**	**1.4400e-003**	**1.4400e-003**	**0.0000**	**1.4400e-003**	**1.4400e-003**		**0.8557**	**0.8557**	**2.2900e-003**	**0.0000**	**0.9039**

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	102.2816	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039
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	**102.2816**	**3.7100e-003**	**0.4018**	**3.0000e-005**	**0.0000**	**1.4400e-003**	**1.4400e-003**	**0.0000**	**1.4400e-003**	**1.4400e-003**		**0.8557**	**0.8557**	**2.2900e-003**	**0.0000**	**0.9039**

	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	Site Preparation	Site Preparation	6/1/2017	9/21/2018	6	410	
2	Paving	Paving	9/22/2018	4/19/2019	6	180	
3	Architectural Coating	Architectural Coating	4/20/2019	5/30/2019	6	35	Striping

Acres of Grading (Site Preparation Phase): 90

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 97,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40

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
Site Preparation	7	18.00	0.00	34,061.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	328.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					18.3742	0.0000	18.3742	9.9672	0.0000	9.9672			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.3742**	**2.7542**	**21.1284**	**9.9672**	**2.5339**	**12.5011**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	1.3837	21.3895	15.8350	0.0620	2.8094	0.3150	3.1244	0.7306	0.2898	1.0204		6,151.4368	6,151.4368	0.0453		6,152.3888
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	0.0720	0.0913	1.1313	2.6200e-003	0.2012	1.8200e-003	0.2030	0.0534	1.6800e-003	0.0550		212.9450	212.9450	0.0111		213.1787
Total	**1.4557**	**21.4808**	**16.9664**	**0.0646**	**3.0106**	**0.3168**	**3.3275**	**0.7840**	**0.2915**	**1.0754**		**6,364.3817**	**6,364.3817**	**0.0565**		**6,365.5675**

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					7.1659	0.0000	7.1659	3.8872	0.0000	3.8872			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1659**	**0.0634**	**7.2294**	**3.8872**	**0.0634**	**3.9506**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	1.3837	21.3895	15.8350	0.0620	1.5790	0.3150	1.8940	0.4286	0.2898	0.7184		6,151.4368	6,151.4368	0.0453		6,152.3888
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	0.0720	0.0913	1.1313	2.6200e-003	0.1137	1.8200e-003	0.1156	0.0319	1.6800e-003	0.0336		212.9450	212.9450	0.0111		213.1787
Total	**1.4557**	**21.4808**	**16.9664**	**0.0646**	**1.6928**	**0.3168**	**2.0096**	**0.4605**	**0.2915**	**0.7520**		**6,364.3817**	**6,364.3817**	**0.0565**		**6,365.5675**

3.2 Site Preparation - 2018

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					18.3742	0.0000	18.3742	9.9672	0.0000	9.9672			0.0000			0.0000
Off-Road	4.2921	45.6088	36.2346	0.0391		2.3654	2.3654		2.1762	2.1762		3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**4.2921**	**45.6088**	**36.2346**	**0.0391**	**18.3742**	**2.3654**	**20.7396**	**9.9672**	**2.1762**	**12.1434**		**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	1.3596	19.8747	15.5005	0.0619	2.3327	0.3147	2.6474	0.6136	0.2896	0.9032		6,050.3966	6,050.3966	0.0460		6,051.3615
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	0.0649	0.0828	1.0280	2.6200e-003	0.2012	1.7700e-003	0.2030	0.0534	1.6300e-003	0.0550		205.1524	205.1524	0.0103		205.3695
Total	**1.4245**	**19.9576**	**16.5284**	**0.0646**	**2.5339**	**0.3165**	**2.8504**	**0.6670**	**0.2912**	**0.9582**		**6,255.5490**	**6,255.5490**	**0.0563**		**6,256.7310**

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					7.1659	0.0000	7.1659	3.8872	0.0000	3.8872			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1659**	**0.0634**	**7.2294**	**3.8872**	**0.0634**	**3.9506**	**0.0000**	**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	1.3596	19.8747	15.5005	0.0619	1.3408	0.3147	1.6555	0.3702	0.2896	0.6597		6,050.3966	6,050.3966	0.0460		6,051.3615
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	0.0649	0.0828	1.0280	2.6200e-003	0.1137	1.7700e-003	0.1155	0.0319	1.6300e-003	0.0335		205.1524	205.1524	0.0103		205.3695
Total	**1.4245**	**19.9576**	**16.5284**	**0.0646**	**1.4545**	**0.3165**	**1.7710**	**0.4021**	**0.2912**	**0.6932**		**6,255.5490**	**6,255.5490**	**0.0563**		**6,256.7310**

3.3 Paving - 2018

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	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	1.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.8143**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.1677	1.4700e-003	0.1691	0.0445	1.3600e-003	0.0458		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.1677**	**1.4700e-003**	**0.1691**	**0.0445**	**1.3600e-003**	**0.0458**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	1.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4774**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.0948	1.4700e-003	0.0963	0.0266	1.3600e-003	0.0279		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.0948**	**1.4700e-003**	**0.0963**	**0.0266**	**1.3600e-003**	**0.0279**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

3.3 Paving - 2019

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	1.4259	14.9353	14.3652	0.0223		0.8094	0.8094		0.7447	0.7447		2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	1.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6287**	**14.9353**	**14.3652**	**0.0223**		**0.8094**	**0.8094**		**0.7447**	**0.7447**		**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.1677	1.4300e-003	0.1691	0.0445	1.3300e-003	0.0458		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.1677**	**1.4300e-003**	**0.1691**	**0.0445**	**1.3300e-003**	**0.0458**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	1.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4774**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.0948	1.4300e-003	0.0962	0.0266	1.3300e-003	0.0279		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.0948**	**1.4300e-003**	**0.0962**	**0.0266**	**1.3300e-003**	**0.0279**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.4 Architectural Coating - 2019

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	32.1643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**32.4307**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.0861	1.3839	17.2015	0.0475	3.6663	0.0314	3.6976	0.9723	0.0291	1.0014		3,591.863 9	3,591.863 9	0.1761		3,595.561 5
Total	**1.0861**	**1.3839**	**17.2015**	**0.0475**	**3.6663**	**0.0314**	**3.6976**	**0.9723**	**0.0291**	**1.0014**		**3,591.863 9**	**3,591.863 9**	**0.1761**		**3,595.561 5**

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	32.1643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**32.1940**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.0861	1.3839	17.2015	0.0475	2.0726	0.0314	2.1040	0.5811	0.0291	0.6102		3,591.8639	3,591.8639	0.1761		3,595.5615
Total	**1.0861**	**1.3839**	**17.2015**	**0.0475**	**2.0726**	**0.0314**	**2.1040**	**0.5811**	**0.0291**	**0.6102**		**3,591.8639**	**3,591.8639**	**0.1761**		**3,595.5615**

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
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	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
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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

5.0 Energy Detail

4.4 Fleet Mix

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					
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
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					
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
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	102.2816	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039
Unmitigated	102.2816	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039

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	24.8258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	77.4180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0378	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039
Total	**102.2816**	**3.7100e-003**	**0.4018**	**3.0000e-005**		**1.4400e-003**	**1.4400e-003**		**1.4400e-003**	**1.4400e-003**		**0.8557**	**0.8557**	**2.2900e-003**		**0.9039**

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	24.8258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	77.4180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0378	3.7100e-003	0.4018	3.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003		0.8557	0.8557	2.2900e-003		0.9039
Total	**102.2816**	**3.7100e-003**	**0.4018**	**3.0000e-005**		**1.4400e-003**	**1.4400e-003**		**1.4400e-003**	**1.4400e-003**		**0.8557**	**0.8557**	**2.2900e-003**		**0.9039**

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 Vegetation

ESFV Alt 3 Roadway/Tracks, Sidewalks, and Stations

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3,240.00	1000sqft	74.38	3,240,000.00	0
Other Non-Asphalt Surfaces	695.47	1000sqft	15.97	695,470.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
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 - Median-running LRT/Tram with construction starting in June 2017 for an 24-month duration

Land Use - 3.24 million square feet of road to be repaved
Sidewalks/Stations: Removal of curbs and gutters, addition of curbs and gutters, additions of sidewalks, ramps, and stations ~ 695,470 sf

Construction Phase - 24-month construction starting in June 2017, construction to occur 6 days/week ~ 625 days of construction
Approximately 2/3 of construction apportioned to site preparation and the remaining 1/3 apportioned to paving/striping

Grading - Material Imported: 53,250 cy paving + 22,193 cy SW/curbs + 15,335 plaforms + 168,083 cy track work = 258,861 cy
Material Exported: 40,000 cy for paving + 11,344 cy platform + 22,206 cy for SW/curb/Misc removal + 168,083 cy track work = 241,633 cy

Architectural Coating - Striping for roadway ~ 2 square feet of striping for every linear foot (9.2 miles) = 97,152 sf

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,967,735.00	97,152.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	5,903,205.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
tblConstructionPhase	NumDays	110.00	35.00
tblConstructionPhase	NumDays	110.00	180.00
tblConstructionPhase	NumDays	60.00	410.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	5/30/2019	5/22/2019

tblConstructionPhase	PhaseStartDate	4/20/2019	4/12/2019
tblGrading	AcresOfGrading	0.00	90.00
tblGrading	MaterialExported	0.00	241,633.00
tblGrading	MaterialImported	0.00	258,861.00
tblProjectCharacteristics	OperationalYear	2014	2020

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					
2017	7.4517	91.1323	69.6136	0.1556	23.7986	3.3346	27.1332	11.3721	3.0678	14.4399	0.0000	15,514.7651	15,514.7651	1.3209	0.0000	15,542.5049
2018	6.8543	82.1968	65.7332	0.1555	22.9229	2.9453	25.8682	11.1572	2.7096	13.8668	0.0000	15,258.0729	15,258.0729	1.3212	0.0000	15,285.8189
2019	36.0849	18.2305	34.3520	0.0754	3.8675	0.9713	4.8387	1.0257	0.9041	1.9298	0.0000	6,279.3995	6,279.3995	0.9084	0.0000	6,298.4761
Total	**50.3909**	**191.5595**	**169.6988**	**0.3865**	**50.5889**	**7.2512**	**57.8401**	**23.5549**	**6.6816**	**30.2365**	**0.0000**	**37,052.2375**	**37,052.2375**	**3.5506**	**0.0000**	**37,126.7998**

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					
2017	3.0893	41.4403	51.4580	0.1556	10.2045	0.6439	10.8484	4.7101	0.5974	5.3075	0.0000	15,514.7651	15,514.7651	1.3209	0.0000	15,542.5048
2018	3.0379	38.6495	50.7401	0.1555	9.7669	0.6433	10.4102	4.6027	0.5969	5.1996	0.0000	15,258.0729	15,258.0729	1.3212	0.0000	15,285.8189
2019	34.6968	2.7781	36.9055	0.0754	2.1863	0.0737	2.2600	0.6130	0.0712	0.6843	0.0000	6,279.3995	6,279.3995	0.9084	0.0000	6,298.4761
Total	**40.8240**	**82.8679**	**139.1037**	**0.3865**	**22.1578**	**1.3608**	**23.5186**	**9.9258**	**1.2655**	**11.1913**	**0.0000**	**37,052.2375**	**37,052.2375**	**3.5506**	**0.0000**	**37,126.7998**

	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	18.99	56.74	18.03	0.00	56.20	81.23	59.34	57.86	81.06	62.99	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	102.9479	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098
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	**102.9479**	**3.7300e-003**	**0.4044**	**3.0000e-005**	**0.0000**	**1.4500e-003**	**1.4500e-003**	**0.0000**	**1.4500e-003**	**1.4500e-003**		**0.8613**	**0.8613**	**2.3100e-003**	**0.0000**	**0.9098**

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	102.9479	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098
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	**102.9479**	**3.7300e-003**	**0.4044**	**3.0000e-005**	**0.0000**	**1.4500e-003**	**1.4500e-003**	**0.0000**	**1.4500e-003**	**1.4500e-003**		**0.8613**	**0.8613**	**2.3100e-003**	**0.0000**	**0.9098**

	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	Site Preparation	Site Preparation	6/1/2017	9/21/2018	6	410	
2	Paving	Paving	9/22/2018	4/19/2019	6	180	
3	Architectural Coating	Architectural Coating	4/12/2019	5/22/2019	6	35	Striping

Acres of Grading (Site Preparation Phase): 90

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 97,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40

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
Site Preparation	7	18.00	0.00	62,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	331.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					18.4371	0.0000	18.4371	9.9767	0.0000	9.9767			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.4371**	**2.7542**	**21.1913**	**9.9767**	**2.5339**	**12.5106**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	2.5415	39.2875	29.0852	0.1139	5.1603	0.5786	5.7389	1.3420	0.5323	1.8742		11,298.7342	11,298.7342	0.0833		11,300.4830
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	0.0720	0.0913	1.1313	2.6200e-003	0.2012	1.8200e-003	0.2030	0.0534	1.6800e-003	0.0550		212.9450	212.9450	0.0111		213.1787
Total	**2.6135**	**39.3788**	**30.2165**	**0.1165**	**5.3615**	**0.5804**	**5.9419**	**1.3953**	**0.5339**	**1.9293**		**11,511.6792**	**11,511.6792**	**0.0944**		**11,513.6617**

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					7.1905	0.0000	7.1905	3.8909	0.0000	3.8909			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1905**	**0.0634**	**7.2539**	**3.8909**	**0.0634**	**3.9544**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	2.5415	39.2875	29.0852	0.1139	2.9003	0.5786	3.4789	0.7873	0.5323	1.3195		11,298.7342	11,298.7342	0.0833		11,300.4830
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	0.0720	0.0913	1.1313	2.6200e-003	0.1137	1.8200e-003	0.1156	0.0319	1.6800e-003	0.0336		212.9450	212.9450	0.0111		213.1787
Total	**2.6135**	**39.3788**	**30.2165**	**0.1165**	**3.0141**	**0.5804**	**3.5945**	**0.8192**	**0.5339**	**1.3531**		**11,511.6792**	**11,511.6792**	**0.0944**		**11,513.6617**

3.2 Site Preparation - 2018

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					18.4371	0.0000	18.4371	9.9767	0.0000	9.9767			0.0000			0.0000
Off-Road	4.2921	45.6088	36.2346	0.0391		2.3654	2.3654		2.1762	2.1762		3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**4.2921**	**45.6088**	**36.2346**	**0.0391**	**18.4371**	**2.3654**	**20.8025**	**9.9767**	**2.1762**	**12.1529**		**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	2.4973	36.5052	28.4707	0.1138	4.2846	0.5781	4.8627	1.1271	0.5318	1.6589		11,113.1473	11,113.1473	0.0844		11,114.9196
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	0.0649	0.0828	1.0280	2.6200e-003	0.2012	1.7700e-003	0.2030	0.0534	1.6300e-003	0.0550		205.1524	205.1524	0.0103		205.3695
Total	**2.5622**	**36.5880**	**29.4987**	**0.1164**	**4.4858**	**0.5799**	**5.0657**	**1.1805**	**0.5335**	**1.7139**		**11,318.2998**	**11,318.2998**	**0.0947**		**11,320.2891**

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					7.1905	0.0000	7.1905	3.8909	0.0000	3.8909			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.1905**	**0.0634**	**7.2539**	**3.8909**	**0.0634**	**3.9544**	**0.0000**	**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	2.4973	36.5052	28.4707	0.1138	2.4627	0.5781	3.0408	0.6799	0.5318	1.2117		11,113.1473	11,113.1473	0.0844		11,114.9196
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	0.0649	0.0828	1.0280	2.6200e-003	0.1137	1.7700e-003	0.1155	0.0319	1.6300e-003	0.0335		205.1524	205.1524	0.0103		205.3695
Total	**2.5622**	**36.5880**	**29.4987**	**0.1164**	**2.5765**	**0.5799**	**3.1563**	**0.7118**	**0.5335**	**1.2453**		**11,318.2998**	**11,318.2998**	**0.0947**		**11,320.2891**

3.3 Paving - 2018

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	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	1.0826					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6941**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.1677	1.4700e-003	0.1691	0.0445	1.3600e-003	0.0458		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.1677**	**1.4700e-003**	**0.1691**	**0.0445**	**1.3600e-003**	**0.0458**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	1.0826					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3571**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.0948	1.4700e-003	0.0963	0.0266	1.3600e-003	0.0279		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.0948**	**1.4700e-003**	**0.0963**	**0.0266**	**1.3600e-003**	**0.0279**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

3.3 Paving - 2019

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	1.4259	14.9353	14.3652	0.0223		0.8094	0.8094		0.7447	0.7447		2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	1.0826					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.5085**	**14.9353**	**14.3652**	**0.0223**		**0.8094**	**0.8094**		**0.7447**	**0.7447**		**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.1677	1.4300e-003	0.1691	0.0445	1.3300e-003	0.0458		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.1677**	**1.4300e-003**	**0.1691**	**0.0445**	**1.3300e-003**	**0.0458**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	1.0826					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3571**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.0948	1.4300e-003	0.0962	0.0266	1.3300e-003	0.0279		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.0948**	**1.4300e-003**	**0.0962**	**0.0266**	**1.3300e-003**	**0.0279**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.4 Architectural Coating - 2019

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	32.1643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**32.4307**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.0960	1.3965	17.3588	0.0479	3.6998	0.0317	3.7315	0.9812	0.0293	1.0105		3,624.716 3	3,624.716 3	0.1777		3,628.447 7
Total	**1.0960**	**1.3965**	**17.3588**	**0.0479**	**3.6998**	**0.0317**	**3.7315**	**0.9812**	**0.0293**	**1.0105**		**3,624.716 3**	**3,624.716 3**	**0.1777**		**3,628.447 7**

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	32.1643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**32.1940**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.0960	1.3965	17.3588	0.0479	2.0916	0.0317	2.1232	0.5865	0.0293	0.6158		3,624.7163	3,624.7163	0.1777		3,628.4477
Total	**1.0960**	**1.3965**	**17.3588**	**0.0479**	**2.0916**	**0.0317**	**2.1232**	**0.5865**	**0.0293**	**0.6158**		**3,624.7163**	**3,624.7163**	**0.1777**		**3,628.4477**

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
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	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
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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

5.0 Energy Detail

4.4 Fleet Mix

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					
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
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					
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
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	102.9479	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098
Unmitigated	102.9479	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098

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	24.9875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	77.9223					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0380	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098
Total	**102.9479**	**3.7300e-003**	**0.4044**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8613**	**0.8613**	**2.3100e-003**		**0.9098**

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	24.9875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	77.9223					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0380	3.7300e-003	0.4044	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8613	0.8613	2.3100e-003		0.9098
Total	**102.9479**	**3.7300e-003**	**0.4044**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8613**	**0.8613**	**2.3100e-003**		**0.9098**

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 Vegetation

ESFV Maintenance Facility

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	70.00	1000sqft	26.00	70,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2018
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 - Assuming a 12-month construction period starting June 2017

Land Use - Structures (Admin, Blowdown, Car Wash, Maintenance) total 70,000 square feet on a 26-acre site.

Construction Phase - Assuming a 6-day work week, total construction days would be ~ 310, starting June 2017.

Grading - Site acreage is 26 acres

Demolition - Approximately 2/3 of the maintenance facility site currently occupied by structures ~ 750,000 sf

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area three times daily
Clean paved roads
Tier 4 Final engines

Mobile Commute Mitigation - All Metro employees ride Metro vehicles free of charge

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	440.00	204.00

tblConstructionPhase	NumDays	30.00	36.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	30.00
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
tblGrading	AcresOfGrading	0.00	26.00
tblLandUse	LotAcreage	1.61	26.00
tblProjectCharacteristics	OperationalYear	2014	2018

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					
2017	5.6864	67.1685	52.8964	0.1128	22.3254	2.7560	24.8114	10.0833	2.5356	12.6188	0.0000	11,229.8030	11,229.8030	1.2377	0.0000	11,255.7940
2018	81.4328	24.2011	20.1918	0.0334	0.3928	1.5098	1.9025	0.1055	1.4190	1.5245	0.0000	3,174.8995	3,174.8995	0.7076	0.0000	3,189.7590
Total	**87.1191**	**91.3696**	**73.0883**	**0.1462**	**22.7182**	**4.2658**	**26.7139**	**10.1888**	**3.9546**	**14.1434**	**0.0000**	**14,404.7025**	**14,404.7025**	**1.9453**	**0.0000**	**14,445.5531**

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					
2017	2.1120	26.5249	42.8288	0.1128	9.1166	0.4240	9.5406	3.9436	0.3951	4.0087	0.0000	11,229.8030	11,229.8030	1.2377	0.0000	11,255.7940
2018	81.1638	3.1691	20.0702	0.0334	0.2268	0.0561	0.2829	0.0648	0.0549	0.1196	0.0000	3,174.8995	3,174.8995	0.7076	0.0000	3,189.7590
Total	**83.2759**	**29.6940**	**62.8990**	**0.1462**	**9.3434**	**0.4801**	**9.8235**	**4.0083**	**0.4500**	**4.1283**	**0.0000**	**14,404.7025**	**14,404.7025**	**1.9453**	**0.0000**	**14,445.5530**

	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	**4.41**	**67.50**	**13.94**	**0.00**	**58.87**	**88.75**	**63.23**	**60.66**	**88.62**	**70.81**	**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	1.8311	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162
Energy	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825
Mobile	1.8140	6.0973	24.0483	0.0697	4.5887	0.0968	4.6855	1.2271	0.0892	1.3162		5,771.4562	5,771.4562	0.2165		5,776.0022
Total	**3.6841**	**6.4511**	**24.3526**	**0.0718**	**4.5887**	**0.1237**	**4.7124**	**1.2271**	**0.1161**	**1.3432**		**6,195.8712**	**6,195.8712**	**0.2246**	**7.7800e-003**	**6,203.0009**

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	1.8311	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162
Energy	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825
Mobile	1.8140	6.0973	24.0483	0.0697	4.5887	0.0968	4.6855	1.2271	0.0892	1.3162		5,771.4562	5,771.4562	0.2165		5,776.0022
Total	**3.6841**	**6.4511**	**24.3526**	**0.0718**	**4.5887**	**0.1237**	**4.7124**	**1.2271**	**0.1161**	**1.3432**		**6,195.8712**	**6,195.8712**	**0.2246**	**7.7800e-003**	**6,203.0009**

	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	6/1/2017	7/12/2017	6	36	
2	Site Preparation	Site Preparation	7/13/2017	8/16/2017	6	30	
3	Building Construction	Building Construction	8/17/2017	4/11/2018	6	204	
4	Paving	Paving	4/12/2018	5/4/2018	6	20	
5	Architectural Coating	Architectural Coating	5/5/2018	5/28/2018	6	20	

Acres of Grading (Site Preparation Phase): 26

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	162	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Building Construction	Welders	1	8.00	46	0.45

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	6	15.00	0.00	3,411.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	29.00	11.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	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

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

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					20.5074	0.0000	20.5074	3.1050	0.0000	3.1050			0.0000			0.0000
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**	**20.5074**	**2.1252**	**22.6326**	**3.1050**	**1.9797**	**5.0847**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

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	1.5781	24.3954	18.0603	0.0707	1.6503	0.3593	2.0096	0.4519	0.3305	0.7824		7,015.8815	7,015.8815	0.0517		7,016.9674
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	0.0600	0.0761	0.9428	2.1800e-003	0.1677	1.5200e-003	0.1692	0.0445	1.4000e-003	0.0459		177.4541	177.4541	9.2800e-003		177.6489
Total	**1.6382**	**24.4714**	**19.0031**	**0.0729**	**1.8180**	**0.3608**	**2.1788**	**0.4964**	**0.3319**	**0.8283**		**7,193.3356**	**7,193.3356**	**0.0610**		**7,194.6163**

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					7.9979	0.0000	7.9979	1.2110	0.0000	1.2110			0.0000			0.0000
Off-Road	0.4739	2.0535	23.8257	0.0399		0.0632	0.0632		0.0632	0.0632	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**0.4739**	**2.0535**	**23.8257**	**0.0399**	**7.9979**	**0.0632**	**8.0611**	**1.2110**	**0.0632**	**1.2741**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

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	1.5781	24.3954	18.0603	0.0707	1.0240	0.3593	1.3833	0.2981	0.3305	0.6286		7,015.8815	7,015.8815	0.0517		7,016.9674
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	0.0600	0.0761	0.9428	2.1800e-003	0.0948	1.5200e-003	0.0963	0.0266	1.4000e-003	0.0280		177.4541	177.4541	9.2800e-003		177.6489
Total	**1.6382**	**24.4714**	**19.0031**	**0.0729**	**1.1188**	**0.3608**	**1.4796**	**0.3247**	**0.3319**	**0.6566**		**7,193.3356**	**7,193.3356**	**0.0610**		**7,194.6163**

3.3 Site Preparation - 2017

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					18.9854	0.0000	18.9854	10.0299	0.0000	10.0299			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.9854**	**2.7542**	**21.7396**	**10.0299**	**2.5339**	**12.5638**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

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	0.0720	0.0913	1.1313	2.6200e-003	0.2012	1.8200e-003	0.2030	0.0534	1.6800e-003	0.0550		212.9450	212.9450	0.0111		213.1787
Total	**0.0720**	**0.0913**	**1.1313**	**2.6200e-003**	**0.2012**	**1.8200e-003**	**0.2030**	**0.0534**	**1.6800e-003**	**0.0550**		**212.9450**	**212.9450**	**0.0111**		**213.1787**

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					7.4043	0.0000	7.4043	3.9117	0.0000	3.9117			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**7.4043**	**0.0634**	**7.4677**	**3.9117**	**0.0634**	**3.9751**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

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	0.0720	0.0913	1.1313	2.6200e-003	0.1137	1.8200e-003	0.1156	0.0319	1.6800e-003	0.0336		212.9450	212.9450	0.0111		213.1787
Total	**0.0720**	**0.0913**	**1.1313**	**2.6200e-003**	**0.1137**	**1.8200e-003**	**0.1156**	**0.0319**	**1.6800e-003**	**0.0336**		**212.9450**	**212.9450**	**0.0111**		**213.1787**

3.4 Building Construction - 2017

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	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.4 Building Construction - 2017

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	0.0848	0.8775	1.0500	2.4100e-003	0.0686	0.0134	0.0820	0.0195	0.0123	0.0319		238.3743	238.3743	1.7200e-003		238.4105
Worker	0.1161	0.1470	1.8227	4.2100e-003	0.3242	2.9400e-003	0.3271	0.0860	2.7100e-003	0.0887		343.0780	343.0780	0.0179		343.4546
Total	**0.2008**	**1.0245**	**2.8727**	**6.6200e-003**	**0.3928**	**0.0164**	**0.4091**	**0.1055**	**0.0150**	**0.1205**		**581.4523**	**581.4523**	**0.0197**		**581.8650**

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	0.3265	2.2289	17.4110	0.0268		0.0406	0.0406		0.0406	0.0406	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**0.3265**	**2.2289**	**17.4110**	**0.0268**		**0.0406**	**0.0406**		**0.0406**	**0.0406**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.4 Building Construction - 2017

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	0.0848	0.8775	1.0500	2.4100e-003	0.0435	0.0134	0.0570	0.0134	0.0123	0.0257		238.3743	238.3743	1.7200e-003		238.4105
Worker	0.1161	0.1470	1.8227	4.2100e-003	0.1833	2.9400e-003	0.1862	0.0514	2.7100e-003	0.0541		343.0780	343.0780	0.0179		343.4546
Total	**0.2008**	**1.0245**	**2.8727**	**6.6200e-003**	**0.2268**	**0.0164**	**0.2431**	**0.0648**	**0.0150**	**0.0798**		**581.4523**	**581.4523**	**0.0197**		**581.8650**

3.4 Building Construction - 2018

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	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.4 Building Construction - 2018

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	0.0798	0.8068	1.0030	2.4100e-003	0.0686	0.0126	0.0813	0.0195	0.0116	0.0312		234.4372	234.4372	1.7100e-003		234.4731
Worker	0.1045	0.1335	1.6562	4.2100e-003	0.3242	2.8400e-003	0.3270	0.0860	2.6300e-003	0.0886		330.5234	330.5234	0.0167		330.8732
Total	**0.1843**	**0.9403**	**2.6592**	**6.6200e-003**	**0.3928**	**0.0155**	**0.4083**	**0.1055**	**0.0143**	**0.1198**		**564.9605**	**564.9605**	**0.0184**		**565.3462**

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	0.3265	2.2289	17.4110	0.0268		0.0406	0.0406		0.0406	0.0406	0.0000	2,609.938 9	2,609.938 9	0.6387		2,623.351 7
Total	**0.3265**	**2.2289**	**17.4110**	**0.0268**		**0.0406**	**0.0406**		**0.0406**	**0.0406**	**0.0000**	**2,609.938 9**	**2,609.938 9**	**0.6387**		**2,623.351 7**

3.4 Building Construction - 2018

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	0.0798	0.8068	1.0030	2.4100e-003	0.0436	0.0126	0.0562	0.0134	0.0116	0.0250		234.4372	234.4372	1.7100e-003		234.4731
Worker	0.1045	0.1335	1.6562	4.2100e-003	0.1833	2.8400e-003	0.1861	0.0514	2.6300e-003	0.0540		330.5234	330.5234	0.0167		330.8732
Total	**0.1843**	**0.9403**	**2.6592**	**6.6200e-003**	**0.2268**	**0.0155**	**0.2423**	**0.0648**	**0.0143**	**0.0790**		**564.9605**	**564.9605**	**0.0184**		**565.3462**

3.5 Paving - 2018

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	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.5 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.1677	1.4700e-003	0.1691	0.0445	1.3600e-003	0.0458		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.1677**	**1.4700e-003**	**0.1691**	**0.0445**	**1.3600e-003**	**0.0458**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2745**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.5 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.0948	1.4700e-003	0.0963	0.0266	1.3600e-003	0.0279		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.0948**	**1.4700e-003**	**0.0963**	**0.0266**	**1.3600e-003**	**0.0279**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

3.6 Architectural Coating - 2018

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	81.1125					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**81.4111**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.6 Architectural Coating - 2018

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	0.0216	0.0276	0.3427	8.7000e-004	0.0671	5.9000e-004	0.0677	0.0178	5.4000e-004	0.0183		68.3842	68.3842	3.4500e-003		68.4565
Total	**0.0216**	**0.0276**	**0.3427**	**8.7000e-004**	**0.0671**	**5.9000e-004**	**0.0677**	**0.0178**	**5.4000e-004**	**0.0183**		**68.3842**	**68.3842**	**3.4500e-003**		**68.4565**

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	81.1125					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**81.1422**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.6 Architectural Coating - 2018

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	0.0216	0.0276	0.3427	8.7000e-004	0.0379	5.9000e-004	0.0385	0.0106	5.4000e-004	0.0112		68.3842	68.3842	3.4500e-003		68.4565
Total	**0.0216**	**0.0276**	**0.3427**	**8.7000e-004**	**0.0379**	**5.9000e-004**	**0.0385**	**0.0106**	**5.4000e-004**	**0.0112**		**68.3842**	**68.3842**	**3.4500e-003**		**68.4565**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Transit Subsidy

	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	1.8140	6.0973	24.0483	0.0697	4.5887	0.0968	4.6855	1.2271	0.0892	1.3162		5,771.4562	5,771.4562	0.2165		5,776.0022
Unmitigated	1.8140	6.0973	24.0483	0.0697	4.5887	0.0968	4.6855	1.2271	0.0892	1.3162		5,771.4562	5,771.4562	0.2165		5,776.0022

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	487.90	92.40	47.60	1,631,820	1,631,820
Total	487.90	92.40	47.60	1,631,820	1,631,820

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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.531767	0.058060	0.178534	0.124864	0.038964	0.006284	0.016861	0.033134	0.002486	0.003151	0.003685	0.000540	0.001671

5.0 Energy Detail

4.4 Fleet Mix

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	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825
NaturalGas Unmitigated	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825

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	3607.4	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825
Total		**0.0389**	**0.3537**	**0.2971**	**2.1200e-003**		**0.0269**	**0.0269**		**0.0269**	**0.0269**		**424.3997**	**424.3997**	**8.1300e-003**	**7.7800e-003**	**426.9825**

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	3.6074	0.0389	0.3537	0.2971	2.1200e-003		0.0269	0.0269		0.0269	0.0269		424.3997	424.3997	8.1300e-003	7.7800e-003	426.9825
Total		**0.0389**	**0.3537**	**0.2971**	**2.1200e-003**		**0.0269**	**0.0269**		**0.0269**	**0.0269**		**424.3997**	**424.3997**	**8.1300e-003**	**7.7800e-003**	**426.9825**

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	1.8311	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162
Unmitigated	1.8311	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162

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					
Consumer Products	1.3860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.9000e-004	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162
Architectural Coating	0.4445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8311**	**7.0000e-005**	**7.2500e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0162**

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					
Consumer Products	1.3860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.9000e-004	7.0000e-005	7.2500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0162
Architectural Coating	0.4445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8311**	**7.0000e-005**	**7.2500e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0162**

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 Vegetation

ESFV Alt 4 Roadway/Tracks, Sidewalks, and At-Grade Stations

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2,250.00	1000sqft	51.65	2,250,000.00	0
Other Non-Asphalt Surfaces	2,069.00	1000sqft	47.50	2,069,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
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 - 36-month construction period beginning in June 2017

Land Use - 2.25 million square feet of road to be repaved
Sidewalks/Stations: Removal of curbs and gutters, addition of curbs and gutters, additions of sidewalks, ramps, direct fixation/ballasted track, at-grade stations ~ 2,069,051sf = 47.5 ac

Construction Phase - 36-month construction starting in June 2017, construction to occur 6 days/week ~ 640 days of construction
Approximately 2/3 of construction apportioned to site preparation and the remaining 1/3 apportioned to paving/striping

Grading - Material Imported: 32,778 cy paving + 11,913 cy SW/curbs/barriers + 15,709 plaforms + 273,588 cy track work = 333,988 cy
Material Exported: 27,778 cy for paving + 7,854 cy platform + 10,320 cy for SW/curb/Misc removal + 237,024 cy track work = 282,975 cy

Architectural Coating - Striping for roadway ~ 2 square feet of striping for every linear foot (9.2 miles) = 97,152 sf

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,159,500.00	97,152.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,478,500.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
tblConstructionPhase	NumDays	110.00	40.00
tblConstructionPhase	NumDays	110.00	200.00
tblConstructionPhase	NumDays	60.00	400.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	100.00
tblGrading	MaterialExported	0.00	282,975.00
tblGrading	MaterialImported	0.00	333,988.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblProjectCharacteristics	OperationalYear	2014	2021

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					
2017	8.1214	101.4851	77.2779	0.1856	24.0593	3.4871	27.5464	9.5281	3.2081	12.7361	0.0000	18,492.1464	18,492.1464	1.3429	0.0000	18,520.3470
2018	7.5124	91.8164	73.2357	0.1855	23.1869	3.0976	26.2845	9.3140	2.8498	12.1638	0.0000	18,186.5494	18,186.5494	1.3435	0.0000	18,214.7624
2019	29.6121	14.9986	20.8784	0.0555	4.0575	0.8109	4.2210	1.0761	0.7460	1.2370	0.0000	4,256.5901	4,256.5901	0.7070	0.0000	4,271.4360
Total	**45.2460**	**208.3001**	**171.3920**	**0.4266**	**51.3036**	**7.3956**	**58.0518**	**19.9181**	**6.8039**	**26.1369**	**0.0000**	**40,935.2859**	**40,935.2859**	**3.3933**	**0.0000**	**41,006.5454**

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					
2017	3.7590	51.7931	59.1224	0.1856	10.5248	0.7963	11.3211	4.0567	0.7376	4.7943	0.0000	18,492.1464	18,492.1464	1.3429	0.0000	18,520.3470
2018	3.6960	48.2692	58.2426	0.1855	10.0889	0.7956	10.8846	3.9498	0.7370	4.6868	0.0000	18,186.5494	18,186.5494	1.3435	0.0000	18,214.7624
2019	29.3754	1.6603	20.8694	0.0555	2.2938	0.0387	2.3324	0.6432	0.0379	0.6793	0.0000	4,256.5901	4,256.5901	0.7070	0.0000	4,271.4360
Total	**36.8304**	**101.7226**	**138.2344**	**0.4266**	**22.9075**	**1.6306**	**24.5381**	**8.6496**	**1.5126**	**10.1604**	**0.0000**	**40,935.2859**	**40,935.2859**	**3.3933**	**0.0000**	**41,006.5454**

	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	**18.60**	**51.17**	**19.35**	**0.00**	**55.35**	**77.95**	**57.73**	**56.57**	**77.77**	**61.13**	**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	112.9802	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979
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	**112.9802**	**4.0600e-003**	**0.4427**	**3.0000e-005**	**0.0000**	**1.5800e-003**	**1.5800e-003**	**0.0000**	**1.5800e-003**	**1.5800e-003**		**0.9452**	**0.9452**	**2.5100e-003**	**0.0000**	**0.9979**

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	112.9802	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979
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	**112.9802**	**4.0600e-003**	**0.4427**	**3.0000e-005**	**0.0000**	**1.5800e-003**	**1.5800e-003**	**0.0000**	**1.5800e-003**	**1.5800e-003**		**0.9452**	**0.9452**	**2.5100e-003**	**0.0000**	**0.9979**

	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	Site Preparation	Site Preparation	6/1/2017	9/10/2018	6	400	
2	Paving	Paving	9/11/2018	5/1/2019	6	200	
3	Architectural Coating	Architectural Coating	5/2/2019	6/17/2019	6	40	

Acres of Grading (Site Preparation Phase): 100

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 97,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40

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
Site Preparation	7	18.00	0.00	77,120.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	363.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					17.4773	0.0000	17.4773	7.8133	0.0000	7.8133			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**17.4773**	**2.7542**	**20.2315**	**7.8133**	**2.5339**	**10.3472**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	3.2112	49.6404	36.7496	0.1439	6.3808	0.7311	7.1118	1.6614	0.6725	2.3339		14,276.1156	14,276.1156	0.1052		14,278.3251
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	0.0720	0.0913	1.1313	2.6200e-003	0.2012	1.8200e-003	0.2030	0.0534	1.6800e-003	0.0550		212.9450	212.9450	0.0111		213.1787
Total	**3.2832**	**49.7316**	**37.8809**	**0.1465**	**6.5820**	**0.7329**	**7.3149**	**1.7148**	**0.6742**	**2.3890**		**14,489.0605**	**14,489.0605**	**0.1164**		**14,491.5038**

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					6.8161	0.0000	6.8161	3.0472	0.0000	3.0472			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**6.8161**	**0.0634**	**6.8796**	**3.0472**	**0.0634**	**3.1106**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.2 Site Preparation - 2017

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	3.2112	49.6404	36.7496	0.1439	3.5949	0.7311	4.3260	0.9776	0.6725	1.6501		14,276.1156	14,276.1156	0.1052		14,278.3251
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	0.0720	0.0913	1.1313	2.6200e-003	0.1137	1.8200e-003	0.1156	0.0319	1.6800e-003	0.0336		212.9450	212.9450	0.0111		213.1787
Total	**3.2832**	**49.7316**	**37.8809**	**0.1465**	**3.7087**	**0.7329**	**4.4416**	**1.0095**	**0.6742**	**1.6837**		**14,489.0605**	**14,489.0605**	**0.1164**		**14,491.5038**

3.2 Site Preparation - 2018

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					17.4773	0.0000	17.4773	7.8133	0.0000	7.8133			0.0000			0.0000
Off-Road	4.2921	45.6088	36.2346	0.0391		2.3654	2.3654		2.1762	2.1762		3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**4.2921**	**45.6088**	**36.2346**	**0.0391**	**17.4773**	**2.3654**	**19.8427**	**7.8133**	**2.1762**	**9.9894**		**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	3.1554	46.1248	35.9731	0.1438	5.5084	0.7305	6.2388	1.4473	0.6720	2.1193		14,041.6238	14,041.6238	0.1066		14,043.8631
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	0.0649	0.0828	1.0280	2.6200e-003	0.2012	1.7700e-003	0.2030	0.0534	1.6300e-003	0.0550		205.1524	205.1524	0.0103		205.3695
Total	**3.2203**	**46.2076**	**37.0011**	**0.1464**	**5.7096**	**0.7322**	**6.4418**	**1.5007**	**0.6736**	**2.1743**		**14,246.7763**	**14,246.7763**	**0.1170**		**14,249.2327**

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					6.8161	0.0000	6.8161	3.0472	0.0000	3.0472			0.0000			0.0000
Off-Road	0.4757	2.0615	21.2415	0.0391		0.0634	0.0634		0.0634	0.0634	0.0000	3,939.7731	3,939.7731	1.2265		3,965.5297
Total	**0.4757**	**2.0615**	**21.2415**	**0.0391**	**6.8161**	**0.0634**	**6.8796**	**3.0472**	**0.0634**	**3.1106**	**0.0000**	**3,939.7731**	**3,939.7731**	**1.2265**		**3,965.5297**

3.2 Site Preparation - 2018

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	3.1554	46.1248	35.9731	0.1438	3.1590	0.7305	3.8895	0.8707	0.6720	1.5427		14,041.6238	14,041.6238	0.1066		14,043.8631
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	0.0649	0.0828	1.0280	2.6200e-003	0.1137	1.7700e-003	0.1155	0.0319	1.6300e-003	0.0335		205.1524	205.1524	0.0103		205.3695
Total	**3.2203**	**46.2076**	**37.0011**	**0.1464**	**3.2728**	**0.7322**	**4.0050**	**0.9026**	**0.6736**	**1.5762**		**14,246.7763**	**14,246.7763**	**0.1170**		**14,249.2327**

3.3 Paving - 2018

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	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.6766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2880**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.1677	1.4700e-003	0.1691	0.0445	1.3600e-003	0.0458		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.1677**	**1.4700e-003**	**0.1691**	**0.0445**	**1.3600e-003**	**0.0458**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.6766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9511**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.3 Paving - 2018

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	0.0541	0.0690	0.8567	2.1800e-003	0.0948	1.4700e-003	0.0963	0.0266	1.3600e-003	0.0279		170.9604	170.9604	8.6200e-003		171.1413
Total	**0.0541**	**0.0690**	**0.8567**	**2.1800e-003**	**0.0948**	**1.4700e-003**	**0.0963**	**0.0266**	**1.3600e-003**	**0.0279**		**170.9604**	**170.9604**	**8.6200e-003**		**171.1413**

3.3 Paving - 2019

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	1.4259	14.9353	14.3652	0.0223		0.8094	0.8094		0.7447	0.7447		2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.6766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1025**	**14.9353**	**14.3652**	**0.0223**		**0.8094**	**0.8094**		**0.7447**	**0.7447**		**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.1677	1.4300e-003	0.1691	0.0445	1.3300e-003	0.0458		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.1677**	**1.4300e-003**	**0.1691**	**0.0445**	**1.3300e-003**	**0.0458**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.6766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9511**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.3 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.0948	1.4300e-003	0.0962	0.0266	1.3300e-003	0.0279		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.0948**	**1.4300e-003**	**0.0962**	**0.0266**	**1.3300e-003**	**0.0279**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.4 Architectural Coating - 2019

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	28.1437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**28.4102**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.2020	1.5315	19.0370	0.0525	4.0575	0.0347	4.0922	1.0761	0.0322	1.1082		3,975.1420	3,975.1420	0.1949		3,979.2342
Total	**1.2020**	**1.5315**	**19.0370**	**0.0525**	**4.0575**	**0.0347**	**4.0922**	**1.0761**	**0.0322**	**1.1082**		**3,975.1420**	**3,975.1420**	**0.1949**		**3,979.2342**

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	28.1437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**28.1734**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.4 Architectural Coating - 2019

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	1.2020	1.5315	19.0370	0.0525	2.2938	0.0347	2.3285	0.6432	0.0322	0.6753		3,975.1420	3,975.1420	0.1949		3,979.2342
Total	**1.2020**	**1.5315**	**19.0370**	**0.0525**	**2.2938**	**0.0347**	**2.3285**	**0.6432**	**0.0322**	**0.6753**		**3,975.1420**	**3,975.1420**	**0.1949**		**3,979.2342**

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
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	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
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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.527271	0.057774	0.179409	0.125521	0.039563	0.006393	0.017164	0.035220	0.002536	0.003167	0.003715	0.000530	0.001736

4.4 Fleet Mix

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					
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
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					
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
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	112.9802	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979
Unmitigated	112.9802	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979

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	27.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	85.5162					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0414	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979
Total	**112.9802**	**4.0600e-003**	**0.4427**	**3.0000e-005**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**		**0.9452**	**0.9452**	**2.5100e-003**		**0.9979**

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	27.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	85.5162					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0414	4.0600e-003	0.4427	3.0000e-005		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		0.9452	0.9452	2.5100e-003		0.9979
Total	**112.9802**	**4.0600e-003**	**0.4427**	**3.0000e-005**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**		**0.9452**	**0.9452**	**2.5100e-003**		**0.9979**

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 Vegetation

ESFV Alt 4b Underground Stations and Tunnels (Bore)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	222.57	1000sqft	5.11	222,568.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020

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 - 30-month construction duration beginning June 2017

Land Use - Three underground stations have a combined 222,568 gsf

Construction Phase - 30-month construction duration with work occurring 6 days per week ~ 780 days

Off-road Equipment - 4 welders, 2 generator sets, 2 excavators, 1 crane, 4 tractors/loaders/backhoes, and 3 rubber tired dozers

Off-road Equipment - 2 cranes, 3 forklifts, 2 generator sets, 3 tractors/loaders/backhoes, and 4 welders

Grading - Tunnel: 291,000 cy export and 99,000 cy import for 13,700 linear feet tunnel
Stations: 200,000 cy export
Acres disturbed: 80 feet wide x 400 feet long for each station and tunnel berths ~ <0.5 acres

Architectural Coating - Stations generally use pre-fabricated cladding/tile on on interiors. Exterior of station not painted/embellished (underground and not visible)

Area Coating - Stations generally use pre-fabricated cladding/tile on on interiors. Exterior of station not painted/embellished (underground and not visible)

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	111,284.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	333,852.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
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
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	230.00	250.00
tblConstructionPhase	NumDays	20.00	50.00
tblConstructionPhase	NumDays	10.00	450.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	491,000.00
tblGrading	MaterialImported	0.00	99,000.00
tblLandUse	LandUseSquareFeet	222,570.00	222,568.00
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	OffRoadEquipmentType		Welders

tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2020

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					
2017	11.4955	117.6614	90.7717	0.1955	24.6229	4.8318	29.4547	11.6146	4.5342	16.1488	0.0000	19,201.9381	19,201.9381	1.7938	0.0000	19,239.6081
2018	10.4331	106.5620	86.1938	0.1954	22.9471	4.2549	27.2020	11.2033	3.9927	15.1961	0.0000	18,914.9976	18,914.9976	1.7620	0.0000	18,951.9997
2019	4.9385	37.5866	36.2687	0.0673	1.2642	2.0761	3.3403	0.3396	1.9781	2.3177	0.0000	6,085.1591	6,085.1591	0.9815	0.0000	6,105.7714
Total	**26.8670**	**261.8100**	**213.2342**	**0.4581**	**48.8342**	**11.1628**	**59.9970**	**23.1576**	**10.5050**	**33.6625**	**0.0000**	**44,202.0948**	**44,202.0948**	**4.5374**	**0.0000**	**44,297.3791**

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					
2017	3.7212	49.3201	71.3066	0.1955	10.6772	0.7268	11.4040	4.8475	0.6768	5.5243	0.0000	19,201.9381	19,201.9381	1.7938	0.0000	19,239.6081
2018	3.6598	46.3154	70.4457	0.1954	9.8395	0.7262	10.5657	4.6419	0.6762	5.3181	0.0000	18,914.9976	18,914.9976	1.7620	0.0000	18,951.9997
2019	1.1403	8.6174	36.2239	0.0673	0.7302	0.1144	0.8446	0.2086	0.1106	0.3192	0.0000	6,085.1591	6,085.1591	0.9815	0.0000	6,105.7714
Total	**8.5213**	**104.2529**	**177.9761**	**0.4581**	**21.2469**	**1.5674**	**22.8143**	**9.6979**	**1.4636**	**11.1616**	**0.0000**	**44,202.0948**	**44,202.0948**	**4.5374**	**0.0000**	**44,297.3791**

	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	68.28	60.18	16.53	0.00	56.49	85.96	61.97	58.12	86.07	66.84	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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Energy	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Mobile	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Total	**11.0652**	**17.7208**	**67.8289**	**0.2282**	**14.5936**	**0.3799**	**14.9735**	**3.9028**	**0.3570**	**4.2598**		**18,522.8284**	**18,522.8284**	**0.6369**	**0.0247**	**18,543.8721**

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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Energy	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Mobile	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Total	**11.0652**	**17.7208**	**67.8289**	**0.2282**	**14.5936**	**0.3799**	**14.9735**	**3.9028**	**0.3570**	**4.2598**		**18,522.8284**	**18,522.8284**	**0.6369**	**0.0247**	**18,543.8721**

	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	Site Preparation	Site Preparation	6/1/2017	11/7/2018	6	450	
2	Building Construction	Building Construction	11/8/2018	8/26/2019	6	250	
3	Paving	Paving	8/27/2019	10/23/2019	6	50	
4	Architectural Coating	Architectural Coating	10/24/2019	11/27/2019	6	30	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Welders	4	8.00	46	0.45
Site Preparation	Generator Sets	2	8.00	84	0.74
Site Preparation	Cranes	1	8.00	226	0.29
Building Construction	Cranes	2	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Building Construction	Welders	4	8.00	46	0.45

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
Site Preparation	14	35.00	0.00	73,750.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	14	93.00	36.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					18.2157	0.0000	18.2157	9.9533	0.0000	9.9533			0.0000			0.0000
Off-Road	8.6257	75.2874	57.3331	0.0681		4.2068	4.2068		3.9592	3.9592		6,652.5221	6,652.5221	1.6827		6,687.8593
Total	**8.6257**	**75.2874**	**57.3331**	**0.0681**	**18.2157**	**4.2068**	**22.4226**	**9.9533**	**3.9592**	**13.9125**		**6,652.5221**	**6,652.5221**	**1.6827**		**6,687.8593**

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	2.7297	42.1966	31.2388	0.1223	6.0160	0.6214	6.6374	1.5576	0.5717	2.1293		12,135.3564	12,135.3564	0.0894		12,137.2347
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	0.1401	0.1774	2.1998	5.0900e-003	0.3912	3.5400e-003	0.3948	0.1038	3.2700e-003	0.1070		414.0596	414.0596	0.0216		414.5141
Total	**2.8698**	**42.3740**	**33.4386**	**0.1274**	**6.4072**	**0.6250**	**7.0322**	**1.6614**	**0.5749**	**2.2363**		**12,549.4161**	**12,549.4161**	**0.1111**		**12,551.7488**

3.2 Site Preparation - 2017

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					7.1041	0.0000	7.1041	3.8818	0.0000	3.8818			0.0000			0.0000
Off-Road	0.8514	6.9461	37.8680	0.0681		0.1018	0.1018		0.1018	0.1018	0.0000	6,652.5220	6,652.5220	1.6827		6,687.8593
Total	**0.8514**	**6.9461**	**37.8680**	**0.0681**	**7.1041**	**0.1018**	**7.2060**	**3.8818**	**0.1018**	**3.9836**	**0.0000**	**6,652.5220**	**6,652.5220**	**1.6827**		**6,687.8593**

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	2.7297	42.1966	31.2388	0.1223	3.3519	0.6214	3.9733	0.9037	0.5717	1.4754		12,135.3564	12,135.3564	0.0894		12,137.2347
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	0.1401	0.1774	2.1998	5.0900e-003	0.2212	3.5400e-003	0.2247	0.0620	3.2700e-003	0.0653		414.0596	414.0596	0.0216		414.5141
Total	**2.8698**	**42.3740**	**33.4386**	**0.1274**	**3.5730**	**0.6250**	**4.1980**	**0.9657**	**0.5749**	**1.5406**		**12,549.4161**	**12,549.4161**	**0.1111**		**12,551.7488**

3.2 Site Preparation - 2018

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					18.2157	0.0000	18.2157	9.9533	0.0000	9.9533			0.0000			0.0000
Off-Road	7.6247	67.1928	53.6162	0.0681		3.6305	3.6305		3.4184	3.4184		6,580.0625	6,580.0625	1.6513		6,614.7389
Total	**7.6247**	**67.1928**	**53.6162**	**0.0681**	**18.2157**	**3.6305**	**21.8463**	**9.9533**	**3.4184**	**13.3716**		**6,580.0625**	**6,580.0625**	**1.6513**		**6,614.7389**

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	2.6823	39.2082	30.5788	0.1222	4.3402	0.6209	4.9611	1.1463	0.5712	1.7175		11,936.0276	11,936.0276	0.0906		11,937.9311
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	0.1261	0.1611	1.9989	5.0900e-003	0.3912	3.4300e-003	0.3947	0.1038	3.1800e-003	0.1069		398.9075	398.9075	0.0201		399.3297
Total	**2.8084**	**39.3693**	**32.5777**	**0.1273**	**4.7314**	**0.6243**	**5.3557**	**1.2501**	**0.5744**	**1.8245**		**12,334.9352**	**12,334.9352**	**0.1107**		**12,337.2608**

3.2 Site Preparation - 2018

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					7.1041	0.0000	7.1041	3.8818	0.0000	3.8818			0.0000			0.0000
Off-Road	0.8514	6.9461	37.8680	0.0681		0.1018	0.1018		0.1018	0.1018	0.0000	6,580.0625	6,580.0625	1.6513		6,614.7389
Total	**0.8514**	**6.9461**	**37.8680**	**0.0681**	**7.1041**	**0.1018**	**7.2060**	**3.8818**	**0.1018**	**3.9836**	**0.0000**	**6,580.0625**	**6,580.0625**	**1.6513**		**6,614.7389**

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	2.6823	39.2082	30.5788	0.1222	2.5142	0.6209	3.1351	0.6981	0.5712	1.2693		11,936.0276	11,936.0276	0.0906		11,937.9311
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	0.1261	0.1611	1.9989	5.0900e-003	0.2212	3.4300e-003	0.2246	0.0620	3.1800e-003	0.0652		398.9075	398.9075	0.0201		399.3297
Total	**2.8084**	**39.3693**	**32.5777**	**0.1273**	**2.7354**	**0.6243**	**3.3597**	**0.7601**	**0.5744**	**1.3345**		**12,334.9352**	**12,334.9352**	**0.1107**		**12,337.2608**

3.3 Building Construction - 2018

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	4.9879	38.2591	29.0158	0.0460		2.3496	2.3496		2.2399	2.2399		4,352.4337	4,352.4337	0.9578		4,372.5468
Total	**4.9879**	**38.2591**	**29.0158**	**0.0460**		**2.3496**	**2.3496**		**2.2399**	**2.2399**		**4,352.4337**	**4,352.4337**	**0.9578**		**4,372.5468**

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	0.2613	2.6405	3.2825	7.8900e-003	0.2246	0.0413	0.2660	0.0639	0.0380	0.1019		767.2489	767.2489	5.6000e-003		767.3665
Worker	0.3351	0.4280	5.3113	0.0135	1.0395	9.1200e-003	1.0486	0.2757	8.4400e-003	0.2841		1,059.9543	1,059.9543	0.0534		1,061.0760
Total	**0.5964**	**3.0684**	**8.5938**	**0.0214**	**1.2642**	**0.0505**	**1.3146**	**0.3396**	**0.0465**	**0.3861**		**1,827.2031**	**1,827.2031**	**0.0590**		**1,828.4424**

3.3 Building Construction - 2018

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	0.5844	5.7889	28.1831	0.0460		0.0662	0.0662		0.0662	0.0662	0.0000	4,352.4337	4,352.4337	0.9578		4,372.5468
Total	**0.5844**	**5.7889**	**28.1831**	**0.0460**		**0.0662**	**0.0662**		**0.0662**	**0.0662**	**0.0000**	**4,352.4337**	**4,352.4337**	**0.9578**		**4,372.5468**

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	0.2613	2.6405	3.2825	7.8900e-003	0.1425	0.0413	0.1839	0.0438	0.0380	0.0818		767.2489	767.2489	5.6000e-003		767.3665
Worker	0.3351	0.4280	5.3113	0.0135	0.5877	9.1200e-003	0.5968	0.1648	8.4400e-003	0.1732		1,059.9543	1,059.9543	0.0534		1,061.0760
Total	**0.5964**	**3.0684**	**8.5938**	**0.0214**	**0.7302**	**0.0505**	**0.7806**	**0.2085**	**0.0465**	**0.2550**		**1,827.2031**	**1,827.2031**	**0.0590**		**1,828.4424**

3.3 Building Construction - 2019

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	4.3826	34.7581	28.2279	0.0460		2.0279	2.0279		1.9337	1.9337		4,315.2204	4,315.2204	0.9261		4,334.6693
Total	**4.3826**	**34.7581**	**28.2279**	**0.0460**		**2.0279**	**2.0279**		**1.9337**	**1.9337**		**4,315.2204**	**4,315.2204**	**0.9261**		**4,334.6693**

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	0.2480	2.4361	3.1635	7.8600e-003	0.2247	0.0393	0.2640	0.0639	0.0361	0.1001		751.5138	751.5138	5.4800e-003		751.6288
Worker	0.3079	0.3924	4.8773	0.0135	1.0395	8.8900e-003	1.0484	0.2757	8.2400e-003	0.2839		1,018.4248	1,018.4248	0.0499		1,019.4732
Total	**0.5559**	**2.8285**	**8.0408**	**0.0213**	**1.2642**	**0.0482**	**1.3124**	**0.3396**	**0.0444**	**0.3840**		**1,769.9387**	**1,769.9387**	**0.0554**		**1,771.1021**

3.3 Building Construction - 2019

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	0.5844	5.7889	28.1831	0.0460		0.0662	0.0662		0.0662	0.0662	0.0000	4,315.2204	4,315.2204	0.9261		4,334.6693
Total	**0.5844**	**5.7889**	**28.1831**	**0.0460**		**0.0662**	**0.0662**		**0.0662**	**0.0662**	**0.0000**	**4,315.2204**	**4,315.2204**	**0.9261**		**4,334.6693**

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	0.2480	2.4361	3.1635	7.8600e-003	0.1426	0.0393	0.1819	0.0438	0.0361	0.0799		751.5138	751.5138	5.4800e-003		751.6288
Worker	0.3079	0.3924	4.8773	0.0135	0.5877	8.8900e-003	0.5966	0.1648	8.2400e-003	0.1730		1,018.4248	1,018.4248	0.0499		1,019.4732
Total	**0.5559**	**2.8285**	**8.0408**	**0.0213**	**0.7302**	**0.0482**	**0.7784**	**0.2086**	**0.0444**	**0.2530**		**1,769.9387**	**1,769.9387**	**0.0554**		**1,771.1021**

3.4 Paving - 2019

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	1.4259	14.9353	14.3652	0.0223		0.8094	0.8094		0.7447	0.7447		2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4259**	**14.9353**	**14.3652**	**0.0223**		**0.8094**	**0.8094**		**0.7447**	**0.7447**		**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

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	0.0497	0.0633	0.7867	2.1700e-003	0.1677	1.4300e-003	0.1691	0.0445	1.3300e-003	0.0458		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.1677**	**1.4300e-003**	**0.1691**	**0.0445**	**1.3300e-003**	**0.0458**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.4 Paving - 2019

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2745**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

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	0.0497	0.0633	0.7867	2.1700e-003	0.0948	1.4300e-003	0.0962	0.0266	1.3300e-003	0.0279		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.0948**	**1.4300e-003**	**0.0962**	**0.0266**	**1.3300e-003**	**0.0279**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.5 Architectural Coating - 2019

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**0.2664**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

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	0.0629	0.0802	0.9964	2.7500e-003	0.2124	1.8200e-003	0.2142	0.0563	1.6800e-003	0.0580		208.0653	208.0653	0.0102		208.2795
Total	**0.0629**	**0.0802**	**0.9964**	**2.7500e-003**	**0.2124**	**1.8200e-003**	**0.2142**	**0.0563**	**1.6800e-003**	**0.0580**		**208.0653**	**208.0653**	**0.0102**		**208.2795**

3.5 Architectural Coating - 2019

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

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	0.0629	0.0802	0.9964	2.7500e-003	0.1201	1.8200e-003	0.1219	0.0337	1.6800e-003	0.0354		208.0653	208.0653	0.0102		208.2795
Total	**0.0629**	**0.0802**	**0.9964**	**2.7500e-003**	**0.1201**	**1.8200e-003**	**0.1219**	**0.0337**	**1.6800e-003**	**0.0354**		**208.0653**	**208.0653**	**0.0102**		**208.2795**

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	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Unmitigated	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,551.31	293.79	151.35	5,188,489	5,188,489
Total	1,551.31	293.79	151.35	5,188,489	5,188,489

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

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

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	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
NaturalGas Unmitigated	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092

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	11469.9	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Total		**0.1237**	**1.1245**	**0.9446**	**6.7500e-003**		**0.0855**	**0.0855**		**0.0855**	**0.0855**		**1,349.3970**	**1,349.3970**	**0.0259**	**0.0247**	**1,357.6092**

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	11.4699	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Total		**0.1237**	**1.1245**	**0.9446**	**6.7500e-003**		**0.0855**	**0.0855**		**0.0855**	**0.0855**		**1,349.3970**	**1,349.3970**	**0.0259**	**0.0247**	**1,357.6092**

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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Unmitigated	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515

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	1.4132					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4069					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Total	**5.8222**	**2.1000e-004**	**0.0229**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0487**	**0.0487**	**1.3000e-004**		**0.0515**

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	1.4132					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4069					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Total	**5.8222**	**2.1000e-004**	**0.0229**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0487**	**0.0487**	**1.3000e-004**		**0.0515**

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 Vegetation

ESFV Alt 4b Underground Stations and Tunnels (Cut and Cover)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	222.57	1000sqft	5.11	222,568.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
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 - 30-month construction duration beginning June 2017

Land Use - Three underground stations have a combined 222,568 gsf

Construction Phase - 30-month construction duration with work occurring 6 days per week ~ 780 days

Off-road Equipment - 4 welders, 2 generator sets, 2 excavators, 1 crane, 4 tractors/loaders/backhoes, and 3 rubber tired dozers

Off-road Equipment - 2 cranes, 3 forklifts, 2 generator sets, 3 tractors/loaders/backhoes, and 4 welders

Grading - Tunnel: 1.716 million cy export and 1.201 million cy import for 13,700 linear feet tunnel
Stations: 200,000 cy export
Acres disturbed: 13,700 linear feet x 25 feet wide cut and cover tunnels x 2 ~ 15.7 acres

Architectural Coating - Stations generally use pre-fabricated cladding/tile on on interiors. Exterior of station not painted/embellished (underground and not visible)

Area Coating - Stations generally use pre-fabricated cladding/tile on on interiors. Exterior of station not painted/embellished (underground and not visible)

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	111,284.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	333,852.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
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	20.00	30.00
tblConstructionPhase	NumDays	230.00	250.00
tblConstructionPhase	NumDays	20.00	50.00
tblConstructionPhase	NumDays	10.00	450.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	15.70
tblGrading	MaterialExported	0.00	1,916,000.00
tblGrading	MaterialImported	0.00	1,201,000.00
tblLandUse	LandUseSquareFeet	222,570.00	222,568.00

tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2020

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					
2017	23.9354	306.5010	231.7436	0.7306	51.1164	7.8915	59.0078	18.4008	7.3488	25.7496	0.0000	72,323.7436	72,323.7436	2.5128	0.0000	72,376.5127
2018	22.5359	280.9081	224.1832	0.7301	42.2631	7.2246	49.4876	16.2279	6.7247	22.9526	0.0000	71,163.7975	71,163.7975	2.4860	0.0000	71,216.0026
2019	4.9385	37.5866	36.2687	0.0673	1.2642	2.0761	3.3403	0.3396	1.9781	2.3177	0.0000	6,085.1591	6,085.1591	0.9815	0.0000	6,105.7714
Total	**51.4099**	**624.9957**	**492.1955**	**1.5280**	**94.6436**	**17.1921**	**111.8357**	**34.9683**	**16.0516**	**51.0199**	**0.0000**	**149,572.7001**	**149,572.7001**	**5.9803**	**0.0000**	**149,698.2866**

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					
2017	15.5632	230.6422	213.4695	0.7306	25.3267	3.4064	28.7331	8.7659	3.1432	11.9090	0.0000	72,323.7436	72,323.7436	2.5128	0.0000	72,376.5127
2018	15.2968	214.8357	209.7528	0.7301	20.9013	3.4035	24.3048	7.6799	3.1406	10.8205	0.0000	71,163.7974	71,163.7974	2.4860	0.0000	71,216.0026
2019	1.1403	8.6174	36.2239	0.0673	0.7302	0.1144	0.8446	0.2086	0.1106	0.3192	0.0000	6,085.1591	6,085.1591	0.9815	0.0000	6,105.7714
Total	**32.0004**	**454.0953**	**459.4461**	**1.5280**	**46.9582**	**6.9243**	**53.8825**	**16.6543**	**6.3944**	**23.0487**	**0.0000**	**149,572.7001**	**149,572.7001**	**5.9803**	**0.0000**	**149,698.2866**

	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	**37.75**	**27.34**	**6.65**	**0.00**	**50.38**	**59.72**	**51.82**	**52.37**	**60.16**	**54.82**	**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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Energy	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Mobile	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Total	**11.0652**	**17.7208**	**67.8289**	**0.2282**	**14.5936**	**0.3799**	**14.9735**	**3.9028**	**0.3570**	**4.2598**		**18,522.8284**	**18,522.8284**	**0.6369**	**0.0247**	**18,543.8721**

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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Energy	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Mobile	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Total	**11.0652**	**17.7208**	**67.8289**	**0.2282**	**14.5936**	**0.3799**	**14.9735**	**3.9028**	**0.3570**	**4.2598**		**18,522.8284**	**18,522.8284**	**0.6369**	**0.0247**	**18,543.8721**

	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	Site Preparation	Site Preparation	6/1/2017	11/7/2018	6	450	
2	Building Construction	Building Construction	11/8/2018	8/26/2019	6	250	
3	Paving	Paving	8/27/2019	10/23/2019	6	50	
4	Architectural Coating	Architectural Coating	10/24/2019	11/27/2019	6	30	

Acres of Grading (Site Preparation Phase): 15.7

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Cranes	1	8.00	226	0.29
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Welders	4	8.00	46	0.45
Building Construction	Cranes	2	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Building Construction	Welders	4	8.00	46	0.45

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
Site Preparation	16	40.00	0.00	389,625.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	14	93.00	36.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	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

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2017

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					18.8866	0.0000	18.8866	10.0533	0.0000	10.0533			0.0000			0.0000
Off-Road	9.3544	83.3715	64.1932	0.0787		4.6044	4.6044		4.3250	4.3250		7,738.8275	7,738.8275	2.0156		7,781.1544
Total	**9.3544**	**83.3715**	**64.1932**	**0.0787**	**18.8866**	**4.6044**	**23.4909**	**10.0533**	**4.3250**	**14.3783**		**7,738.8275**	**7,738.8275**	**2.0156**		**7,781.1544**

3.2 Site Preparation - 2017

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	14.4210	222.9268	165.0363	0.6461	31.7827	3.2831	35.0658	8.2289	3.0201	11.2490		64,111.7051	64,111.7051	0.4725		64,121.6278
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	0.1601	0.2028	2.5141	5.8100e-003	0.4471	4.0500e-003	0.4512	0.1186	3.7300e-003	0.1223		473.2110	473.2110	0.0247		473.7304
Total	**14.5811**	**223.1296**	**167.5504**	**0.6519**	**32.2298**	**3.2871**	**35.5169**	**8.3475**	**3.0239**	**11.3713**		**64,584.9161**	**64,584.9161**	**0.4972**		**64,595.3583**

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					7.3658	0.0000	7.3658	3.9208	0.0000	3.9208			0.0000			0.0000
Off-Road	0.9822	7.5127	45.9191	0.0787		0.1193	0.1193		0.1193	0.1193	0.0000	7,738.8275	7,738.8275	2.0156		7,781.1544
Total	**0.9822**	**7.5127**	**45.9191**	**0.0787**	**7.3658**	**0.1193**	**7.4850**	**3.9208**	**0.1193**	**4.0401**	**0.0000**	**7,738.8275**	**7,738.8275**	**2.0156**		**7,781.1544**

3.2 Site Preparation - 2017

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	14.4210	222.9268	165.0363	0.6461	17.7081	3.2831	20.9912	4.7742	3.0201	7.7944		64,111.7051	64,111.7051	0.4725		64,121.6278
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	0.1601	0.2028	2.5141	5.8100e-003	0.2528	4.0500e-003	0.2568	0.0709	3.7300e-003	0.0746		473.2110	473.2110	0.0247		473.7304
Total	**14.5811**	**223.1296**	**167.5504**	**0.6519**	**17.9609**	**3.2871**	**21.2480**	**4.8451**	**3.0239**	**7.8690**		**64,584.9161**	**64,584.9161**	**0.4972**		**64,595.3583**

3.2 Site Preparation - 2018

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					18.8866	0.0000	18.8866	10.0533	0.0000	10.0533			0.0000			0.0000
Off-Road	8.2213	73.5850	60.3495	0.0787		3.9403	3.9403		3.7034	3.7034		7,649.2623	7,649.2623	1.9841		7,690.9287
Total	**8.2213**	**73.5850**	**60.3495**	**0.0787**	**18.8866**	**3.9403**	**22.8269**	**10.0533**	**3.7034**	**13.7567**		**7,649.2623**	**7,649.2623**	**1.9841**		**7,690.9287**

3.2 Site Preparation - 2018

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	14.1705	207.1390	161.5493	0.6456	22.9294	3.2803	26.2097	6.0560	3.0177	9.0738		63,058.6409	63,058.6409	0.4789		63,068.6971
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	0.1441	0.1841	2.2844	5.8100e-003	0.4471	3.9200e-003	0.4510	0.1186	3.6300e-003	0.1222		455.8943	455.8943	0.0230		456.3768
Total	**14.3147**	**207.3231**	**163.8337**	**0.6514**	**23.3765**	**3.2842**	**26.6607**	**6.1746**	**3.0214**	**9.1960**		**63,514.5352**	**63,514.5352**	**0.5018**		**63,525.0739**

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					7.3658	0.0000	7.3658	3.9208	0.0000	3.9208			0.0000			0.0000
Off-Road	0.9822	7.5127	45.9191	0.0787		0.1193	0.1193		0.1193	0.1193	0.0000	7,649.2623	7,649.2623	1.9841		7,690.9287
Total	**0.9822**	**7.5127**	**45.9191**	**0.0787**	**7.3658**	**0.1193**	**7.4850**	**3.9208**	**0.1193**	**4.0401**	**0.0000**	**7,649.2623**	**7,649.2623**	**1.9841**		**7,690.9287**

3.2 Site Preparation - 2018

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	14.1705	207.1390	161.5493	0.6456	13.2828	3.2803	16.5631	3.6882	3.0177	6.7060		63,058.6409	63,058.6409	0.4789		63,068.6971
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	0.1441	0.1841	2.2844	5.8100e-003	0.2528	3.9200e-003	0.2567	0.0709	3.6300e-003	0.0745		455.8943	455.8943	0.0230		456.3768
Total	**14.3147**	**207.3231**	**163.8337**	**0.6514**	**13.5355**	**3.2842**	**16.8198**	**3.7591**	**3.0214**	**6.7805**		**63,514.5352**	**63,514.5352**	**0.5018**		**63,525.0739**

3.3 Building Construction - 2018

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	4.9879	38.2591	29.0158	0.0460		2.3496	2.3496		2.2399	2.2399		4,352.4337	4,352.4337	0.9578		4,372.5468
Total	**4.9879**	**38.2591**	**29.0158**	**0.0460**		**2.3496**	**2.3496**		**2.2399**	**2.2399**		**4,352.4337**	**4,352.4337**	**0.9578**		**4,372.5468**

3.3 Building Construction - 2018

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	0.2613	2.6405	3.2825	7.8900e-003	0.2246	0.0413	0.2660	0.0639	0.0380	0.1019		767.2489	767.2489	5.6000e-003		767.3665
Worker	0.3351	0.4280	5.3113	0.0135	1.0395	9.1200e-003	1.0486	0.2757	8.4400e-003	0.2841		1,059.9543	1,059.9543	0.0534		1,061.0760
Total	**0.5964**	**3.0684**	**8.5938**	**0.0214**	**1.2642**	**0.0505**	**1.3146**	**0.3396**	**0.0465**	**0.3861**		**1,827.2031**	**1,827.2031**	**0.0590**		**1,828.4424**

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	0.5844	5.7889	28.1831	0.0460		0.0662	0.0662		0.0662	0.0662	0.0000	4,352.4337	4,352.4337	0.9578		4,372.5468
Total	**0.5844**	**5.7889**	**28.1831**	**0.0460**		**0.0662**	**0.0662**		**0.0662**	**0.0662**	**0.0000**	**4,352.4337**	**4,352.4337**	**0.9578**		**4,372.5468**

3.3 Building Construction - 2018

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	0.2613	2.6405	3.2825	7.8900e-003	0.1425	0.0413	0.1839	0.0438	0.0380	0.0818		767.2489	767.2489	5.6000e-003		767.3665
Worker	0.3351	0.4280	5.3113	0.0135	0.5877	9.1200e-003	0.5968	0.1648	8.4400e-003	0.1732		1,059.9543	1,059.9543	0.0534		1,061.0760
Total	**0.5964**	**3.0684**	**8.5938**	**0.0214**	**0.7302**	**0.0505**	**0.7806**	**0.2085**	**0.0465**	**0.2550**		**1,827.2031**	**1,827.2031**	**0.0590**		**1,828.4424**

3.3 Building Construction - 2019

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	4.3826	34.7581	28.2279	0.0460		2.0279	2.0279		1.9337	1.9337		4,315.2204	4,315.2204	0.9261		4,334.6693
Total	**4.3826**	**34.7581**	**28.2279**	**0.0460**		**2.0279**	**2.0279**		**1.9337**	**1.9337**		**4,315.2204**	**4,315.2204**	**0.9261**		**4,334.6693**

3.3 Building Construction - 2019

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	0.2480	2.4361	3.1635	7.8600e-003	0.2247	0.0393	0.2640	0.0639	0.0361	0.1001		751.5138	751.5138	5.4800e-003		751.6288
Worker	0.3079	0.3924	4.8773	0.0135	1.0395	8.8900e-003	1.0484	0.2757	8.2400e-003	0.2839		1,018.4248	1,018.4248	0.0499		1,019.4732
Total	**0.5559**	**2.8285**	**8.0408**	**0.0213**	**1.2642**	**0.0482**	**1.3124**	**0.3396**	**0.0444**	**0.3840**		**1,769.9387**	**1,769.9387**	**0.0554**		**1,771.1021**

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	0.5844	5.7889	28.1831	0.0460		0.0662	0.0662		0.0662	0.0662	0.0000	4,315.2204	4,315.2204	0.9261		4,334.6693
Total	**0.5844**	**5.7889**	**28.1831**	**0.0460**		**0.0662**	**0.0662**		**0.0662**	**0.0662**	**0.0000**	**4,315.2204**	**4,315.2204**	**0.9261**		**4,334.6693**

3.3 Building Construction - 2019

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	0.2480	2.4361	3.1635	7.8600e-003	0.1426	0.0393	0.1819	0.0438	0.0361	0.0799		751.5138	751.5138	5.4800e-003		751.6288
Worker	0.3079	0.3924	4.8773	0.0135	0.5877	8.8900e-003	0.5966	0.1648	8.2400e-003	0.1730		1,018.4248	1,018.4248	0.0499		1,019.4732
Total	**0.5559**	**2.8285**	**8.0408**	**0.0213**	**0.7302**	**0.0482**	**0.7784**	**0.2086**	**0.0444**	**0.2530**		**1,769.9387**	**1,769.9387**	**0.0554**		**1,771.1021**

3.4 Paving - 2019

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	1.4259	14.9353	14.3652	0.0223		0.8094	0.8094		0.7447	0.7447		2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4259**	**14.9353**	**14.3652**	**0.0223**		**0.8094**	**0.8094**		**0.7447**	**0.7447**		**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.4 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.1677	1.4300e-003	0.1691	0.0445	1.3300e-003	0.0458		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.1677**	**1.4300e-003**	**0.1691**	**0.0445**	**1.3300e-003**	**0.0458**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

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	0.2745	1.1895	16.9276	0.0223		0.0366	0.0366		0.0366	0.0366	0.0000	2,208.9731	2,208.9731	0.6989		2,223.6499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2745**	**1.1895**	**16.9276**	**0.0223**		**0.0366**	**0.0366**		**0.0366**	**0.0366**	**0.0000**	**2,208.9731**	**2,208.9731**	**0.6989**		**2,223.6499**

3.4 Paving - 2019

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	0.0497	0.0633	0.7867	2.1700e-003	0.0948	1.4300e-003	0.0962	0.0266	1.3300e-003	0.0279		164.2621	164.2621	8.0500e-003		164.4312
Total	**0.0497**	**0.0633**	**0.7867**	**2.1700e-003**	**0.0948**	**1.4300e-003**	**0.0962**	**0.0266**	**1.3300e-003**	**0.0279**		**164.2621**	**164.2621**	**8.0500e-003**		**164.4312**

3.5 Architectural Coating - 2019

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**0.2664**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.5 Architectural Coating - 2019

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	0.0629	0.0802	0.9964	2.7500e-003	0.2124	1.8200e-003	0.2142	0.0563	1.6800e-003	0.0580		208.0653	208.0653	0.0102		208.2795
Total	**0.0629**	**0.0802**	**0.9964**	**2.7500e-003**	**0.2124**	**1.8200e-003**	**0.2142**	**0.0563**	**1.6800e-003**	**0.0580**		**208.0653**	**208.0653**	**0.0102**		**208.2795**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

3.5 Architectural Coating - 2019

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	0.0629	0.0802	0.9964	2.7500e-003	0.1201	1.8200e-003	0.1219	0.0337	1.6800e-003	0.0354		208.0653	208.0653	0.0102		208.2795
Total	**0.0629**	**0.0802**	**0.9964**	**2.7500e-003**	**0.1201**	**1.8200e-003**	**0.1219**	**0.0337**	**1.6800e-003**	**0.0354**		**208.0653**	**208.0653**	**0.0102**		**208.2795**

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	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115
Unmitigated	5.1194	16.5961	66.8615	0.2214	14.5936	0.2944	14.8880	3.9028	0.2715	4.1743		17,173.3828	17,173.3828	0.6109		17,186.2115

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,551.31	293.79	151.35	5,188,489	5,188,489
Total	1,551.31	293.79	151.35	5,188,489	5,188,489

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

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

5.0 Energy Detail

4.4 Fleet Mix

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	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
NaturalGas Unmitigated	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092

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	11469.9	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Total		**0.1237**	**1.1245**	**0.9446**	**6.7500e-003**		**0.0855**	**0.0855**		**0.0855**	**0.0855**		**1,349.3970**	**1,349.3970**	**0.0259**	**0.0247**	**1,357.6092**

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	11.4699	0.1237	1.1245	0.9446	6.7500e-003		0.0855	0.0855		0.0855	0.0855		1,349.3970	1,349.3970	0.0259	0.0247	1,357.6092
Total		**0.1237**	**1.1245**	**0.9446**	**6.7500e-003**		**0.0855**	**0.0855**		**0.0855**	**0.0855**		**1,349.3970**	**1,349.3970**	**0.0259**	**0.0247**	**1,357.6092**

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	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Unmitigated	5.8222	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515

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	1.4132					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4069					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Total	**5.8222**	**2.1000e-004**	**0.0229**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0487**	**0.0487**	**1.3000e-004**		**0.0515**

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	1.4132					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4069					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0487	0.0487	1.3000e-004		0.0515
Total	**5.8222**	**2.1000e-004**	**0.0229**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0487**	**0.0487**	**1.3000e-004**		**0.0515**

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 Vegetation

ESFV Bridges/TPSS/Miscellaneous

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	50.00	1000sqft	1.15	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2014
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 - For bridges, TPSS installation, and miscellaneous construction activities

Land Use - Assumes a maximum of 9 TPSS units (1 per mile), and the pedestrian/LRT/Metrolink bridges

Construction Phase - Assumes 12-month construction period starting June 2017, 6-day work week

Off-road Equipment - Defaults

Trips and VMT - assumes 1 daily cement truck

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed areas three times daily
Clean paved roads
Tier 4 Final equipment

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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
tblConstructionPhase	NumDays	200.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

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					
2017	3.1003	19.8535	16.3945	0.0268	0.2846	1.2375	1.5222	0.0765	1.1932	1.2697	0.0000	2,456.0850	2,456.0850	0.4411	0.0000	2,465.3476
2018	2.7164	18.0007	15.7644	0.0268	0.2847	1.0645	1.3491	0.0765	1.0275	1.1040	0.0000	2,431.2578	2,431.2578	0.4192	0.0000	2,440.0610
Total	**5.8166**	**37.8541**	**32.1590**	**0.0535**	**0.5693**	**2.3020**	**2.8713**	**0.1529**	**2.2208**	**2.3737**	**0.0000**	**4,887.3428**	**4,887.3428**	**0.8603**	**0.0000**	**4,905.4086**

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					
2017	0.4375	4.4517	15.1654	0.0268	0.1644	0.0420	0.2064	0.0469	0.0411	0.0880	0.0000	2,456.0850	2,456.0850	0.4411	0.0000	2,465.3476
2018	0.4256	4.3905	15.0107	0.0268	0.1644	0.0414	0.2058	0.0469	0.0405	0.0874	0.0000	2,431.2578	2,431.2578	0.4192	0.0000	2,440.0610
Total	**0.8631**	**8.8422**	**30.1761**	**0.0535**	**0.3287**	**0.0834**	**0.4122**	**0.0939**	**0.0816**	**0.1755**	**0.0000**	**4,887.3428**	**4,887.3428**	**0.8603**	**0.0000**	**4,905.4086**

	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	**85.16**	**76.64**	**6.17**	**0.00**	**42.26**	**96.38**	**85.65**	**38.62**	**96.33**	**92.61**	**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	1.3080	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116
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	**1.3080**	**5.0000e-005**	**5.3400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0109**	**0.0109**	**3.0000e-005**	**0.0000**	**0.0116**

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	1.3080	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116
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	**1.3080**	**5.0000e-005**	**5.3400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0109**	**0.0109**	**3.0000e-005**	**0.0000**	**0.0116**

	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	Building Construction	Building Construction	6/1/2017	5/31/2018	6	313	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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
Building Construction	7	21.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

3.2 Building Construction - 2017

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	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823		2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**2.9546**	**19.1088**	**14.3110**	**0.0220**		**1.2257**	**1.2257**		**1.1823**	**1.1823**		**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

3.2 Building Construction - 2017

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	0.0616	0.6382	0.7636	1.7600e-003	0.0499	9.7500e-003	0.0597	0.0142	8.9700e-003	0.0232		173.3631	173.3631	1.2500e-003		173.3894
Worker	0.0841	0.1065	1.3199	3.0500e-003	0.2347	2.1300e-003	0.2369	0.0623	1.9600e-003	0.0642		248.4358	248.4358	0.0130		248.7085
Total	**0.1457**	**0.7447**	**2.0835**	**4.8100e-003**	**0.2846**	**0.0119**	**0.2965**	**0.0765**	**0.0109**	**0.0874**		**421.7989**	**421.7989**	**0.0142**		**422.0979**

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	0.2918	3.7071	13.0819	0.0220		0.0302	0.0302		0.0302	0.0302	0.0000	2,034.2860	2,034.2860	0.4268		2,043.2497
Total	**0.2918**	**3.7071**	**13.0819**	**0.0220**		**0.0302**	**0.0302**		**0.0302**	**0.0302**	**0.0000**	**2,034.2860**	**2,034.2860**	**0.4268**		**2,043.2497**

3.2 Building Construction - 2017

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	0.0616	0.6382	0.7636	1.7600e-003	0.0317	9.7500e-003	0.0414	9.7200e-003	8.9700e-003	0.0187		173.3631	173.3631	1.2500e-003		173.3894
Worker	0.0841	0.1065	1.3199	3.0500e-003	0.1327	2.1300e-003	0.1348	0.0372	1.9600e-003	0.0392		248.4358	248.4358	0.0130		248.7085
Total	**0.1457**	**0.7447**	**2.0835**	**4.8100e-003**	**0.1644**	**0.0119**	**0.1762**	**0.0469**	**0.0109**	**0.0579**		**421.7989**	**421.7989**	**0.0142**		**422.0979**

3.2 Building Construction - 2018

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	2.5826	17.3173	13.8357	0.0220		1.0532	1.0532		1.0172	1.0172		2,021.4136	2,021.4136	0.4059		2,029.9373
Total	**2.5826**	**17.3173**	**13.8357**	**0.0220**		**1.0532**	**1.0532**		**1.0172**	**1.0172**		**2,021.4136**	**2,021.4136**	**0.4059**		**2,029.9373**

3.2 Building Construction - 2018

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	0.0581	0.5868	0.7294	1.7500e-003	0.0499	9.1900e-003	0.0591	0.0142	8.4500e-003	0.0227		170.4998	170.4998	1.2400e-003		170.5259
Worker	0.0757	0.0966	1.1993	3.0500e-003	0.2347	2.0600e-003	0.2368	0.0623	1.9100e-003	0.0642		239.3445	239.3445	0.0121		239.5978
Total	**0.1337**	**0.6834**	**1.9288**	**4.8000e-003**	**0.2847**	**0.0113**	**0.2959**	**0.0765**	**0.0104**	**0.0868**		**409.8443**	**409.8443**	**0.0133**		**410.1237**

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	0.2918	3.7071	13.0819	0.0220		0.0302	0.0302		0.0302	0.0302	0.0000	2,021.4136	2,021.4136	0.4059		2,029.9373
Total	**0.2918**	**3.7071**	**13.0819**	**0.0220**		**0.0302**	**0.0302**		**0.0302**	**0.0302**	**0.0000**	**2,021.4136**	**2,021.4136**	**0.4059**		**2,029.9373**

3.2 Building Construction - 2018

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	0.0581	0.5868	0.7294	1.7500e-003	0.0317	9.1900e-003	0.0409	9.7300e-003	8.4500e-003	0.0182		170.4998	170.4998	1.2400e-003		170.5259
Worker	0.0757	0.0966	1.1993	3.0500e-003	0.1327	2.0600e-003	0.1348	0.0372	1.9100e-003	0.0391		239.3445	239.3445	0.0121		239.5978
Total	**0.1337**	**0.6834**	**1.9288**	**4.8000e-003**	**0.1644**	**0.0113**	**0.1756**	**0.0469**	**0.0104**	**0.0573**		**409.8443**	**409.8443**	**0.0133**		**410.1237**

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
Enclosed Parking with Elevator	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535275	0.058759	0.178478	0.127034	0.038632	0.006246	0.015618	0.028471	0.002426	0.003171	0.003696	0.000547	0.001645

5.0 Energy Detail

4.4 Fleet Mix

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					
Enclosed Parking with Elevator	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**

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					
Enclosed Parking with Elevator	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	1.3080	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116
Unmitigated	1.3080	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116

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	0.3175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.4000e-004	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116
Total	**1.3080**	**5.0000e-005**	**5.3400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0109**	**0.0109**	**3.0000e-005**		**0.0116**

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	0.3175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.4000e-004	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0116
Total	**1.3080**	**5.0000e-005**	**5.3400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0109**	**0.0109**	**3.0000e-005**		**0.0116**

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 Vegetation