

**777 North Front Street
Mixed Use Development Project**

HEALTH RISK ASSESSMENT

Prepared For:

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June 2017

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1.0 INTRODUCTION

In 2005, the California Air Resources Board (ARB) promulgated an advisory recommendation to avoid siting sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day or rural roads with 50,000 vehicles per day. According to the ARB, the increased cancer risk is 300 to 1,700 per million within this domain. The strongest association of traffic related emissions with adverse health outcomes was seen within 300 feet of roadways with high truck densities. Notwithstanding, the ARB notes that a site specific analysis would be required to determine the actual risk near a particular land use and should consider factors such as prevailing wind direction, local topography and climate.

The project site is subject to the City of Burbank's 2035 General Plan regarding siting sensitive land uses near significant pollutant sources such as freeways and rail lines whereby the preparation of a health risk assessment (HRA) is required. Additionally, the South Coast Air Quality Management District (SCAQMD) has recently commented on the limited effectiveness of air filters to remove gaseous emissions as well as the need to address outdoor exposures while individuals enjoy amenities such as a pool, courtyards and related common areas. As such, the assessment of both acute and chronic exposures to toxic and criteria pollutants is required to address these concerns.

Based upon the above General Plan requirement, a health risk assessment was prepared to assess the impact of pollutants on individuals residing at the proposed project site. The analysis also serves to provide a nexus between identified impacts and the effectiveness of available mitigation measures.

The assessment and dispersion modeling methodologies used in the preparation of this report were composed of all relevant and appropriate procedures presented by the U.S. Environmental Protection Agency, California Environmental Protection Agency and SCAQMD. The methodologies and assumptions offered under this regulatory guidance were used to ensure that the assessment effectively quantified pollutant exposures associated with the generation of contaminant emissions from adjacent mobile source activity.

This report summarizes the protocol used to evaluate contaminant exposures and presents the results of the health risk assessment.

2.0 SITE DESCRIPTION

The proposed project includes the construction of a 573 residential unit apartment complex with 1,067 square feet of retail gallery space and 307 hotel rooms with ground floor and retail/restaurant amenities. The 573 residential units will be situated within a seven-story building and eight-story building with associated common areas that include a rooftop terrace, business center/internet café, coffee bar, resident lounge, fitness center with indoor exercise studio, resort-style pools with cabanas, Jacuzzis, public park, bike trail access and pet park. The hotel use will be located in a 7-story structure at the southeastern end of the property with

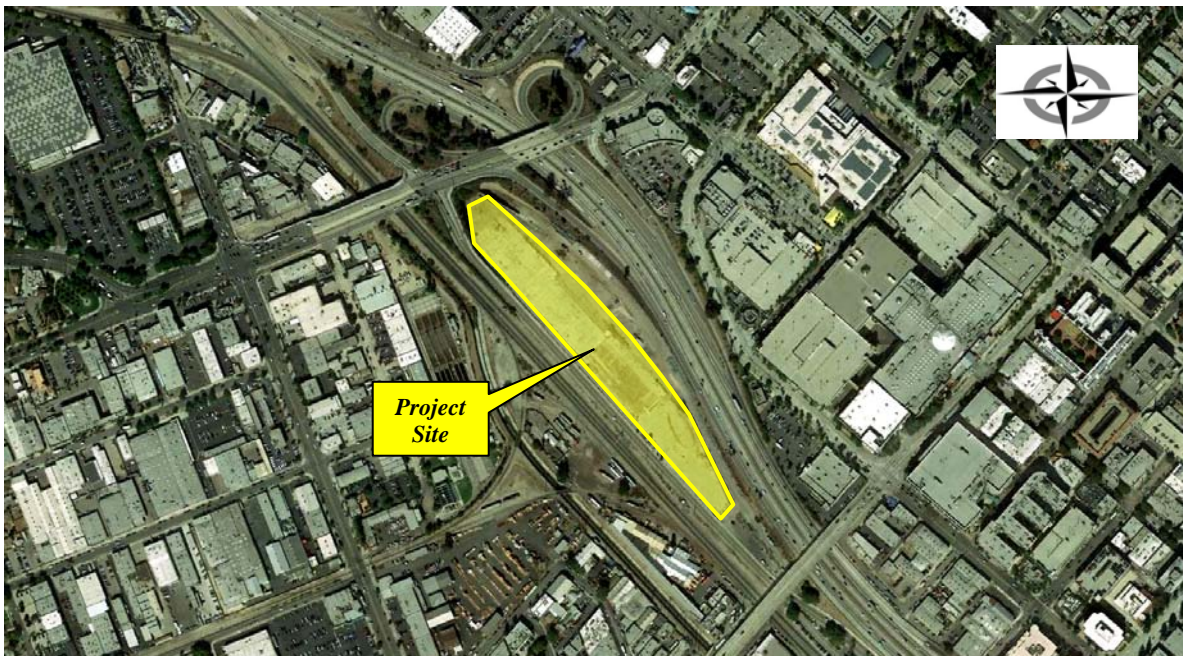
associated hotel amenities including, restaurants, café, bar, pool terrace, fitness center, meeting rooms and lounge.

The project includes approximately 106,400 square feet of open space with a minimum of 15 percent to receive aesthetic landscape. The commercial occupancies include accessory retail and restaurant uses for the hotel and a pedestrian gallery retail link on Burbank Boulevard. In addition to the open space amenities described above, the project will also include a publicly accessible, privately maintained plaza link and pedestrian bridge that connects the plaza to Magnolia Boulevard and downtown Burbank on City-owned land.

The project site is located at 777 North Front Street (APN 2449-037-013) within the Burbank Downtown Commercial General Plan area with a current land use designation of Auto Dealership (AD). Approval of the proposed project would be subject to Burbank Municipal Code §10-1-19121 requiring a change in current zoning to a Planned Development (PD) use.

The project is bounded by the California Interstate 5 freeway to the north and the Southern California Regional Rail Authority right-of-way to the south. Figure 1 presents an aerial photograph of the project location and adjoining community.

Figure 1
Site Location /Vicinity Aerial Photograph



3.0 SOURCE IDENTIFICATION

3.1 On-Road Mobile Sources

The California Department of Transportation (Caltrans) Performance Measurement System (PeMS) collects and maintains traffic information for roadways traversing the California state highway system. PeMS is a data management system that stores and processes raw data in

real time. PeMS can be accessed via an internet browser and contains a series of built-in analytical capabilities to support the elucidation of a variety of analytical scenarios allowing users to query both current and archived freeway performance data. For this analysis, aggregate time series data for available calendar years were accessed to identify traffic volume (flow) and vehicle speeds to accommodate an assessment of chronic (long term), annual, 24-hour, 8-hour and acute (1-hour) exposures.

Caltrans also collects and maintains traffic volume counts for freeway on/off ramps and adjoining segments. Due to the paucity of this information in the PeMS database, the Traffic and Vehicle Data Systems Unit database was reviewed to obtain representative traffic volumes for these discrete roadway segments.

Based upon the arithmetic average of traffic flow identified in the PeMS database and population profiles noted above, hourly traffic volumes for the north and southbound freeway segments were identified. For acute exposures, the MROUND function in Excel was utilized to identify congested roadway conditions representing minimum route speeds rounded to the nearest 5 mile per hour increment. Reported ramp volumes were assumed to have a uniform distribution and were averaged to produce an hourly traffic profile. Table 1 presents the hourly traffic volumes considered in the assessment.

Table 1
Hourly Freeway Traffic Volumes

Roadway Segment	Speed Scenario	Traffic Volumes		
		All	Gas	Diesel
Interstate 5 Northbound	Average	4148	3901	247
Interstate 5 Southbound	Average	4261	4007	254
Interstate 5 Northbound	Minimum	4044	3803	241
Interstate 5 Southbound	Minimum	4100	3856	244
Northbound On/Olive Avenue	Average Minimum	305	287	18
Southbound On/Burbank Boulevard	Average Minimum	358	337	21
Northbound Off/East Burbank Boulevard	Average Minimum	250	235	15
Northbound Off/West Burbank Boulevard	Average Minimum	317	298	19
Southbound On/West Burbank Boulevard	Average Minimum	313	294	19
Northbound On/Burbank Boulevard	Average Minimum	271	255	16
Southbound Off/Burbank Boulevard	Average Minimum	394	371	23

3.2 Off-Road Mobile Sources

Fleet distribution profiles for locomotives traversing the Southern California Regional Rail Authority right-of-way were based upon information from the Federal Railroad

Administration, Office of Safety Analysis for crossing number 746788U (Milepost 0010.72) located north of the proposed project site. Temporal activity for commuter service fleets were based upon available schedules provided by Metrolink and Amtrak. Table 2 presents the average hourly train counts considered in the assessment.

Table 2
Average Hourly Train Counts

Time Period (Ending Hour)	Metrolink/Antelope Valley Line	Metrolink/Ventura Line	Amtrak	Hourly
6	1	2	0	3
7	2	2	0	4
8	4	4	2	10
9	2	5	1	8
10	2	3	4	9
11	0	1	0	1
12	1	1	1	3
13	2	0	2	4
14	1	1	0	2
15	2	0	0	2
16	2	5	1	8
17	2	2	2	6
18	3	2	0	5
19	2	2	2	6
20	1	1	1	3
21	1	2	0	3
22	1	0	2	3
Total	29	33	18	80

4.0 SOURCE CHARACTERIZATION

4.1 On-Road Mobile Sources

In urban communities, vehicle emissions contribute significantly to localized concentrations of air contaminants. Typically, emissions generated from these sources are characterized by vehicle mix, the rate pollutants are generated during the course of travel and the number of vehicles traversing the roadway network.

Currently, emission factors are generated from a series of computer based programs to produce a composite emission rate for vehicles traveling at various speeds within a defined geographical area or along a discrete roadway segment. To account for the emission standards imposed on the California fleet, the ARB has developed the EMFAC2014 emission factor model. EMFAC2014 was utilized to identify pollutant emission rates for total organic gases (TOG), diesel particulates, particulates (PM₁₀ and PM_{2.5}), carbon monoxide (CO) and nitrogen oxide (NO_x) compounds. To produce a representative vehicle fleet distribution, the assessment utilized ARB's Los Angeles County (South Coast) population estimates for the 2021 calendar year.

However, to account for the additional truck volumes traversing the roadway network, the Los Angeles County population estimates were adjusted to coincide with the daily percentage estimates presented in the Caltrans Traffic and Vehicle Data Systems Unit database for each representative truck axle category. Table 3 lists the identified fleet mix considered in the assessment.

Table 3
Vehicle Fleet Mix Profile

Vehicle Class	Los Angeles County (SC)		
	Fuel	Population	Percent
LDA	Diesel	35548.94626	0.59
LDA	Gas	3643620.309	60.93
LDT1	Diesel	417.5546367	0.01
LDT1	Gas	320844.9043	5.36
LDT2	Diesel	2462.561464	0.04
LDT2	Gas	1341680.106	22.43
LHDT1	Diesel	5565.345795	0.09
LHDT1	Gas	7441.086824	0.12
LHDT2	Diesel	2580.587446	0.04
LHDT2	Gas	1671.288094	0.03
MCY	Gas	176369.2374	2.95
MDV	Diesel	1694.263633	0.03
MDV	Gas	95223.2367	1.59
MH	Diesel	4547.859372	0.08
MH	Gas	19520.42401	0.33
MHDT	Diesel	39209.51845	0.66
MHDT	Gas	6602.534686	0.11
HHDT	Diesel	254307.7593	4.25
HHDT	Gas	2556.545913	0.04
OBUS	Diesel	4059.785412	0.07
OBUS	Gas	5633.140632	0.09
SBUS	Diesel	2752.617749	0.05
SBUS	Gas	1345.512232	0.02
UBUS	Diesel	3326.238938	0.06
UBUS	Gas	1449.221465	0.02

Note: Vehicle category descriptions can be found on the California Air Resources Board website at <http://www.arb.ca.gov/msei/modeling.htm>.

An average route speed of 65 miles per hour for the north and southbound routes was based upon the arithmetic average of hourly speeds reported in the PeMS database. For congested or minimum speed conditions, 15 miles per hour was identified and utilized for the north and southbound routes.

For particulates (PM₁₀ and PM_{2.5}), emissions were quantified through the reentrainment of paved roadway dust. The predictive emission equation developed by the U.S. Environmental Protection Agency (AP-42, Section 13.2.1) was utilized to generate particulate source strength. To account for the mass rate of emissions entrained from the roadway surface, the contribution from exhaust, brake and tire wear were added to the AP-42 emission factor equation. Compounds associated with on-road mobile source emissions are presented in Table 4.

Table 4
Compounds Emitted From On-Road Mobile Source Activity

Pollutant
Benzene
Formaldehyde
1,3-Butadiene
Acetaldehyde
Acrolein
Diesel Particulates
Reentrained Particulates (PM ₁₀ , PM _{2.5})
Carbon Monoxide
Nitrogen Dioxide

Appendix B presents the emission rate calculation worksheets for the freeway segments considered in the assessment.

4.2 Off-Road Mobile Sources

Engine types and associated emission factors for locomotives traversing the right-of-way were based upon a recent Metrolink report entitled *Health Risk Assessment for the Central Maintenance Facility* (Castle Environmental Consulting, LLC, November 2014) for locomotives operating a throttle notch settings 5 and 6. All reported activity assumed one locomotive per train.

For this source category, diesel particulates were considered the pollutant of concern and utilized for the assessment of locomotive impacts. Appendix B presents a quantification of rail line emissions associated with the Southern California Regional Rail Authority right-of-way.

5.0 EXPOSURE QUANTIFICATION

In order to assess the impact of emitted compounds on individuals who reside within and/or access common areas throughout the project area, air quality modeling utilizing the AMS/EPA Regulatory Model AERMOD was performed to assess the downwind extent of mobile source emissions located within a 1,000 feet of the project site. AERMOD's air dispersion algorithms are based upon a planetary boundary layer turbulence structure and

scaling concepts, including the treatment of surface and elevated sources in simple and complex terrain.

The model offers additional flexibility by allowing the user to assign initial vertical and lateral dispersion parameters for sources representative of a localized mobile fleet. For this assessment, the volume source algorithm was utilized to model the emissions generated from mobile source activity. Vertical (σ_z) dispersion parameters were developed for each source location by approximating mixing zone residence time and quantifying the initial vertical term as performed in the California Line Source Dispersion Model Caline3. The horizontal (σ_y) parameters were generated by dividing the source separation distance by a standard deviation of 2.15. For locomotive sources, the model scalar option was additionally invoked to account for hourly train counts and their associated hours of operation.

The model incorporates two detailed screening methodologies (Tier 3) to perform the NO_x to NO_2 conversion. In recent clarification memorandums (U.S. EPA, 2011, 2014), the Office of Air Quality Planning and Standards provides guidance on the use and performance of the two algorithms referred to as the ozone limiting (OLM) and plume volume molar ratio (PVMRM) methods. Based upon this guidance, the OLM algorithm with the OLMGROUP ALL option was identified as the preferred method to perform the analysis.

Air dispersion models require additional input parameters including pollutant emission data and local meteorology. Due to their sensitivity to individual meteorological parameters such as wind speed and direction, the U.S. Environmental Protection Agency recommends that meteorological data used as input into dispersion models be selected on the basis of relative spatial and temporal conditions that exist in the area of concern. In response to this recommendation, meteorological data from the SCAQMD East San Fernando Valley monitoring station (Source Receptor Area 7) was used to represent local weather conditions and prevailing winds. For short duration exposures, five years (2008-2012) of available AERMOD meteorological data was reviewed to identify the calendar years which produced the highest pollutant concentrations. Based on this review, the 2011 data set was identified as producing the highest 1-hour nitrogen dioxide pollutant concentration. For the remaining suite of compounds, the 2010 and 2008 data sets were identified as producing the highest pollutant concentrations for the 1 and 8-hour averaging times. For the 24-hour and annual averaging times, the 2008 and 2011 data sets were identified as producing the highest pollutant concentrations. For chronic exposures, maximum concentrations were produced by incorporating all five years of available data.

The modeling analysis also considered the spatial distribution of mobile source activity in relation to the proposed site. To accommodate a Cartesian grid format, direction dependent calculations were obtained by identifying the universal transverse mercator (UTM) coordinates for each volume source location. On-site receptors were uniformly placed to provide coverage across the identified project boundary commensurate with residential uses and areas of common access.

For 1-hour exposures, receptor locations were set at flagpole heights commensurate with transient and areas of common access. For 8-hour exposures, receptors were set at flagpole heights representing the location of apartment and hotel amenity accommodations. For 24-hour, annual and chronic exposures, receptor locations were set at flagpole heights representing the location of residential floor levels and the presumed height above local terrain for proposed heating, ventilation and air conditioning (HVAC) equipment. A graphical representation of the source-receptor grid networks associated with each building location are presented in Figures 2 through 4.

Figure 2
Source-Receptor Grid Network
Transient/Common Areas

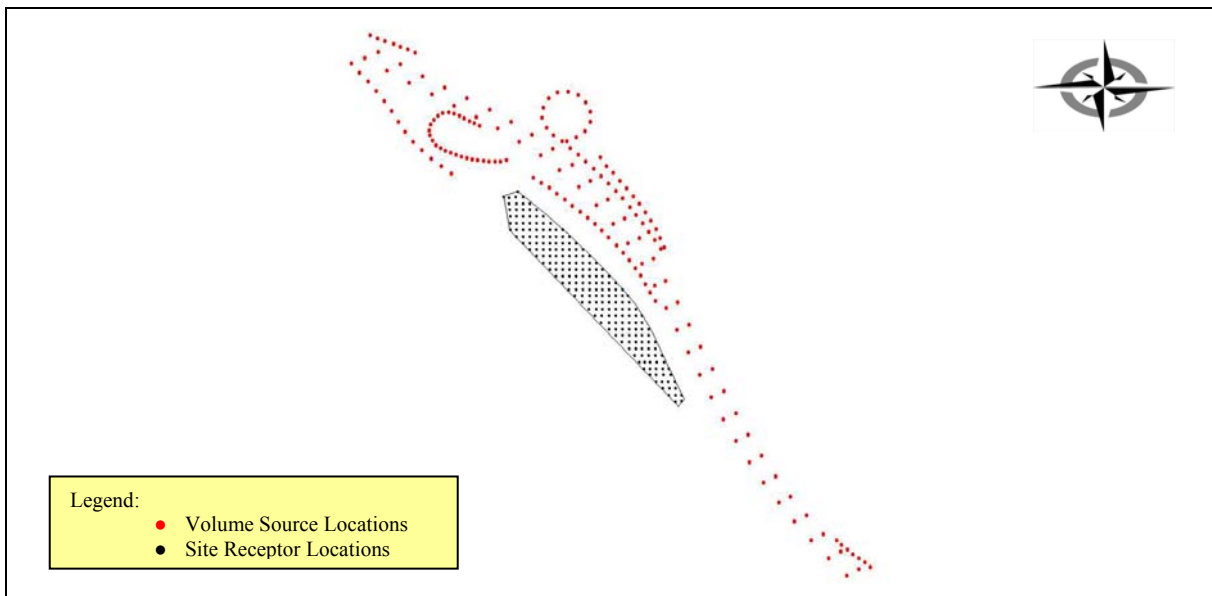


Figure 3
Source-Receptor Grid Network
Apartment/Amenity Accommodations

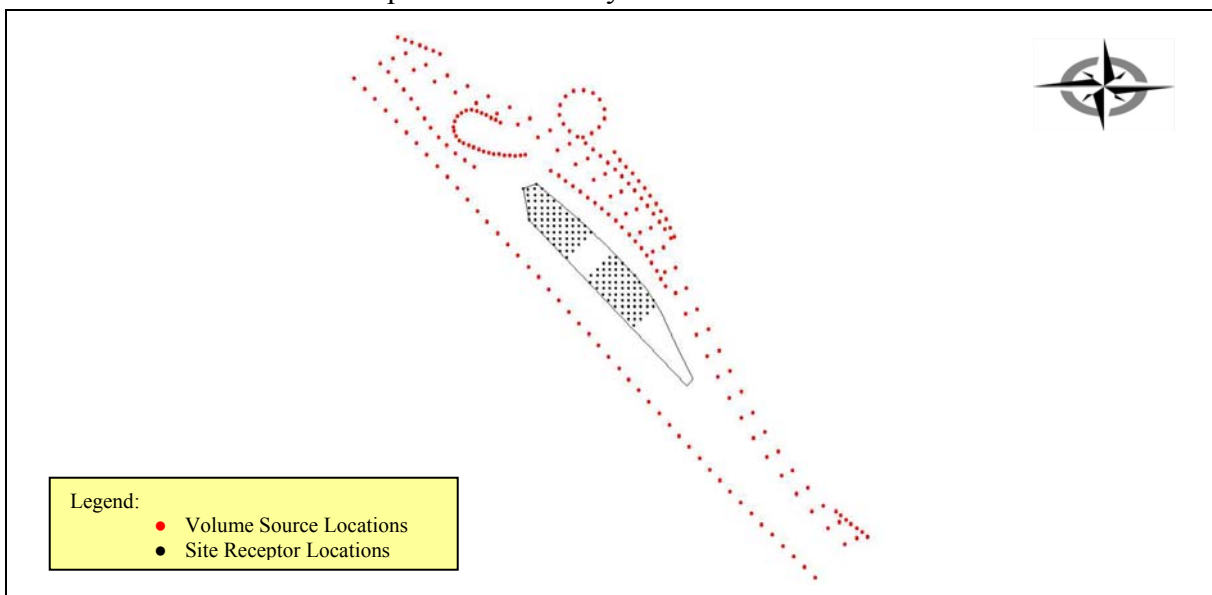
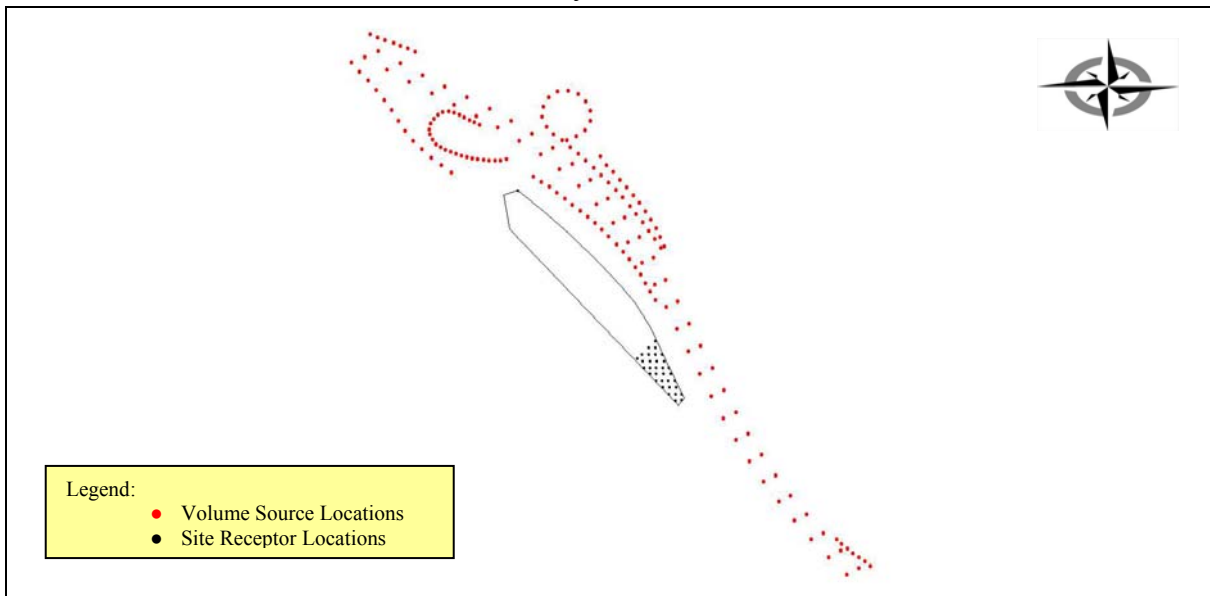


Figure 4
Source-Receptor Grid Network
Hotel/Amenity Accommodations



A dispersion model input summary table is provided in Appendix C. A complete listing of model input/output files are provided in electronic format in Appendix E.

6.0 RISK CHARACTERIZATION

For chronic, annual and 24-hour exposures, concentration estimates for apartment residents are considered static whereby exposures are assumed to be continuous based upon the averaging time under consideration. For patrons residing at the proposed hotel development, occupancy would be limited in duration whereby the 24-hour exposure estimate would apply. Short duration exposures (i.e., 1 and 8-hour) apply to all common areas such as a pool and related residential/guest amenities since it is reasonable to assume that an individual could be present for periods of one to eight hours.

6.1 Carcinogenic Chemical Risk

Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. As a result, the State of California has established a threshold of one in one hundred thousand (1.0E-05) as a level posing no significant risk for exposures to carcinogens regulated under the Safe Drinking Water and Toxic Enforcement Act (Proposition 65). This threshold is also consistent with the maximum incremental cancer risk established by the SCAQMD for projects prepared under the auspices of the California Environmental Quality Act (CEQA).

Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. Under a deterministic approach (i.e., point estimate methodology), the cancer risk probability is determined by multiplying the chemical's annual concentration by its unit

risk factor (URF). The URF is a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It represents an upper bound estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu\text{g}/\text{m}^3$) over a 70 year lifetime. The URFs utilized in the assessment and corresponding cancer potency factors were obtained from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values*.

A review of available guidance was conducted to determine applicability of the use of early life exposure adjustments to identified carcinogens. For risk assessments conducted under the auspices of The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly, Statutes of 1987; Health and Safety Code Section 44300 et seq.) and associated guidelines promulgated by the California Office of Environmental Health Hazard Assessment (OEHHA) a weighting factor is applied to all carcinogens regardless of purported mechanism of action. Notwithstanding, applicability of AB 2588 is limited to commercial and industrial operations. There are two broad classes of facilities subject to the AB 2588 Program: Core facilities and facilities identified within discrete industry-wide source categories. Core facilities subject to AB 2588 compliance are sources whose criteria pollutant emissions (particulate matter, oxides of sulfur, oxides of nitrogen and volatile organic compounds) are 25 tons per year or more as well as those facilities whose criteria pollutant emissions are 10 tons per year or more but less than 25 tons per year. Industry-wide source facilities are classified as smaller operations with relatively similar emission profiles (e.g., auto body shops, gas stations and dry cleaners using perchloroethylene). The emissions generated from on and off-road mobile sources are not classified as core operations nor subject to industry-wide source evaluation.

Additionally, in comments presented to the SCAQMD Governing Board (Meeting Date: June 5, 2015, Agenda No. 28) relating to toxic air contaminant exposures under Rules 1401, 1401.1, 1402 and 212 revisions, use of the OEHHA guidelines and their applicability for projects subject to CEQA, it was reported that:

The Proposed Amended Rules are separate from the CEQA significance thresholds. The Response to Comments Staff Report PAR 1401, 1401.1, 1402, and 212 A - 8 June 2015 SCAQMD staff is currently evaluating how to implement the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will evaluate a variety of options on how to evaluate health risks under the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will conduct public workshops to gather input before bringing recommendations to the Governing Board.

To date, the SCAQMD, as a commenting agency, has not conducted public workshops nor developed policy relating to the applicability of applying the revised OEHHA guidance for projects prepared by other public/lead agencies subject to CEQA.

As a result, the HRA relied upon U.S. Environmental Protection Agency guidance relating to the use of early life exposure adjustment factors (*Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*, EPA/630/R-003F) whereby

adjustment factors are only considered when carcinogens act “through the mutagenic mode of action.” In 2006, the U.S. Environmental Protection Agency published a memorandum which provides guidance regarding the preparation of health risk assessments should carcinogenic compounds elicit a mutagenic mode of action (USEPA, 2006). As presented in the technical memorandum, numerous compounds were identified as having a mutagenic mode of action. None of the gaseous compounds considered in the HRA elicit a mutagenic mode of action and, therefore, early life exposure adjustments were not considered. For diesel particulates, polycyclic aromatic hydrocarbons (PAHs) and their derivatives, which are known to exhibit a mutagenic mode of action, comprise < 1% of the exhaust particulate mass. To date, the U.S. Environmental Protection Agency reports that whole diesel engine exhaust has not been shown to elicit a mutagenic mode of action (USEPA, 2017).

To underscore the viability of the HRA prepared for the proposed project, regulatory agencies throughout the State of California including the California Department of Toxic Substances Control (DTSC) which is charged with protecting individuals and the environment from the effects of toxic substances and responsible for assessing, investigating and evaluating sensitive receptor populations to ensure that properties are free of contamination or that health protective remediation levels are achieved have adopted the U.S. Environmental Protection Agency’s policy in the application of early life exposure adjustments which is consistent with the existing HRAs assessment of residential exposures.

To effectively quantify dose, the procedure requires the incorporation of several discrete exposure variates. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day)⁻¹ to derive the cancer risk estimate. Therefore, to assess exposures associated with the proposed residential population, the following dose algorithm was utilized.

$$CDI = (C_{air} \times EF \times ED \times IR) / (BW \times AT)$$

Where:

- CDI = chronic daily intake (mg/kg/day)
- C_{air} = concentration of contaminant in air (mg/m³)
- EF = exposure frequency (days/year)
- ED = exposure duration (years)
- IR = inhalation rate (m³/day)
- BW = body weight (kg)
- AT = averaging time (days)

To represent residential exposures, the assessment employed the U.S. Environmental Protection Agency’s guidance to develop viable dose estimates based on reasonable maximum exposures (RME). Specifically, activity patterns for population mobility recommended by the U.S. Environmental Protection Agency and presented in the *Exposure Factors Handbook* were utilized. As a result, lifetime risk values for residents were adjusted to account for an exposure duration of 350 days per year for 30 years (i.e., 95th percentile). Additional discussion regarding the use of the 30 year exposure duration is presented in Appendix D. A 9 year exposure duration was additionally assessed to identify risk estimates associated with the average time individuals are reported to reside at a given residence. These values are consistent with CEQA which considers the evaluation of environmental effects of

proposed projects in a manner that reflects both reasonable and feasible assumptions. For body weight and inhalation, the assessment employed average adult values of 70 kilograms and 20 cubic meters per day, respectively.

Tables 5 through 6 present the maximum predicted residential receptor carcinogenic risk estimates. As noted below, floor levels 2 through 6 for Residential 1 and floor levels 3 through 7 for Residential 2 occupancies exceed the significance threshold of one in one hundred thousand (1.0E-05). Appendix A, Tables A1 through A34, columns f-g, present the URFs and corresponding cancer potency factors for carcinogens considered in the assessment. The cancer risk attributed to each compound and summation of those risks are presented in column h.

Table 5
Maximum Residential 1 Receptor / Carcinogenic Risk

Floor Level	Exposure Scenario	
	30 Year	9 Year
2	2.6E-05	7.9E-06
3	2.4E-05	7.3E-06
4	2.1E-05	6.2E-06
5	1.6E-05	4.8E-06
6	1.2E-05	3.5E-06
7	7.9E-06	2.5E-06

Table 6
Maximum Residential 2 Receptor / Carcinogenic Risk

Floor Level	Exposure Scenario	
	30 Year	9 Year
3	2.6E-05	7.7E-06
4	2.3E-05	6.9E-06
5	1.9E-05	5.8E-06
6	1.5E-05	4.4E-06
7	1.1E-05	3.2E-06
8	7.6E-06	2.3E-06

6.2 Noncarcinogenic Hazards

An evaluation of the potential noncancer effects of contaminant exposures was also conducted. Under the point estimate approach, adverse health effects are evaluated by comparing the concentration of each compound with the appropriate Reference Exposure Level (REL). Available REL's presented in the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* were considered in the assessment.

To quantify noncarcinogenic impacts, the hazard index approach was used. The hazard index assumes that subthreshold exposures adversely affect a specific organ or organ system (i.e., toxicological endpoint). For each discrete pollutant exposure, target organs presented in regulatory guidance were utilized.

To calculate the hazard index, the pollutant concentration or dose is divided by the appropriate toxicity value. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds one (i.e., unity), a health hazard is presumed to exist. For chronic exposures, REL's were converted to units expressed in mg/kg/day to accommodate the above referenced intake algorithm. To assess acute noncancer impacts, the maximum pollutant concentration is divided by the REL for the corresponding averaging time (e.g., 1-hour). No exposure frequency or duration adjustments are considered for short duration exposures.

For chronic noncarcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than one for the 30 and 9 year exposure scenarios. For acute exposures, the hazard indices for each respective averaging time did not exceed unity.

Appendix A, Tables A1 through A34, columns i-j, present the REL's and corresponding reference dose values used in the evaluation of chronic noncarcinogenic exposures. For the maximum exposed residential receptor, the noncancer hazard quotient for identified compounds generated from each source and a summation for each toxicological endpoint are presented in columns k-r. Tables A35 through A37, column e present the REL's for the assessment of acute exposures. Columns f-m identify each compound's hazard quotient and corresponding index for each endpoint for the maximum exposed receptor location.

6.3 Criteria Pollutant Exposures

The State of California has promulgated strict ambient air quality standards for various pollutants. These standards were established to safeguard the public's health and welfare with specific emphasis on protecting those individuals susceptible to respiratory distress, such as asthmatics, the young, the elderly and those with existing conditions which may be affected by increased pollutant concentrations. However, recent research has shown that unhealthful respiratory responses occur with exposures to pollutants at levels that only marginally exceed clean air standards. Table 7 presents the California Ambient Air Quality Standards (CAAQS) for the criteria pollutants considered in the assessment.

Table 7
California Ambient Air Quality Standards

Pollutant	Standard	Health Effects
Particulates (PM ₁₀)	>50 µg/m ³ (24 hr avg.) >20 µg/m ³ (Annual)	1) Excess deaths from short-term exposures and the exacerbation of symptoms in sensitive individuals with respiratory disease. 2) Excess seasonal declines in pulmonary function especially in children.

Abbreviations: ppm: parts per million; µg/m³: micrograms per cubic meter.
Source: California Code of Regulations, Title 17, Section 70200.

Table 7 continued
California Ambient Air Quality Standards

Pollutant	Standard	Health Effects
Particulates (PM _{2.5})	>12 µg/m ³ (Annual)	1) Excess deaths and illness from long-term exposures and the exacerbation of symptoms in sensitive individuals with respiratory and cardio pulmonary disease.
Carbon Monoxide (CO)	>9.0 ppm (8 hr avg.) >20.0 ppm (1 hr avg.)	1) Aggravation of angina pectoris and other aspects of coronary heart disease. 2) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease. 3) Impairment of central nervous system functions. 4) Possible increased risk to fetuses.
Nitrogen Dioxide (NO ₂)	>0.18 ppm (1 hr avg.)	1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups. 2) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes.

Abbreviations: ppm: parts per million; µg/m³: micrograms per cubic meter.
Source: California Code of Regulations, Title 17, Section 70200.

Pollutant emissions are considered to have a significant effect on the environment if they result in concentrations that create either a violation of an ambient air quality standard, contribute to an existing air quality violation or expose sensitive receptors to substantive pollutant concentrations. Should ambient air quality already exceed existing standards, the SCAQMD has established significance criteria for selected compounds to account for the continued degradation of local air quality. Background concentrations are based upon the highest observed value for the most recent three year period.

For PM₁₀ emissions, background concentrations representative of the project area exceed the CAAQS for the 24-hour and annual averaging times. As a result, a significant impact is achieved when pollutant concentrations produce a measurable change over existing background levels. For fine particulates, no measurable change criterion currently exists whereby the SCAQMD significance threshold of 2.5 µg/m³ for the 24-hour averaging time is used to assess PM_{2.5} impacts.

For the CO 1 and 8-hour averaging times and the NO₂ 1-hour averaging time, background concentrations are below current air quality standards. As such, significance is achieved when pollutant concentrations add to existing levels and create an exceedance of the CAAQS.

Table 8 shows the pollutant concentrations collected at the East San Fernando Valley monitoring station for the last three years of available data. Table 9 outlines the relevant significance thresholds considered to affect local air quality.

Table 8
East San Fernando Valley Monitoring Summary

Pollutant/ Averaging Time	Year			
	2012	2013	2014	Maximum
Particulates (PM ₁₀) 24-Hour	55	52	60	60
Particulates (PM _{2.5}) 24-Hour	NA	NA	NA	NA
Particulates (PM ₁₀) Annual	26.4	28.5	31.2	31.2
Carbon Monoxide (CO) 1-Hour 8-Hour	2.8 2.4	3.0 2.4	3.0 3.0	3.0 3.0
Nitrogen Dioxide (NO ₂) 1-Hour	0.0795	0.0725	0.0732	0.0795

Note:: PM₁₀ concentrations are expressed in micrograms per cubic meter (µg/m³). All others are expressed in parts per million (ppm).
Source: South Coast Air Quality Management District, U.S Environmental Protection Agency.

Table 9
SCAQMD Air Quality Significance Thresholds

Pollutant	Averaging Time	Pollutant Concentration
Particulates (PM ₁₀)	24-Hours	2.5 µg/m ³ (operation)
Particulates (PM _{2.5})	24-Hours	2.5 µg/m ³ (operation)
Particulates (PM ₁₀)	Annual	1.0 µg/m ³
Carbon Monoxide (CO)	1/8-Hours	SCAQMD is in attainment; impacts are significant if they cause or contribute to an exceedance of the following attainment standards of 20 ppm (1-hour) and 9 ppm (8-hour).
Nitrogen Dioxide (NO ₂)	1-Hour	SCAQMD is in attainment; impacts are significant if they cause or contribute to an exceedance of the following attainment standard of 0.18 ppm.

Abbreviations: ppm: parts per million; µg/m³: micrograms per cubic meter.
Source: South Coast Air Quality Management District.

For Residential 1 and Residential 2 occupancies, maximum predicted PM₁₀ concentrations exceed the significance thresholds for the 24-hour and annual averaging times for floor levels 2 through 7 and 3 through 8, respectively. The PM_{2.5} significance threshold was exceeded for Residential 1 and Residential 2 floor levels 2 through 5 and 3 through 6. For Hotel patrons, 24-hour PM₁₀, concentrations were exceeded on floor levels 3 through 7. PM_{2.5} concentrations were exceeded on floor levels 3 through 4.

Tables 10 through 12 present the maximum predicted concentrations for each identified occupancy and floor level that exceed the particulate significance thresholds.

Table 10
Maximum Residential 1 Receptor / PM₁₀ and PM_{2.5}

Floor Level	Pollutant / Averaging Time		
	PM ₁₀ 24-Hour	PM ₁₀ Annual	PM _{2.5} 24-Hour
2	11.04772	7.31759	3.58444
3	10.72527	6.84941	3.48039
4	10.21925	5.99178	3.31664
5	9.03814	4.60786	2.93522
6	7.44507	3.23152	-
7	5.82255	2.17110	-

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³).

Table 11
Maximum Residential 2 Receptor / PM₁₀ and PM_{2.5}

Floor Level	Pollutant / Averaging Time		
	PM ₁₀ 24-Hour	PM ₁₀ Annual	PM _{2.5} 24-Hour
3	13.73535	9.09714	4.43438
4	13.09213	8.12667	4.22698
5	12.05673	6.46282	3.89339
6	9.96575	4.48692	3.21970
7	7.63241	2.95801	-
8	5.73936	1.97103	-

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³).

Table 12
Maximum Hotel Receptor / PM₁₀ and PM_{2.5}

Floor Level	Pollutant / Averaging Time	
	PM ₁₀ 24-Hour	PM _{2.5} 24-Hour
3	11.07841	3.56131
4	8.42067	2.70927
5	6.09354	-
6	4.46443	-
7	3.39506	-

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³). Concentration estimates with receptor heights commensurate with succeeding floor levels will produce lower pollutant estimates.

The maximum modeled 1-hour concentration for CO of 0.31186 parts per million (ppm) (357.13906 $\mu\text{g}/\text{m}^3$) when added to an existing background concentration of 3.0 ppm, will not cause an exceedance of the CAAQS of 20 ppm. For the 8-hour averaging time, the maximum predicted concentrations of 0.18520 ppm, (212.09453 $\mu\text{g}/\text{m}^3$) for the residential and 0.16951 ppm, (194.12644 $\mu\text{g}/\text{m}^3$) for the hotel occupancy when added to an existing background level of 3.0 ppm, does not cause an exceedance of the CAAQS of 9 ppm.

For NO₂, the maximum 1-hour concentration of 0.05433 ppm (102.22127 $\mu\text{g}/\text{m}^3$) was predicted. This concentration, when added to a background concentration of 0.0795 ppm, will not cause an exceedance of the CAAQS of 0.18 ppm.

7.0 CONCLUSION

In comparison to the threshold level referenced in Section 6.1, carcinogenic risks estimates for the 30 year exposure scenario exceed the level posing no significant risk for Residential 1 and Residential 2 receptors located on floor levels 2 through 6 and 3 through 7, respectively. For the 9 year exposure scenario, the level posing no significant risk was not exceeded for any receptor location.

For chronic noncarcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than one for all 30 year and 9 year exposure scenarios. For short duration exposures, the hazard indices for the identified averaging times did not exceed unity. Therefore, noncarcinogenic hazards were predicted to be within acceptable limits.

For criteria pollutants, the assessment revealed maximum predicted PM₁₀ concentrations for Residential 1 and Residential 2 occupancies exceed the significance thresholds for the 24-hour and annual averaging times for floor levels 2 through 7 and 3 through 8, respectively. The PM_{2.5} significance threshold was exceeded for Residential 1 and Residential 2 floor levels 2 through 5 and 3 through 6. For Hotel patrons, 24-hour PM₁₀, concentrations were exceeded on floor levels 3 through 7. PM_{2.5} concentrations were exceeded on floor levels 3 through 4. For CO and NO₂, maximum predicted concentrations are within acceptable limits.

8.0 MITIGATION OF PARTICULATE IMPACTS

Please note, short duration exposures associated with both toxic and criteria pollutants are below identified significance thresholds. As such, no impacts are anticipated to individuals who reside at the proposed project site, access common areas, utilize outdoor residential/hotel amenities and frequent the adjoining community park. Exceedance of identified significance thresholds are associated with chronic, annual and/or 24-hour particulate exposures from diesel exhaust and the reentrainment of paved roadway dust. As a result, mitigation of particulate impacts may be accomplished by reducing pollutant concentrations within residential occupancies. By restricting the rate of infiltration, exposures can be controlled to reduce particulate concentrations below SCAQMD's significance thresholds.

Limiting particulate infiltration can be accomplished by installing and maintaining air filtration systems with efficiencies equal to or exceeding Minimum Efficiency Reporting Values (MERV) as defined by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 52.2. Tables 13 through 15 list the discrete floor levels and associated filter requirements for the heating, ventilation and air conditioning (HVAC) control equipment.

Table 13
Particulate Filter Efficiencies / Residential 1

Floor Level	MERV Rating
2	≥14
3	≥14
4	≥14
5	≥13
6	≥11
7	≥8

Table 14
Particulate Filter Efficiencies / Residential 2

Floor Level	MERV Rating
3	≥14
4	≥14
5	≥14
6	≥13
7	≥11
8	≥8

Table 15
Particulate Filter Efficiencies / Hotel

Floor Level	MERV Rating
3	≥10
4	≥9
5	≥8
6	≥7
7	≥6

Tables 16 through 20 present the carcinogenic risk and particulate concentration reductions associated with the incorporation of the identified MERV filtration efficiencies. For carcinogenic risks, gaseous emissions are not controlled with the above referenced MERV filtration. Therefore, organic gases are considered uncontrolled and weighted against the diesel concentration estimates to produce an overall risk estimate for a given occupancy. The

risk calculation worksheets presented in Appendix A depict diesel particulate concentration reductions commensurate with the identified MERV filter design.

Table 16
Maximum Residential 1 Receptor / Carcinogenic Risk
w/MERV Filter Mitigation

Floor Level	Exposure Scenario
	30 Year
2	1.0E-05
3	9.3E-06
4	8.0E-06
5	9.5E-06
6	9.9E-06

Table 17
Maximum Residential 2 Receptor / Carcinogenic Risk
w/MERV Filter Mitigation

Floor Level	Exposure Scenario
	30 Year
3	1.0E-05
4	9.2E-06
5	7.6E-06
6	8.7E-06
7	8.9E-06

Table 18
Maximum Residential 1 Receptor / PM₁₀ and PM_{2.5}
w/MERV Filter Mitigation

Floor Level	Pollutant / Averaging Time		
	PM ₁₀ 24 Hour	PM ₁₀ Annual	PM _{2.5} 24-Hour
2	0.55236	0.36588	0.35844
3	0.53626	0.34247	0.34804
4	0.51096	0.29959	0.33166
5	0.90381	0.46079	0.44028
6	1.11676	0.48473	-
7	1.74677	0.65133	

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³).

Table 19
Maximum Residential 2 Receptor / PM₁₀ and PM_{2.5}
w/MERV Filter Mitigation

Floor Level	Pollutant / Averaging Time		
	PM ₁₀ 24 Hour	PM ₁₀ Annual	PM _{2.5} 24-Hour
3	0.68677	0.45486	0.44344
4	0.65461	0.40633	0.42270
5	0.60284	0.32314	0.38934
6	0.99658	0.44869	0.48296
7	1.14486	0.44370	-
8	1.72181	0.59131	

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³).

Table 20
Maximum Hotel Receptor / PM₁₀ and PM_{2.5}
w/MERV Filter Mitigation

Floor Level	Pollutant / Averaging Time	
	PM ₁₀ 24 Hour	PM _{2.5} 24 Hour
3	2.21568	1.78066
4	2.10517	1.76103
5	1.82806	-
6	2.23222	-
7	2.20679	

Note: Concentrations are expressed in micrograms per cubic meter (µg/m³).

As noted in Tables 16 through 20, incorporation of the above filter design will reduce carcinogenic risk estimates and particulate exposures below significance thresholds.

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APPENDIX A

Risk Calculation Worksheets

Table A1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Second Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.31747			3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.9E-06	3.0E+00	8.6E-04			5.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.5E-07	9.0E+00	2.6E-03	1.1E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.4E-06	2.0E+00	5.7E-04							1.7E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.1E-08	1.4E+02	4.0E-02	1.2E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.3E-02							
	0.17738	1.8E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.2E-05	5.0E+00	1.4E-03	3.4E-02							
Total							2.6E-05			6.7E-02	0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Second Floor Level
w/MERV 14 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.31747			3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.9E-06	3.0E+00	8.6E-04					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.5E-07	9.0E+00	2.6E-03	1.1E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.4E-06	2.0E+00	5.7E-04								1.7E-02
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.1E-08	1.4E+02	4.0E-02	1.2E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.3E-02							
	0.04435	4.4E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	5.5E-06	5.0E+00	1.4E-03	8.5E-03							
Total							1.0E-05			4.2E-02	0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Third Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3)	(mg/m3)			URF (ug/m3)	CPF (mg/kg/day)	RISK (h)	REL (ug/m3)	RfD (mg/kg/day)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
Freeway	0.30000	3.0E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.8E-06	3.0E+00	8.6E-04			4.7E-02						
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.3E-07	9.0E+00	2.6E-03	1.0E-02								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.3E-06	2.0E+00	5.7E-04							1.6E-02		
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.0E-08	1.4E+02	4.0E-02	1.2E-04								
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.1E-02								
0.16304	1.6E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.0E-05	5.0E+00	1.4E-03	3.1E-02									
Total					2.4E-05			6.3E-02			0.0E+00	4.7E-02	0.0E+00	0.0E+00	0.0E+00	1.6E-02	0.0E+00	

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Third Floor Level
w/MERV 14 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.30000			3.0E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.8E-06	3.0E+00	8.6E-04			4.7E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.3E-07	9.0E+00	2.6E-03	1.0E-02							1.6E-02
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.3E-06	2.0E+00	5.7E-04								
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.0E-08	1.4E+02	4.0E-02	1.2E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.1E-02							
	0.04076	4.1E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	5.0E-06	5.0E+00	1.4E-03	7.8E-03							
Total							9.3E-06			3.9E-02	0.0E+00	4.7E-02	0.0E+00	0.0E+00	0.0E+00	1.6E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A5
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Fourth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.26706			2.7E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.6E-06	3.0E+00	8.6E-04			4.2E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.1E-07	9.0E+00	2.6E-03	9.0E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.0E-06	2.0E+00	5.7E-04							1.4E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.8E-08	1.4E+02	4.0E-02	1.0E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02							
	0.13623	1.4E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.7E-05	5.0E+00	1.4E-03	2.6E-02							
Total							2.1E-05			5.4E-02	0.0E+00	4.2E-02	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A6
 Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
 30 Year Exposure Scenario / Maximum Residential 1 Receptor at Fourth Floor Level
 w/MERV 14 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*											
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
Freeway	0.26706	2.7E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.6E-06	3.0E+00	8.6E-04			4.2E-02							
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.1E-07	9.0E+00	2.6E-03	9.0E-03									
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.0E-06	2.0E+00	5.7E-04								1.4E-02		
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.8E-08	1.4E+02	4.0E-02	1.0E-04									
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02									
	0.03406	3.4E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	4.2E-06	5.0E+00	1.4E-03	6.5E-03									
Total							8.0E-06			3.5E-02	0.0E+00	4.2E-02	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00		

* Key to Toxicological Endpoints

RESP Respiratory System
 CNS/PNS Central/Peripheral Nervous System
 CV/BL Cardiovascular/Blood System
 IMMUN Immune System
 KIDN Kidney
 GI/LV Gastrointestinal System/Liver
 REPRO Reproductive System (e.g., teratogenic and developmental effects)
 EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
 exposure duration (years) 30
 inhalation rate (m3/day) 20
 average body weight (kg) 70
 averaging time_(cancer) (days) 25550
 averaging time_(noncancer) (days) 10950

Table A7
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Fifth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.21441			2.1E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.3E-06	3.0E+00	8.6E-04			3.4E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.7E-07	9.0E+00	2.6E-03	7.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.6E-06	2.0E+00	5.7E-04								1.1E-02
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.4E-08	1.4E+02	4.0E-02	8.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.5E-02							
	0.10475	1.0E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.3E-05	5.0E+00	1.4E-03	2.0E-02							
Total							1.6E-05			4.3E-02	0.0E+00	3.4E-02	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A8
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Fifth Floor Level
w/MERV 13 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.21441			2.1E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.3E-06	3.0E+00	8.6E-04			3.4E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.7E-07	9.0E+00	2.6E-03	7.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.6E-06	2.0E+00	5.7E-04								1.1E-02
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.4E-08	1.4E+02	4.0E-02	8.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.5E-02							
	0.05238	5.2E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.5E-06	5.0E+00	1.4E-03	1.0E-02							
Total							9.5E-06			3.3E-02	0.0E+00	3.4E-02	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A9
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Sixth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.15314			1.5E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	9.0E-07	3.0E+00	8.6E-04			2.4E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.2E-07	9.0E+00	2.6E-03	5.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.2E-06	2.0E+00	5.7E-04								8.0E-03
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.0E-08	1.4E+02	4.0E-02	6.0E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.1E-02							
	0.07769	7.8E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	9.6E-06	5.0E+00	1.4E-03	1.5E-02							
Total							1.2E-05			3.1E-02	0.0E+00	2.4E-02	0.0E+00	0.0E+00	0.0E+00	8.0E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A10
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Sixth Floor Level
w/MERV 11 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.15314			1.5E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	9.0E-07	3.0E+00	8.6E-04					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.2E-07	9.0E+00	2.6E-03	5.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.2E-06	2.0E+00	5.7E-04							8.0E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.0E-08	1.4E+02	4.0E-02	6.0E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.1E-02							
	0.06215	6.2E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	7.7E-06	5.0E+00	1.4E-03	1.2E-02							
Total							9.9E-06			2.8E-02	0.0E+00	2.4E-02	0.0E+00	0.0E+00	0.0E+00	8.0E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A11
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 1 Receptor at Seventh Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*											
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.10276			1.0E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	6.0E-07	3.0E+00	8.6E-04			1.6E-02				
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	8.0E-08	9.0E+00	2.6E-03	3.5E-03									
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	7.8E-07	2.0E+00	5.7E-04									5.4E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	6.9E-09	1.4E+02	4.0E-02	4.0E-05									
			2.60E-02	Acrolein				3.5E-01	1.0E-04	7.3E-03									
	0.05209	5.2E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.4E-06	5.0E+00	1.4E-03	1.0E-02									
Total							7.9E-06			2.1E-02	0.0E+00	1.6E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-03	0.0E+00	

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A12
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Second Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3)	(mg/m3)			URF (ug/m3)	CPF (mg/kg/day)	RISK (h)	REL (ug/m3)	RfD (mg/kg/day)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
Freeway	0.31747	3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	5.6E-07	3.0E+00	8.6E-04			5.0E-02						
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	7.4E-08	9.0E+00	2.6E-03	1.1E-02								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	7.3E-07	2.0E+00	5.7E-04							1.7E-02		
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	6.4E-09	1.4E+02	4.0E-02	1.2E-04								
	0.17738	1.8E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.6E-06	5.0E+00	1.4E-03	3.4E-02								
Total					7.9E-06			6.7E-02		0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00		

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A13
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Third Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.30000			3.0E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	5.3E-07	3.0E+00	8.6E-04			4.7E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	7.0E-08	9.0E+00	2.6E-03	1.0E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	6.9E-07	2.0E+00	5.7E-04							1.6E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	6.0E-09	1.4E+02	4.0E-02	1.2E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.1E-02							
	0.16304	1.6E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.0E-06	5.0E+00	1.4E-03	3.1E-02							
Total							7.3E-06			6.3E-02	0.0E+00	4.7E-02	0.0E+00	0.0E+00	0.0E+00	1.6E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 9
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 3285

Table A14
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Fourth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.26706			2.7E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	4.7E-07	3.0E+00	8.6E-04			4.2E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	6.3E-08	9.0E+00	2.6E-03	9.0E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	6.1E-07	2.0E+00	5.7E-04							1.4E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	5.4E-09	1.4E+02	4.0E-02	1.0E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02							
	0.13623	1.4E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	5.0E-06	5.0E+00	1.4E-03	2.6E-02							
Total							6.2E-06			5.4E-02	0.0E+00	4.2E-02	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 9
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 3285

Table A15
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Fifth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.21441			2.1E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	3.8E-07	3.0E+00	8.6E-04			3.4E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	5.0E-08	9.0E+00	2.6E-03	7.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	4.9E-07	2.0E+00	5.7E-04								1.1E-02
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	4.3E-09	1.4E+02	4.0E-02	8.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.5E-02							
	0.10475	1.0E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	3.9E-06	5.0E+00	1.4E-03	2.0E-02							
Total							4.8E-06			4.3E-02	0.0E+00	3.4E-02	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A16
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Sixth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.15314			1.5E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	2.7E-07	3.0E+00	8.6E-04			2.4E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	3.6E-08	9.0E+00	2.6E-03	5.2E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	3.5E-07	2.0E+00	5.7E-04								8.0E-03
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	3.1E-09	1.4E+02	4.0E-02	6.0E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.1E-02							
	0.07769	7.8E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.9E-06	5.0E+00	1.4E-03	1.5E-02							
Total							3.5E-06			3.1E-02	0.0E+00	2.4E-02	0.0E+00	0.0E+00	0.0E+00	8.0E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 9
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 3285

Table A17
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 1 Receptor at Seventh Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.10276			1.0E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.8E-07	3.0E+00	8.6E-04			1.6E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.4E-08	9.0E+00	2.6E-03	3.5E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.3E-07	2.0E+00	5.7E-04								5.4E-03
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.1E-09	1.4E+02	4.0E-02	4.0E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	7.3E-03							
	0.05624	5.6E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.1E-06	5.0E+00	1.4E-03	1.1E-02							
Total							2.5E-06			2.2E-02	0.0E+00	1.6E-02	0.0E+00	0.0E+00	0.0E+00	5.4E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 9
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 3285

Table A18
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Third Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3)	(mg/m3)			URF (ug/m3)	CPF (mg/kg/day)	RISK (h)	REL (ug/m3)	RfD (mg/kg/day)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
Freeway	0.35717	3.6E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	2.1E-06	3.0E+00	8.6E-04			5.6E-02					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.8E-07	9.0E+00	2.6E-03	1.2E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.7E-06	2.0E+00	5.7E-04							1.9E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.4E-08	1.4E+02	4.0E-02	1.4E-04							
	0.16604	1.7E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.0E-05	5.0E+00	1.4E-03	3.2E-02							
Total					2.6E-05			6.9E-02			0.0E+00	5.6E-02	0.0E+00	0.0E+00	0.0E+00	1.9E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A20
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Fourth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.32115			3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.9E-06	3.0E+00	8.6E-04			5.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.5E-07	9.0E+00	2.6E-03	1.1E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.4E-06	2.0E+00	5.7E-04							1.7E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.1E-08	1.4E+02	4.0E-02	1.3E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.3E-02							
	0.15018	1.5E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.9E-05	5.0E+00	1.4E-03	2.9E-02							
Total							2.3E-05			6.3E-02	0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A21
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Fourth Floor Level
w/MERV 14 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*												
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)			
	Freeway	0.32115			3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.9E-06	3.0E+00	8.6E-04			5.0E-02					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.5E-07	9.0E+00	2.6E-03	1.1E-02										
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.4E-06	2.0E+00	5.7E-04										1.7E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.1E-08	1.4E+02	4.0E-02	1.3E-04										
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.3E-02										
	0.03755	3.8E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	4.6E-06	5.0E+00	1.4E-03	7.2E-03										
Total							9.2E-06			4.1E-02	0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00		

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A22
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Fifth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*											
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.26015			2.6E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.5E-06	3.0E+00	8.6E-04			4.1E-02				
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.0E-07	9.0E+00	2.6E-03	8.8E-03									
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.0E-06	2.0E+00	5.7E-04									1.4E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.7E-08	1.4E+02	4.0E-02	1.0E-04									
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02									
	0.12576	1.3E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.6E-05	5.0E+00	1.4E-03	2.4E-02									
Total							1.9E-05			5.2E-02	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00	

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A23
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Fifth Floor Level
w/MERV 14 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.26015			2.6E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.5E-06	3.0E+00	8.6E-04						
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.0E-07	9.0E+00	2.6E-03	8.8E-03								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.0E-06	2.0E+00	5.7E-04								1.4E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.7E-08	1.4E+02	4.0E-02	1.0E-04								
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02								
	0.03144	3.1E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	3.9E-06	5.0E+00	1.4E-03	6.0E-03								
Total							7.6E-06			3.3E-02	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00

* Key to Toxicological Endpoints

- RESP Respiratory System
- CNS/PNS Central/Peripheral Nervous System
- CV/BL Cardiovascular/Blood System
- IMMUN Immune System
- KIDN Kidney
- GI/LV Gastrointestinal System/Liver
- REPRO Reproductive System (e.g., teratogenic and developmental effects)
- EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

- exposure frequency (days/year) 350
- exposure duration (years) 30
- inhalation rate (m3/day) 20
- average body weight (kg) 70
- averaging time_(cancer) (days) 25550
- averaging time_(noncancer) (days) 10950

Table A24
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Sixth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.19040			1.9E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.1E-06	3.0E+00	8.6E-04			3.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.5E-07	9.0E+00	2.6E-03	6.4E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.4E-06	2.0E+00	5.7E-04							1.0E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.3E-08	1.4E+02	4.0E-02	7.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.4E-02							
	0.09660	9.7E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.2E-05	5.0E+00	1.4E-03	1.9E-02							
Total							1.5E-05			3.9E-02	0.0E+00	3.0E-02	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A25
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Sixth Floor Level
w/MERV 13 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.19040			1.9E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.1E-06	3.0E+00	8.6E-04			3.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.5E-07	9.0E+00	2.6E-03	6.4E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.4E-06	2.0E+00	5.7E-04							1.0E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.3E-08	1.4E+02	4.0E-02	7.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.4E-02							
	0.04830	4.8E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.0E-06	5.0E+00	1.4E-03	9.3E-03							
Total							8.7E-06			2.9E-02	0.0E+00	3.0E-02	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A26
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Seventh Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.12685			1.3E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	7.4E-07	3.0E+00	8.6E-04			2.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	9.9E-08	9.0E+00	2.6E-03	4.3E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	9.7E-07	2.0E+00	5.7E-04								6.6E-03
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	8.5E-09	1.4E+02	4.0E-02	5.0E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	9.0E-03							
	0.07135	7.1E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	8.8E-06	5.0E+00	1.4E-03	1.4E-02							
Total							1.1E-05			2.7E-02	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	6.6E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A27
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Seventh Floor Level
w/MERV 11 Filter Mitigation

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*											
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.12685			1.3E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	7.4E-07	3.0E+00	8.6E-04							
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	9.9E-08	9.0E+00	2.6E-03	4.3E-03									
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	9.7E-07	2.0E+00	5.7E-04										6.6E-03
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	8.5E-09	1.4E+02	4.0E-02	5.0E-05									
			2.60E-02	Acrolein				3.5E-01	1.0E-04	9.0E-03									
	0.05708	5.7E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	7.0E-06	5.0E+00	1.4E-03	1.1E-02									
Total							8.9E-06			2.4E-02	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-03	0.0E+00	

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 30
inhalation rate (m3/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 10950

Table A28
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
30 Year Exposure Scenario / Maximum Residential 2 Receptor at Eighth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.08458			8.5E-05	4.91E-01	Benzene	2.9E-05	1.0E-01	4.9E-07	3.0E+00	8.6E-04			1.3E-02			
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	6.6E-08	9.0E+00	2.6E-03	2.9E-03								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	6.4E-07	2.0E+00	5.7E-04								4.4E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	5.7E-09	1.4E+02	4.0E-02	3.3E-05								
			2.60E-02	Acrolein				3.5E-01	1.0E-04	6.0E-03								
	0.05209	5.2E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.4E-06	5.0E+00	1.4E-03	1.0E-02								
Total							7.6E-06			1.9E-02	0.0E+00	1.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	30
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	10950

Table A29
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Third Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3)	(mg/m3)			URF (ug/m3)	CPF (mg/kg/day)	RISK (h)	REL (ug/m3)	RfD (mg/kg/day)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
Freeway	0.35717	3.6E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	6.3E-07	3.0E+00	8.6E-04			5.6E-02						
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	8.4E-08	9.0E+00	2.6E-03	1.2E-02								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	8.2E-07	2.0E+00	5.7E-04							1.9E-02		
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	7.2E-09	1.4E+02	4.0E-02	1.4E-04								
	0.16604	1.7E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	6.1E-06	5.0E+00	1.4E-03	3.2E-02								
Total					7.7E-06			6.9E-02		0.0E+00	5.6E-02	0.0E+00	0.0E+00	0.0E+00	1.9E-02	0.0E+00		

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A30
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Fourth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.32115			3.2E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	5.6E-07	3.0E+00	8.6E-04			5.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	7.5E-08	9.0E+00	2.6E-03	1.1E-02							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	7.3E-07	2.0E+00	5.7E-04							1.7E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	6.4E-09	1.4E+02	4.0E-02	1.3E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	2.3E-02							
	0.15018	1.5E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	5.6E-06	5.0E+00	1.4E-03	2.9E-02							
Total							6.9E-06			6.3E-02	0.0E+00	5.0E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year) 350
exposure duration (years) 9
inhalation rate (m³/day) 20
average body weight (kg) 70
averaging time_(cancer) (days) 25550
averaging time_(noncancer) (days) 3285

Table A31
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Fifth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.26015			2.6E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	4.6E-07	3.0E+00	8.6E-04			4.1E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	6.1E-08	9.0E+00	2.6E-03	8.8E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	5.9E-07	2.0E+00	5.7E-04							1.4E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	5.2E-09	1.4E+02	4.0E-02	1.0E-04							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.9E-02							
	0.12576	1.3E-04	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	4.7E-06	5.0E+00	1.4E-03	2.4E-02							
Total							5.8E-06			5.2E-02	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A32
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Sixth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*									
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.19040			1.9E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	3.3E-07	3.0E+00	8.6E-04			3.0E-02		
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	4.5E-08	9.0E+00	2.6E-03	6.4E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	4.3E-07	2.0E+00	5.7E-04								1.0E-02
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	3.8E-09	1.4E+02	4.0E-02	7.4E-05							
			2.60E-02	Acrolein				3.5E-01	1.0E-04	1.4E-02							
	0.09660	9.7E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	3.6E-06	5.0E+00	1.4E-03	1.9E-02							
Total							4.4E-06			3.9E-02	0.0E+00	3.0E-02	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A33
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Seventh Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*											
	(ug/m ³) (b)	(mg/m ³) (c)			URF (ug/m ³) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m ³) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.12685			1.3E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	2.2E-07	3.0E+00	8.6E-04			2.0E-02				
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	3.0E-08	9.0E+00	2.6E-03	4.3E-03									
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.9E-07	2.0E+00	5.7E-04									6.6E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.5E-09	1.4E+02	4.0E-02	5.0E-05									
			2.60E-02	Acrolein				3.5E-01	1.0E-04	9.0E-03									
	0.07135	7.1E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	2.6E-06	5.0E+00	1.4E-03	1.4E-02									
Total							3.2E-06			2.7E-02	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-03	0.0E+00	

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m ³ /day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A34
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
9 Year Exposure Scenario / Maximum Residential 2 Receptor at Eighth Floor Level

Source (a)	Concentration		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk			Noncarcinogenic Hazards / Toxicological Endpoints*										
	(ug/m3) (b)	(mg/m3) (c)			URF (ug/m3) (f)	CPF (mg/kg/day) (g)	RISK (h)	REL (ug/m3) (i)	RfD (mg/kg/day) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.08458			8.5E-05	4.91E-01	Benzene	2.9E-05	1.0E-01	1.5E-07	3.0E+00	8.6E-04			1.3E-02			
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.0E-08	9.0E+00	2.6E-03	2.9E-03								
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	1.9E-07	2.0E+00	5.7E-04								4.4E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.7E-09	1.4E+02	4.0E-02	3.3E-05								
			2.60E-02	Acrolein				3.5E-01	1.0E-04	6.0E-03								
	0.05209	5.2E-05	1.00E+00	Diesel Particulates	3.0E-04	1.1E+00	1.9E-06	5.0E+00	1.4E-03	1.0E-02								
Total							2.3E-06			1.9E-02	0.0E+00	1.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	9
inhalation rate (m3/day)	20
average body weight (kg)	70
averaging time _(cancer) (days)	25550
averaging time _(noncancer) (days)	3285

Table A35
Quantification of Noncarcinogenic Acute Hazards
1-Hour Exposure Scenario / Maximum Exposed Receptor

Source (a)	Concentration (ug/m3) (b)	Weight Fraction (c)	Contaminant (d)	Noncarcinogenic Hazards / Toxicological Endpoints*								
				REL (ug/m3) (e)	RESP (f)	CNS/PNS (g)	CV/BL (h)	IMMUN (i)	KIDN (j)	GI/LV (k)	REPRO (l)	EYES (m)
Freeway TOG	1.95966	4.91E-01	Benzene	2.7E+01			3.6E-02	3.6E-02			3.6E-02	
		3.17E-01	Formaldehyde	5.5E+01							1.1E-02	
		1.09E-01	1,3-Butadiene	6.6E+02							3.2E-04	
		5.70E-02	Acetaldehyde	4.7E+02	2.4E-04							2.4E-04
		2.60E-02	Acrolein	2.5E+00	2.0E-02							2.0E-02
Freeway Diesel/TOG	1.33057	8.20E-02	Benzene	2.7E+01				4.0E-03			4.0E-03	
		6.07E-01	Formaldehyde	5.5E+01							1.5E-02	
		8.00E-03	1,3-Butadiene	6.6E+02							1.6E-05	
		3.03E-01	Acetaldehyde	4.7E+02	8.6E-04							8.6E-04
Total					2.1E-02	0.0E+00	3.6E-02	4.0E-02	0.0E+00	0.0E+00	4.0E-02	4.7E-02

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Table A36
Quantification of Noncarcinogenic Acute Hazards
8-Hour Exposure Scenario / Maximum Exposed Residential Receptor

Source (a)	Concentration (ug/m3) (b)	Weight Fraction (c)	Contaminant (d)	Noncarcinogenic Hazards / Toxicological Endpoints*								
				REL (ug/m3) (e)	RESP (f)	CNS/PNS (g)	CV/BL (h)	IMMUN (i)	KIDN (j)	GI/LV (k)	REPRO (l)	EYES (m)
Freeway TOG	0.79584	4.91E-01	Benzene	3.0E+00			1.3E-01					
		3.17E-01	Formaldehyde	9.0E+00	2.8E-02							
		1.09E-01	1,3-Butadiene	9.0E+00						9.6E-03		
		5.70E-02	Acetaldehyde	3.0E+02	1.5E-04							
		2.60E-02	Acrolein	7.0E-01	3.0E-02							
Freeway Diesel/TOG	0.19625	8.20E-02	Benzene	3.0E+00			5.4E-03					
		6.07E-01	Formaldehyde	9.0E+00	1.3E-02							
		8.00E-03	1,3-Butadiene	9.0E+00						1.7E-04		
		3.03E-01	Acetaldehyde	3.0E+02	2.0E-04							
Total					7.1E-02	0.0E+00	1.4E-01	0.0E+00	0.0E+00	0.0E+00	9.8E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
CNS/PNS Central/Peripheral Nervous System
CV/BL Cardiovascular/Blood System
IMMUN Immune System
KIDN Kidney
GI/LV Gastrointestinal System/Liver
REPRO Reproductive System (e.g., teratogenic and developmental effects)
EYES Eye irritation and/or other effects

Table A37
 Quantification of Noncarcinogenic Acute Hazards
 8-Hour Exposure Scenario / Maximum Exposed Hotel Receptor

Source (a)	Concentration (ug/m3) (b)	Weight Fraction (c)	Contaminant (d)	Noncarcinogenic Hazards / Toxicological Endpoints*								
				REL (ug/m3) (e)	RESP (f)	CNS/PNS (g)	CV/BL (h)	IMMUN (i)	KIDN (j)	GI/LV (k)	REPRO (l)	EYES (m)
Freeway TOG	0.70621	4.91E-01	Benzene	3.0E+00			1.2E-01					
		3.17E-01	Formaldehyde	9.0E+00	2.5E-02							
		1.09E-01	1,3-Butadiene	9.0E+00							8.6E-03	
		5.70E-02	Acetaldehyde	3.0E+02	1.3E-04							
		2.60E-02	Acrolein	7.0E-01	2.6E-02							
Freeway Diesel/TOG	0.14147	8.20E-02	Benzene	3.0E+00			3.9E-03					
		6.07E-01	Formaldehyde	9.0E+00	9.5E-03							
		8.00E-03	1,3-Butadiene	9.0E+00							1.3E-04	
		3.03E-01	Acetaldehyde	3.0E+02	1.4E-04							
Total					6.1E-02	0.0E+00	1.2E-01	0.0E+00	0.0E+00	0.0E+00	8.7E-03	0.0E+00

* Key to Toxicological Endpoints

RESP Respiratory System
 CNS/PNS Central/Peripheral Nervous System
 CV/BL Cardiovascular/Blood System
 IMMUN Immune System
 KIDN Kidney
 GI/LV Gastrointestinal System/Liver
 REPRO Reproductive System (e.g., teratogenic and developmental effects)
 EYES Eye irritation and/or other effects

APPENDIX B

Emission Rate Calculation Worksheets

Caltrans Truck Traffic Adjustment Worksheet

Baseline Population

CalYr	Region	Veh_Class	Fuel	Population (all vehicles)	Wt Frac (all vehicles)	Population (truck)	Wt Frac (truck)
2021	Los Angeles (SC)	LDA	Dsl	35548.94626	0.0053		
2021	Los Angeles (SC)	LDA	Gas	3643620.309	0.5431		
2021	Los Angeles (SC)	LDT1	Dsl	417.5546367	0.0001		
2021	Los Angeles (SC)	LDT1	Gas	320844.9043	0.0478		
2021	Los Angeles (SC)	LDT2	Dsl	2462.561464	0.0004		
2021	Los Angeles (SC)	LDT2	Gas	1341680.106	0.2000		
2021	Los Angeles (SC)	LHDT1	Dsl	49231.70637	0.0073	49231.70637	0.0073
2021	Los Angeles (SC)	LHDT1	Gas	65824.73311	0.0098	65824.73311	0.0098
2021	Los Angeles (SC)	LHDT2	Dsl	22828.18141	0.0034	22828.18141	0.0034
2021	Los Angeles (SC)	LHDT2	Gas	14784.41192	0.0022	14784.41192	0.0022
2021	Los Angeles (SC)	MCY	Gas	176369.2374	0.0263		
2021	Los Angeles (SC)	MDV	Dsl	14987.65625	0.0022	14987.65625	0.0022
2021	Los Angeles (SC)	MDV	Gas	842356.0013	0.1256	842356.0013	0.1256
2021	Los Angeles (SC)	MH	Dsl	4547.859372	0.0007		
2021	Los Angeles (SC)	MH	Gas	19520.42401	0.0029		
2021	Los Angeles (SC)	MHDT	Dsl	71988.41584	0.0107	71988.41584	0.0107
2021	Los Angeles (SC)	MHDT	Gas	12122.2099	0.0018	12122.20990	0.0018
2021	Los Angeles (SC)	HHDT	Dsl	50817.49266	0.0076	50817.49266	0.0076
2021	Los Angeles (SC)	HHDT	Gas	510.8662571	0.0001	510.8662571	0.0001
2021	Los Angeles (SC)	OBUS	Dsl	4059.785412	0.0006		
2021	Los Angeles (SC)	OBUS	Gas	5633.140632	0.0008		
2021	Los Angeles (SC)	SBUS	Dsl	2752.617749	0.0004		
2021	Los Angeles (SC)	SBUS	Gas	1345.512232	0.0002		
2021	Los Angeles (SC)	UBUS	Dsl	3326.238938	0.0005		
2021	Los Angeles (SC)	UBUS	Gas	1449.221465	0.0002		
				6709030	1	1145452	0.1707

Adjusted Population

CalYr	Region	Veh_Class	Fuel	Population (all vehicles)	Wt Frac (all vehicles)	Population (truck)	Wt Frac (truck)
2021	Los Angeles (SC)	LDA	Dsl	35548.94626	0.0059		
2021	Los Angeles (SC)	LDA	Gas	3643620.309	0.6093		
2021	Los Angeles (SC)	LDT1	Dsl	417.5546367	0.0001		
2021	Los Angeles (SC)	LDT1	Gas	320844.9043	0.0536		
2021	Los Angeles (SC)	LDT2	Dsl	2462.561464	0.0004		
2021	Los Angeles (SC)	LDT2	Gas	1341680.106	0.2243		
2021	Los Angeles (SC)	LHDT1	Dsl	17916.37651	0.0030	17916.37651	0.0030
2021	Los Angeles (SC)	LHDT1	Gas	23954.90201	0.0040	23954.90201	0.0040
2021	Los Angeles (SC)	LHDT2	Dsl	8307.619688	0.0014	8307.619688	0.0014

Caltrans Truck Traffic Adjustment Worksheet

2021	Los Angeles (SC)	LHDT2	Gas	5380.335354	0.0009	5380.335354	0.0009
2021	Los Angeles (SC)	MCY	Gas	176369.2374	0.0295		
2021	Los Angeles (SC)	MDV	Dsl	5454.299924	0.0009	5454.299924	0.0009
2021	Los Angeles (SC)	MDV	Gas	306549.7498	0.0513	306549.7498	0.0513
2021	Los Angeles (SC)	MH	Dsl	4547.859372	0.0008		
2021	Los Angeles (SC)	MH	Gas	19520.42401	0.0033		
2021	Los Angeles (SC)	MHDT	Dsl	26197.98616	0.0044	26197.98616	0.0044
2021	Los Angeles (SC)	MHDT	Gas	4411.508204	0.0007	4411.508204	0.0007
2021	Los Angeles (SC)	HHDT	Dsl	18493.47501	0.0031	18493.47501	0.0031
2021	Los Angeles (SC)	HHDT	Gas	185.9141777	0.0000	185.9141777	0.0000
2021	Los Angeles (SC)	OBUS	Dsl	4059.785412	0.0007		
2021	Los Angeles (SC)	OBUS	Gas	5633.140632	0.0009		
2021	Los Angeles (SC)	SBUS	Dsl	2752.617749	0.0005		
2021	Los Angeles (SC)	SBUS	Gas	1345.512232	0.0002		
2021	Los Angeles (SC)	UBUS	Dsl	3326.238938	0.0006		
2021	Los Angeles (SC)	UBUS	Gas	1449.221465	0.0002		
				5980431	1	416852	0.0697

Adjusted Caltrans Truck Population

CalYr	Region	Veh_Class	Fuel	Population	Wt Frac	EMFAC2014 Wt Frac	Caltrans Wt Frac	Adjustment (multiplier)	Population (adjusted)	Wt Frac (adjusted)
2021	Los Angeles (SC)	LHDT1	Dsl	17916.37651	0.0430	0.8818	0.2739	0.3106	5565.345795	0.0134
2021	Los Angeles (SC)	LHDT1	Gas	23954.90201	0.0575				7441.086824	0.0179
2021	Los Angeles (SC)	LHDT2	Dsl	8307.619688	0.0199				2580.587446	0.0062
2021	Los Angeles (SC)	LHDT2	Gas	5380.335354	0.0129				1671.288094	0.0040
2021	Los Angeles (SC)	MDV	Dsl	5454.299924	0.0131				1694.263633	0.0041
2021	Los Angeles (SC)	MDV	Gas	306549.7498	0.7354				95223.2367	0.2284
2021	Los Angeles (SC)	MHDT	Dsl	26197.98616	0.0628	0.0734	0.1099	1.4967	39209.51845	0.0941
2021	Los Angeles (SC)	MHDT	Gas	4411.508204	0.0106				6602.534686	0.0158
2021	Los Angeles (SC)	HHDT	Dsl	18493.47501	0.0444	0.0448	0.6162	13.7512	254307.7593	0.6101
2021	Los Angeles (SC)	HHDT	Gas	185.9141777	0.0004				2556.545913	0.0061
				416852	1	1	1		416852	1

Adjusted Population w/ Caltrans Truck

CalYr	Region	Veh_Class	Fuel	Population	Wt Frac
2021	Los Angeles (SC)	LDA	Dsl	35548.94626	0.0059
2021	Los Angeles (SC)	LDA	Gas	3643620.309	0.6093
2021	Los Angeles (SC)	LDT1	Dsl	417.5546367	0.0001

Caltrans Truck Traffic Adjustment Worksheet

2021	Los Angeles (SC)	LDT1	Gas	320844.9043	0.0536
2021	Los Angeles (SC)	LDT2	Dsl	2462.561464	0.0004
2021	Los Angeles (SC)	LDT2	Gas	1341680.106	0.2243
2021	Los Angeles (SC)	LHDT1	Dsl	5565.345795	0.0009
2021	Los Angeles (SC)	LHDT1	Gas	7441.086824	0.0012
2021	Los Angeles (SC)	LHDT2	Dsl	2580.587446	0.0004
2021	Los Angeles (SC)	LHDT2	Gas	1671.288094	0.0003
2021	Los Angeles (SC)	MCY	Gas	176369.2374	0.0295
2021	Los Angeles (SC)	MDV	Dsl	1694.263633	0.0003
2021	Los Angeles (SC)	MDV	Gas	95223.2367	0.0159
2021	Los Angeles (SC)	MH	Dsl	4547.859372	0.0008
2021	Los Angeles (SC)	MH	Gas	19520.42401	0.0033
2021	Los Angeles (SC)	MHDT	Dsl	39209.51845	0.0066
2021	Los Angeles (SC)	MHDT	Gas	6602.534686	0.0011
2021	Los Angeles (SC)	HHDT	Dsl	254307.7593	0.0425
2021	Los Angeles (SC)	HHDT	Gas	2556.545913	0.0004
2021	Los Angeles (SC)	OBUS	Dsl	4059.785412	0.0007
2021	Los Angeles (SC)	OBUS	Gas	5633.140632	0.0009
2021	Los Angeles (SC)	SBUS	Dsl	2752.617749	0.0005
2021	Los Angeles (SC)	SBUS	Gas	1345.512232	0.0002
2021	Los Angeles (SC)	UBUS	Dsl	3326.238938	0.0006
2021	Los Angeles (SC)	UBUS	Gas	1449.221465	0.0002

EMFAC2014 Worksheet
(5 mph)

EMFAC2014 Emission Rates
 Region Type: County
 Region: Los Angeles (SC)
 Calendar Year: 2021
 Season: Annual
 Vehicle Classification: EMFAC2007 Categories
 Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	CO_RUNEX (gms/mile)	CO_RUNEX AVE (gms/mile)	NOX_RUNEX (gms/mile)	NOx_RUNEX AVE (gms/mile)	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)	PM10_PMTW (gms/mile)	PM10_PMTW_AVE (gms/mile)	PM10_PMBW (gms/mile)	PM10_PMBW_AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	5	35548.94626	0.0059	3.268661195	0.01942961	0.170925619	0.00101602	0.056419277	0.00033537	0.008	0.00004755	0.03675	0.000218450
Los Angeles	2021	Annual	LDA	GAS	Aggregated	5	3643620.309	0.6093	1.24940358	0.76120811	0.093662101	0.05706431	0.011908962	0.00725562	0.008	0.00487406	0.03675	0.022390202
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	5	417.5546367	0.0001	3.566722354	0.00024903	0.709560067	0.00004954	0.449774445	0.00003140	0.008	0.00000056	0.03675	0.000002566
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	5	320844.9043	0.0536	3.485946956	0.18701803	0.285195999	0.01530052	0.01833938	0.00098389	0.008	0.00042919	0.03675	0.001971606
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	5	2462.561464	0.0004	2.337979906	0.00096271	0.153188767	0.00006308	0.014523547	0.00000598	0.008	0.00000329	0.03675	0.000015133
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	5	1341680.106	0.2243	1.533854858	0.34411277	0.14371507	0.03224177	0.011851185	0.00265875	0.008	0.00179476	0.03675	0.008244681
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	5	5565.345795	0.0009	2.909016409	0.00270711	1.450785496	0.00135009	0.057317454	0.00005334	0.012	0.00001117	0.07644	0.000071135
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	5	7441.086824	0.0012	3.465116459	0.00431143	0.484772984	0.00060317	0.008787246	0.00001093	0.008	0.00000995	0.07644	0.000095110
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	5	2580.587446	0.0004	2.773889821	0.00119695	1.053015249	0.00045438	0.04229043	0.00001825	0.012	0.00000518	0.08918	0.000038482
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	5	1671.288094	0.0003	1.173038415	0.00032782	0.287459917	0.00008033	0.006754056	0.00000189	0.008	0.00000224	0.08918	0.000024922
Los Angeles	2021	Annual	MCY	GAS	Aggregated	5	176369.2374	0.0295	43.76406015	1.29064852	1.448494726	0.04271764	0.011611804	0.00034244	0.004	0.00011796	0.01176	0.000346815
Los Angeles	2021	Annual	MDV	DSL	Aggregated	5	1694.263633	0.0003	3.517617208	0.00099655	0.138945363	0.00003936	0.019954693	0.00000565	0.008	0.00000227	0.03675	0.000010411
Los Angeles	2021	Annual	MDV	GAS	Aggregated	5	95223.2367	0.0159	2.933315456	0.04670563	0.265070018	0.00422057	0.012479973	0.00019871	0.008	0.00012738	0.03675	0.000585151
Los Angeles	2021	Annual	MH	DSL	Aggregated	5	4547.859372	0.0008	2.163517703	0.00164526	12.65470622	0.00962336	0.212045232	0.00016125	0.016	0.00001217	0.13034	0.000099118
Los Angeles	2021	Annual	MH	GAS	Aggregated	5	19520.42401	0.0033	8.925052054	0.02913182	0.627435974	0.00204798	0.009745657	0.00003181	0.012	0.00003917	0.13034	0.000425436
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	5	39209.51845	0.0066	1.351810768	0.00886288	8.949555164	0.05867600	0.013240013	0.00008681	0.012	0.00007868	0.13034	0.000854549
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	5	6602.534686	0.0011	3.635965176	0.00401419	0.784131853	0.00086570	0.006522647	0.00000720	0.012	0.00001325	0.13034	0.000143898
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	5	254307.7593	0.0425	4.138836016	0.17599705	19.68409989	0.83703326	0.037486638	0.00159406	0.036	0.00153084	0.06174	0.002625390
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	5	2556.545913	0.0004	55.26708712	0.02362587	4.972413131	0.00212563	0.005522378	0.00000236	0.020	0.00000855	0.06174	0.000026393
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	5	4059.785412	0.0007	2.46796586	0.00167537	12.70159643	0.00862242	0.027469307	0.00001865	0.012	0.00000815	0.13034	0.000088481
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	5	5633.140632	0.0009	1.723890071	0.00162378	0.437982921	0.00041255	0.005817101	0.00000548	0.012	0.00001130	0.13034	0.000122771
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	5	2752.617749	0.0005	1.338537634	0.00061609	16.45540201	0.00757394	0.123239139	0.00005672	0.012	0.00000552	0.7448	0.000342810
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	5	1345.512232	0.0002	2.597165023	0.00058433	0.675957584	0.00015208	0.006040652	0.00000136	0.008	0.00000180	0.7448	0.000167569
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	5	3326.238938	0.0006	18.90699524	0.01051583	60.06184887	0.03340563	1.626129211	0.00090443	0.012	0.00000667	0.84182	0.000468210
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	5	1449.221465	0.0002	12.31550458	0.00298438	1.646623492	0.00039902	0.008404672	0.00000204	0.012	0.00000291	0.13034	0.000031585
							5980431	1.0		2.921		1.116		0.0148		0.009		0.039

EMFAC2014 Emission Rates
 Region Type: County
 Region: Los Angeles (SC)
 Calendar Year: 2021
 Season: Annual
 Vehicle Classification: EMFAC2007 Categories
 Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	GAS	Aggregated	5	3643620.309	0.6479	0.119374042	0.0773
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	5	320844.9043	0.0570	0.295839179	0.0169
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	5	1341680.106	0.2386	0.151451345	0.0361
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	5	7441.086824	0.0013	0.426688374	0.0006
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	5	1671.288094	0.0003	0.176004927	0.0001
Los Angeles	2021	Annual	MCY	GAS	Aggregated	5	176369.2374	0.0314	15.36071863	0.4817
Los Angeles	2021	Annual	MDV	GAS	Aggregated	5	95223.2367	0.0169	0.30678712	0.0052
Los Angeles	2021	Annual	MH	GAS	Aggregated	5	19520.42401	0.0035	0.749870107	0.0026
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	5	6602.534686	0.0012	0.636916944	0.0007
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	5	2556.545913	0.0005	3.677490613	0.0017
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	5	5633.140632	0.0010	0.331414641	0.0003
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	5	1345.512232	0.0002	0.50835937	0.0001
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	5	1449.221465	0.0003	3.047013155	0.0008
							5623958	1.0	0.624	

EMFAC2014 Worksheet
(5 mph)

PM2_5_RUNEX (gms/mile)	PM2_5_RUNEX_AVE (gms/mile)	PM2_5_PMTW (gms/mile)	PM2_5_PMTW_AVE (gms/mile)	PM2_5_PMBW (gms/mile)	PM2_5_PMBW_AVE (gms/mile)
0.053978604	0.000320860	0.002	0.000011888	0.01575	0.000093621
0.010950284	0.006671539	0.002	0.001218514	0.01575	0.009595801
0.430317401	0.000030045	0.002	0.000000140	0.01575	0.000001100
0.016864987	0.000904792	0.002	0.000107298	0.01575	0.000844974
0.013895264	0.000005722	0.002	0.000000824	0.01575	0.000006485
0.010897141	0.002444720	0.002	0.000448690	0.01575	0.003533435
0.054837926	0.000051032	0.003	0.000002792	0.03276	0.000030486
0.008079548	0.000010053	0.002	0.000002488	0.03276	0.000040761
0.040460965	0.000017459	0.003	0.000001295	0.03822	0.000016492
0.006210105	0.000001735	0.002	0.000000559	0.03822	0.000010681
0.010846464	0.000319874	0.001	0.000029491	0.00504	0.000148635
0.019091462	0.000005409	0.002	0.000000567	0.01575	0.000004462
0.011483662	0.000182848	0.002	0.000031845	0.01575	0.000250779
0.202872249	0.000154276	0.004	0.000003042	0.05586	0.000042479
0.008960772	0.000029248	0.003	0.000009792	0.05586	0.000182330
0.012667256	0.000083050	0.003	0.000019669	0.05586	0.000366235
0.005997334	0.000006621	0.003	0.000003312	0.05586	0.000061671
0.035864983	0.001525098	0.009	0.000382710	0.02646	0.001125167
0.005077807	0.000002171	0.005	0.000002137	0.02646	0.000011311
0.026280997	0.000017841	0.003	0.000002037	0.05586	0.000037920
0.00534861	0.000005038	0.003	0.000002826	0.05586	0.000052616
0.117907868	0.000054270	0.003	0.000001381	0.3192	0.000146918
0.005554157	0.000001250	0.002	0.000000450	0.3192	0.000071815
1.555783581	0.0000865307	0.003	0.000001669	0.36078	0.000200661
0.007727786	0.000001873	0.003	0.000000727	0.05586	0.000013536
0.0137		0.002		0.017	

EMFAC2014 Worksheet
(5 mph)

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	5	35548.94626	0.0997	0.257055503	0.0256
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	5	417.5546367	0.0012	0.78457434	0.0009
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	5	2462.561464	0.0069	0.295433871	0.0020
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	5	5565.345795	0.0156	0.838812906	0.0131
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	5	2580.587446	0.0072	0.819466903	0.0059
Los Angeles	2021	Annual	MDV	DSL	Aggregated	5	1694.263633	0.0048	0.22676149	0.0011
Los Angeles	2021	Annual	MH	DSL	Aggregated	5	4547.859372	0.0128	1.038039422	0.0132
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	5	39209.51845	0.1100	0.361872748	0.0398
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	5	254307.7593	0.7134	1.123322281	0.8014
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	5	4059.785412	0.0114	0.753872857	0.0086
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	5	2752.617749	0.0077	0.828126924	0.0064
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	5	3326.238938	0.0093	6.614483013	0.0617
							356473	1.0	0.980	

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	5	35548.94626	0.0997	0.056419277	0.0056
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	5	417.5546367	0.0012	0.449774445	0.0005
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	5	2462.561464	0.0069	0.014523547	0.0001
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	5	5565.345795	0.0156	0.057317454	0.0009
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	5	2580.587446	0.0072	0.04229043	0.0003
Los Angeles	2021	Annual	MDV	DSL	Aggregated	5	1694.263633	0.0048	0.019954693	0.0001
Los Angeles	2021	Annual	MH	DSL	Aggregated	5	4547.859372	0.0128	0.212045232	0.0027
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	5	39209.51845	0.1100	0.013240013	0.0015
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	5	254307.7593	0.7134	0.037486638	0.0267
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	5	4059.785412	0.0114	0.027469307	0.0003
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	5	2752.617749	0.0077	0.123239139	0.0010
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	5	3326.238938	0.0093	1.626129211	0.0152
							356473	1.0	0.055	

EMFAC2014 Worksheet
(15 mph)

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	CO_RUNEX (gms/mile)	CO_RUNEX AVE (gms/mile)	NOX_RUNEX (gms/mile)	NOx_RUNEX AVE (gms/mile)	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)	PM10_PMTW (gms/mile)	PM10_PMTW_AVE (gms/mile)	PM10_PMBW (gms/mile)	PM10_PMBW_AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	15	35548.94626	0.0059	1.235397101	0.00734346	0.127192707	0.00075606	0.030642011	0.00018214	0.008	0.00004755	0.03675	0.000218450
Los Angeles	2021	Annual	LDA	GAS	Aggregated	15	3643620.309	0.6093	1.010183075	0.61546130	0.071192474	0.04337453	0.005025471	0.00306180	0.008	0.00487406	0.03675	0.022390202
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	15	417.5546367	0.0001	1.728762404	0.00012070	0.752261366	0.00005252	0.229188698	0.00001600	0.008	0.00000056	0.03675	0.000002566
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	15	320844.9043	0.0536	2.608872229	0.13996373	0.206319967	0.01106889	0.008076442	0.00043329	0.008	0.00042919	0.03675	0.001971606
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	15	2462.561464	0.0004	0.861364025	0.00035468	0.091788119	0.00003780	0.009921793	0.00000409	0.008	0.00000329	0.03675	0.000015133
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	15	1341680.106	0.2243	1.237999677	0.27773912	0.108051713	0.02424087	0.004996962	0.00112104	0.008	0.00179476	0.03675	0.008244681
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	15	5565.345795	0.0009	1.201003878	0.00111765	1.391607937	0.00129502	0.03376647	0.00003142	0.012	0.00001117	0.07644	0.000071135
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	15	7441.086824	0.0012	2.186286397	0.00272026	0.389871412	0.00048509	0.003766785	0.00000469	0.008	0.00000995	0.07644	0.000095110
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	15	2580.587446	0.0004	1.096522657	0.00047316	0.932350533	0.00040231	0.026682263	0.00001151	0.012	0.00000518	0.08918	0.000038482
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	15	1671.288094	0.0003	0.81251125	0.00022706	0.224803854	0.00006282	0.002843675	0.00000079	0.008	0.00000224	0.08918	0.000024922
Los Angeles	2021	Annual	MCY	GAS	Aggregated	15	176369.2374	0.0295	26.93518688	0.79434721	1.203235533	0.03548469	0.005153935	0.00015200	0.004	0.00011796	0.01176	0.000346815
Los Angeles	2021	Annual	MDV	DSL	Aggregated	15	1694.263633	0.0003	1.295137074	0.00036691	0.084832479	0.00002403	0.012474293	0.00000353	0.008	0.00000227	0.03675	0.000010411
Los Angeles	2021	Annual	MDV	GAS	Aggregated	15	95223.2367	0.0159	2.195428399	0.03495665	0.200721292	0.00319598	0.005329377	0.00008486	0.008	0.00012738	0.03675	0.000585151
Los Angeles	2021	Annual	MH	DSL	Aggregated	15	4547.859372	0.0008	0.980836977	0.00074588	7.295048979	0.00554757	0.135788256	0.00010326	0.016	0.00001217	0.13034	0.000099118
Los Angeles	2021	Annual	MH	GAS	Aggregated	15	19520.42401	0.0033	5.186994957	0.01693061	0.529546072	0.00172846	0.004273222	0.00001395	0.012	0.00003917	0.13034	0.000425436
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	15	39209.51845	0.0066	0.770194189	0.00504963	4.575258817	0.02999679	0.009849239	0.00006457	0.012	0.00007868	0.13034	0.000854549
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	15	6602.534686	0.0011	2.837072482	0.00313219	0.606375686	0.00066945	0.002741504	0.00000303	0.012	0.00001325	0.13034	0.000143898
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	15	254307.7593	0.0425	2.35654608	0.10020816	10.78300762	0.45852928	0.027960347	0.00118897	0.036	0.00153804	0.06174	0.002625390
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	15	2556.545913	0.0004	45.47151919	0.01943840	3.822553749	0.00163409	0.002316624	0.00000099	0.020	0.00000855	0.06174	0.000026393
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	15	4059.785412	0.0007	1.399733679	0.00095020	7.13531214	0.00484377	0.021461034	0.00001457	0.012	0.00000815	0.13034	0.000088481
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	15	5633.140632	0.0009	1.383449497	0.00130311	0.337270975	0.00031769	0.002434114	0.00000229	0.012	0.00001130	0.13034	0.000122771
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	15	2752.617749	0.0005	0.777675499	0.00035794	9.13491514	0.00420453	0.06826905	0.00003142	0.012	0.00000552	0.7448	0.000342810
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	15	1345.512232	0.0002	2.159867421	0.00048594	0.518605329	0.00011668	0.002522856	0.00000057	0.008	0.00000180	0.7448	0.000167569
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	15	3326.238938	0.0006	14.25632445	0.00792919	38.65658778	0.02150030	0.975971613	0.00054282	0.012	0.00000667	0.84182	0.000468210
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	15	1449.221465	0.0002	7.916560028	0.00191840	1.367970368	0.00033150	0.003682511	0.00000089	0.012	0.00000291	0.13034	0.000031585
							5980431	1.0		2.034		0.650		0.0071		0.009		0.039

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	GAS	Aggregated	15	3643620.309	0.6479	0.0511170738	0.0332
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	15	320844.9043	0.0570	0.135136473	0.0077
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	15	1341680.106	0.2386	0.065058861	0.0155
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	15	7441.086824	0.0013	0.195773509	0.0003
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	15	1671.288094	0.0003	0.077464072	0.0000
Los Angeles	2021	Annual	MCY	GAS	Aggregated	15	176369.2374	0.0314	6.833791569	0.2143
Los Angeles	2021	Annual	MDV	GAS	Aggregated	15	95223.2367	0.0169	0.135161734	0.0023
Los Angeles	2021	Annual	MH	GAS	Aggregated	15	19520.42401	0.0035	0.352942939	0.0012
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	15	6602.534686	0.0012	0.270591714	0.0003
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	15	2556.545913	0.0005	1.54231317	0.0007
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	15	5633.140632	0.0010	0.139638507	0.0001
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	15	1345.512232	0.0002	0.212314437	0.0001
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	15	1449.221465	0.0003	1.462739994	0.0004
							5623958	1.0		0.276

EMFAC2014 Worksheet
(15 mph)

PM2_5_RUNEX (gms/mile)	PM2_5_RUNEX_AVE (gms/mile)	PM2_5_PMTW (gms/mile)	PM2_5_PMTW_AVE (gms/mile)	PM2_5_PMBW (gms/mile)	PM2_5_PMBW_AVE (gms/mile)
0.029316451	0.000174263	0.002	0.000011888	0.01575	0.000093621
0.004620953	0.002815349	0.002	0.001218514	0.01575	0.009595801
0.219274097	0.000015310	0.002	0.000000140	0.01575	0.000001100
0.007427313	0.000398469	0.002	0.000107298	0.01575	0.000844974
0.00949258	0.000003909	0.002	0.000000824	0.01575	0.000006485
0.004594733	0.001030806	0.002	0.000448690	0.01575	0.003533435
0.032305747	0.000030063	0.003	0.000002792	0.03276	0.000030486
0.00346342	0.000004309	0.002	0.000002488	0.03276	0.000040761
0.025528	0.000011015	0.003	0.000001295	0.03822	0.000016492
0.002614654	0.000000731	0.002	0.000000559	0.03822	0.000010681
0.004815829	0.000142024	0.001	0.000029491	0.00504	0.000148635
0.011934661	0.000003381	0.002	0.000000567	0.01575	0.000004462
0.004904621	0.000078094	0.002	0.000031845	0.01575	0.000250779
0.129914116	0.000098794	0.004	0.000003042	0.05586	0.000042479
0.00392907	0.000012825	0.003	0.000009792	0.05586	0.000182330
0.009423165	0.000061781	0.003	0.000019669	0.05586	0.000366235
0.002520712	0.000002783	0.003	0.000003312	0.05586	0.000061671
0.026750794	0.001137533	0.009	0.000382710	0.02646	0.001125167
0.00213005	0.000000911	0.005	0.000002137	0.02646	0.000011311
0.020532639	0.000013938	0.003	0.000002037	0.05586	0.000037920
0.002238078	0.000002108	0.003	0.000002826	0.05586	0.000052616
0.065315761	0.000030063	0.003	0.000001381	0.3192	0.000146918
0.002319673	0.000000522	0.002	0.000000450	0.3192	0.000071815
0.933751513	0.0000519341	0.003	0.000001669	0.36078	0.000200661
0.003385933	0.000000821	0.003	0.000000727	0.05586	0.000013536
0.0066		0.002		0.017	

EMFAC2014 Worksheet
(15 mph)

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	15	35548.94626	0.0997	0.104339578	0.0104
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	15	417.5546367	0.0012	0.380974252	0.0004
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	15	2462.561464	0.0069	0.109338738	0.0008
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	15	5565.345795	0.0156	0.337121403	0.0053
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	15	2580.587446	0.0072	0.317574202	0.0023
Los Angeles	2021	Annual	MDV	DSL	Aggregated	15	1694.263633	0.0048	0.085451035	0.0004
Los Angeles	2021	Annual	MH	DSL	Aggregated	15	4547.859372	0.0128	0.393911959	0.0050
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	15	39209.51845	0.1100	0.203000765	0.0223
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	15	254307.7593	0.7134	0.627640469	0.4478
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	15	4059.785412	0.0114	0.420653882	0.0048
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	15	2752.617749	0.0077	0.362914094	0.0028
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	15	3326.238938	0.0093	2.938487416	0.0274
							356473	1.0		0.530

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	15	35548.94626	0.0997	0.030642011	0.0031
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	15	417.5546367	0.0012	0.229188698	0.0003
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	15	2462.561464	0.0069	0.009921793	0.0001
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	15	5565.345795	0.0156	0.03376647	0.0005
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	15	2580.587446	0.0072	0.026682263	0.0002
Los Angeles	2021	Annual	MDV	DSL	Aggregated	15	1694.263633	0.0048	0.012474293	0.0001
Los Angeles	2021	Annual	MH	DSL	Aggregated	15	4547.859372	0.0128	0.135788256	0.0017
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	15	39209.51845	0.1100	0.009849239	0.0011
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	15	254307.7593	0.7134	0.027960347	0.0199
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	15	4059.785412	0.0114	0.021461034	0.0002
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	15	2752.617749	0.0077	0.06826905	0.0005
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	15	3326.238938	0.0093	0.975971613	0.0091
							356473	1.0		0.037

EMFAC2014 Worksheet
(45 mph)

EMFAC2014 Emission Rates

Region Type: County

Region: Los Angeles (SC)

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	CO_RUNEX (gms/mile)	CO_RUNEX AVE (gms/mile)	NOX_RUNEX (gms/mile)	NOx_RUNEX AVE (gms/mile)	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)	PM10_PMTW (gms/mile)	PM10_PMTW_AVE (gms/mile)	PM10_PMBW (gms/mile)	PM10_PMBW_AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	45	35548.94626	0.0059	0.175705957	0.00104443	0.102639105	0.00061011	0.012471796	0.00007413	0.008	0.00004755	0.03675	0.000218450
Los Angeles	2021	Annual	LDA	GAS	Aggregated	45	3643620.309	0.6093	0.611316683	0.37244908	0.04768959	0.02905523	0.001344659	0.00081924	0.008	0.00487406	0.03675	0.022390202
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	45	417.5546367	0.0001	0.743161888	0.00005189	0.951007509	0.00006640	0.089185586	0.00000623	0.008	0.00000056	0.03675	0.000002566
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	45	320844.9043	0.0536	1.502740851	0.08062074	0.137195221	0.00736040	0.002289316	0.00012282	0.008	0.00042919	0.03675	0.001971606
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	45	2462.561464	0.0004	0.09340623	0.00003846	0.040008581	0.00001647	0.004590684	0.00000189	0.008	0.00000329	0.03675	0.000015133
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	45	1341680.106	0.2243	0.747198214	0.16763023	0.071620118	0.01606762	0.001334012	0.00029928	0.008	0.00179476	0.03675	0.008244681
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	45	5565.345795	0.0009	0.303439617	0.00028238	1.601560083	0.00149040	0.014459555	0.00001346	0.012	0.00001117	0.07644	0.000071135
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	45	7441.086824	0.0012	1.225384916	0.00152467	0.296329899	0.00036871	0.001059324	0.00000132	0.008	0.00000995	0.07644	0.000095110
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	45	2580.587446	0.0004	0.218815722	0.00009442	0.980541606	0.00042311	0.011868699	0.00000512	0.012	0.00000518	0.08918	0.000038482
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	45	1671.288094	0.0003	0.471352927	0.00013172	0.158029374	0.00004416	0.000764227	0.00000021	0.008	0.00000024	0.08918	0.000024922
Los Angeles	2021	Annual	MCY	GAS	Aggregated	45	176369.2374	0.0295	14.94756473	0.44081953	0.991602305	0.02924340	0.001570849	0.00004633	0.004	0.00011796	0.01176	0.000346815
Los Angeles	2021	Annual	MDV	DSL	Aggregated	45	1694.263633	0.0003	0.139330091	0.00003947	0.039984197	0.00001133	0.005521717	0.00000156	0.008	0.00000227	0.03675	0.000010411
Los Angeles	2021	Annual	MDV	GAS	Aggregated	45	95223.2367	0.0159	1.297286576	0.02065601	0.139222879	0.00221677	0.001463592	0.00002330	0.008	0.00012738	0.03675	0.000585151
Los Angeles	2021	Annual	MH	DSL	Aggregated	45	4547.859372	0.0008	0.234558887	0.00017837	3.210279615	0.00244128	0.075496855	0.00005741	0.016	0.00001217	0.13034	0.000099118
Los Angeles	2021	Annual	MH	GAS	Aggregated	45	19520.42401	0.0033	2.809369099	0.00916992	0.452663979	0.00147752	0.001267566	0.00000414	0.012	0.00003917	0.13034	0.000425436
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	45	39209.51845	0.0066	0.123315817	0.00080850	0.970243703	0.00636121	0.005882255	0.00003857	0.012	0.00007868	0.13034	0.000854549
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	45	6602.534686	0.0011	1.709784957	0.00188764	0.412104051	0.00045497	0.000733446	0.00000081	0.012	0.00001325	0.13034	0.000143898
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	45	254307.7593	0.0425	0.381851526	0.01623759	3.26377719	0.13878666	0.016874555	0.00071756	0.036	0.00153084	0.06174	0.002625390
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	45	2556.545913	0.0004	27.82207053	0.01189353	2.55048113	0.00109029	0.000616584	0.00000026	0.020	0.00000855	0.06174	0.000026393
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	45	4059.785412	0.0007	0.228898704	0.00015539	2.366700194	0.00160662	0.013904365	0.00000944	0.012	0.00000815	0.13034	0.000088481
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	45	5633.140632	0.0009	0.840576724	0.00079176	0.226234549	0.00021310	0.000643594	0.00000061	0.012	0.00001130	0.13034	0.000122771
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	45	2752.617749	0.0005	1.177348924	0.00008163	5.176447981	0.00238257	0.02459361	0.00001132	0.012	0.00000552	0.7448	0.000342810
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	45	1345.512232	0.0002	1.325420754	0.00029820	0.343837694	0.00007736	0.000663672	0.00000015	0.008	0.00000180	0.7448	0.000167569
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	45	3326.238938	0.0006	5.355769349	0.00297881	24.92491747	0.01386292	0.375585408	0.00020890	0.012	0.00000667	0.84182	0.000468210
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	45	1449.221465	0.0002	4.469340997	0.00108304	1.127660918	0.00027326	0.001090511	0.00000026	0.012	0.00000291	0.13034	0.000031585

5980431

1.0

1.131

0.256

0.0025

0.009

0.039

EMFAC2014 Emission Rates

Region Type: County

Region: Los Angeles (SC)

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	GAS	Aggregated	45	3643620.309	0.6479	0.014024559	0.0091
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	45	320844.9043	0.0570	0.040155195	0.0023
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	45	1341680.106	0.2386	0.017822991	0.0043
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	45	7441.086824	0.0013	0.063915641	0.0001
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	45	1671.288094	0.0003	0.023173635	0.0000
Los Angeles	2021	Annual	MCY	GAS	Aggregated	45	176369.2374	0.0314	2.093411531	0.0657
Los Angeles	2021	Annual	MDV	GAS	Aggregated	45	95223.2367	0.0169	0.039365734	0.0007
Los Angeles	2021	Annual	MH	GAS	Aggregated	45	19520.42401	0.0035	0.120944237	0.0004
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	45	6602.534686	0.0012	0.074423262	0.0001
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	45	2556.545913	0.0005	0.410264958	0.0002
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	45	5633.140632	0.0010	0.037599015	0.0000
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	45	1345.512232	0.0002	0.055852201	0.0000
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	45	1449.221465	0.0003	0.519172968	0.0001

5623958

1.0

0.083

EMFAC2014 Worksheet
(45 mph)

PM2_5_RUNEX (gms/mile)	PM2_5_RUNEX_AVE (gms/mile)	PM2_5_PMTW (gms/mile)	PM2_5_PMTW_AVE (gms/mile)	PM2_5_PMBW (gms/mile)	PM2_5_PMBW_AVE (gms/mile)
0.011932272	0.000070928	0.002	0.000011888	0.01575	0.000093621
0.001236448	0.000753315	0.002	0.001218514	0.01575	0.009595801
0.085327457	0.000005958	0.002	0.000000140	0.01575	0.000001100
0.002105452	0.000112956	0.002	0.000107298	0.01575	0.000844974
0.004392093	0.000001809	0.002	0.000000824	0.01575	0.000006485
0.001226656	0.000275194	0.002	0.000448690	0.01575	0.003533435
0.013834041	0.000012874	0.003	0.000002792	0.03276	0.000030486
0.000974009	0.000001212	0.002	0.000002488	0.03276	0.000040761
0.011355265	0.000004900	0.003	0.000001295	0.03822	0.000016492
0.000702679	0.000000196	0.002	0.000000559	0.03822	0.000010681
0.001468858	0.000043318	0.001	0.000029491	0.00504	0.000148635
0.00528285	0.000001497	0.002	0.000000567	0.01575	0.000004462
0.001347447	0.000021455	0.002	0.000031845	0.01575	0.000250779
0.072230895	0.000054928	0.004	0.000003042	0.05586	0.000042479
0.00116548	0.000003804	0.003	0.000009792	0.05586	0.000182330
0.005627791	0.000036898	0.003	0.000019669	0.05586	0.000366235
0.000674376	0.000000745	0.003	0.000003312	0.05586	0.000061671
0.016144569	0.000686521	0.009	0.000382710	0.02646	0.001125167
0.000566926	0.000000242	0.005	0.000002137	0.02646	0.000011311
0.013302868	0.000009031	0.003	0.000002037	0.05586	0.000037920
0.000591761	0.000000557	0.003	0.000002826	0.05586	0.000052616
0.023529701	0.000010830	0.003	0.000001381	0.3192	0.000146918
0.000610222	0.000000137	0.002	0.000000450	0.3192	0.000071815
0.35933775	0.000199859	0.003	0.000001669	0.36078	0.000200661
0.001002684	0.000000243	0.003	0.000000727	0.05586	0.000013536
0.0023		0.002		0.017	

EMFAC2014 Worksheet
(45 mph)

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	45	35548.94626	0.0997	0.020983562	0.0021
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	45	417.5546367	0.0012	0.135070815	0.0002
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	45	2462.561464	0.0069	0.012097174	0.0001
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	45	5565.345795	0.0156	0.064660617	0.0010
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	45	2580.587446	0.0072	0.049794343	0.0004
Los Angeles	2021	Annual	MDV	DSL	Aggregated	45	1694.263633	0.0048	0.011020887	0.0001
Los Angeles	2021	Annual	MH	DSL	Aggregated	45	4547.859372	0.0128	0.056142731	0.0007
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	45	39209.51845	0.1100	0.032031974	0.0035
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	45	254307.7593	0.7134	0.099270555	0.0708
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	45	4059.785412	0.0114	0.066987114	0.0008
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	45	2752.617749	0.0077	0.055654125	0.0004
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	45	3326.238938	0.0093	0.577981657	0.0054
							356473	1.0	0.085	

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	45	35548.94626	0.0997	0.012471796	0.0012
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	45	417.5546367	0.0012	0.089185586	0.0001
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	45	2462.561464	0.0069	0.004590684	0.0000
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	45	5565.345795	0.0156	0.014459555	0.0002
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	45	2580.587446	0.0072	0.011868699	0.0001
Los Angeles	2021	Annual	MDV	DSL	Aggregated	45	1694.263633	0.0048	0.005521717	0.0000
Los Angeles	2021	Annual	MH	DSL	Aggregated	45	4547.859372	0.0128	0.075496855	0.0010
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	45	39209.51845	0.1100	0.005882255	0.0006
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	45	254307.7593	0.7134	0.016874555	0.0120
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	45	4059.785412	0.0114	0.013904365	0.0002
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	45	2752.617749	0.0077	0.02459361	0.0002
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	45	3326.238938	0.0093	0.375585408	0.0035
							356473	1.0	0.019	

EMFAC2014 Worksheet

(65 mph)

EMFAC2014 Emission Rates
 Region Type: County
 Region: Los Angeles (SC)
 Calendar Year: 2021
 Season: Annual
 Vehicle Classification: EMFAC2007 Categories
 Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	CO_RUNEX (gms/mile)	CO_RUNEX_AVE (gms/mile)	NOX_RUNEX (gms/mile)	NOx_RUNEX_AVE (gms/mile)	PM10_RUNEX (gms/mile)	PM10_RUNEX_AVE (gms/mile)	PM10_PMTW (gms/mile)	PM10_PMTW_AVE (gms/mile)	PM10_PMBW (gms/mile)	PM10_PMBW_AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	65	35548.94626	0.0059	0.200192276	0.00118999	0.113395602	0.00067405	0.015214987	0.00009044	0.008	0.00004755	0.03675	0.000218450
Los Angeles	2021	Annual	LDA	GAS	Aggregated	65	3643620.309	0.6093	0.488114098	0.29738702	0.051355182	0.03128851	0.001598561	0.00097394	0.008	0.00487406	0.03675	0.022390202
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	65	417.5546367	0.0001	1.311806249	0.00009159	1.104189914	0.00007709	0.116915794	0.00000816	0.008	0.00000056	0.03675	0.000002566
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	65	320844.9043	0.0536	1.350053428	0.07242919	0.16214867	0.00869914	0.002620631	0.00014059	0.008	0.00042919	0.03675	0.001971606
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	65	2462.561464	0.0004	0.079205838	0.00003261	0.03890196	0.00001602	0.004506781	0.00000186	0.008	0.00000329	0.03675	0.000015133
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	65	1341680.106	0.2243	0.596366126	0.13379180	0.078180642	0.01753944	0.001584553	0.00035549	0.008	0.00179476	0.03675	0.008244681
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	65	5565.345795	0.0009	0.469762106	0.00043716	1.843866561	0.00171589	0.016222208	0.00001510	0.012	0.00001117	0.07644	0.000071135
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	65	7441.086824	0.0012	1.608314343	0.00200113	0.319287381	0.00039727	0.001293778	0.00000161	0.008	0.00000995	0.07644	0.000095110
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	65	2580.587446	0.0004	0.308099687	0.00013295	1.118803326	0.00048277	0.012482292	0.00000539	0.012	0.00000518	0.08918	0.000038482
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	65	1671.288094	0.0003	0.517344166	0.00014458	0.167608703	0.00004684	0.00092083	0.00000026	0.008	0.00000224	0.08918	0.000024922
Los Angeles	2021	Annual	MCY	GAS	Aggregated	65	176369.2374	0.0295	20.56656058	0.60652967	1.084413117	0.03198049	0.00196141	0.00005784	0.004	0.00011796	0.01176	0.000346815
Los Angeles	2021	Annual	MDV	DSL	Aggregated	65	1694.263633	0.0003	0.116780972	0.00003308	0.039744541	0.00001126	0.005856186	0.00000166	0.008	0.00000227	0.03675	0.000010411
Los Angeles	2021	Annual	MDV	GAS	Aggregated	65	95223.2367	0.0159	1.211250981	0.01928611	0.15530557	0.00247285	0.001745513	0.00002779	0.008	0.00012738	0.03675	0.000585151
Los Angeles	2021	Annual	MH	DSL	Aggregated	65	4547.859372	0.0008	0.227908595	0.00017331	3.091033186	0.00235060	0.119815245	0.00009111	0.016	0.00001217	0.13034	0.000099118
Los Angeles	2021	Annual	MH	GAS	Aggregated	65	19520.42401	0.0033	4.308887765	0.01406442	0.498143104	0.00162596	0.00157136	0.00000513	0.012	0.00003917	0.13034	0.000425436
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	65	39209.51845	0.0066	0.060036681	0.00039362	0.787673408	0.00516423	0.00544902	0.00003573	0.012	0.00007868	0.13034	0.000854549
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	65	6602.534686	0.0011	1.484232387	0.00163863	0.433908642	0.00047905	0.000882512	0.00000097	0.012	0.00001325	0.13034	0.000143898
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	65	254307.7593	0.0425	0.18977214	0.00806974	2.801227195	0.11911748	0.015795829	0.00067169	0.036	0.00153084	0.06174	0.002625390
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	65	2556.545913	0.0004	21.68115964	0.00926838	2.674429676	0.00114328	0.000740714	0.00000032	0.020	0.00000855	0.06174	0.000026393
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	65	4059.785412	0.0007	0.116355946	0.00007899	2.04793497	0.00139023	0.013085195	0.00000888	0.012	0.00000815	0.13034	0.000088481
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	65	5633.140632	0.0009	0.689349402	0.00064932	0.237512966	0.00022372	0.000771571	0.00000073	0.012	0.00001130	0.13034	0.000122771
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	65	2752.617749	0.0005	0.130852092	0.00006023	5.158849959	0.00237447	0.030960062	0.00001425	0.012	0.00000552	0.7448	0.000342810
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	65	1345.512232	0.0002	1.010237992	0.00022729	0.360030929	0.00008100	0.000794369	0.00000018	0.008	0.00000180	0.7448	0.000167569
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	65	3326.238938	0.0006	4.011203154	0.00223098	26.39813629	0.01468231	0.419449985	0.00023329	0.012	0.00000667	0.84182	0.000468210
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	65	1449.221465	0.0002	5.661414087	0.00137192	1.233263497	0.00029885	0.001351256	0.00000033	0.012	0.00000291	0.13034	0.000031585
							5980431	1.0		1.172		0.244		0.0027		0.009		0.039

EMFAC2014 Emission Rates
 Region Type: County
 Region: Los Angeles (SC)
 Calendar Year: 2021
 Season: Annual
 Vehicle Classification: EMFAC2007 Categories
 Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2021	Annual	LDA	GAS	Aggregated	65	3643620.309	0.6479	0.01648828	0.0107
Los Angeles	2021	Annual	LDT1	GAS	Aggregated	65	320844.9043	0.0570	0.044802355	0.0026
Los Angeles	2021	Annual	LDT2	GAS	Aggregated	65	1341680.106	0.2386	0.020807025	0.0050
Los Angeles	2021	Annual	LHDT1	GAS	Aggregated	65	7441.086824	0.0013	0.081191208	0.0001
Los Angeles	2021	Annual	LHDT2	GAS	Aggregated	65	1671.288094	0.0003	0.028793056	0.0000
Los Angeles	2021	Annual	MCY	GAS	Aggregated	65	176369.2374	0.0314	2.617340121	0.0821
Los Angeles	2021	Annual	MDV	GAS	Aggregated	65	95223.2367	0.0169	0.046935015	0.0008
Los Angeles	2021	Annual	MH	GAS	Aggregated	65	19520.42401	0.0035	0.155373415	0.0005
Los Angeles	2021	Annual	MHDT	GAS	Aggregated	65	6602.534686	0.0012	0.090303286	0.0001
Los Angeles	2021	Annual	HHDT	GAS	Aggregated	65	2556.545913	0.0005	0.492772772	0.0002
Los Angeles	2021	Annual	OBUS	GAS	Aggregated	65	5633.140632	0.0010	0.045330175	0.0000
Los Angeles	2021	Annual	SBUS	GAS	Aggregated	65	1345.512232	0.0002	0.066851216	0.0000
Los Angeles	2021	Annual	UBUS	GAS	Aggregated	65	1449.221465	0.0003	0.672164382	0.0002
							5623958	1.0		0.102

EMFAC2014 Worksheet
(65 mph)

PM2_5_RUNEX (gms/mile)	PM2_5_RUNEX_AVE (gms/mile)	PM2_5_PMTW (gms/mile)	PM2_5_PMTW_AVE (gms/mile)	PM2_5_PMBW (gms/mile)	PM2_5_PMBW_AVE (gms/mile)
0.014556793	0.000086529	0.002	0.000011888	0.01575	0.000093621
0.001469926	0.000895563	0.002	0.001218514	0.01575	0.009595801
0.111858068	0.000007810	0.002	0.000000140	0.01575	0.000001100
0.002410241	0.000129307	0.002	0.000107298	0.01575	0.000844974
0.004311819	0.000001775	0.002	0.000000824	0.01575	0.000006485
0.001457044	0.000326881	0.002	0.000448690	0.01575	0.003533435
0.015520442	0.000014443	0.003	0.000002792	0.03276	0.000030486
0.001189581	0.000001480	0.002	0.000002488	0.03276	0.000040761
0.011942314	0.000005153	0.003	0.000001295	0.03822	0.000016492
0.000846669	0.000000237	0.002	0.000000559	0.03822	0.000010681
0.001834405	0.000054099	0.001	0.000029491	0.00504	0.000148635
0.00560285	0.000001587	0.002	0.000000567	0.01575	0.000004462
0.001607212	0.000025591	0.002	0.000031845	0.01575	0.000250779
0.11463209	0.000087173	0.004	0.000003042	0.05586	0.000042479
0.001444807	0.000004716	0.003	0.000009792	0.05586	0.000182330
0.005213298	0.000034180	0.003	0.000019669	0.05586	0.000366235
0.000811438	0.000000896	0.003	0.000003312	0.05586	0.000061671
0.015112508	0.000642634	0.009	0.000382710	0.02646	0.001125167
0.000681059	0.000000291	0.005	0.000002137	0.02646	0.000011311
0.012519136	0.000008499	0.003	0.000002037	0.05586	0.000037920
0.000709431	0.000000668	0.003	0.000002826	0.05586	0.000052616
0.029620743	0.000013634	0.003	0.000001381	0.3192	0.000146918
0.000730393	0.000000164	0.002	0.000000450	0.3192	0.000071815
0.401304764	0.000223201	0.003	0.000001669	0.36078	0.000200661
0.00124243	0.000000301	0.003	0.000000727	0.05586	0.000013536
0.0026		0.002		0.017	

EMFAC2014 Worksheet
(65 mph)

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	65	35548.94626	0.0997	0.02369806	0.0024
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	65	417.5546367	0.0012	0.175497017	0.0002
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	65	2462.561464	0.0069	0.009777903	0.0001
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	65	5565.345795	0.0156	0.071793382	0.0011
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	65	2580.587446	0.0072	0.050710047	0.0004
Los Angeles	2021	Annual	MDV	DSL	Aggregated	65	1694.263633	0.0048	0.010026152	0.0000
Los Angeles	2021	Annual	MH	DSL	Aggregated	65	4547.859372	0.0128	0.057081405	0.0007
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	65	39209.51845	0.1100	0.015582559	0.0017
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	65	254307.7593	0.7134	0.048606146	0.0347
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	65	4059.785412	0.0114	0.032580932	0.0004
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	65	2752.617749	0.0077	0.047914734	0.0004
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	65	3326.238938	0.0093	0.675348434	0.0063
							356473	1.0	0.048	

EMFAC2014 Emission Rates
Region Type: County
Region: Los Angeles (SC)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2021	Annual	LDA	DSL	Aggregated	65	35548.94626	0.0997	0.015214987	0.0015
Los Angeles	2021	Annual	LDT1	DSL	Aggregated	65	417.5546367	0.0012	0.116915794	0.0001
Los Angeles	2021	Annual	LDT2	DSL	Aggregated	65	2462.561464	0.0069	0.004506781	0.0000
Los Angeles	2021	Annual	LHDT1	DSL	Aggregated	65	5565.345795	0.0156	0.016222208	0.0003
Los Angeles	2021	Annual	LHDT2	DSL	Aggregated	65	2580.587446	0.0072	0.012482292	0.0001
Los Angeles	2021	Annual	MDV	DSL	Aggregated	65	1694.263633	0.0048	0.005856186	0.0000
Los Angeles	2021	Annual	MH	DSL	Aggregated	65	4547.859372	0.0128	0.119815245	0.0015
Los Angeles	2021	Annual	MHDT	DSL	Aggregated	65	39209.51845	0.1100	0.00544902	0.0006
Los Angeles	2021	Annual	HHDT	DSL	Aggregated	65	254307.7593	0.7134	0.015795829	0.0113
Los Angeles	2021	Annual	OBUS	DSL	Aggregated	65	4059.785412	0.0114	0.013085195	0.0001
Los Angeles	2021	Annual	SBUS	DSL	Aggregated	65	2752.617749	0.0077	0.030960062	0.0002
Los Angeles	2021	Annual	UBUS	DSL	Aggregated	65	3326.238938	0.0093	0.419449985	0.0039
							356473	1.0	0.020	

Emission Factor Rate Adjustment Worksheet

CO Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	1.131
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	2.690
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} * 1.5)$$

emfac at idle speed (gr/mi)	2.921
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Emfac (gr/mi)	4.382
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NOX Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	0.256
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.609
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} * 1.5)$$

emfac at idle speed (gr/mi)	1.116
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Emfac (gr/mi)	1.674
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Emission Factor Rate Adjustment Worksheet

PM10 Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	0.0025
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.0059
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} * 1.5)$$

emfac at idle speed (gr/mi)	0.0148
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Emfac (gr/mi)	0.022
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PM2.5 Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	0.0023
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.0055
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} * 1.5)$$

emfac at idle speed (gr/mi)	0.0137
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Emfac (gr/mi)	0.021
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Emission Factor Rate Adjustment Worksheet

TOG GAS Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	0.083
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.197
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} \times 1.5)$$

emfac at idle speed (gr/mi)	0.624
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Emfac (gr/mi)	0.936
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TOG DSL Emissions

Acceleration / On-Ramp (15 - 45 mph)

$$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times \text{acceleration speed product})) \times (60 \text{ min/hr}) / (\text{average link speed})$$

emfac at link speed	0.085
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.202
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Deceleration / Off-Ramp

$$Emfac (gr/mi) = (emfac \text{ at idle speed} \times 1.5)$$

emfac at idle speed (gr/mi)	0.980
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Emfac (gr/mi)	1.470
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Emission Factor Rate Adjustment Worksheet

DSL Particulate Emissions

Acceleration / On-Ramp (15 - 45 mph)

$Emfac (gr/mi) = (emfac \text{ at average link speed} \times 16/60) \times (0.027) \times (exp (.098 \times acceleration \text{ speed product})) \times (60 \text{ min/hr}) / (average \text{ link speed})$

emfac at link speed	0.019
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.045
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Deceleration / Off-Ramp

$Emfac (gr/mi) = (emfac \text{ at idle speed} * 1.5)$

emfac at idle speed (gr/mi)	0.055
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Emfac (gr/mi)	0.083
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Source: California Department of Transportation, 1989. Division of New Technology and Research. Caline4 – A Dispersion Model for Predicting Air Pollution Concentrations Near Roadways (Revised). FHWA/CA/TL-84/15.

Emission Factor Profile Worksheet Chronic Exposure

TOG -Toxic Emissions

Gasoline/Toxic Fractions/Hot Stabilized Exhaust

Year	Benzene	Formaldehyde	1,3-Butadiene	Acetaldehyde	Acrolein
2004	0.028414	0.021422	0.006603	0.005511	0.001533
2005	0.028205	0.021200	0.006551	0.005450	0.001520
2006	0.027938	0.021000	0.006483	0.005350	0.001510
2007	0.027660	0.020700	0.006410	0.005250	0.001490
2008	0.027338	0.020300	0.006326	0.005120	0.001470
2009	0.026849	0.019800	0.006190	0.004870	0.001450
2010	0.026521	0.019400	0.006105	0.004750	0.001430
2011	0.026521	0.019400	0.006105	0.004750	0.001430
2012	0.025656	0.018500	0.005873	0.004370	0.001380
2013	0.025656	0.018500	0.005873	0.004370	0.001380
2014	0.025656	0.018500	0.005873	0.004370	0.001380
2015	0.024349	0.017100	0.005530	0.003850	0.001310
2016	0.024349	0.017100	0.005530	0.003850	0.001310
2017	0.024349	0.017100	0.005530	0.003850	0.001310
2018	0.022182	0.014700	0.004944	0.002860	0.001130
2019	0.022182	0.014700	0.004944	0.002860	0.001130
2020	0.021079	0.013600	0.004659	0.002450	0.001130
2021	0.021079	0.013600	0.004659	0.002450	0.001130
2022	0.021079	0.013600	0.004659	0.002450	0.001130
2023	0.021079	0.013600	0.004659	0.002450	0.001130
2024	0.021079	0.013600	0.004659	0.002450	0.001130
2025	0.021079	0.013600	0.004659	0.002450	0.001130
2026	0.021079	0.013600	0.004659	0.002450	0.001130
2027	0.021079	0.013600	0.004659	0.002450	0.001130
2028	0.021079	0.013600	0.004659	0.002450	0.001130
2029	0.021079	0.013600	0.004659	0.002450	0.001130
2030	0.021079	0.013600	0.004659	0.002450	0.001130

Analysis Year

2021	0.021079	0.013600	0.004659	0.002450	0.001130
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TOG Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.197
Deceleration	0.936
65	0.102

Toxic Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.008455
Deceleration	0.040172
65	0.004378

Weight Fraction / Speciation

Benzene	0.491
Formaldehyde	0.317
1,3-Butadiene	0.109
Acetaldehyde	0.057
Acrolein	0.026

Emission Factor Profile Worksheet

Chronic Exposure

Diesel Particulate Emissions - PM10

PM10 Emission Rate - gr/mi	Acceleration	0.045
Speed (MPH)	Deceleration	0.083
	65	0.020

Source: TOG/toxic fractions from UC Davis-Caltrans Air Quality Project, *Estimating Mobile Source Air Toxic Emissions: A Step-by-Step Project Analysis Methodology*. Task Order No. 61.

Emission Factor Profile Worksheet Acute/8-Hour Exposure

TOG -Toxic Emissions

Gasoline/Toxic Fractions/Hot Stabilized Exhaust

Year	Benzene	Formaldehyde	1,3-Butadiene	Acetaldehyde	Acrolein
2004	0.028414	0.021422	0.006603	0.005511	0.001533
2005	0.028205	0.021200	0.006551	0.005450	0.001520
2006	0.027938	0.021000	0.006483	0.005350	0.001510
2007	0.027660	0.020700	0.006410	0.005250	0.001490
2008	0.027338	0.020300	0.006326	0.005120	0.001470
2009	0.026849	0.019800	0.006190	0.004870	0.001450
2010	0.026521	0.019400	0.006105	0.004750	0.001430
2011	0.026521	0.019400	0.006105	0.004750	0.001430
2012	0.025656	0.018500	0.005873	0.004370	0.001380
2013	0.025656	0.018500	0.005873	0.004370	0.001380
2014	0.025656	0.018500	0.005873	0.004370	0.001380
2015	0.024349	0.017100	0.005530	0.003850	0.001310
2016	0.024349	0.017100	0.005530	0.003850	0.001310
2017	0.024349	0.017100	0.005530	0.003850	0.001310
2018	0.022182	0.014700	0.004944	0.002860	0.001130
2019	0.022182	0.014700	0.004944	0.002860	0.001130
2020	0.021079	0.013600	0.004659	0.002450	0.001130
2021	0.021079	0.013600	0.004659	0.002450	0.001130
2022	0.021079	0.013600	0.004659	0.002450	0.001130
2023	0.021079	0.013600	0.004659	0.002450	0.001130
2024	0.021079	0.013600	0.004659	0.002450	0.001130
2025	0.021079	0.013600	0.004659	0.002450	0.001130
2026	0.021079	0.013600	0.004659	0.002450	0.001130
2027	0.021079	0.013600	0.004659	0.002450	0.001130
2028	0.021079	0.013600	0.004659	0.002450	0.001130
2029	0.021079	0.013600	0.004659	0.002450	0.001130
2030	0.021079	0.013600	0.004659	0.002450	0.001130

Analysis Year

2021	0.021079	0.013600	0.004659	0.002450	0.001130
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TOG Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.197
Deceleration	0.936
15	0.276
65	0.102

Toxic Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.008455
Deceleration	0.040172
15	0.011845
65	0.004378

Weight Fraction / Speciation

Benzene	0.491
Formaldehyde	0.317
1,3-Butadiene	0.109
Acetaldehyde	0.057
Acrolein	0.026

Emission Factor Profile Worksheet Acute/8-Hour Exposure

TOG -Toxic Emissions

Diesel/Toxic Fractions/Hot Stabilized Exhaust

Year	Benzene	Formaldehyde	1,3-Butadiene	Acetaldehyde	Acrolein
2004	0.020009	0.147133	0.001900	0.073526	0
2005	0.020009	0.147133	0.001900	0.073526	0
2006	0.020009	0.147133	0.001900	0.073526	0
2007	0.020009	0.147133	0.001900	0.073526	0
2008	0.020009	0.147133	0.001900	0.073526	0
2009	0.020009	0.147133	0.001900	0.073526	0
2010	0.020009	0.147133	0.001900	0.073526	0
2011	0.020009	0.147133	0.001900	0.073526	0
2012	0.020009	0.147133	0.001900	0.073526	0
2013	0.020009	0.147133	0.001900	0.073526	0
2014	0.020009	0.147133	0.001900	0.073526	0
2015	0.020009	0.147133	0.001900	0.073526	0
2016	0.020009	0.147133	0.001900	0.073526	0
2017	0.020009	0.147133	0.001900	0.073526	0
2018	0.020009	0.147133	0.001900	0.073526	0
2019	0.020009	0.147133	0.001900	0.073526	0
2020	0.020009	0.147133	0.001900	0.073526	0
2021	0.020009	0.147133	0.001900	0.073526	0
2022	0.020009	0.147133	0.001900	0.073526	0
2023	0.020009	0.147133	0.001900	0.073526	0
2024	0.020009	0.147133	0.001900	0.073526	0
2025	0.020009	0.147133	0.001900	0.073526	0
2026	0.020009	0.147133	0.001900	0.073526	0
2027	0.020009	0.147133	0.001900	0.073526	0
2028	0.020009	0.147133	0.001900	0.073526	0
2029	0.020009	0.147133	0.001900	0.073526	0
2030	0.020009	0.147133	0.001900	0.073526	0

Analysis Year

2021	0.020009	0.147133	0.001900	0.073526	0
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TOG Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.202
Deceleration	1.470
15	0.530
65	0.048

Toxic Emission Rate - gr/mi
Speed (MPH)

Acceleration	0.048999
Deceleration	0.356575
15	0.128561
65	0.011643

Weight Fraction / Speciation

Benzene	0.082
Formaldehyde	0.607
1,3-Butadiene	0.008
Acetaldehyde	0.303
Acrolein	0.000

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

CO Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4148
Pollutant Mass Emission Rate (gr/mi)	1.172

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.95157
Pollutant Emission Rate (gr/sec/source)	3.17E-02

SB/Interstate 5 (Sources S_M_1 to S_M_30)

CO Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4261
Pollutant Mass Emission Rate (gr/mi)	1.172

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.97749
Pollutant Emission Rate (gr/sec/source)	3.26E-02

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

CO Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	305
Pollutant Mass Emission Rate (gr/mi)	2.690

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.01090
Pollutant Emission Rate (gr/sec/source)	1.56E-03

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

CO Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	358
Pollutant Mass Emission Rate (gr/mi)	2.690

On-Road Mobile Sources
Emission Rate Computation

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.04621
Pollutant Emission Rate (gr/sec/source)	2.43E-03

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

CO Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	250
Pollutant Mass Emission Rate (gr/mi)	4.382

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.03460
Pollutant Emission Rate (gr/sec/source)	2.88E-03

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

CO Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	317
Pollutant Mass Emission Rate (gr/mi)	4.382

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.11029
Pollutant Emission Rate (gr/sec/source)	3.80E-03

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

CO Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	313
Pollutant Mass Emission Rate (gr/mi)	2.690

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.03473
Pollutant Emission Rate (gr/sec/source)	1.24E-03

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

CO Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	271
Pollutant Mass Emission Rate (gr/mi)	2.690

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.01070
Pollutant Emission Rate (gr/sec/source)	1.53E-03

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

CO Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	394
Pollutant Mass Emission Rate (gr/mi)	4.382

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.07331
Pollutant Emission Rate (gr/sec/source)	5.64E-03

On-Road Mobile Sources
Emission Rate Computation

Minimum Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

CO Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4044
Pollutant Mass Emission Rate (gr/mi)	2.034

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	1.61004
Pollutant Emission Rate (gr/sec/source)	5.37E-02

SB/Interstate 5 (Sources S_M_1 to S_M_30)

CO Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4100
Pollutant Mass Emission Rate (gr/mi)	2.034

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	1.63233
Pollutant Emission Rate (gr/sec/source)	5.44E-02

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

CO Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	305
Pollutant Mass Emission Rate (gr/mi)	2.690

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.01090
Pollutant Emission Rate (gr/sec/source)	1.56E-03

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

CO Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	358
Pollutant Mass Emission Rate (gr/mi)	2.690

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.04621
Pollutant Emission Rate (gr/sec/source)	2.43E-03

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

CO Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	250
Pollutant Mass Emission Rate (gr/mi)	4.382

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.03460
Pollutant Emission Rate (gr/sec/source)	2.88E-03

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

CO Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	317
Pollutant Mass Emission Rate (gr/mi)	4.382

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.11029
Pollutant Emission Rate (gr/sec/source)	3.80E-03

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

CO Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	313
Pollutant Mass Emission Rate (gr/mi)	2.690

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.03473
Pollutant Emission Rate (gr/sec/source)	1.24E-03

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

CO Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	271
Pollutant Mass Emission Rate (gr/mi)	2.690

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.01070
Pollutant Emission Rate (gr/sec/source)	1.53E-03

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

CO Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	394
Pollutant Mass Emission Rate (gr/mi)	4.382

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.07331
Pollutant Emission Rate (gr/sec/source)	5.64E-03

On-Road Mobile Sources
Emission Rate Computation

Minimum Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

NOx Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4044
Pollutant Mass Emission Rate (gr/mi)	0.650

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.51452
Pollutant Emission Rate (gr/sec/source)	1.72E-02

SB/Interstate 5 (Sources S_M_1 to S_M_30)

NOx Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4100
Pollutant Mass Emission Rate (gr/mi)	0.650

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.52164
Pollutant Emission Rate (gr/sec/source)	1.74E-02

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

NOx Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	305
Pollutant Mass Emission Rate (gr/mi)	0.609

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00247
Pollutant Emission Rate (gr/sec/source)	3.53E-04

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

NOx Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	358
Pollutant Mass Emission Rate (gr/mi)	0.609

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.01046
Pollutant Emission Rate (gr/sec/source)	5.51E-04

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

NOx Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	250
Pollutant Mass Emission Rate (gr/mi)	1.674

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.01322
Pollutant Emission Rate (gr/sec/source)	1.10E-03

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

NOx Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	317
Pollutant Mass Emission Rate (gr/mi)	1.674

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.04213
Pollutant Emission Rate (gr/sec/source)	1.45E-03

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

NOx Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	313
Pollutant Mass Emission Rate (gr/mi)	0.609

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00786
Pollutant Emission Rate (gr/sec/source)	2.81E-04

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

NOx Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	271
Pollutant Mass Emission Rate (gr/mi)	0.609

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00242
Pollutant Emission Rate (gr/sec/source)	3.46E-04

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

NOx Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	394
Pollutant Mass Emission Rate (gr/mi)	1.674

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.02801
Pollutant Emission Rate (gr/sec/source)	2.15E-03

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

PM10 Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4148
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0027
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.121

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.098374
PM10 Reentrainment Emission Rate (gr/sec/source)	3.28E-03

SB/Interstate 5 (Sources S_M_1 to S_M_30)

PM10 Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4261
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0027
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.121

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.101054
PM10 Reentrainment Emission Rate (gr/sec/source)	3.37E-03

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

PM10 Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	305
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02

**On-Road Mobile Sources
Emission Rate Computation**

Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0059
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.124

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.000504
PM10 Reentrainment Emission Rate (gr/sec/source)	7.20E-05

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

PM10 Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	358
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m ²)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0059
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.124

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.002136
PM10 Reentrainment Emission Rate (gr/sec/source)	1.12E-04

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

PM10 Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	250
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m ²)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.022
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.140

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.001109
PM10 Reentrainment Emission Rate (gr/sec/source)	9.24E-05

On-Road Mobile Sources
Emission Rate Computation

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

PM10 Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	317
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.022
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.140

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions) Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.003535
PM10 Reentrainment Emission Rate (gr/sec/source)	1.22E-04

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

PM10 Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	313
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0059
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.124

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions) Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.001606
PM10 Reentrainment Emission Rate (gr/sec/source)	5.74E-05

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

PM10 Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	271
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0059

On-Road Mobile Sources Emission Rate Computation

Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.124

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.000494
PM10 Reentrainment Emission Rate (gr/sec/source)	7.06E-05

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

PM10 Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	394
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.022
Emfac2014 Emissions TW/BW (g/mi)	0.049
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.140

For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM10 Reentrainment Emission Rate (gr/sec)	0.002350
PM10 Reentrainment Emission Rate (gr/sec/source)	1.81E-04

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

PM2.5 Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4148
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0026
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.039

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.031637
PM2.5 Reentrainment Emission Rate (gr/sec/source)	1.05E-03

SB/Interstate 5 (Sources S_M_1 to S_M_30)

PM2.5 Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4261
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0026
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.039

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.032499
PM2.5 Reentrainment Emission Rate (gr/sec/source)	1.08E-03

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

PM2.5 Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	305
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02

**On-Road Mobile Sources
Emission Rate Computation**

Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0055
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.042

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000170
PM2.5 Reentrainment Emission Rate (gr/sec/source)	2.42E-05

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

PM2.5 Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	358
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m ²)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0055
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.042

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000719
PM2.5 Reentrainment Emission Rate (gr/sec/source)	3.79E-05

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

PM2.5 Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	250
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m ²)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.021
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.057

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions)
Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000453
PM2.5 Reentrainment Emission Rate (gr/sec/source)	3.78E-05

On-Road Mobile Sources
Emission Rate Computation

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

PM2.5 Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	317
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.021
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.057

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions) Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.001444
PM2.5 Reentrainment Emission Rate (gr/sec/source)	4.98E-05

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

PM2.5 Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	313
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0055
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.042

For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)^{0.91} x (Gross Vehicle Weight)^{1.02}) + (Emfac2014 Emissions) Emission Rate (gr/sec) = ((Mass Emission Rate x Volume/Baseline)/(1609.3 m/mile) x (3600 sec/hr)) x (Link Length)

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000541
PM2.5 Reentrainment Emission Rate (gr/sec/source)	1.93E-05

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

PM2.5 Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	271
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.0055

On-Road Mobile Sources Emission Rate Computation

Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.042

For PM2.5 Reentrainment: $Mass\ Emission\ Rate\ (gr/mile) = ((Particulate\ PM2.5\ Base\ Emission\ Factor) \times (Road\ Surface\ Silt\ Loading)^{0.91} \times (Gross\ Vehicle\ Weight)^{1.02}) + (Emfac2014\ Emissions)$
 $Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate \times Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000166
PM2.5 Reentrainment Emission Rate (gr/sec/source)	2.38E-05

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

PM2.5 Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	394
Particle Size Multiplier (g/mi)	0.25
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2014 Emissions Run (g/mi)	0.021
Emfac2014 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.057

For PM2.5 Reentrainment: $Mass\ Emission\ Rate\ (gr/mile) = ((Particulate\ PM2.5\ Base\ Emission\ Factor) \times (Road\ Surface\ Silt\ Loading)^{0.91} \times (Gross\ Vehicle\ Weight)^{1.02}) + (Emfac2014\ Emissions)$
 $Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate \times Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$

PM2.5 Reentrainment Emission Rate (gr/sec)	0.000960
PM2.5 Reentrainment Emission Rate (gr/sec/source)	7.38E-05

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

TOG GAS Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	3901
Pollutant Mass Emission Rate (gr/mi)	0.004378

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00334
Pollutant Emission Rate (gr/sec/source)	1.11E-04

SB/Interstate 5 (Sources S_M_1 to S_M_30)

TOG GAS Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	4007
Pollutant Mass Emission Rate (gr/mi)	0.004378

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00343
Pollutant Emission Rate (gr/sec/source)	1.14E-04

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

TOG GAS Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	287
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00003
Pollutant Emission Rate (gr/sec/source)	4.61E-06

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

TOG GAS Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	337
Pollutant Mass Emission Rate (gr/mi)	0.008455

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00014
Pollutant Emission Rate (gr/sec/source)	7.20E-06

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

TOG GAS Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	235
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00030
Pollutant Emission Rate (gr/sec/source)	2.48E-05

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

TOG GAS Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	298
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00095
Pollutant Emission Rate (gr/sec/source)	3.28E-05

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

TOG GAS Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	294
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00010
Pollutant Emission Rate (gr/sec/source)	3.66E-06

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

TOG GAS Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	255
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00003
Pollutant Emission Rate (gr/sec/source)	4.52E-06

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

TOG GAS Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	371
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00063
Pollutant Emission Rate (gr/sec/source)	4.87E-05

On-Road Mobile Sources
Emission Rate Computation

Minimum Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

TOG GAS Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	3803
Pollutant Mass Emission Rate (gr/mi)	0.011845

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00882
Pollutant Emission Rate (gr/sec/source)	2.94E-04

SB/Interstate 5 (Sources S_M_1 to S_M_30)

TOG GAS Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	3856
Pollutant Mass Emission Rate (gr/mi)	0.011845

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00894
Pollutant Emission Rate (gr/sec/source)	2.98E-04

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

TOG GAS Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	287
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00003
Pollutant Emission Rate (gr/sec/source)	4.61E-06

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

TOG GAS Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	337
Pollutant Mass Emission Rate (gr/mi)	0.008455

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00014
Pollutant Emission Rate (gr/sec/source)	7.20E-06

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

TOG GAS Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	235
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00030
Pollutant Emission Rate (gr/sec/source)	2.48E-05

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

TOG GAS Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	298
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00095
Pollutant Emission Rate (gr/sec/source)	3.28E-05

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

TOG GAS Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	294
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00010
Pollutant Emission Rate (gr/sec/source)	3.66E-06

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

TOG GAS Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	255
Pollutant Mass Emission Rate (gr/mi)	0.008455

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00003
Pollutant Emission Rate (gr/sec/source)	4.52E-06

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

TOG GAS Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	371
Pollutant Mass Emission Rate (gr/mi)	0.040172

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00063
Pollutant Emission Rate (gr/sec/source)	4.87E-05

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

TOG DSL Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	247
Pollutant Mass Emission Rate (gr/mi)	0.011643

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00056
Pollutant Emission Rate (gr/sec/source)	1.88E-05

SB/Interstate 5 (Sources S_M_1 to S_M_30)

TOG DSL Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	254
Pollutant Mass Emission Rate (gr/mi)	0.011643

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00058
Pollutant Emission Rate (gr/sec/source)	1.93E-05

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

TOG DSL Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	18
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.67E-06

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

TOG DSL Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	21
Pollutant Mass Emission Rate (gr/mi)	0.048999

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00005
Pollutant Emission Rate (gr/sec/source)	2.60E-06

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

TOG DSL Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00017
Pollutant Emission Rate (gr/sec/source)	1.41E-05

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

TOG DSL Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00054
Pollutant Emission Rate (gr/sec/source)	1.85E-05

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

TOG DSL Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00004
Pollutant Emission Rate (gr/sec/source)	1.37E-06

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

TOG DSL Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	16
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.64E-06

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

TOG DSL Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	23
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00035
Pollutant Emission Rate (gr/sec/source)	2.68E-05

On-Road Mobile Sources
Emission Rate Computation

Minimum Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

TOG DSL Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	241
Pollutant Mass Emission Rate (gr/mi)	0.128561

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00606
Pollutant Emission Rate (gr/sec/source)	2.02E-04

SB/Interstate 5 (Sources S_M_1 to S_M_30)

TOG DSL Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	244
Pollutant Mass Emission Rate (gr/mi)	0.128561

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00614
Pollutant Emission Rate (gr/sec/source)	2.05E-04

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

TOG DSL Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	18
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.67E-06

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

TOG DSL Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	21
Pollutant Mass Emission Rate (gr/mi)	0.048999

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00005
Pollutant Emission Rate (gr/sec/source)	2.60E-06

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

TOG DSL Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00017
Pollutant Emission Rate (gr/sec/source)	1.41E-05

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

TOG DSL Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00054
Pollutant Emission Rate (gr/sec/source)	1.85E-05

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

TOG DSL Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00004
Pollutant Emission Rate (gr/sec/source)	1.37E-06

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

TOG GAS Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	16
Pollutant Mass Emission Rate (gr/mi)	0.048999

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.64E-06

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

TOG GAS Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	23
Pollutant Mass Emission Rate (gr/mi)	0.356575

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00035
Pollutant Emission Rate (gr/sec/source)	2.68E-05

On-Road Mobile Sources
Emission Rate Computation

Average Speed Scenario

NB/Interstate 5 (Sources N_M_1 to N_M_30)

DSL Particulate Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	247
Pollutant Mass Emission Rate (gr/mi)	0.020

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00097
Pollutant Emission Rate (gr/sec/source)	3.22E-05

SB/Interstate 5 (Sources S_M_1 to S_M_30)

DSL Particulate Emissions

Number of Sources	30
Link Length (meters)	1134
Volume/Baseline (VPH)	254
Pollutant Mass Emission Rate (gr/mi)	0.020

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00099
Pollutant Emission Rate (gr/sec/source)	3.31E-05

NB ON/Olive Avenue (Sources N_ON_O_1 to N_ON_O_7)

DSL Particulate Emissions

Number of Sources	7
Link Length (meters)	77
Volume/Baseline (VPH)	18
Pollutant Mass Emission Rate (gr/mi)	0.045

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.54E-06

SB ON/Burbank Boulevard (Sources S_ON_B_1 to S_ON_B_19)

DSL Particulate Emissions

Number of Sources	19
Link Length (meters)	278
Volume/Baseline (VPH)	21
Pollutant Mass Emission Rate (gr/mi)	0.045

On-Road Mobile Sources
Emission Rate Computation

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00005
Pollutant Emission Rate (gr/sec/source)	2.39E-06

NB OFF/East Burbank Boulevard (Sources N_OFF_EB_1 to N_OFF_EB_12)

DSL Particulate Emissions

Number of Sources	12
Link Length (meters)	183
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.083

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00004
Pollutant Emission Rate (gr/sec/source)	3.28E-06

NB OFF/West Burbank Boulevard (Sources N_OFF_WB_1 to N_OFF_WB_29)

DSL Particulate Emissions

Number of Sources	29
Link Length (meters)	460
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.083

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00013
Pollutant Emission Rate (gr/sec/source)	4.32E-06

SB ON/West Burbank Boulevard (Sources S_ON_WB_1 to S_ON_WB_28)

DSL Particulate Emissions

Number of Sources	28
Link Length (meters)	239
Volume/Baseline (VPH)	19
Pollutant Mass Emission Rate (gr/mi)	0.045

$$\text{Emission Rate (gr/sec)} = ((\text{Mass Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Pollutant Emission Rate (gr/sec)	0.00004
Pollutant Emission Rate (gr/sec/source)	1.26E-06

On-Road Mobile Sources
Emission Rate Computation

NB ON/Burbank Boulevard (Sources N_ON_B_1 to N_ON_B_7)

DSL Particulate Emissions

Number of Sources	7
Link Length (meters)	85
Volume/Baseline (VPH)	16
Pollutant Mass Emission Rate (gr/mi)	0.045

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.51E-06

SB OFF/Burbank Boulevard (Sources S_OFF_B_1 to S_OFF_B_13)

DSL Particulate Emissions

Number of Sources	13
Link Length (meters)	246
Volume/Baseline (VPH)	23
Pollutant Mass Emission Rate (gr/mi)	0.083

$$Emission\ Rate\ (gr/sec) = ((Mass\ Emission\ Rate\ x\ Volume/Baseline)/(1609.3\ m/mile) \times (3600\ sec/hr)) \times (Link\ Length)$$

Pollutant Emission Rate (gr/sec)	0.00008
Pollutant Emission Rate (gr/sec/source)	6.24E-06

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

Operation: Locomotive Emissions

1. Rail Line Emission Rate

$$\text{Emission Rate (gr/mile)} = ((\text{Locomotives Used} \times \text{Average Rated Horsepower} \times \text{PM10 Emission Factor}) / (\text{Average Link Speed}))$$

Locomotives Used (#)	1
PM10 Emission Factor (gr/hr)	380.0
Average Link Speed (mph)	55.0

PM10 Emission Rate (gr/mi)	6.91
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2. Link Emission Rate

$$\text{Emission Rate (gr/sec)} = ((\text{PM10 Emission Rate} \times \text{Volume/Baseline}) / (1609.3 \text{ m/mile}) \times (3600 \text{ sec/hr})) \times (\text{Link Length})$$

Number of Sources	46
Link Length (meters)	1122
Volume/Baseline (VPH)	1.0
PM10 Emission Rate (gr/mi)	6.91

Link Emission Rate (gr/sec)	0.00134
Link Emission Rate (gr/sec/source)	2.91E-05

Note: Rail line emission estimates based upon trains traversing the rail line right of way at throttle notch settings 4 and 5.

Source: Castle Environmental Consulting, LLC, November 2014. Health Risk Assessment for the Central Maintenance Facility.

APPENDIX C

Dispersion Model Input Summary Table

Dispersion Model Input Summary Table

ID	X	Y	ZS	RH	SY	SZ	CO 1	CO 8	NOx 1	PM10 24 A	PM2.5 24	TOG Gas 1	TOG Gas 8 C	TOG DSL 1	TOG DSL 8	DPM C
N_M_1	379036.2	3782892.1	177.4	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_2	379008.5	3782917.8	177.5	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_3	378981.6	3782944.3	177.7	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_4	378956.8	3782973.0	177.8	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_5	378932.3	3783001.5	178.0	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_6	378909.9	3783031.8	178.1	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_7	378888.1	3783063.5	178.3	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_8	378868.3	3783094.9	178.4	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_9	378849.5	3783127.6	178.6	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_10	378831.2	3783161.4	178.7	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_11	378813.8	3783194.5	178.9	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_12	378796.5	3783228.3	179.0	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_13	378778.8	3783261.2	179.2	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_14	378761.5	3783295.1	179.3	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_15	378743.4	3783328.1	179.5	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_16	378724.4	3783361.0	179.6	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_17	378704.0	3783392.5	179.7	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_18	378680.8	3783422.3	179.9	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_19	378656.0	3783450.9	180.0	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_20	378629.8	3783478.7	180.2	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_21	378601.9	3783503.3	180.3	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_22	378572.9	3783527.6	180.5	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_23	378541.4	3783549.0	180.6	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_24	378509.5	3783569.0	180.8	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_25	378476.5	3783586.8	180.9	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_26	378442.4	3783604.1	181.1	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_27	378408.7	3783620.6	181.2	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_28	378375.3	3783638.1	181.4	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_29	378341.6	3783655.7	181.5	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
N_M_30	378308.3	3783673.9	181.7	0	17.58	2.70	5.37E-02	3.17E-02	1.72E-02	3.28E-03	1.05E-03	2.94E-04	1.11E-04	2.02E-04	1.88E-05	3.22E-05
S_M_1	378288.0	3783664.7	181.7	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_2	378321.4	3783646.2	181.5	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_3	378355.5	3783627.9	181.4	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_4	378389.2	3783610.4	181.2	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_5	378422.8	3783593.1	181.1	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_6	378456.4	3783575.9	180.9	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_7	378489.6	3783558.8	180.8	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_8	378522.1	3783538.5	180.6	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_9	378553.7	3783517.8	180.5	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_10	378582.4	3783495.3	180.3	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_11	378611.7	3783469.7	180.2	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_12	378638.7	3783442.8	180.0	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_13	378663.6	3783414.4	179.9	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_14	378686.2	3783384.3	179.7	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_15	378707.1	3783354.2	179.6	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_16	378727.1	3783320.7	179.5	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_17	378743.9	3783287.4	179.3	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_18	378760.7	3783253.6	179.2	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_19	378777.9	3783219.7	179.0	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_20	378794.7	3783185.6	178.9	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_21	378812.5	3783152.3	178.7	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_22	378830.5	3783118.3	178.6	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_23	378849.5	3783085.7	178.4	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_24	378869.7	3783053.7	178.3	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_25	378891.7	3783023.2	178.1	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_26	378914.5	3782992.7	178.0	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_27	378938.3	3782963.6	177.8	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_28	378963.6	3782935.4	177.7	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_29	378989.6	3782908.4	177.5	0	17.58	2.70	5.44E-02	3.26E-02	1.74E-02	3.37E-03	1.08E-03	2.98E-04	1.14E-04	2.05E-04	1.93E-05	3.31E-05
S_M_30	379017.2	3782882.1	177.4	0	17.58	2.70	5.44E-02	3.26E-								

RR_29	378506.3	3783329.6	178.7	0	11.34	2.48	2.91E-05
RR_30	378489.8	3783348.1	178.8	0	11.34	2.48	2.91E-05
RR_31	378473.4	3783365.4	179.0	0	11.34	2.48	2.91E-05
RR_32	378456.8	3783383.5	179.2	0	11.34	2.48	2.91E-05
RR_33	378440.1	3783402.0	179.4	0	11.34	2.48	2.91E-05
RR_34	378424.3	3783419.6	179.5	0	11.34	2.48	2.91E-05
RR_35	378407.9	3783438.1	179.7	0	11.34	2.48	2.91E-05
RR_36	378391.7	3783456.3	179.9	0	11.34	2.48	2.91E-05
RR_37	378375.5	3783474.2	180.1	0	11.34	2.48	2.91E-05
RR_38	378359.2	3783491.9	180.3	0	11.34	2.48	2.91E-05
RR_39	378342.4	3783510.2	180.4	0	11.34	2.48	2.91E-05
RR_40	378325.7	3783528.2	180.6	0	11.34	2.48	2.91E-05
RR_41	378309.6	3783546.3	180.8	0	11.34	2.48	2.91E-05
RR_42	378293.3	3783564.2	181.0	0	11.34	2.48	2.91E-05
RR_43	378276.2	3783581.3	181.1	0	11.34	2.48	2.91E-05
RR_44	378259.1	3783599.7	181.3	0	11.34	2.48	2.91E-05
RR_45	378242.2	3783616.5	181.5	0	11.34	2.48	2.91E-05
RR_46	378225.7	3783634.1	181.7	0	11.34	2.48	2.91E-05

APPENDIX D

Exposure Duration and Residency

Exposure Duration and Residency

In Section 6.0 of the health risk assessment (HRA), exposure duration is discussed relative to residential occupancy. As noted, the HRA employed the USEPA's guidance to develop viable dose estimates based upon reasonable maximum exposures, defined as the "highest exposure that is reasonably expected to occur." According to the USEPA,

Reasonableness refers to the findings of the risk assessment in the context of the state-of-the-science, the default assumptions and the science policy choices made in the risk assessment. It demonstrates that the risk assessment process followed an acceptable, overt logic path and retained common sense in applying relevant guidance. The assessment is based on sound judgment. Reasonableness is achieved when: a) the risk characterization is determined to be sound by the scientific community, EPA risk managers, and the lay public, because the components of the risk characterization are well integrated into an overall conclusion of risk which is complete, informative, well balanced and useful for decision making b) the characterization is based on the best available scientific information c) the policy judgments required to carry out the risk analyses use common sense given the statutory requirements and Agency guidance d) the assessment uses generally accepted scientific knowledge e) appropriate plausible alternative estimates of risk under various candidate risk management alternatives are identified and explained.

As such, the USEPA (*Risk Assessment Guidance for Superfund -Volume 1: Human Health Evaluation Manual*) introduced the concept of reasonable maximum exposures (RME's). This approach was intended to estimate a conservative exposure case (i.e., well above the average case) that is representative of the range of possible exposures. Activity patterns for population mobility are specifically addressed in the *Exposure Factors Handbook* (U.S. EPA, 1997) whereby lifetime risk values for residents account for an exposure duration of 30 years (95th percentile).

Additionally, population residency times utilizing Integrated Public Use Microdata Series (IPUMS-USA) census data was reviewed to validate the use of a 30 year exposure duration. The IPUMS-USA database consists of more than fifty samples of the American population drawn from fifteen federal censuses and from the American Community Surveys (ACS). ACS is a nationwide survey that collects and produces population and housing information every year from three million selected housing unit addresses across every county in the nation. IPUMS-USA samples, which draw on every surviving census from 1850 to 2000 and the 2000 to 2009 ACS samples, collectively constitute the quantitative information on long term changes in the American population. Based upon this review, the most recent IPUMS-USA ACS data (2006 to 2009) show that the percentage of California households with a residency period of 30 years or greater is less than 9%. As such, over 91% of California residence had lived in their current location for less than 30 years. The data also show that over 63% of Californians have lived at their current residence for 9 years or less.

Furthermore, in a study prepared by the Real Estate Research Institute (*Duration of Residence in the Rental Housing Market, January 2002*) the duration of residency in rental housing was evaluated. The study utilized data from the Bureau of Labor Statistics' (BLS) Consumer Price Index (CPI) to construct the duration of rental occupancy for metropolitan areas from 1987-1998. American Housing Survey and related metropolitan economic data were additionally employed to proxy time-varying covariates of duration of residence. Results of the study showed that the duration of residency across individual units and market segments for 3, 5

and 10 years were 62.6, 78.6 and 96.7 percent, respectively. As such, 30 years is a reasonable estimate of the 90th or 95th percentile of residency duration within a population.

The California Environmental Quality Act (CEQA) requires an impact analyses to consider reasonably foreseeable factors and not to speculate beyond what is reasonable. There is no evidence that any recognizable portion of residents remain within a specific residence for 70 years. To assume they would remain for 70 years is not reasonably foreseeable. Furthermore, CEQA prohibits mitigation measures that are not rationally related to foreseeable impacts. Therefore, no mitigation would rationally be related to a speculative impact of a 70 year exposure because an exposure time of such length is neither reasonable nor supported by any evidence. CEQA's purpose is to provide public disclosure of likely and reasonably foreseeable impacts. A conservative 30 year exposure is reasonable and is supported by substantial evidence.

APPENDIX E

Dispersion Model Input/Output Files (Electronic Format)