

# **Appendix A**

## Freeway Health Risk Assessment

# **Imperial Avalon Mixed-Use Project**

## **FREEWAY HEALTH RISK ASSESSMENT**

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## 1.0 INTRODUCTION

In 2005, the California Air Resources Board (CARB) published the *Air Quality and Land Use Handbook - A Community Health Perspective* which includes 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 CARB, 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 advisory recommendation and related guidance such as CARB's *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* reports 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 and local topography.

The City of Carson Air Quality Element of the General Plan notes that diesel engine particulate matter has been identified as a human carcinogen whereby mobile sources (including trucks, buses and automobiles) are the largest source of diesel emission exposure. The General Plan also notes that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections and that sensitive populations are more susceptible to the effects of air pollution than are the general population. Sensitive populations (sensitive receptors) who are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. The Carson General Plan also recognizes that compatibility with adjacent land uses be considered to ensure sensitive receptors are adequately protected.

Additionally, the South Coast Air Quality Management District (SCAQMD) has commented on the need to assess pollutant exposures from freeways noting the limited effectiveness of air filters to remove gaseous emissions as well as consideration of 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 would be required to address these concerns.

Based upon the considerations noted above, a health risk assessment was prepared to assess the potential effects of pollutants on individuals who utilize/reside at the proposed project site. The analysis also serves to provide a nexus between identified impacts and the effectiveness of available control measures. The assessment and dispersion modeling methodologies used in the preparation of this report were composed of all relevant 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 two residential apartment buildings, two residential mixed-use buildings and 48 townhome buildings within the western and eastern portions of the project site, respectively. Specifically, the project will accommodate the construction of 833 residential units, 180 of which would be age-restricted for senior residents and 380 dwelling units within a townhome building complex. The diverse housing types are designed to form an integrated community connected by public and private open spaces, including a centrally located park, walkable paseos and courtyards. The project will also provide commercial uses and park spaces accessible for community use. It is anticipated that the project will be constructed and available for occupancy within the first quarter of 2027.

The project additionally proposes the incorporation of enhanced building filtration with a minimum efficiency reporting value (MERV) rating of 13 in accordance with the energy efficiency standards of Title 24 (California Building Standards Code) and commensurate with the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 52.2.

The project is located at 21207 South Avalon Boulevard and is comprised of five Assessor Parcel Numbers (APNs): 7337-001-025, -026, -027, -028, and -029. The approximate 27.31 acre site is located within the central part of the City of Carson immediately southwest of the Interstate 405 (San Diego) freeway and is bound by an existing flood control channel to the north, East 213th Street to the south, Avalon Boulevard to the east and Grace Avenue to the west. Figure 1 presents an aerial photograph of the project location and adjoining community.

Figure 1  
Site Location /Vicinity Aerial Photograph



### 3.0 SOURCE IDENTIFICATION

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 2019 was utilized as the most recent (pre-pandemic) calendar year to represent traffic volume (flow) and vehicle speeds to accommodate an assessment of chronic (long term), annual, 24-hour and short duration (i.e., 1 and 8-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 Interstate 405 freeway segments located at postmile 11.32 were identified. For short duration exposures, the MROUND function in Excel, which returns a number rounded to the nearest multiple, was utilized to identify congested roadway conditions representing minimum route speeds rounded to the lowest mile per hour speed 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 405 Northbound	Average	5353	5110	243
Interstate 405 Southbound	Average	4871	4650	221
Interstate 405 Northbound	Minimum	4274	4080	194
Interstate 405 Southbound	Minimum	5067	4837	230
Southbound On from Northbound Avalon	Average Minimum	333	318	15
Northbound Off to Northbound Avalon	Average Minimum	292	279	13
Southbound On from Southbound Avalon	Average Minimum	333	318	15
Northbound On from Avalon	Average Minimum	667	637	30
Southbound Off to Avalon	Average Minimum	863	824	39

## 4.0 SOURCE CHARACTERIZATION

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, CARB has developed the EMFAC2017 emission factor model. EMFAC2017 was utilized to identify pollutant emission rates for total organic gases (TOG), diesel particulates, particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), carbon monoxide (CO) and nitrogen oxide (NO<sub>x</sub>) compounds. To produce a representative vehicle fleet distribution, the assessment utilized CARB’s Los Angeles County (South Coast) population estimates for the proposed project buildout year of 2027. Table 2 lists the identified fleet mix considered in the assessment.

Table 2  
Vehicle Fleet Mix Profile

Vehicle Class	Los Angeles County (SC)		
	Fuel	Vehicle Population	Percent
Light Duty Auto (LDA)	Diesel	42887	0.55
Light Duty Auto (LDA)	Gas	4125257	52.49
Light Duty Truck (LDT1)	Diesel	155	0.00
Light Duty Truck (LDT1)	Gas	526058	6.69
Light Duty Truck (LDT2)	Diesel	12713	0.16
Light Duty Truck (LDT2)	Gas	1504275	19.14
Light Heavy Duty Truck (LHDT1)	Diesel	86458	1.10
Light Heavy Duty Truck (LHDT1)	Gas	105459	1.34
Light Heavy Duty Truck (LHDT2)	Diesel	35179	0.45
Light Heavy Duty Truck (LHDT2)	Gas	18498	0.24
Motorcycle (MCY)	Gas	208091	2.65
Medium Duty Vehicle (MDV)	Diesel	27541	0.35
Medium Duty Vehicle (MDV)	Gas	974487	12.40
Motor Home (MH)	Diesel	7295	0.09
Motor Home (MH)	Gas	19071	0.24
Medium Heavy Duty Truck (MHDT)	Diesel	75973	0.97
Medium Heavy Duty Truck (MHDT)	Gas	15277	0.19
Heavy Heavy Duty Truck (HHDT)	Diesel	61486	0.78
Heavy Heavy Duty Truck (HHDT)	Gas	51	0.00
Other Bus (OBUS)	Diesel	3677	0.05
Other Bus (OBUS)	Gas	3946	0.05
School Bus (SBUS)	Diesel	3591	0.05



Table 2 continued  
Vehicle Fleet Mix Profile

Vehicle Class	Los Angeles County (SC)		
	Fuel	Vehicle Population	Percent
School Bus (SBUS)	Gas	1885	0.02
Urban Bus (UBUS)	Diesel	6	0.00
Urban Bus (UBUS)	Gas	475	0.01

Average route speeds of 65 and 55 miles per hour for the north and southbound freeway segments were identified and based upon the arithmetic average of hourly speeds reported in the PeMS database. A route speed of 10 miles per hour for the north and southbound segments was utilized to characterize congested or minimum speed conditions. For on and off ramps, the modal emission algorithm from the California Line Source Dispersion Model Caline4 was used to account for both accelerating and decelerating vehicles along these discrete roadway segments. For this assessment, initial route speeds of 45 and 5 miles per hour were utilized to characterize ramp acceleration and deceleration modes, respectively.

For particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), 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 3.

Table 3  
Compounds Emitted From On-Road Mobile Source Activity

Pollutant
Benzene
Formaldehyde
1,3-Butadiene
Acetaldehyde
Acrolein
Diesel Particulates (DPM)
Reentrained Particulates (PM <sub>10</sub> , PM <sub>2.5</sub> )
Carbon Monoxide (CO)
Nitrogen Dioxide (NO <sub>2</sub> )

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

## 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 freeway mobile source emissions located within 1,000 feet of the project site. AERMOD is a steady-state Gaussian plume model applicable to directly emitted air pollutants that employs best state-of-practice parameterizations for characterizing meteorological influences and atmospheric dispersion. AERMOD is the U.S. Environmental Protection Agency's guideline model for the assessment of near-field pollutant dispersion.

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 and were represented as adjacent (exact) or approximate sources so long as separation distances did not exceed twice the width of the roadway link and maintained a lateral dimension plus one meter to the nearest receptor location. Vertical ( $\sigma_z$ ) 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 ( $\sigma_y$ ) parameters were generated by dividing the source separation distance by a standard deviation of 2.15.

The Ambient Ratio Method 2 (ARM2), which is based on an evaluation of  $\text{NO}_2/\text{NO}_x$  ratios from the U.S. Environmental Protection Agency's Air Quality System (AQS) record of ambient air quality data, was used to assess the impacts of  $\text{NO}_2$ . The U.S. Environmental Protection Agency reports that results from ARM2 simulations are more conservative relative to the Tier 3 methods associated with the ozone limiting (OLM) and plume volume molar ratio (PVMRM) methods currently recommended in the Guideline on Air Quality Models, Appendix W. For this analysis, the ARM2 default minimum and maximum  $\text{NO}_2/\text{NO}_x$  ratios of 0.5 and 0.9 were incorporated into the model simulation.

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 Long Beach Airport monitoring station (Source Receptor Area 4) which is located 7.1 miles southeast of the project site was used to represent local weather conditions and prevailing winds. For short duration exposures, five years of available AERMOD meteorological data were reviewed to identify the calendar years which produced the highest pollutant concentrations. For annual and 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. Terrain height adjustments were incorporated into the modeling exercise to account for the discrepancy in source elevations and the average grade plane of the project site.

For short duration exposures, receptor locations were set at heights commensurate with transient locations, areas of common access and recreational amenities such as pools and courtyards. For chronic, annual and 24-hour exposures, receptor locations were set at heights representing the presumed height above local terrain for proposed heating, ventilation and air conditioning (HVAC) equipment. Graphical representations of the mobile source and receptor grid networks are presented in Figures 2 through 4.

Figure 2  
Mobile Source Grid Network

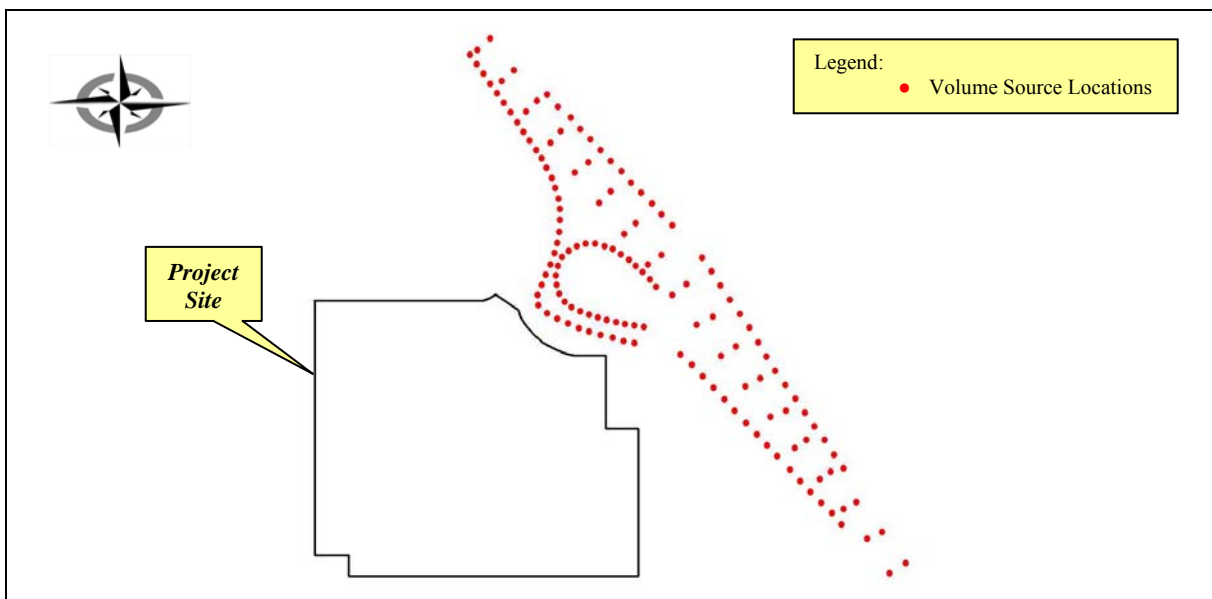


Figure 3  
Receptor Grid Network / Common Area Access

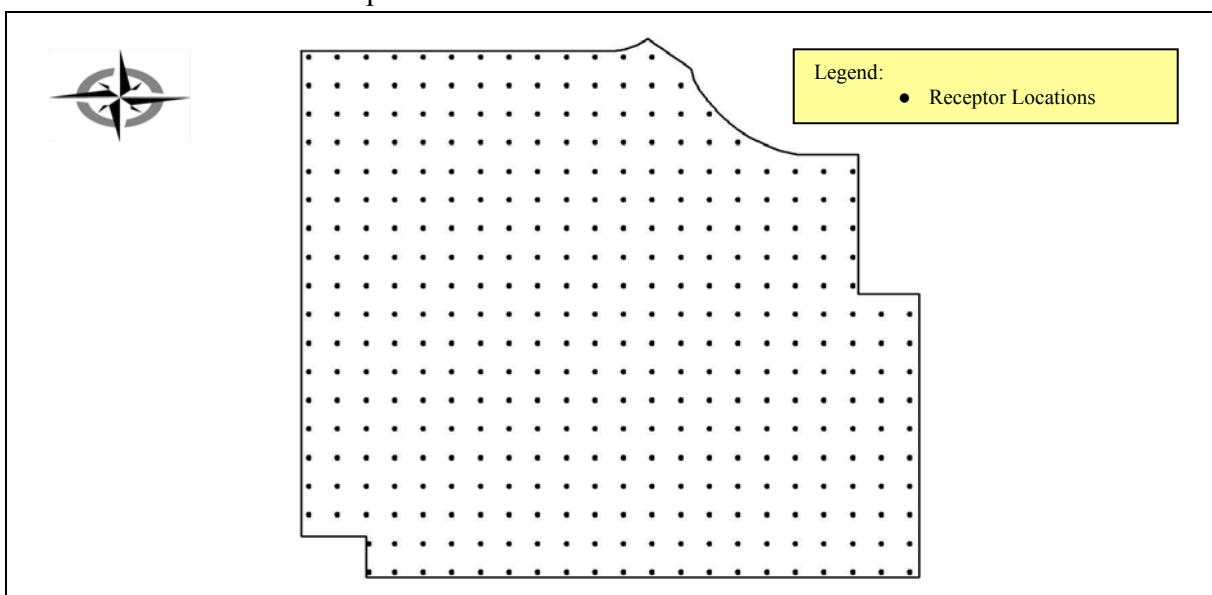
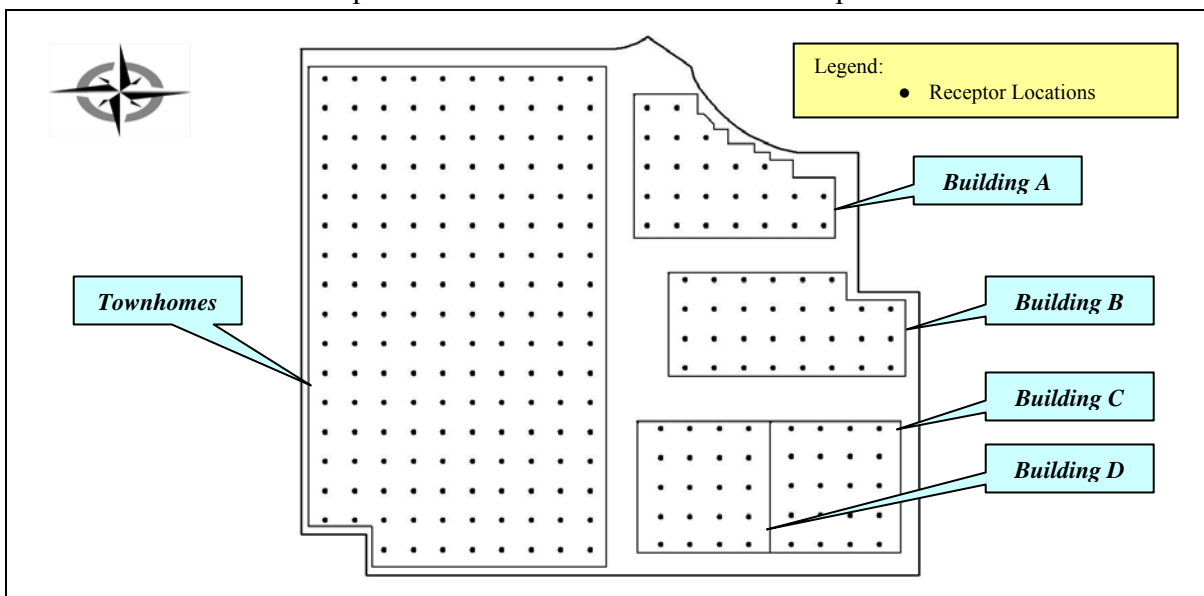


Figure 4  
Receptor Grid Network / Residential Occupancies



A dispersion model input table is provided in Appendix C. A listing of model output summary files are provided in Appendix D.

## 6.0 RISK CHARACTERIZATION

For chronic, annual and 24-hour exposures, concentration estimates for residential receptors are considered static whereby exposures are assumed to be continuous based upon the averaging time under consideration. Short duration exposures apply to all common areas such as pools, parks and related 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). For a chemical that is known to the State of California to cause cancer, the level posing no significant risk is defined as the level of exposure that would result in not more than one excess case of cancer in 100,000 individuals exposed to the chemical over a 70-year lifetime. 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). None of the compounds considered in the assessment have oral slope factors and, as such, a multi-pathway analysis was not performed. 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-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 OEHHA guidance for projects prepared by other public/lead agencies subject to CEQA.

As a result, this health risk assessment 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 this health risk assessment 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, 2018).

Additionally, 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 has adopted the U.S. Environmental Protection Agency’s policy in the application of early life exposure adjustments and is consistent with the methodology considered in the assessment of residential exposures.

To effectively quantify dose, the procedure requires the incorporation of several discrete exposure variates. To account for upper bound exposures associated with residential occupancies, lifetime risk values were adjusted to account for an exposure frequency of 350 days per year for a period of 30 years (i.e., 0.25 years for the third trimester, 2 years for ages 0 to 2 years, 14 years for ages 2 to 16 years and 14 years for ages 16 to 30 years).

Point estimates for daily breathing rates representing the 95th percentile of 361, 1090, 745 and 335 L/kg-day for the identified age groups were utilized and incorporated into the following dose algorithm.

$$Dose_{air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}$$

Where:

- $Dose_{air}$  = dose through inhalation (mg/kg/day)
- $C_{air}$  = concentration of contaminant in air ( $\mu\text{g}/\text{m}^3$ )
- $\{BR/BW\}$  = daily breathing rate normalized to body weight (L/kg body weight/day)
- $A$  = inhalation absorption factor (unitless)
- $EF$  = exposure frequency (days/365 days)
- $10^{-6}$  = micrograms to milligrams conversion

Inhalation dose estimates were subsequently incorporated into the following equation to produce carcinogenic risk estimates commensurate with the exposure duration for each age group.

$$Risk_{inh} = Dose_{air} \times CPF \times ED/AT \times FAH$$

Where:

- $Risk_{inh}$  = inhalation cancer risk
- $Dose_{air}$  = daily inhalation dose (mg/kg/day)
- $CPF$  = inhalation cancer potency factor (mg/kg/day<sup>-1</sup>)
- $ED$  = exposure duration for specified age group (years)
- $AT$  = averaging time (years)
- $FAH$  = fraction of exposure time (default 1)

Tables 4 through 8 present the carcinogenic risk estimates for the maximum exposed residential receptor for each building location. As noted, carcinogenic risks did not exceed the significance threshold of one in one hundred thousand (1.0E-05) for the 30-year exposure scenario. Appendix A, Tables A1 through A20, columns f-h, present the URFs, corresponding cancer potency factors and dose estimates for carcinogens considered in the assessment. The cancer risk attributed to each compound and summation of those risks are presented in column i.

Table 4  
Building A / Carcinogenic Risk

Age Group	Risk
Third Trimester	4.2E-08
0 to 2 years	1.0E-06
2 to 16 years	4.9E-06
16 to 30 years	2.2E-06
<b>Total</b>	<b>8.1E-06</b>

Note: 8.1E-06 denotes excess cases of cancer of 0.81 in one hundred thousand (100,000) individuals exposed.

Table 5  
Building B / Carcinogenic Risk

Age Group	Risk
Third Trimester	2.6E-08
0 to 2 years	6.2E-07
2 to 16 years	3.0E-06
16 to 30 years	1.3E-06
<b>Total</b>	<b>5.0E-06</b>

Note: 5.0E-06 denotes excess cases of cancer of 0.50 in one hundred thousand (100,000) individuals exposed.

Table 6  
Building C / Carcinogenic Risk

Age Group	Risk
Third Trimester	1.7E-08
0 to 2 years	4.1E-07
2 to 16 years	2.0E-06
16 to 30 years	8.8E-07
<b>Total</b>	<b>3.3E-06</b>

Note: 3.3E-06 denotes excess cases of cancer of 0.33 in one hundred thousand (100,000) individuals exposed.

Table 7  
Building D / Carcinogenic Risk

Age Group	Risk
Third Trimester	1.3E-08
0 to 2 years	3.2E-07
2 to 16 years	1.5E-06
16 to 30 years	6.9E-07
<b>Total</b>	<b>2.6E-06</b>

Note: 2.6E-06 denotes excess cases of cancer of 0.26 in one hundred thousand (100,000) individuals exposed.

Table 8  
Townhomes / Carcinogenic Risk

Age Group	Risk
Third Trimester	2.4E-08
0 to 2 years	5.8E-07
2 to 16 years	2.8E-06
16 to 30 years	1.2E-06
<b>Total</b>	<b>4.6E-06</b>

Note: 4.6E-06 denotes excess cases of cancer of 0.46 in one hundred thousand (100,000) individuals exposed.

## 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 RELs 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, pollutant concentrations are divided by their respective REL 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. No exposure frequency or duration adjustments are considered for noncarcinogenic exposures.

For chronic and short duration noncarcinogenic effects, the hazard index identified for each toxicological endpoint did not exceed unity for all receptor locations.

Appendix A, Tables A1 through A20, column j present the RELs used in the evaluation of chronic noncarcinogenic exposures. The noncancer hazard quotient for identified compounds generated from mobile source activity and a summation for each toxicological endpoint are presented in columns k-r. Tables A21 and A22, column e present the RELs for the assessment of short duration 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 9 presents the California Ambient Air Quality Standards (CAAQS) for the criteria pollutants considered in the assessment.

Table 9  
California Ambient Air Quality Standards

Pollutant	Standard	Health Effects
Particulates (PM <sub>10</sub> )	>50 µg/m <sup>3</sup> (24-hr avg.) >20 µg/m <sup>3</sup> (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.
Particulates (PM <sub>2.5</sub> )	>12 µg/m <sup>3</sup> (Annual)	1) Excess deaths and illness from long-term exposures and the exacerbation of symptoms in sensitive individuals with respiratory and cardio pulmonary disease.

Abbreviations: ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter.  
Source: California Code of Regulations, Title 17, Section 70200.

Table 9 continued  
California Ambient Air Quality Standards

Pollutant	Standard	Health Effects
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 <sub>2</sub> )	>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/m<sup>3</sup>: 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 PM<sub>10</sub> 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/m<sup>3</sup> is used to assess PM<sub>2.5</sub> impacts for the 24-hour averaging time.

For the CO 1 and 8-hour averaging times and the NO<sub>2</sub> 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 10 shows the pollutant concentrations collected at the South Coastal Los Angeles County monitoring station for the last three years of available data. Table 11 outlines the relevant significance thresholds considered to affect local air quality.

Table 10  
South Coastal Los Angeles County Monitoring Summary

Pollutant/ Averaging Time	Year			
	2017	2018	2019	Maximum
Particulates (PM <sub>10</sub> ) 24-Hour	79	84	74	84
Particulates (PM <sub>10</sub> ) Annual	33.3	32.3	26.9	33.3
Carbon Monoxide (CO) 1-Hour 8-Hour	3.9 2.6	4.7 2.1	3.0 2.1	4.7 2.6
Nitrogen Dioxide (NO <sub>2</sub> ) 1-Hour	0.0895	0.0853	0.0718	0.0895

Note::PM<sub>10</sub> concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>). All others are expressed in parts per million (ppm).  
Source: South Coast Air Quality Management District, 2017 to 2019. Historical Data by Year.

Table 11  
SCAQMD Air Quality Significance Thresholds

Pollutant	Averaging Time	Pollutant Concentration
Particulates (PM <sub>10</sub> )	24-Hours	2.5 µg/m <sup>3</sup> (operation)
Particulates (PM <sub>2.5</sub> )	24-Hours	2.5 µg/m <sup>3</sup> (operation)
Particulates (PM <sub>10</sub> )	Annual	1.0 µg/m <sup>3</sup>
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 <sub>2</sub> )	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/m<sup>3</sup>: micrograms per cubic meter.  
Source: South Coast Air Quality Management District, 2017 to 2019. Historical Data by Year.

Tables 12 through 25 present the maximum PM<sub>10</sub> and PM<sub>2.5</sub> concentrations for each residential occupancy, floor level and averaging time which were predicted to exceed significance thresholds and their resultant concentrations with enhanced building filtration. Particulate reductions were based upon the installation and maintenance of air filtration systems with MERV 13 efficiencies as defined by ASHRAE Standard 52.2. Table 26 outlines the reported removal efficiencies for selected pollutants and their associated particle size ranges.

Table 12  
Building A / PM<sub>10</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	5.76196	0.57620	2.5	No
2	5.77402	0.57740	2.5	No
3	5.52037	0.55204	2.5	No
4	5.18858	0.51886	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 13  
Building A / PM<sub>10</sub> Annual

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	3.12376	0.31238	1.0	No
2	3.12845	0.31285	1.0	No
3	2.96236	0.29624	1.0	No
4	2.67300	0.26730	1.0	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 14  
Building A / PM<sub>2.5</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	4.36598	0.65490	2.5	No
2	4.37448	0.65617	2.5	No
3	4.18015	0.62702	2.5	No
4	3.92788	0.58918	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 15  
Building B / PM<sub>10</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	4.75950	0.47595	2.5	No
2	4.84048	0.48405	2.5	No
3	4.70370	0.47037	2.5	No
4	4.61230	0.46123	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 16  
Building B / PM<sub>10</sub> Annual

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	2.54268	0.25427	1.0	No
2	2.57324	0.25732	1.0	No
3	2.50164	0.25016	1.0	No
4	2.34527	0.23453	1.0	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 17  
Building B / PM<sub>2.5</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	3.60116	0.54017	2.5	No
2	3.66076	0.54911	2.5	No
3	3.57887	0.53683	2.5	No
4	3.48929	0.52339	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 18  
Building C / PM<sub>10</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	3.53683	0.35368	2.5	No
2	3.60343	0.36034	2.5	No
3	3.50791	0.35079	2.5	No
4	3.45957	0.34596	2.5	No
5	3.31462	0.33146	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 19  
Building C / PM<sub>10</sub> Annual

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	1.77368	0.17737	1.0	No
2	1.79146	0.17915	1.0	No
3	1.75626	0.17563	1.0	No
4	1.67183	0.16718	1.0	No
5	1.45666	0.14567	1.0	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 20  
Building C / PM<sub>2.5</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	2.67457	0.40119	2.5	No
2	2.72487	0.40873	2.5	No
3	2.65259	0.39789	2.5	No
4	2.61718	0.39258	2.5	No
5	2.50729	0.37609	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 21  
Building D / PM<sub>10</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	2.71094	0.27109	2.5	No
2	2.75018	0.27502	2.5	No
3	2.70644	0.27064	2.5	No
4	2.67434	0.26743	2.5	No
5	2.74012	0.27401	2.5	No
6	2.54346	0.25435	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 22  
Building D / PM<sub>10</sub> Annual

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	1.33577	0.13358	1.0	No
2	1.34503	0.13450	1.0	No
3	1.32247	0.13225	1.0	No
4	1.26109	0.12611	1.0	No
5	1.11279	0.11128	1.0	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 23  
Townhomes / PM<sub>10</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	4.29988	0.42999	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Table 24  
Townhomes / PM<sub>10</sub> Annual

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	1.92807	0.19281	1.0	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 25  
Townhomes / PM<sub>2.5</sub> 24-Hour

Floor Level	Concentration	Concentration (MERV Filtration)	Significance Threshold	Exceeds Significance Threshold
1	3.25785	0.48868	2.5	No

Note: Concentrations are expressed in micrograms per cubic meter (µg/m<sup>3</sup>).

Table 26  
Minimum Efficiency Reporting Value (MERV)  
Particle Removal Efficiency (%)

MERV	Pollutant / Particle Size Range		
	DPM (0.3-1.0 µm)	PM <sub>2.5</sub> (1.0-3.0 µm)	PM <sub>10</sub> (3.0-10.0 µm)
13	50	85	90

Note: Particle size ranges are expressed in micrometers or microns (µm) equal to 0.001 mm ( 0.000039 inch). It is a common unit of measure to express the thickness or diameter of microscopic objects.

As noted above, incorporation of MERV 13 filtration, as a feature of project design, will reduce PM<sub>10</sub> and PM<sub>2.5</sub> concentrations below significance thresholds for each respective averaging time.

The maximum modeled 1-hour concentration for CO of 0.20916 parts per million (ppm) (239.52741 µg/m<sup>3</sup>) when added to an existing background concentration of 4.7 ppm, will not cause an exceedance of the CAAQS of 20 ppm. For the 8-hour averaging time, the maximum predicted concentration of 0.10315 ppm, (118.12114 µg/m<sup>3</sup>) when added to an existing background level of 2.6 ppm, does not cause an exceedance of the CAAQS of 9 ppm.

For NO<sub>2</sub>, the maximum 1-hour concentration of 0.01488 ppm (28.00096 µg/m<sup>3</sup>) was predicted. This concentration, when added to a background concentration of 0.0895 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 risk estimates for the maximum exposed residential receptors did not exceed the significance threshold of one in one hundred thousand (1.0E-05) for the 30-year exposure scenario. For chronic

noncarcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than one for all residential occupancies.

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 CO and NO<sub>2</sub>, maximum predicted concentrations are within acceptable limits. As such, no impacts are anticipated to individuals who access common areas and/or utilize available outdoor amenities.

For residential receptors, maximum predicted PM<sub>10</sub> and PM<sub>2.5</sub> concentrations did not exceed significance thresholds for all occupancies and floor levels with the installation of enhanced filtration, as proposed.



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## **APPENDIX A**

### Risk Calculation Worksheets

**Table A1**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**Third Trimester Exposure Scenario / Maximum Receptor Location / Building A**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*										
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.19983			2.00E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	3.4E-05 2.2E-05 7.5E-06 3.9E-06	1.2E-08 1.6E-09 1.6E-08 1.4E-10	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	7.0E-03 8.1E-05 1.5E-02 1.9E-03		3.3E-02				
TOTAL	0.00932	9.32E-06	1.00E+00		3.0E-04	1.1E+00	3.2E-06	4.2E-08	2.4E-02	0.0E+00	3.3E-02	0.0E+00	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)	0.25
inhalation rate (L/kg-day)	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A2**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**0 to 2 Year Exposure Scenario / Maximum Receptor Location / Building A**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.19983			2.00E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	1.0E-04 6.6E-05 2.3E-05 1.2E-05	3.0E-07 4.0E-08 3.9E-07 3.4E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	7.0E-03 8.1E-05 1.5E-02 1.9E-03		3.3E-02			
<b>TOTAL</b>	<b>0.00932</b>	<b>9.32E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>9.7E-06</b>	<b>2.9E-07</b>	<b>1.0E-06</b>	<b>2.4E-02</b>	<b>0.0E+00</b>	<b>3.3E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>1.1E-02</b>	<b>0.0E+00</b>

\* 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)	2
inhalation rate (L/kg-day)	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A3**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**2 to 16 Year Exposure Scenario / Maximum Receptor Location / Building A**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.19983			2.00E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	7.0E-05 4.5E-05 1.6E-05 8.1E-06	1.4E-06 1.9E-07 1.9E-06 1.6E-08	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	7.0E-03 8.1E-05 1.5E-02 1.9E-03		3.3E-02			
TOTAL	0.00932	9.32E-06	1.00E+00		3.0E-04	1.1E+00	6.7E-06	1.4E-06	4.9E-06	2.4E-02	0.0E+00	3.3E-02	0.0E+00	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)	14
inhalation rate (L/kg-day)	745
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A4**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**16 to 30 Year Exposure Scenario / Maximum Receptor Location / Building A**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*								
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.19983			2.00E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	3.2E-05	6.4E-07	3.0E+00					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	2.0E-05	8.5E-08	9.0E+00	7.0E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	7.0E-06	8.3E-07	2.0E+00							1.1E-02	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	3.7E-06	7.3E-09	1.4E+02	8.1E-05							
			2.60E-02	Acrolein					3.5E-01	1.5E-02							
	0.00932	9.32E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	3.0E-06	6.3E-07	5.0E+00	1.9E-03							
TOTAL								2.2E-06		2.4E-02	0.0E+00	3.3E-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)	14
inhalation rate (L/kg-day)	335
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290



**Table A5**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**Third Trimester Exposure Scenario / Maximum Receptor Location / Building B**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11081			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	1.9E-05 1.2E-05 4.2E-06 2.2E-06	6.8E-09 9.1E-10 8.9E-09 7.8E-11	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.4E-03		1.8E-02			
<b>TOTAL</b>	<b>0.00705</b>	<b>7.05E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>2.4E-06</b>	<b>9.2E-09</b>	<b>2.6E-08</b>	<b>1.4E-02</b>	<b>0.0E+00</b>	<b>1.8E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>6.0E-03</b>	<b>0.0E+00</b>

\* 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)	0.25
inhalation rate (L/kg-day)	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A6**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**0 to 2 Year Exposure Scenario / Maximum Receptor Location / Building B**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11081			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	5.7E-05 3.7E-05 1.3E-05 6.6E-06	1.6E-07 2.2E-08 2.1E-07 1.9E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.4E-03		1.8E-02			
<b>TOTAL</b>	<b>0.00705</b>	<b>7.05E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>7.4E-06</b>	<b>2.2E-07</b>	<b>6.2E-07</b>	<b>1.4E-02</b>	<b>0.0E+00</b>	<b>1.8E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>6.0E-03</b>	<b>0.0E+00</b>

\* 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)	2
inhalation rate (L/kg-day)	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A7**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**2 to 16 Year Exposure Scenario / Maximum Receptor Location / Building B**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11081			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	3.9E-05 2.5E-05 8.6E-06 4.5E-06	7.9E-07 1.1E-07 1.0E-06 9.0E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.4E-03		1.8E-02			
TOTAL	0.00705	7.05E-06	1.00E+00		3.0E-04	1.1E+00	5.0E-06	1.1E-06	3.0E-06	1.4E-02	0.0E+00	1.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-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)	14
inhalation rate (L/kg-day)	745
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A8**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**16 to 30 Year Exposure Scenario / Maximum Receptor Location / Building B**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*										
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.11081			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02 1.00E+00	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06 3.0E-04	1.0E-01 2.1E-02 6.0E-01 1.0E-02 1.1E+00	1.7E-05 1.1E-05 3.9E-06 2.0E-06 2.3E-06	3.5E-07 4.7E-08 4.6E-07 4.1E-09 4.8E-07	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E+01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.4E-03		1.8E-02				
<b>TOTAL</b>								<b>1.3E-06</b>		<b>1.4E-02</b>	0.0E+00	1.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-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)	14
inhalation rate (L/kg-day)	335
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A9**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**Third Trimester Exposure Scenario / Maximum Receptor Location / Building C**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.07067			7.07E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	1.2E-05 7.8E-06 2.7E-06 1.4E-06	4.4E-09 5.8E-10 5.7E-09 5.0E-11	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.5E-03 2.9E-05 5.2E-03 9.7E-04		1.2E-02			
<b>TOTAL</b>	<b>0.00483</b>	<b>4.83E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>1.7E-06</b>	<b>6.3E-09</b>	<b>1.7E-08</b>	<b>8.7E-03</b>	<b>0.0E+00</b>	<b>1.2E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>3.9E-03</b>	<b>0.0E+00</b>

\* 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)	0.25
inhalation rate (L/kg-day)	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

Table A10  
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards  
0 to 2 Year Exposure Scenario / Maximum Receptor Location / Building C  
w/MERV 13 Filtration

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.07067			7.07E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	3.6E-05 2.3E-05 8.1E-06 4.2E-06	1.1E-07 1.4E-08 1.4E-07 1.2E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.5E-03 2.9E-05 5.2E-03 9.7E-04		1.2E-02			
TOTAL	0.00483	4.83E-06	1.00E+00		3.0E-04	1.1E+00	5.0E-06	1.5E-07	4.1E-07	8.7E-03	0.0E+00	1.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-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)	2
inhalation rate (L/kg-day)	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A11**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**2 to 16 Year Exposure Scenario / Maximum Receptor Location / Building C**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.07067			7.07E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	2.5E-05 1.6E-05 5.5E-06 2.9E-06	5.0E-07 6.7E-08 6.5E-07 5.8E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.5E-03 2.9E-05 5.2E-03 9.7E-04		1.2E-02			
<b>TOTAL</b>	<b>0.00483</b>	<b>4.83E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>3.5E-06</b>	<b>7.2E-07</b>	<b>2.0E-06</b>	<b>8.7E-03</b>	<b>0.0E+00</b>	<b>1.2E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>3.9E-03</b>	<b>0.0E+00</b>

\* 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)	14
inhalation rate (L/kg-day)	745
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A12**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**16 to 30 Year Exposure Scenario / Maximum Receptor Location / Building C**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*								
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.07067			7.07E-05	4.91E-01	Benzene	2.9E-05	1.0E-01	1.1E-05	2.3E-07	3.0E+00					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	7.2E-06	3.0E-08	9.0E+00	2.5E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.5E-06	2.9E-07	2.0E+00							3.9E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.3E-06	2.6E-09	1.4E+02	2.9E-05							
			2.60E-02	Acrolein					3.5E-01	5.2E-03							
	0.00483	4.83E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.6E-06	3.3E-07	5.0E+00	9.7E-04							
TOTAL								8.8E-07		8.7E-03	0.0E+00	1.2E-02	0.0E+00	0.0E+00	0.0E+00	3.9E-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)	14
inhalation rate (L/kg-day)	335
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290



**Table A13**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**Third Trimester Exposure Scenario / Maximum Receptor Location / Building D**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.05647			5.65E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	9.6E-06 6.2E-06 2.1E-06 1.1E-06	3.5E-09 4.6E-10 4.5E-09 4.0E-11	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.0E-03 2.3E-05 4.2E-03 7.3E-04		9.2E-03			
<b>TOTAL</b>	<b>0.00367</b>	<b>3.67E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>1.3E-06</b>	<b>4.8E-09</b>	<b>1.3E-08</b>	<b>6.9E-03</b>	<b>0.0E+00</b>	<b>9.2E-03</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>3.1E-03</b>	<b>0.0E+00</b>

\* 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)	0.25
inhalation rate (L/kg-day)	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A14**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**0 to 2 Year Exposure Scenario / Maximum Receptor Location / Building D**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*										
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.05647			5.65E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	2.9E-05 1.9E-05 6.4E-06 3.4E-06	8.4E-08 1.1E-08 1.1E-07 9.6E-10	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.0E-03		9.2E-03				
<b>TOTAL</b>	<b>0.00367</b>	<b>3.67E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>3.8E-06</b>	<b>1.2E-07</b>	<b>3.2E-07</b>	<b>6.9E-03</b>	<b>0.0E+00</b>	<b>9.2E-03</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>3.1E-03</b>	<b>0.0E+00</b>

\* 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)	2
inhalation rate (L/kg-day)	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

Table A15  
 Quantification of Carcinogenic Risks and Noncarcinogenic Hazards  
 2 to 16 Year Exposure Scenario / Maximum Receptor Location / Building D  
 w/MERV 13 Filtration

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*										
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)		
	Freeway	0.05647			5.65E-05	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	2.0E-05 1.3E-05 4.4E-06 2.3E-06	4.0E-07 5.4E-08 5.2E-07 4.6E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	2.0E-03		9.2E-03				
TOTAL	0.00367	3.67E-06	1.00E+00		3.0E-04	1.1E+00	2.6E-06	5.5E-07	1.5E-06	6.9E-03	0.0E+00	9.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-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)	14
inhalation rate (L/kg-day)	745
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A16**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**16 to 30 Year Exposure Scenario / Maximum Receptor Location / Building D**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*								
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)
	Freeway	0.05647			5.65E-05	4.91E-01	Benzene	2.9E-05	1.0E-01	8.9E-06	1.8E-07	3.0E+00					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	5.8E-06	2.4E-08	9.0E+00	2.0E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	2.0E-06	2.4E-07	2.0E+00							3.1E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	1.0E-06	2.1E-09	1.4E+02	2.3E-05							
			2.60E-02	Acrolein					3.5E-01	4.2E-03							
	0.00367	3.67E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.2E-06	2.5E-07	5.0E+00	7.3E-04							
TOTAL					6.9E-07				6.9E-03		0.0E+00	9.2E-03	0.0E+00	0.0E+00	0.0E+00	3.1E-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)	14
inhalation rate (L/kg-day)	335
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A17**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**Third Trimester Exposure Scenario / Maximum Receptor Location / Townhomes**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11090			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	1.9E-05 1.2E-05 4.2E-06 2.2E-06	6.8E-09 9.1E-10 8.9E-09 7.8E-11	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.1E-03		1.8E-02			
<b>TOTAL</b>	<b>0.00565</b>	<b>5.65E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>2.0E-06</b>	<b>7.3E-09</b>	<b>2.4E-08</b>	<b>1.3E-02</b>	<b>0.0E+00</b>	<b>1.8E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>6.0E-03</b>	<b>0.0E+00</b>

\* 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)	0.25
inhalation rate (L/kg-day)	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A18**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**0 to 2 Year Exposure Scenario / Maximum Receptor Location / Townhomes**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11090			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	5.7E-05 3.7E-05 1.3E-05 6.6E-06	1.7E-07 2.2E-08 2.1E-07 1.9E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.1E-03		1.8E-02			
<b>TOTAL</b>	<b>0.00565</b>	<b>5.65E-06</b>	<b>1.00E+00</b>		<b>3.0E-04</b>	<b>1.1E+00</b>	<b>5.9E-06</b>	<b>1.8E-07</b>	<b>5.8E-07</b>	<b>1.3E-02</b>	<b>0.0E+00</b>	<b>1.8E-02</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>0.0E+00</b>	<b>6.0E-03</b>	<b>0.0E+00</b>

\* 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)	2
inhalation rate (L/kg-day)	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A19**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**2 to 16 Year Exposure Scenario / Maximum Receptor Location / Townhomes**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*									
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (k)	CNS/PNS (l)	CV/BL (m)	IMMUN (n)	KIDN (o)	GI/LV (p)	REPRO (q)	EYES (r)	
	Freeway	0.11090			1.11E-04	4.91E-01 3.17E-01 1.09E-01 5.70E-02 2.60E-02	Benzene Formaldehyde 1,3-Butadiene Acetaldehyde Acrolein Diesel Particulate	2.9E-05 6.0E-06 1.7E-04 2.7E-06	1.0E-01 2.1E-02 6.0E-01 1.0E-02	3.9E-05 2.5E-05 8.6E-06 4.5E-06	7.9E-07 1.1E-07 1.0E-06 9.0E-09	3.0E+00 9.0E+00 2.0E+00 1.4E+02 3.5E-01 5.0E+00	3.9E-03 4.5E-05 8.2E-03 1.1E-03		1.8E-02			
TOTAL	0.00565	5.65E-06	1.00E+00		3.0E-04	1.1E+00	4.0E-06	8.5E-07	2.8E-06	1.3E-02	0.0E+00	1.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-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)	14
inhalation rate (L/kg-day)	745
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290

**Table A20**  
**Quantification of Carcinogenic Risks and Noncarcinogenic Hazards**  
**16 to 30 Year Exposure Scenario / Maximum Receptor Location / Townhomes**  
**w/MERV 13 Filtration**

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints*								
	(ug/m <sup>3</sup> ) (b)	(mg/m <sup>3</sup> ) (c)			URF (ug/m <sup>3</sup> ) <sup>-1</sup> (f)	CPF (mg/kg/day) <sup>-1</sup> (g)	DOSE (mg/kg-day) (h)	RISK (i)	REL (ug/m <sup>3</sup> ) (j)	RESP (l)	CNS/PNS (m)	CV/BL (n)	IMMUN (o)	KIDN (p)	GI/LV (q)	REPRO (r)	EYES (s)
	Freeway	0.11090			1.11E-04	4.91E-01	Benzene	2.9E-05	1.0E-01	1.7E-05	3.6E-07	3.0E+00					
			3.17E-01	Formaldehyde	6.0E-06	2.1E-02	1.1E-05	4.7E-08	9.0E+00	3.9E-03							
			1.09E-01	1,3-Butadiene	1.7E-04	6.0E-01	3.9E-06	4.6E-07	2.0E+00							6.0E-03	
			5.70E-02	Acetaldehyde	2.7E-06	1.0E-02	2.0E-06	4.1E-09	1.4E+02	4.5E-05							
			2.60E-02	Acrolein					3.5E-01	8.2E-03							
	0.00565	5.65E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.8E-06	3.8E-07	5.0E+00	1.1E-03							
TOTAL								1.2E-06		1.3E-02	0.0E+00	1.8E-02	0.0E+00	0.0E+00	0.0E+00	6.0E-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)	14
inhalation rate (L/kg-day)	335
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1
breathing rate third trimester	361
breathing rate 0-2	1090
breathing rate 2-9	861
breathing rate 2-16	745
breathing rate 16-30	335
breathing rate 16-70	290



Table A21  
 Quantification of Noncarcinogenic 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 Gasoline/TOG	1.86589	4.91E-01	Benzene	2.7E+01			3.4E-02	3.4E-02			3.4E-02	
		3.17E-01	Formaldehyde	5.5E+01								1.1E-02
		1.09E-01	1,3-Butadiene	6.6E+02							3.1E-04	
		5.70E-02	Acetaldehyde	4.7E+02	2.3E-04							2.3E-04
		2.60E-02	Acrolein	2.5E+00	1.9E-02							1.9E-02
Freeway Diesel/TOG	0.40613	8.20E-02	Benzene	2.7E+01			1.2E-03	1.2E-03			1.2E-03	
		6.07E-01	Formaldehyde	5.5E+01								4.5E-03
		8.00E-03	1,3-Butadiene	6.6E+02							4.9E-06	
		3.03E-01	Acetaldehyde	4.7E+02	2.6E-04							2.6E-04
Total					2.0E-02	0.0E+00	3.5E-02	3.5E-02	0.0E+00	0.0E+00	3.5E-02	3.5E-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 A22  
Quantification of Noncarcinogenic Hazards  
8-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 Gasoline/TOG	0.71677	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					8.7E-03			
		5.70E-02	Acetaldehyde	3.0E+02	1.4E-04							
		2.60E-02	Acrolein	7.0E-01	2.7E-02							
Freeway Diesel/TOG	0.13022	8.20E-02	Benzene	3.0E+00			3.6E-03					
		6.07E-01	Formaldehyde	9.0E+00	8.8E-03							
		8.00E-03	1,3-Butadiene	9.0E+00					1.2E-04			
		3.03E-01	Acetaldehyde	3.0E+02	1.3E-04							
Total					6.1E-02	0.0E+00	1.2E-01	0.0E+00	0.0E+00	0.0E+00	8.8E-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

## **APPENDIX B**

### Emission Rate Calculation Worksheets

EMFAC2017 Worksheet  
(5 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	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	2027	Annual	LDA	DSL	Aggregated	5	42887.01438	0.0055	2.938319522	0.01603297	0.082266721	0.00044889	0.010197572	0.00005564	0.0080	0.00004365	0.03675	0.000200527
Los Angeles	2027	Annual	LDA	GAS	Aggregated	5	4125256.865	0.5249	0.908755505	0.47696567	0.040210172	0.02110455	0.007967704	0.00418190	0.0080	0.00419885	0.03675	0.019288453
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	5	155.0212485	0.0000	3.463944162	0.00006832	0.511921056	0.00001010	0.256677619	0.00000506	0.0080	0.00000016	0.03675	0.000000725
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	5	526058.4285	0.0669	1.564142129	0.10468857	0.109284687	0.00731446	0.010113837	0.00067692	0.0080	0.00053544	0.03675	0.002459690
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	5	12712.82717	0.0016	2.482621311	0.00401552	0.145952184	0.00023607	0.00966723	0.00001564	0.0080	0.00001294	0.03675	0.000059441
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	5	1504274.859	0.1914	1.249409391	0.23912282	0.080336411	0.01537548	0.008475751	0.00162216	0.0080	0.00153111	0.03675	0.007033534
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	5	86457.57763	0.0110	2.943307874	0.03237635	0.616746417	0.00678420	0.026794198	0.00029474	0.0120	0.00013200	0.07644	0.000840839
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	5	105459.0379	0.0134	1.05326935	0.01413228	0.167417651	0.00224633	0.007835435	0.00010513	0.0080	0.00010734	0.07644	0.001025637
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	5	35179.12766	0.0045	2.986005196	0.01336487	0.628467156	0.00281292	0.036562176	0.00016365	0.0120	0.00005371	0.08918	0.000399155
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	5	18497.88277	0.0024	0.625150441	0.00147128	0.180738211	0.00042536	0.007322251	0.00001723	0.0080	0.00001883	0.08918	0.000209884
Los Angeles	2027	Annual	MCY	GAS	Aggregated	5	208090.5275	0.0265	41.10928511	1.08838188	1.480653973	0.03920080	0.01298992	0.00034391	0.0040	0.00010590	0.01176	0.000311350
Los Angeles	2027	Annual	MDV	DSL	Aggregated	5	27541.43766	0.0035	3.139841088	0.01100230	0.081965939	0.00028722	0.007019386	0.00002460	0.0080	0.00002803	0.03675	0.000128775
Los Angeles	2027	Annual	MDV	GAS	Aggregated	5	974487.2584	0.1240	1.354255026	0.16790580	0.094677173	0.01173844	0.008535556	0.00105827	0.0080	0.00099187	0.03675	0.004556408
Los Angeles	2027	Annual	MH	DSL	Aggregated	5	7294.933266	0.0009	2.080109607	0.00193062	11.25573784	0.01044683	0.121267319	0.00011255	0.0160	0.00001485	0.13034	0.000120973
Los Angeles	2027	Annual	MH	GAS	Aggregated	5	19070.76917	0.0024	1.278672137	0.00310253	0.288399869	0.00069977	0.007851141	0.00001905	0.0120	0.00002912	0.13034	0.000316253
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	5	75972.70228	0.0097	0.79034203	0.00763944	6.579864913	0.06360095	0.005592897	0.00005406	0.0120	0.00011599	0.13034	0.001259866
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	5	15277.19325	0.0019	1.218999974	0.00236939	0.343860155	0.00066837	0.00719898	0.00001399	0.0120	0.00002332	0.13034	0.000253344
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	5	61485.70509	0.0078	2.144403747	0.01677528	13.33065604	0.10428330	0.013492611	0.00010555	0.0360	0.00028162	0.06174	0.000482981
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	5	51.48033774	0.0000	54.3528189	0.00035600	4.928399901	0.00003228	0.007485457	0.00000005	0.0200	0.00000013	0.06174	0.000000404
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	5	3676.792645	0.0005	1.269717037	0.00059397	8.722355466	0.00408030	0.007076922	0.00000331	0.0120	0.00000561	0.13034	0.000060973
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	5	3946.416905	0.0005	1.683196374	0.00084514	0.475527285	0.00023876	0.006915129	0.00000347	0.0120	0.00000603	0.13034	0.000065444
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	5	3590.515072	0.0005	1.178554124	0.00053839	12.7489913	0.00582400	0.08690266	0.00003970	0.0120	0.00000548	0.74480	0.000340240
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	5	1884.811238	0.0002	1.091846108	0.00026183	0.438048739	0.00010505	0.005731111	0.00000137	0.0080	0.00000192	0.74480	0.000178606
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	5	6.0834	0.0000	0.403615955	0.00000031	2.470588676	0.00000191	0.007138464	0.00000001	0.0360	0.00000003	0.06175	0.000000048
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	5	474.5645751	0.0001	0.432965054	0.00002614	0.302700882	0.00001828	0.007741677	0.00000047	0.0113	0.00000068	0.12357	0.000007461
							7859790	1.0		2.204	0.298	0.0089	0.008	0.040				

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2027	Annual	LDA	GAS	Aggregated	5	4125256.865	0.5498	0.050158038	0.0276
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	5	526058.4285	0.0701	0.127909568	0.0090
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	5	1504274.859	0.2005	0.091707121	0.0184
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	5	105459.0379	0.0141	0.13115378	0.0018
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	5	18497.88277	0.0025	0.097098488	0.0002
Los Angeles	2027	Annual	MCY	GAS	Aggregated	5	208090.5275	0.0277	15.39736961	0.4270
Los Angeles	2027	Annual	MDV	GAS	Aggregated	5	974487.2584	0.1299	0.110562272	0.0144
Los Angeles	2027	Annual	MH	GAS	Aggregated	5	19070.76917	0.0025	0.198952994	0.0005
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	5	15277.19325	0.0020	0.246010044	0.0005
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	5	51.48033774	0.0000	3.173668194	0.0000
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	5	3946.416905	0.0005	0.325593883	0.0002
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	5	1884.811238	0.0003	0.229569112	0.0001
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	5	474.5645751	0.0001	0.097164525	0.0000
							7502830	1.0	0.500	

EMFAC2017 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)
0.00975643	0.000053236	0.0020	0.000010913	0.01575	0.000085940
0.007326009	0.003845099	0.0020	0.001049712	0.01575	0.008266480
0.245573859	0.000004844	0.0020	0.000000039	0.01575	0.000000311
0.0092993	0.000622405	0.0020	0.000133861	0.01575	0.001054153
0.00924903	0.000014960	0.0020	0.000003235	0.01575	0.000025475
0.00779314	0.001491519	0.0020	0.000382777	0.01575	0.003014372
0.025635093	0.000281986	0.0030	0.000033000	0.03276	0.000360360
0.007204393	0.000096665	0.0020	0.000026835	0.03276	0.000439559
0.034980512	0.000156567	0.0030	0.000013428	0.03822	0.000171066
0.00673254	0.000015845	0.0020	0.000004707	0.03822	0.000089950
0.012114631	0.000320739	0.0010	0.000026475	0.00504	0.000133436
0.006715731	0.000023533	0.0020	0.000007008	0.01575	0.000055189
0.007848132	0.000973042	0.0020	0.000247968	0.01575	0.001952746
0.116021348	0.000107683	0.0040	0.000003713	0.05586	0.000051846
0.007218835	0.000017516	0.0030	0.000007279	0.05586	0.000135537
0.005350951	0.000051722	0.0030	0.000028998	0.05586	0.000539943
0.006619197	0.000012866	0.0030	0.000005831	0.05586	0.000108576
0.012908927	0.000100984	0.0090	0.000070405	0.02646	0.000206992
0.006882602	0.000000045	0.0050	0.000000033	0.02646	0.000000173
0.006770777	0.000003167	0.0030	0.000001403	0.05586	0.000026131
0.006358206	0.000003192	0.0030	0.000001506	0.05586	0.000028047
0.08314329	0.000037982	0.0030	0.000001370	0.31920	0.000145817
0.005269545	0.000001264	0.0020	0.000000480	0.31920	0.000076546
0.006829657	0.000000005	0.0090	0.000000007	0.02646	0.000000020
0.007118186	0.000000430	0.0028	0.000000171	0.05296	0.000003198
0.0082		0.002		0.017	

EMFAC2017 Worksheet  
(5 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	5	42887.01438	0.1201	0.146472461	0.0176
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	5	155.0212485	0.0004	0.570589746	0.0002
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	5	12712.82717	0.0356	0.294978275	0.0105
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	5	86457.57763	0.2422	0.829196709	0.2008
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	5	35179.12766	0.0986	0.833119729	0.0821
Los Angeles	2027	Annual	MDV	DSL	Aggregated	5	27541.43766	0.0772	0.151201664	0.0117
Los Angeles	2027	Annual	MH	DSL	Aggregated	5	7294.933266	0.0204	0.922771538	0.0189
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	5	75972.70228	0.2128	0.063514978	0.0135
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	5	61485.70509	0.1722	0.152065555	0.0262
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	5	3676.792645	0.0103	0.088965013	0.0009
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	5	3590.515072	0.0101	0.607707141	0.0061
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	5	6.0834	0.0000	0.185577815	0.0000
							356960	1.0	0.389	

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	5	42887.01438	0.1201	0.010197572	0.0012
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	5	155.0212485	0.0004	0.256677619	0.0001
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	5	12712.82717	0.0356	0.00966723	0.0003
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	5	86457.57763	0.2422	0.026794198	0.0065
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	5	35179.12766	0.0986	0.036562176	0.0036
Los Angeles	2027	Annual	MDV	DSL	Aggregated	5	27541.43766	0.0772	0.007019386	0.0005
Los Angeles	2027	Annual	MH	DSL	Aggregated	5	7294.933266	0.0204	0.121267319	0.0025
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	5	75972.70228	0.2128	0.005592897	0.0012
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	5	61485.70509	0.1722	0.013492611	0.0023
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	5	3676.792645	0.0103	0.007076922	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	5	3590.515072	0.0101	0.08690266	0.0009
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	5	6.0834	0.0000	0.007138464	0.0000
							356960	1.0	0.019	

EMFAC2017 Worksheet  
(10 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	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	2027	Annual	LDA	DSL	Aggregated	10	42887.01438	0.0055	2.197975184	0.01199327	0.070438068	0.00038435	0.008157506	0.00004451	0.0080	0.00004365	0.03675	0.000200527
Los Angeles	2027	Annual	LDA	GAS	Aggregated	10	4125256.865	0.5249	0.825719077	0.43338351	0.034767925	0.01824815	0.005019305	0.00263441	0.0080	0.00419885	0.03675	0.019288453
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	10	155.0212485	0.0000	2.519658978	0.00004970	0.519782922	0.00001025	0.179981951	0.00000355	0.0080	0.00000016	0.03675	0.000000725
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	10	526058.4285	0.0669	1.398556096	0.09360584	0.092007322	0.00615808	0.006427479	0.00043019	0.0080	0.00053544	0.03675	0.002459690
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	10	12712.82717	0.0016	1.858168608	0.00300550	0.121670685	0.00019680	0.008848068	0.00001430	0.0080	0.00001294	0.03675	0.000059441
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	10	1504274.859	0.1914	1.129636004	0.21619955	0.068572374	0.01312398	0.005348271	0.00102360	0.0080	0.00153111	0.03675	0.007033534
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	10	86457.57763	0.0110	2.192911877	0.02412200	0.585910778	0.00644501	0.02198614	0.00024185	0.0120	0.00013200	0.07644	0.000840839
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	10	105459.0379	0.0134	0.836722846	0.01122676	0.148186198	0.00198829	0.004949012	0.00006640	0.0080	0.00010734	0.07644	0.001025637
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	10	35179.12766	0.0045	2.224879426	0.0095819	0.595906818	0.00266718	0.03069043	0.00013737	0.0120	0.00005371	0.08918	0.000399155
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	10	18497.88277	0.0024	0.531126143	0.00125000	0.157891337	0.00037159	0.004613095	0.00001086	0.0080	0.00001883	0.08918	0.000209884
Los Angeles	2027	Annual	MCY	GAS	Aggregated	10	208090.5275	0.0265	31.75773633	0.84079654	1.331422458	0.03524985	0.008375963	0.00022176	0.0040	0.00010590	0.01176	0.000311350
Los Angeles	2027	Annual	MDV	DSL	Aggregated	10	27541.43766	0.0035	2.349753753	0.00823376	0.069196852	0.00024247	0.006038237	0.00002116	0.0080	0.00002803	0.03675	0.000128775
Los Angeles	2027	Annual	MDV	GAS	Aggregated	10	974487.2584	0.1240	1.220135806	0.15127717	0.080878373	0.01002761	0.005389238	0.00066818	0.0080	0.00009187	0.03675	0.004556408
Los Angeles	2027	Annual	MH	DSL	Aggregated	10	7294.933266	0.0009	1.597258226	0.00148247	9.371020237	0.00869756	0.105570948	0.00009798	0.0160	0.00001485	0.13034	0.000120973
Los Angeles	2027	Annual	MH	GAS	Aggregated	10	19070.76917	0.0024	1.036517563	0.00251498	0.2529686	0.00061380	0.00495368	0.00001202	0.0120	0.00002912	0.13034	0.000316253
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	10	75972.70228	0.0097	0.487169788	0.00470898	4.988437823	0.04821822	0.004882387	0.00004719	0.0120	0.00011599	0.13034	0.001259866
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	10	15277.19325	0.0019	1.088895499	0.00211650	0.299255574	0.00058167	0.004531816	0.00008881	0.0120	0.00002332	0.13034	0.000253344
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	10	61485.70509	0.0078	1.321840594	0.01034052	10.140438	0.07932680	0.011808714	0.00009238	0.0360	0.00002812	0.06174	0.000482981
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	10	51.48033774	0.0000	48.98039552	0.00032081	4.309450258	0.00002823	0.004728098	0.00000003	0.0200	0.00000013	0.06174	0.000000404
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	10	3676.792645	0.0005	0.780639034	0.00036518	6.62667884	0.00309995	0.006223472	0.00000291	0.0120	0.00000561	0.13034	0.000060973
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	10	3946.416905	0.0005	1.475370344	0.00074079	0.415727615	0.00020874	0.004356839	0.00000219	0.0120	0.00000603	0.13034	0.000065444
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	10	3590.515072	0.0005	0.864987074	0.00039514	10.33346413	0.00472054	0.072280957	0.00003302	0.0120	0.00000548	0.74480	0.000340240
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	10	1884.811238	0.0002	0.994348285	0.00023845	0.380632455	0.00009128	0.003606001	0.00000086	0.0080	0.00000192	0.74480	0.000178606
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	10	6.0834	0.0000	0.281812857	0.00000022	1.727591727	0.00000134	0.006525734	0.00000001	0.0360	0.00000003	0.06175	0.000000048
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	10	474.5645751	0.0001	0.394302875	0.00002381	0.263025023	0.00001588	0.004871045	0.00000029	0.0113	0.00000068	0.12357	0.000007461
							7859790	1.0		1.828	0.241	0.0058	0.008	0.040				

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2027	Annual	LDA	GAS	Aggregated	10	4125256.865	0.5498	0.031773971	0.0175
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	10	526058.4285	0.0701	0.082903396	0.0058
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	10	1504274.859	0.2005	0.058639689	0.0118
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	10	105459.0379	0.0141	0.085710075	0.0012
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	10	18497.88277	0.0025	0.06207302	0.0002
Los Angeles	2027	Annual	MCY	GAS	Aggregated	10	208090.5275	0.0277	9.969642089	0.2765
Los Angeles	2027	Annual	MDV	GAS	Aggregated	10	974487.2584	0.1299	0.070724117	0.0092
Los Angeles	2027	Annual	MH	GAS	Aggregated	10	19070.76917	0.0025	0.127754725	0.0003
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	10	15277.19325	0.0020	0.155312187	0.0003
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	10	51.48033774	0.0000	2.005504855	0.0000
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	10	3946.416905	0.0005	0.206301243	0.0001
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	10	1884.811238	0.0003	0.144444334	0.0000
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	10	474.5645751	0.0001	0.061135686	0.0000
							7502830	1.0	0.323	

EMFAC2017 Worksheet  
(10 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)
0.007804616	0.000042586	0.0020	0.000010913	0.01575	0.000085940
0.004615066	0.002422244	0.0020	0.001049712	0.01575	0.008266480
0.172196011	0.000003396	0.0020	0.000000039	0.01575	0.000000311
0.00590983	0.000395547	0.0020	0.000133861	0.01575	0.001054153
0.008458415	0.000013681	0.0020	0.000003235	0.01575	0.000025475
0.004917538	0.000941161	0.0020	0.000382777	0.01575	0.003014372
0.021035029	0.000231385	0.0030	0.000033000	0.03276	0.000360360
0.004550434	0.000061056	0.0020	0.000026835	0.03276	0.000439559
0.029362775	0.000131423	0.0030	0.000013428	0.03822	0.000171066
0.004241571	0.000009982	0.0020	0.000004707	0.03822	0.000089950
0.007812033	0.000206826	0.0010	0.000026475	0.00504	0.000133436
0.005777025	0.000020243	0.0020	0.000007008	0.01575	0.000055189
0.004955206	0.000614366	0.0020	0.000247968	0.01575	0.001952746
0.101003995	0.000093745	0.0040	0.000003713	0.05586	0.000051846
0.004554726	0.000011051	0.0030	0.000007279	0.05586	0.000135537
0.004671177	0.000045152	0.0030	0.000028998	0.05586	0.000539943
0.004166838	0.000008099	0.0030	0.000005831	0.05586	0.000108576
0.011297874	0.000088381	0.0090	0.000070405	0.02646	0.000206992
0.004347311	0.000000028	0.0050	0.000000033	0.02646	0.000000173
0.005954247	0.000002785	0.0030	0.000001403	0.05586	0.000026131
0.004005953	0.000002011	0.0030	0.000001506	0.05586	0.000028047
0.069154115	0.000031591	0.0030	0.000001370	0.31920	0.000145817
0.003315585	0.000000795	0.0020	0.000000480	0.31920	0.000076546
0.006243434	0.000000005	0.0090	0.000000007	0.02646	0.000000020
0.004478746	0.000000270	0.0028	0.000000171	0.05296	0.000003198
0.0054		0.002		0.017	



EMFAC2017 Worksheet  
(10 mph)

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
 Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	10	42887.01438	0.1201	0.109182372	0.0131
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	10	155.0212485	0.0004	0.406357304	0.0002
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	10	12712.82717	0.0356	0.220733988	0.0079
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	10	86457.57763	0.2422	0.617080398	0.1495
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	10	35179.12766	0.0986	0.619952534	0.0611
Los Angeles	2027	Annual	MDV	DSL	Aggregated	10	27541.43766	0.0772	0.113003902	0.0087
Los Angeles	2027	Annual	MH	DSL	Aggregated	10	7294.933266	0.0204	0.69278253	0.0142
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	10	75972.70228	0.2128	0.040534652	0.0086
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	10	61485.70509	0.1722	0.09688532	0.0167
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	10	3676.792645	0.0103	0.055826362	0.0006
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	10	3590.515072	0.0101	0.453635104	0.0046
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	10	6.0834	0.0000	0.142230507	0.0000
							356960	1.0		0.285

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
 Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	10	42887.01438	0.1201	0.008157506	0.0010
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	10	155.0212485	0.0004	0.179981951	0.0001
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	10	12712.82717	0.0356	0.008840868	0.0003
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	10	86457.57763	0.2422	0.02198614	0.0053
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	10	35179.12766	0.0986	0.03069043	0.0030
Los Angeles	2027	Annual	MDV	DSL	Aggregated	10	27541.43766	0.0772	0.006038237	0.0005
Los Angeles	2027	Annual	MH	DSL	Aggregated	10	7294.933266	0.0204	0.105570948	0.0022
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	10	75972.70228	0.2128	0.004882387	0.0010
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	10	61485.70509	0.1722	0.011808714	0.0020
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	10	3676.792645	0.0103	0.006223472	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	10	3590.515072	0.0101	0.072280957	0.0007
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	10	6.0834	0.0000	0.006525734	0.0000
							356960	1.0		0.016

EMFAC2017 Worksheet  
(45 mph)

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
**Pollutant Classification: Criteria**

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	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	2027	Annual	LDA	DSL	Aggregated	45	42887.01438	0.0055	0.115270111	0.00062897	0.02528039	0.00013794	0.002926368	0.00001597	0.0080	0.00004365	0.03675	0.000200527
Los Angeles	2027	Annual	LDA	GAS	Aggregated	45	4125256.865	0.5249	0.46040331	0.24164538	0.020206435	0.01060547	0.00088002	0.00046188	0.0080	0.00419885	0.03675	0.019288453
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	45	155.0212485	0.0000	0.583503444	0.00001151	0.630935002	0.00001244	0.051601123	0.00000102	0.0080	0.00000016	0.03675	0.000000725
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	45	526058.4285	0.0669	0.753059349	0.05040252	0.051341867	0.00343633	0.001160488	0.00007767	0.0080	0.00053544	0.03675	0.002459690
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	45	12712.82717	0.0016	0.090675571	0.00014666	0.025689847	0.00004155	0.003738043	0.00000605	0.0080	0.00001294	0.03675	0.000059441
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	45	1504274.859	0.1914	0.622955009	0.11922654	0.03905018	0.00747376	0.000943003	0.00018048	0.0080	0.00153111	0.03675	0.007033534
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	45	86457.57763	0.0110	0.170521297	0.00187573	0.525799632	0.00578379	0.008169619	0.00008987	0.0120	0.00013200	0.07644	0.000840839
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	45	105459.0379	0.0134	0.394193616	0.00528911	0.09904246	0.00132891	0.00085454	0.00001188	0.0080	0.00010734	0.07644	0.001025637
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	45	35179.12766	0.0045	0.172019018	0.00076993	0.529172096	0.00236849	0.011747587	0.00005258	0.0120	0.00005371	0.08918	0.000399155
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	45	18497.88277	0.0024	0.274338077	0.00064565	0.096250166	0.00022652	0.000812193	0.00000191	0.0080	0.00001883	0.08918	0.000209884
Los Angeles	2027	Annual	MCY	GAS	Aggregated	45	208090.5275	0.0265	14.33273684	0.37946393	0.982665355	0.02601639	0.001689941	0.00004474	0.0040	0.00010590	0.01176	0.000311350
Los Angeles	2027	Annual	MDV	DSL	Aggregated	45	27541.43766	0.0035	0.116710801	0.00040897	0.019469229	0.00006822	0.002382531	0.00000835	0.0080	0.00002803	0.03675	0.000128775
Los Angeles	2027	Annual	MDV	GAS	Aggregated	45	974487.2584	0.1240	0.670686213	0.08315428	0.04644216	0.00575808	0.00095295	0.00011815	0.0080	0.00099187	0.03675	0.004556408
Los Angeles	2027	Annual	MH	DSL	Aggregated	45	7294.933266	0.0009	0.152781708	0.00014180	2.367169797	0.00219705	0.042402175	0.00003935	0.0160	0.00001485	0.13034	0.000120973
Los Angeles	2027	Annual	MH	GAS	Aggregated	45	19070.76917	0.0024	0.502811787	0.00122001	0.158830093	0.00038538	0.000880422	0.00000214	0.0120	0.00002912	0.13034	0.000316253
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	45	75972.70228	0.0097	0.04537718	0.00043862	0.673327452	0.00650838	0.006021612	0.00005820	0.0120	0.00011599	0.13034	0.001259866
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	45	15277.19325	0.0019	0.597230194	0.00116085	0.177296243	0.00034461	0.000793831	0.00000154	0.0120	0.00002332	0.13034	0.000253344
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	45	61485.70509	0.0078	0.123370937	0.00096511	1.444127902	0.01129715	0.014744701	0.00011535	0.0360	0.00028162	0.06174	0.000482981
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	45	51.48033774	0.0000	27.13090667	0.00017770	2.645256921	0.00001733	0.000846084	0.00000001	0.0200	0.00000013	0.06174	0.000000404
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	45	3676.792645	0.0005	0.071753559	0.00003357	0.89024535	0.00041645	0.00876254	0.00000410	0.0120	0.00000561	0.13034	0.000060973
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	45	3946.416905	0.0005	0.791686394	0.00039751	0.254829088	0.00012795	0.000767339	0.00000039	0.0120	0.00000603	0.13034	0.000065444
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	45	3590.515072	0.0005	0.141385017	0.00006459	3.785832795	0.00172945	0.022150302	0.00001012	0.0120	0.00000548	0.74480	0.000340240
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	45	1884.811238	0.0002	0.55720583	0.00013362	0.222821183	0.00005343	0.000629663	0.00000015	0.0080	0.00000192	0.74480	0.000178606
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	45	6.0834	0.0000	0.060611135	0.00000005	0.167500299	0.00000013	0.009637211	0.00000001	0.0360	0.00000003	0.06175	0.000000048
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	45	474.5645751	0.0001	0.220956645	0.00001334	0.153974119	0.00000930	0.000850559	0.00000005	0.0113	0.00000068	0.12357	0.000007461
							7859790	1.0		0.888		0.086		0.0013		0.008		0.040

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
**Pollutant Classification: TOG GAS**

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2027	Annual	LDA	GAS	Aggregated	45	4125256.865	0.5498	0.005675812	0.0031
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	45	526058.4285	0.0701	0.01593555	0.0011
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	45	1504274.859	0.2005	0.010796841	0.0022
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	45	105459.0379	0.0141	0.018542121	0.0003
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	45	18497.88277	0.0025	0.011936722	0.0000
Los Angeles	2027	Annual	MCY	GAS	Aggregated	45	208090.5275	0.0277	2.0567277	0.0570
Los Angeles	2027	Annual	MDV	GAS	Aggregated	45	974487.2584	0.1299	0.013099653	0.0017
Los Angeles	2027	Annual	MH	GAS	Aggregated	45	19070.76917	0.0025	0.025194654	0.0001
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	45	15277.19325	0.0020	0.027706726	0.0001
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	45	51.48033774	0.0000	0.359882193	0.0000
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	45	3946.416905	0.0005	0.037636477	0.0000
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	45	1884.811238	0.0003	0.025222197	0.0000
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	45	474.5645751	0.0001	0.010675229	0.0000
							7502830	1.0		0.066

EMFAC2017 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)
0.002799775	0.000015277	0.0020	0.000010913	0.01575	0.000085940
0.000809146	0.000424685	0.0020	0.001049712	0.01575	0.008266480
0.049368882	0.000000974	0.0020	0.000000039	0.01575	0.000000311
0.001067026	0.000071416	0.0020	0.000133861	0.01575	0.001054153
0.003576337	0.000005785	0.0020	0.000003235	0.01575	0.000025475
0.000867057	0.000165945	0.0020	0.000382777	0.01575	0.003014372
0.007816205	0.000085978	0.0030	0.000033000	0.03276	0.000360360
0.000814142	0.000010924	0.0020	0.000026835	0.03276	0.000439559
0.011239391	0.000050306	0.0030	0.000013428	0.03822	0.000171066
0.000746781	0.000001758	0.0020	0.000004707	0.03822	0.000089950
0.001576665	0.000041743	0.0010	0.000026475	0.00504	0.000133436
0.002279464	0.000007987	0.0020	0.000007008	0.01575	0.000055189
0.000876202	0.000108635	0.0020	0.000247968	0.01575	0.001952746
0.040567876	0.000037652	0.0040	0.000003713	0.05586	0.000051846
0.000809515	0.000001964	0.0030	0.000007279	0.05586	0.000135537
0.00576112	0.000055687	0.0030	0.000028998	0.05586	0.000539943
0.000729899	0.000001419	0.0030	0.000005831	0.05586	0.000108576
0.014106852	0.000110355	0.0090	0.000070405	0.02646	0.000206992
0.000777943	0.000000005	0.0050	0.000000033	0.02646	0.000000173
0.008383476	0.000003922	0.0030	0.000001403	0.05586	0.000026131
0.00070554	0.000000354	0.0030	0.000001506	0.05586	0.000028047
0.02119209	0.000009681	0.0030	0.000001370	0.31920	0.000145817
0.000578952	0.000000139	0.0020	0.000000480	0.31920	0.000076546
0.00922031	0.000000007	0.0090	0.000000007	0.02646	0.000000020
0.000782058	0.000000047	0.0028	0.000000171	0.05296	0.000003198
0.0012		0.002		0.017	

EMFAC2017 Worksheet  
(45 mph)

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
 Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	45	42887.01438	0.1201	0.006665916	0.0008
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	45	155.0212485	0.0004	0.084142387	0.0000
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	45	12712.82717	0.0356	0.010806402	0.0004
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	45	86457.57763	0.2422	0.040843525	0.0099
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	45	35179.12766	0.0986	0.041181957	0.0041
Los Angeles	2027	Annual	MDV	DSL	Aggregated	45	27541.43766	0.0772	0.005972278	0.0005
Los Angeles	2027	Annual	MH	DSL	Aggregated	45	7294.933266	0.0204	0.041957995	0.0009
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	45	75972.70228	0.2128	0.006105184	0.0013
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	45	61485.70509	0.1722	0.014707514	0.0025
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	45	3676.792645	0.0103	0.008711775	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	45	3590.515072	0.0101	0.041077161	0.0004
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	45	6.0834	0.0000	0.045575897	0.0000
							356960	1.0		0.021

EMFAC2017 Emission Rates  
 Region Type: County  
 Region: Los Angeles (SC)  
 Calendar Year: 2027  
 Season: Annual  
 Vehicle Classification: EMFAC2007 Categories  
 Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	45	42887.01438	0.1201	0.002926368	0.0004
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	45	155.0212485	0.0004	0.051601123	0.0000
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	45	12712.82717	0.0356	0.003738043	0.0001
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	45	86457.57763	0.2422	0.008169619	0.0020
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	45	35179.12766	0.0986	0.011747587	0.0012
Los Angeles	2027	Annual	MDV	DSL	Aggregated	45	27541.43766	0.0772	0.002382531	0.0002
Los Angeles	2027	Annual	MH	DSL	Aggregated	45	7294.933266	0.0204	0.042402175	0.0009
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	45	75972.70228	0.2128	0.006021612	0.0013
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	45	61485.70509	0.1722	0.014744701	0.0025
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	45	3676.792645	0.0103	0.00876254	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	45	3590.515072	0.0101	0.022150302	0.0002
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	45	6.0834	0.0000	0.009637211	0.0000
							356960	1.0		0.009

EMFAC2017 Worksheet  
(55 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	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	2027	Annual	LDA	DSL	Aggregated	55	42887.01438	0.0055	0.092831789	0.00050654	0.024675207	0.00013464	0.002769984	0.00001511	0.0080	0.00004365	0.03675	0.000200527
Los Angeles	2027	Annual	LDA	GAS	Aggregated	55	4125256.865	0.5249	0.400316448	0.21010844	0.020131085	0.01056592	0.000864132	0.00045354	0.0080	0.00419885	0.03675	0.019288453
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	55	155.0212485	0.0000	0.684155429	0.00001349	0.679542214	0.00001340	0.053739677	0.00000106	0.0080	0.00000016	0.03675	0.000000725
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	55	526058.4285	0.0669	0.661514392	0.04427539	0.052696469	0.00352699	0.001131005	0.00007570	0.0080	0.00053544	0.03675	0.002459690
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	55	12712.82717	0.0016	0.069809656	0.00011291	0.022497358	0.00003639	0.003324328	0.00000538	0.0080	0.00001294	0.03675	0.000059441
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	55	1504274.859	0.1914	0.543229364	0.10396795	0.039444605	0.00754925	0.00092461	0.00017696	0.0080	0.00153111	0.03675	0.007033534
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	55	86457.57763	0.0110	0.163678439	0.00180046	0.558447806	0.00614292	0.007626363	0.00008389	0.0120	0.00013200	0.07644	0.000840839
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	55	105459.0379	0.0134	0.400864224	0.00537861	0.100103457	0.00134314	0.000874076	0.00001173	0.0080	0.00010734	0.07644	0.001025637
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	55	35179.12766	0.0045	0.16479976	0.00073762	0.561708693	0.00251412	0.01084112	0.00004852	0.0120	0.00005371	0.08918	0.000399155
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	55	18497.88277	0.0024	0.256484277	0.00060363	0.095993951	0.00022592	0.000799552	0.00000188	0.0080	0.00001883	0.08918	0.000209884
Los Angeles	2027	Annual	MCY	GAS	Aggregated	55	208090.5275	0.0265	15.16188463	0.40141590	1.006065285	0.02663591	0.001700269	0.00004502	0.0040	0.00010590	0.01176	0.000311350
Los Angeles	2027	Annual	MDV	DSL	Aggregated	55	27541.43766	0.0035	0.090897772	0.00031851	0.018233882	0.00006389	0.002173478	0.00000762	0.0080	0.00002803	0.03675	0.000128775
Los Angeles	2027	Annual	MDV	GAS	Aggregated	55	974487.2584	0.1240	0.587077161	0.07278811	0.046981683	0.00582497	0.000934405	0.00011585	0.0080	0.00099187	0.03675	0.004556408
Los Angeles	2027	Annual	MH	DSL	Aggregated	55	7294.933266	0.0009	0.133566075	0.00012397	2.158774432	0.00200363	0.049373642	0.00004583	0.0160	0.00001485	0.13034	0.000120973
Los Angeles	2027	Annual	MH	GAS	Aggregated	55	19070.76917	0.0024	0.497802151	0.00120785	0.159110198	0.00038606	0.000868126	0.00000211	0.0120	0.00002912	0.13034	0.000316253
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	55	75972.70228	0.0097	0.035880187	0.00034682	0.58472505	0.00565195	0.009823966	0.00009496	0.0120	0.00011599	0.13034	0.001259866
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	55	15277.19325	0.0019	0.528760387	0.00102776	0.176044086	0.00034218	0.000780787	0.00000152	0.0120	0.00002332	0.13034	0.000253344
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	55	61485.70509	0.0078	0.097464717	0.00076245	1.282633256	0.01003381	0.024004489	0.00018778	0.0360	0.00028162	0.06174	0.000482981
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	55	51.48033774	0.0000	23.80695987	0.00015593	2.640987783	0.00001730	0.000835238	0.00000001	0.0200	0.00000013	0.06174	0.000000404
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	55	3676.792645	0.0005	0.056622477	0.00002649	0.788891674	0.00036904	0.014455083	0.00000676	0.0120	0.00000561	0.13034	0.000060973
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	55	3946.416905	0.0005	0.714957173	0.00035898	0.254364084	0.00012772	0.000755442	0.00000038	0.0120	0.00000603	0.13034	0.000065444
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	55	3590.515072	0.0005	0.123403471	0.00005637	3.763006016	0.00171902	0.028914904	0.00001321	0.0120	0.00000548	0.74480	0.000340240
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	55	1884.811238	0.0002	0.483843856	0.00011603	0.2208269	0.000618976	0.00000105	0.00000019	0.0080	0.00000192	0.74480	0.000178606
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	55	6.0834	0.0000	0.050263037	0.00000004	0.147007717	0.00000011	0.014534097	0.00000001	0.0360	0.00000003	0.06175	0.000000048
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	55	474.5645751	0.0001	0.191865392	0.00001158	0.152596027	0.00000921	0.000836122	0.00000005	0.0113	0.00000068	0.12357	0.000007461
							7859790	1.0		0.846		0.085		0.0014		0.008		0.040

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2027	Annual	LDA	GAS	Aggregated	55	4125256.865	0.5498	0.005546182	0.0030
Los Angeles	2027	Annual	LDT1	GAS	Aggregated	55	526058.4285	0.0701	0.015301885	0.0011
Los Angeles	2027	Annual	LDT2	GAS	Aggregated	55	1504274.859	0.2005	0.010468159	0.0021
Los Angeles	2027	Annual	LHD1	GAS	Aggregated	55	105459.0379	0.0141	0.018840936	0.0003
Los Angeles	2027	Annual	LHD2	GAS	Aggregated	55	18497.88277	0.0025	0.011922478	0.0000
Los Angeles	2027	Annual	MCY	GAS	Aggregated	55	208090.5275	0.0277	2.076015643	0.0576
Los Angeles	2027	Annual	MDV	GAS	Aggregated	55	974487.2584	0.1299	0.012738143	0.0017
Los Angeles	2027	Annual	MH	GAS	Aggregated	55	19070.76917	0.0025	0.025262316	0.0001
Los Angeles	2027	Annual	MHDT	GAS	Aggregated	55	15277.19325	0.0020	0.027337137	0.0001
Los Angeles	2027	Annual	HHDT	GAS	Aggregated	55	51.48033774	0.0000	0.355436413	0.0000
Los Angeles	2027	Annual	OBUS	GAS	Aggregated	55	3946.416905	0.0005	0.037274435	0.0000
Los Angeles	2027	Annual	SBUS	GAS	Aggregated	55	1884.811238	0.0003	0.02479409	0.0000
Los Angeles	2027	Annual	UBUS	GAS	Aggregated	55	474.5645751	0.0001	0.010494034	0.0000
							7502830	1.0	0.066	

EMFAC2017 Worksheet  
(55 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)
0.002650155	0.000014461	0.0020	0.000010913	0.01575	0.000085940
0.000794537	0.000417018	0.0020	0.001049712	0.01575	0.008266480
0.051414923	0.000001014	0.0020	0.000000039	0.01575	0.000000311
0.001039917	0.000069602	0.0020	0.000133861	0.01575	0.001054153
0.003180519	0.000005144	0.0020	0.000003235	0.01575	0.000025475
0.000850145	0.000162708	0.0020	0.000382777	0.01575	0.003014372
0.00729645	0.000080261	0.0030	0.000033000	0.03276	0.000360360
0.000803681	0.000010783	0.0020	0.000026835	0.03276	0.000439559
0.010372138	0.000046424	0.0030	0.000013428	0.03822	0.000171066
0.000735159	0.000001730	0.0020	0.000004707	0.03822	0.000089950
0.001586375	0.000042000	0.0010	0.000026475	0.00504	0.000133436
0.002079455	0.000007287	0.0020	0.000007008	0.01575	0.000055189
0.000859151	0.000106521	0.0020	0.000247968	0.01575	0.001952746
0.04723776	0.000043843	0.0040	0.000003713	0.05586	0.000051846
0.00079821	0.000001937	0.0030	0.000007279	0.05586	0.000135537
0.009398986	0.000090851	0.0030	0.000028998	0.05586	0.000539943
0.000717905	0.000001395	0.0030	0.000005831	0.05586	0.000108576
0.022966065	0.000179659	0.0090	0.000070405	0.02646	0.000206992
0.00076797	0.000000005	0.0050	0.000000033	0.02646	0.000000173
0.013829762	0.000006470	0.0030	0.000001403	0.05586	0.000026131
0.000694601	0.000000349	0.0030	0.000001506	0.05586	0.000028047
0.027664058	0.000012638	0.0030	0.000001370	0.31920	0.000145817
0.000569125	0.000000136	0.0020	0.000000480	0.31920	0.000076546
0.013905359	0.000000011	0.0090	0.000000007	0.02646	0.000000020
0.000768784	0.000000046	0.0028	0.000000171	0.05296	0.000003198
0.0013		0.002		0.017	

EMFAC2017 Worksheet  
(55 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	55	42887.01438	0.1201	0.005564119	0.0007
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	55	155.0212485	0.0004	0.086419937	0.0000
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	55	12712.82717	0.0356	0.008291868	0.0003
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	55	86457.57763	0.2422	0.034957007	0.0085
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	55	35179.12766	0.0986	0.035283985	0.0035
Los Angeles	2027	Annual	MDV	DSL	Aggregated	55	27541.43766	0.0772	0.00473227	0.0004
Los Angeles	2027	Annual	MH	DSL	Aggregated	55	7294.933266	0.0204	0.035606817	0.0007
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	55	75972.70228	0.2128	0.006665119	0.0014
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	55	61485.70509	0.1722	0.016061896	0.0028
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	55	3676.792645	0.0103	0.009607001	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	55	3590.515072	0.0101	0.039423378	0.0004
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	55	6.0834	0.0000	0.039675716	0.0000
							356960	1.0		0.019

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2027	Annual	LDA	DSL	Aggregated	55	42887.01438	0.1201	0.002769984	0.0003
Los Angeles	2027	Annual	LDT1	DSL	Aggregated	55	155.0212485	0.0004	0.053739677	0.0000
Los Angeles	2027	Annual	LDT2	DSL	Aggregated	55	12712.82717	0.0356	0.003324328	0.0001
Los Angeles	2027	Annual	LHD1	DSL	Aggregated	55	86457.57763	0.2422	0.007626363	0.0018
Los Angeles	2027	Annual	LHD2	DSL	Aggregated	55	35179.12766	0.0986	0.01084112	0.0011
Los Angeles	2027	Annual	MDV	DSL	Aggregated	55	27541.43766	0.0772	0.002173478	0.0002
Los Angeles	2027	Annual	MH	DSL	Aggregated	55	7294.933266	0.0204	0.049373642	0.0010
Los Angeles	2027	Annual	MHDT	DSL	Aggregated	55	75972.70228	0.2128	0.009823966	0.0021
Los Angeles	2027	Annual	HHDT	DSL	Aggregated	55	61485.70509	0.1722	0.024004489	0.0041
Los Angeles	2027	Annual	OBUS	DSL	Aggregated	55	3676.792645	0.0103	0.014455083	0.0001
Los Angeles	2027	Annual	SBUS	DSL	Aggregated	55	3590.515072	0.0101	0.028914904	0.0003
Los Angeles	2027	Annual	UBUS	DSL	Aggregated	55	6.0834	0.0000	0.014534097	0.0000
							356960	1.0		0.011

EMFAC2017 Worksheet  
(65 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: Criteria

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	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	2022	Annual	LDA	DSL	Aggregated	65	42887.01438	0.0055	0.095339255	0.00052022	0.025470655	0.00013898	0.003037434	0.00001657	0.0080	0.00004365	0.03675	0.000200527
Los Angeles	2022	Annual	LDA	GAS	Aggregated	65	4125256.865	0.5249	0.352381145	0.18494931	0.021475547	0.01127157	0.001050143	0.00055117	0.0080	0.00419885	0.03675	0.019288453
Los Angeles	2022	Annual	LDT1	DSL	Aggregated	65	155.0212485	0.0000	0.999902013	0.00001972	0.730041512	0.00001440	0.067022866	0.00000132	0.0080	0.00000016	0.03675	0.000000725
Los Angeles	2022	Annual	LDT1	GAS	Aggregated	65	526058.4285	0.0669	0.595163839	0.03983452	0.059218515	0.00396352	0.001356099	0.00009076	0.0080	0.00053544	0.03675	0.002459690
Los Angeles	2022	Annual	LDT2	DSL	Aggregated	65	12712.82717	0.0016	0.067234061	0.00010875	0.022065833	0.00003569	0.003291582	0.00000532	0.0080	0.00001294	0.03675	0.000059441
Los Angeles	2022	Annual	LDT2	GAS	Aggregated	65	1504274.859	0.1914	0.481129705	0.092208278	0.043140902	0.00825668	0.001120707	0.00021449	0.0080	0.00153111	0.03675	0.007033534
Los Angeles	2022	Annual	LHD1	DSL	Aggregated	65	86457.57763	0.0110	0.20466276	0.00225129	0.59675158	0.00656426	0.008186353	0.00009005	0.0120	0.00013200	0.07644	0.000840839
Los Angeles	2022	Annual	LHD1	GAS	Aggregated	65	105459.0379	0.0134	0.478449596	0.00641962	0.10621922	0.00142520	0.001066596	0.00001431	0.0080	0.00010734	0.07644	0.001025637
Los Angeles	2022	Annual	LHD2	DSL	Aggregated	65	35179.12766	0.0045	0.205696626	0.00092066	0.600103744	0.00268597	0.011427139	0.00005115	0.0120	0.00005371	0.08918	0.000399155
Los Angeles	2022	Annual	LHD2	GAS	Aggregated	65	18497.88277	0.0024	0.264610142	0.00062276	0.101563911	0.00023903	0.000974262	0.00000229	0.0080	0.00001883	0.08918	0.000209884
Los Angeles	2022	Annual	MCY	GAS	Aggregated	65	208090.5275	0.0265	19.17894542	0.50776890	1.070477626	0.02834125	0.002095059	0.00005547	0.0040	0.00010590	0.01176	0.000311350
Los Angeles	2022	Annual	MDV	DSL	Aggregated	65	27541.43766	0.0035	0.089059496	0.00031207	0.018476437	0.00006474	0.002248212	0.00000788	0.0080	0.00002803	0.03675	0.000128775
Los Angeles	2022	Annual	MDV	GAS	Aggregated	65	974487.2584	0.1240	0.524814089	0.06506849	0.051409236	0.00637392	0.001132226	0.00014038	0.0080	0.00099187	0.03675	0.004556408
Los Angeles	2022	Annual	MH	DSL	Aggregated	65	7294.933266	0.0009	0.140837253	0.00013072	2.165114064	0.00200951	0.063943828	0.00005935	0.0160	0.00001485	0.13034	0.000120973
Los Angeles	2022	Annual	MH	GAS	Aggregated	65	19070.76917	0.0024	0.569020143	0.00138110	0.168505513	0.00040886	0.001058713	0.00000257	0.0120	0.00002912	0.13034	0.000316253
Los Angeles	2022	Annual	MHDT	DSL	Aggregated	65	75972.70228	0.0097	0.049982457	0.00048313	0.939141483	0.00907774	0.015078317	0.00014575	0.0120	0.00011599	0.13034	0.001259866
Los Angeles	2022	Annual	MHDT	GAS	Aggregated	65	15277.19325	0.0019	0.48609146	0.00094482	0.186077855	0.00036168	0.000950958	0.00000185	0.0120	0.00002332	0.13034	0.000253344
Los Angeles	2022	Annual	HHDT	DSL	Aggregated	65	61485.70509	0.0078	0.135719421	0.00106171	2.016810822	0.01577714	0.036830985	0.00028812	0.0360	0.00028162	0.06174	0.000482981
Los Angeles	2022	Annual	HHDT	GAS	Aggregated	65	51.48033774	0.0000	21.43326013	0.00014038	2.794871939	0.00001831	0.00101922	0.00000001	0.0200	0.00000013	0.06174	0.000000404
Los Angeles	2022	Annual	OBUS	DSL	Aggregated	65	3676.792645	0.0005	0.079452851	0.00003717	1.296688052	0.00006059	0.022355223	0.00001046	0.0120	0.00000561	0.13034	0.000060973
Los Angeles	2022	Annual	OBUS	GAS	Aggregated	65	3946.416905	0.0005	0.68701082	0.00034495	0.269172826	0.00013515	0.000920541	0.00000046	0.0120	0.00000603	0.13034	0.000065444
Los Angeles	2022	Annual	SBUS	DSL	Aggregated	65	3590.515072	0.0005	0.132945444	0.00006073	4.026931661	0.00183959	0.034480745	0.00001575	0.0120	0.00000548	0.74480	0.000340240
Los Angeles	2022	Annual	SBUS	GAS	Aggregated	65	1884.811238	0.0002	0.424703248	0.00010185	0.233315075	0.00005595	0.000753663	0.00000018	0.0080	0.00000192	0.74480	0.000178606
Los Angeles	2022	Annual	UBUS	DSL	Aggregated	65	6.0834	0.0000	0.043068941	0.00000003	0.26471148	0.00000020	0.021212269	0.00000002	0.0360	0.00000003	0.06175	0.000000048
Los Angeles	2022	Annual	UBUS	GAS	Aggregated	65	474.5645751	0.0001	0.168413537	0.00001017	0.161225619	0.00000973	0.00101806	0.00000006	0.0113	0.00000068	0.12357	0.000007461
							7859790	1.0		0.906		0.100		0.0018		0.008		0.040

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG GAS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	WtFrac	TOG_RUNEX (gms/mile)	TOG_RUNEX_AVE (gms/mile)
Los Angeles	2022	Annual	LDA	GAS	Aggregated	65	4125256.865	0.5498	0.006681886	0.0037
Los Angeles	2022	Annual	LDT1	GAS	Aggregated	65	526058.4285	0.0701	0.017845076	0.0013
Los Angeles	2022	Annual	LDT2	GAS	Aggregated	65	1504274.859	0.2005	0.012435274	0.0025
Los Angeles	2022	Annual	LHD1	GAS	Aggregated	65	105459.0379	0.0141	0.023330965	0.0003
Los Angeles	2022	Annual	LHD2	GAS	Aggregated	65	18497.88277	0.0025	0.014636602	0.0000
Los Angeles	2022	Annual	MCY	GAS	Aggregated	65	208090.5275	0.0277	2.562228118	0.0711
Los Angeles	2022	Annual	MDV	GAS	Aggregated	65	974487.2584	0.1299	0.015178919	0.0020
Los Angeles	2022	Annual	MH	GAS	Aggregated	65	19070.76917	0.0025	0.031074408	0.0001
Los Angeles	2022	Annual	MHDT	GAS	Aggregated	65	15277.19325	0.0020	0.033349681	0.0001
Los Angeles	2022	Annual	HHDT	GAS	Aggregated	65	51.48033774	0.0000	0.433836158	0.0000
Los Angeles	2022	Annual	OBUS	GAS	Aggregated	65	3946.416905	0.0005	0.045561325	0.0000
Los Angeles	2022	Annual	SBUS	GAS	Aggregated	65	1884.811238	0.0003	0.030189223	0.0000
Los Angeles	2022	Annual	UBUS	GAS	Aggregated	65	474.5645751	0.0001	0.01277751	0.0000
							7502830	1.0		0.081



EMFAC2017 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)
0.002906036	0.000015857	0.0020	0.000010913	0.01575	0.000085940
0.000965568	0.000506784	0.0020	0.001049712	0.01575	0.008266480
0.064123487	0.000001265	0.0020	0.000000039	0.01575	0.000000311
0.001246883	0.000083454	0.0020	0.000133861	0.01575	0.001054153
0.003149189	0.000005094	0.0020	0.000003235	0.01575	0.000025475
0.001030449	0.000197216	0.0020	0.000382777	0.01575	0.003014372
0.007832215	0.000086154	0.0030	0.000033000	0.03276	0.000360360
0.000980696	0.000013159	0.0020	0.000026835	0.03276	0.000439559
0.010932806	0.000048933	0.0030	0.000013428	0.03822	0.000171066
0.000895798	0.000002108	0.0020	0.000004707	0.03822	0.000089950
0.001954767	0.000051753	0.0010	0.000026475	0.00504	0.000133436
0.002150956	0.000007537	0.0020	0.000007008	0.01575	0.000055189
0.00104104	0.000129072	0.0020	0.000247968	0.01575	0.001952746
0.061177646	0.000056781	0.0040	0.000003713	0.05586	0.000051846
0.000973447	0.000002362	0.0030	0.000007279	0.05586	0.000135537
0.014426036	0.000139442	0.0030	0.000028998	0.05586	0.000539943
0.000874371	0.000001700	0.0030	0.000005831	0.05586	0.000108576
0.035237693	0.000275658	0.0090	0.000070405	0.02646	0.000206992
0.000937135	0.000000006	0.0050	0.000000033	0.02646	0.000000173
0.021388146	0.000010005	0.0030	0.000001403	0.05586	0.000026131
0.000846403	0.000000425	0.0030	0.000001506	0.05586	0.000028047
0.032989123	0.000015070	0.0030	0.000001370	0.31920	0.000145817
0.000692965	0.000000166	0.0020	0.000000480	0.31920	0.000076546
0.020294635	0.000000016	0.0090	0.000000007	0.02646	0.000000020
0.000936069	0.000000057	0.0028	0.000000171	0.05296	0.000003198
0.0017		0.002		0.017	

EMFAC2017 Worksheet  
(65 mph)

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: TOG DSL

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	TOG_RUNEX (gms/mile)	TOG_RUNEX AVE (gms/mile)
Los Angeles	2022	Annual	LDA	DSL	Aggregated	65	42887.01438	0.1201	0.005818468	0.0007
Los Angeles	2022	Annual	LDT1	DSL	Aggregated	65	155.0212485	0.0004	0.107166972	0.0000
Los Angeles	2022	Annual	LDT2	DSL	Aggregated	65	12712.82717	0.0356	0.007915037	0.0003
Los Angeles	2022	Annual	LHD1	DSL	Aggregated	65	86457.57763	0.2422	0.037452056	0.0091
Los Angeles	2022	Annual	LHD2	DSL	Aggregated	65	35179.12766	0.0986	0.037840147	0.0037
Los Angeles	2022	Annual	MDV	DSL	Aggregated	65	27541.43766	0.0772	0.004686183	0.0004
Los Angeles	2022	Annual	MH	DSL	Aggregated	65	7294.933266	0.0204	0.03909938	0.0008
Los Angeles	2022	Annual	MHDT	DSL	Aggregated	65	75972.70228	0.2128	0.009385634	0.0020
Los Angeles	2022	Annual	HHDT	DSL	Aggregated	65	61485.70509	0.1722	0.022646067	0.0039
Los Angeles	2022	Annual	OBUS	DSL	Aggregated	65	3676.792645	0.0103	0.013713986	0.0001
Los Angeles	2022	Annual	SBUS	DSL	Aggregated	65	3590.515072	0.0101	0.043587208	0.0004
Los Angeles	2022	Annual	UBUS	DSL	Aggregated	65	6.0834	0.0000	0.035387061	0.0000
							356960	1.0	0.021	

EMFAC2017 Emission Rates  
Region Type: County  
Region: Los Angeles (SC)  
Calendar Year: 2027  
Season: Annual  
Vehicle Classification: EMFAC2007 Categories  
Pollutant Classification: DSL Particulate

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	Wt Frac	PM10_RUNEX (gms/mile)	PM10_RUNEX AVE (gms/mile)
Los Angeles	2022	Annual	LDA	DSL	Aggregated	65	42887.01438	0.1201	0.003037434	0.0004
Los Angeles	2022	Annual	LDT1	DSL	Aggregated	65	155.0212485	0.0004	0.067022866	0.0000
Los Angeles	2022	Annual	LDT2	DSL	Aggregated	65	12712.82717	0.0356	0.003291582	0.0001
Los Angeles	2022	Annual	LHD1	DSL	Aggregated	65	86457.57763	0.2422	0.008186353	0.0020
Los Angeles	2022	Annual	LHD2	DSL	Aggregated	65	35179.12766	0.0986	0.011427139	0.0011
Los Angeles	2022	Annual	MDV	DSL	Aggregated	65	27541.43766	0.0772	0.002248212	0.0002
Los Angeles	2022	Annual	MH	DSL	Aggregated	65	7294.933266	0.0204	0.063943828	0.0013
Los Angeles	2022	Annual	MHDT	DSL	Aggregated	65	75972.70228	0.2128	0.015078317	0.0032
Los Angeles	2022	Annual	HHDT	DSL	Aggregated	65	61485.70509	0.1722	0.036830985	0.0063
Los Angeles	2022	Annual	OBUS	DSL	Aggregated	65	3676.792645	0.0103	0.022355223	0.0002
Los Angeles	2022	Annual	SBUS	DSL	Aggregated	65	3590.515072	0.0101	0.034480745	0.0003
Los Angeles	2022	Annual	UBUS	DSL	Aggregated	65	6.0834	0.0000	0.021212269	0.0000
							356960	1.0	0.015	

## 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	0.888
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	2.112
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	2.204
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Emfac (gr/mi)	3.306
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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	0.086
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.205
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.298
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Emfac (gr/mi)	0.447
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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	0.0013
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.0031
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.0089
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Emfac (gr/mi)	0.013
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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	0.0012
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.0029
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.0082
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Emfac (gr/mi)	0.012
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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	0.066
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.157
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.500
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Emfac (gr/mi)	0.750
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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	0.021
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.050
---------------	-------

Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.389
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Emfac (gr/mi)	0.584
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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	0.009
speed (mph)	45.0
acceleration time (sec)	18.0
acceleration rate (mph/sec)	2.50

Emfac (gr/mi)	0.021
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Deceleration / Off-Ramp

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

emfac at idle speed (gr/mi)	0.019
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Emfac (gr/mi)	0.029
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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	0.001190
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

2027	0.021079	0.013600	0.004659	0.002450	0.001130
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TOG Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.157
	Deceleration	0.750
	55	0.066
	65	0.081

Toxic Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.006738
	Deceleration	0.032189
	55	0.002833
	65	0.003476

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	0.021
Speed (MPH)	Deceleration	0.029
	55	0.011
	65	0.015

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 Short Duration 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	0.001190
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

2027	0.021079	0.013600	0.004659	0.002450	0.001130
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TOG Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.157
	Deceleration	0.750
	10	0.323
	55	0.066
	65	0.081

Toxic Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.006738
	Deceleration	0.032189
	10	0.013863
	55	0.002833
	65	0.003476

Weight Fraction / Speciation

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

## Emission Factor Profile Worksheet Short Duration 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

2027	0.020009	0.147133	0.001900	0.073526	0
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TOG Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.050
	Deceleration	0.584
	10	0.285
	55	0.019
	65	0.021

Toxic Emission Rate - gr/mi

Speed (MPH)	Acceleration	0.012128
	Deceleration	0.141660
	10	0.069132
	55	0.004609
	65	0.005094

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/405 (Sources N\_M\_1 to N\_M\_18)**

**CO Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5353
Pollutant Mass Emission Rate (gr/mi)	0.906

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

Pollutant Emission Rate (gr/sec)	0.68895
Pollutant Emission Rate (gr/sec/source)	3.83E-02

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**CO Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4871
Pollutant Mass Emission Rate (gr/mi)	0.846

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

Pollutant Emission Rate (gr/sec)	0.58539
Pollutant Emission Rate (gr/sec/source)	3.25E-02

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**CO Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.03557
Pollutant Emission Rate (gr/sec/source)	2.22E-03

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**CO Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	292
Pollutant Mass Emission Rate (gr/mi)	3.306

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)	0.05282
Pollutant Emission Rate (gr/sec/source)	3.30E-03

3 **SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)**

**CO Emissions**

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.03593
Pollutant Emission Rate (gr/sec/source)	1.33E-03

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**CO Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	667
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.05495
Pollutant Emission Rate (gr/sec/source)	4.23E-03

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**CO Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	863
Pollutant Mass Emission Rate (gr/mi)	3.306

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

Pollutant Emission Rate (gr/sec)	0.23638
Pollutant Emission Rate (gr/sec/source)	6.75E-03

On-Road Mobile Sources  
Emission Rate Computation

**Minimum Speed Scenario**

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

**CO Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4274
Pollutant Mass Emission Rate (gr/mi)	1.828

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

Pollutant Emission Rate (gr/sec)	1.10987
Pollutant Emission Rate (gr/sec/source)	6.17E-02

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**CO Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5067
Pollutant Mass Emission Rate (gr/mi)	1.828

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

Pollutant Emission Rate (gr/sec)	1.31579
Pollutant Emission Rate (gr/sec/source)	7.31E-02

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**CO Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.03557
Pollutant Emission Rate (gr/sec/source)	2.22E-03

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**CO Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	292
Pollutant Mass Emission Rate (gr/mi)	3.306

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)	0.05282
Pollutant Emission Rate (gr/sec/source)	3.30E-03

3 **SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)**

**CO Emissions**

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.03593
Pollutant Emission Rate (gr/sec/source)	1.33E-03

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**CO Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	667
Pollutant Mass Emission Rate (gr/mi)	2.112

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

Pollutant Emission Rate (gr/sec)	0.05495
Pollutant Emission Rate (gr/sec/source)	4.23E-03

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**CO Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	863
Pollutant Mass Emission Rate (gr/mi)	3.306

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

Pollutant Emission Rate (gr/sec)	0.23638
Pollutant Emission Rate (gr/sec/source)	6.75E-03

On-Road Mobile Sources  
Emission Rate Computation

**Minimum Speed Scenario**

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

**NOx Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4274
Pollutant Mass Emission Rate (gr/mi)	0.241

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

Pollutant Emission Rate (gr/sec)	0.14632
Pollutant Emission Rate (gr/sec/source)	8.13E-03

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**NOx Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5067
Pollutant Mass Emission Rate (gr/mi)	0.241

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

Pollutant Emission Rate (gr/sec)	0.17347
Pollutant Emission Rate (gr/sec/source)	9.64E-03

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**NOx Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	0.205

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

Pollutant Emission Rate (gr/sec)	0.00345
Pollutant Emission Rate (gr/sec/source)	2.16E-04

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**NOx Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	292
Pollutant Mass Emission Rate (gr/mi)	0.447

## 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)	0.00714
Pollutant Emission Rate (gr/sec/source)	4.46E-04

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### NOx Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	333
Pollutant Mass Emission Rate (gr/mi)	0.205

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

Pollutant Emission Rate (gr/sec)	0.00349
Pollutant Emission Rate (gr/sec/source)	1.29E-04

### 4 NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)

#### NOx Emissions

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	667
Pollutant Mass Emission Rate (gr/mi)	0.205

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

Pollutant Emission Rate (gr/sec)	0.00533
Pollutant Emission Rate (gr/sec/source)	4.10E-04

### 5 SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)

#### NOx Emissions

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	863
Pollutant Mass Emission Rate (gr/mi)	0.447

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

Pollutant Emission Rate (gr/sec)	0.03196
Pollutant Emission Rate (gr/sec/source)	9.13E-04



## On-Road Mobile Sources Emission Rate Computation

### Average Speed Scenario

#### NB/405 (Sources N\_M\_1 to N\_M\_18)

##### PM10 Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5353
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m <sup>2</sup> )	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0018
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.119

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

PM10 Reentrainment Emission Rate (gr/sec)	0.090691
PM10 Reentrainment Emission Rate (gr/sec/source)	5.04E-03

#### SB/405 (Sources S\_M\_1 to S\_M\_18)

##### PM10 Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4871
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m <sup>2</sup> )	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0014
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.119

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

PM10 Reentrainment Emission Rate (gr/sec)	0.082248
PM10 Reentrainment Emission Rate (gr/sec/source)	4.57E-03

#### 1 SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)

##### PM10 Emissions

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	333
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m <sup>2</sup> )	0.02

## On-Road Mobile Sources Emission Rate Computation

Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0031
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.121

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

PM10 Reentrainment Emission Rate (gr/sec)	0.002030
PM10 Reentrainment Emission Rate (gr/sec/source)	1.27E-04

### 2 NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)

#### PM10 Emissions

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	292
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.013
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.130

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

PM10 Reentrainment Emission Rate (gr/sec)	0.002084
PM10 Reentrainment Emission Rate (gr/sec/source)	1.30E-04

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### PM10 Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	333
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0031
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.121

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

PM10 Reentrainment Emission Rate (gr/sec)	0.002051
PM10 Reentrainment Emission Rate (gr/sec/source)	7.60E-05

On-Road Mobile Sources  
Emission Rate Computation

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**PM10 Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	667
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0031
Emfac2017 Emissions TW/BW (g/mi)	0.048
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)<sup>0.91</sup> x (Gross Vehicle Weight)<sup>1.02</sup> ) + (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)	0.003137
PM10 Reentrainment Emission Rate (gr/sec/source)	2.41E-04

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**PM10 Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	863
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.013
Emfac2017 Emissions TW/BW (g/mi)	0.048
PM10 Reentrainment Mass Emission Rate (gr/mi)	0.130

*For PM10 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM10 Base Emission Factor) x (Road Surface Silt Loading)<sup>0.91</sup> x (Gross Vehicle Weight)<sup>1.02</sup> ) + (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)	0.009328
PM10 Reentrainment Emission Rate (gr/sec/source)	2.67E-04

## On-Road Mobile Sources Emission Rate Computation

### Average Speed Scenario

#### NB/405 (Sources N\_M\_1 to N\_M\_18)

##### PM2.5 Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5353
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0017
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.090

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)	0.068562
PM2.5 Reentrainment Emission Rate (gr/sec/source)	3.81E-03

#### SB/405 (Sources S\_M\_1 to S\_M\_18)

##### PM2.5 Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4871
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0013
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.090

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)	0.062112
PM2.5 Reentrainment Emission Rate (gr/sec/source)	3.45E-03

#### 1 SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)

##### PM2.5 Emissions

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	333
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
Emfac2017 Emissions Run (g/mi)	0.0029
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.091

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)	0.001539
PM2.5 Reentrainment Emission Rate (gr/sec/source)	9.62E-05

### 2 NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)

#### PM2.5 Emissions

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	292
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.012
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.100

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)	0.001605
PM2.5 Reentrainment Emission Rate (gr/sec/source)	1.00E-04

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### PM2.5 Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	333
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0029
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.091

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)	0.001554
PM2.5 Reentrainment Emission Rate (gr/sec/source)	5.76E-05

On-Road Mobile Sources  
Emission Rate Computation

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**PM2.5 Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	667
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.0029
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.091

*For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)<sup>0.91</sup> x (Gross Vehicle Weight)<sup>1.02</sup> ) + (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)	0.002377
PM2.5 Reentrainment Emission Rate (gr/sec/source)	1.83E-04

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**PM2.5 Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	863
Particle Size Multiplier (g/mi)	1.0
Road Surface Silt Loading (g/m2)	0.02
Average Vehicle Weight (tons)	2.4
Emfac2017 Emissions Run (g/mi)	0.012
Emfac2017 Emissions TW/BW (g/mi)	0.019
PM2.5 Reentrainment Mass Emission Rate (gr/mi)	0.100

*For PM2.5 Reentrainment: Mass Emission Rate (gr/mile) = ((Particulate PM2.5 Base Emission Factor) x (Road Surface Silt Loading)<sup>0.91</sup> x (Gross Vehicle Weight)<sup>1.02</sup> ) + (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)	0.007183
PM2.5 Reentrainment Emission Rate (gr/sec/source)	2.05E-04

On-Road Mobile Sources  
Emission Rate Computation

**Average Speed Scenario**

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

**TOG GAS Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	5110
Pollutant Mass Emission Rate (gr/mi)	0.003476

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

Pollutant Emission Rate (gr/sec)	0.00252
Pollutant Emission Rate (gr/sec/source)	1.40E-04

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**TOG GAS Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4650
Pollutant Mass Emission Rate (gr/mi)	0.002833

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

Pollutant Emission Rate (gr/sec)	0.00187
Pollutant Emission Rate (gr/sec/source)	1.04E-04

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**TOG GAS Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	318
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00011
Pollutant Emission Rate (gr/sec/source)	6.77E-06

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**TOG GAS Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	279
Pollutant Mass Emission Rate (gr/mi)	0.032189

## 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)	0.00049
Pollutant Emission Rate (gr/sec/source)	3.07E-05

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### TOG GAS Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	318
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00011
Pollutant Emission Rate (gr/sec/source)	4.05E-06

### 4 NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)

#### TOG GAS Emissions

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	637
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00017
Pollutant Emission Rate (gr/sec/source)	1.29E-05

### 5 SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)

#### TOG GAS Emissions

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	824
Pollutant Mass Emission Rate (gr/mi)	0.032189

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

Pollutant Emission Rate (gr/sec)	0.00220
Pollutant Emission Rate (gr/sec/source)	6.28E-05



On-Road Mobile Sources  
Emission Rate Computation

**Minimum Speed Scenario**

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

**TOG GAS Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4080
Pollutant Mass Emission Rate (gr/mi)	0.013863

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

Pollutant Emission Rate (gr/sec)	0.00803
Pollutant Emission Rate (gr/sec/source)	4.46E-04

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**TOG GAS Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	4837
Pollutant Mass Emission Rate (gr/mi)	0.013863

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

Pollutant Emission Rate (gr/sec)	0.00953
Pollutant Emission Rate (gr/sec/source)	5.29E-04

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**TOG GAS Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	318
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00011
Pollutant Emission Rate (gr/sec/source)	6.77E-06

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**TOG GAS Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	279
Pollutant Mass Emission Rate (gr/mi)	0.032189

## 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)	0.00049
Pollutant Emission Rate (gr/sec/source)	3.07E-05

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### TOG GAS Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	318
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00011
Pollutant Emission Rate (gr/sec/source)	4.05E-06

### 4 NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)

#### TOG GAS Emissions

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	637
Pollutant Mass Emission Rate (gr/mi)	0.006738

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

Pollutant Emission Rate (gr/sec)	0.00017
Pollutant Emission Rate (gr/sec/source)	1.29E-05

### 5 SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)

#### TOG GAS Emissions

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	824
Pollutant Mass Emission Rate (gr/mi)	0.032189

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

Pollutant Emission Rate (gr/sec)	0.00220
Pollutant Emission Rate (gr/sec/source)	6.28E-05

On-Road Mobile Sources  
Emission Rate Computation

**Average Speed Scenario**

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

**TOG DSL Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	243
Pollutant Mass Emission Rate (gr/mi)	0.005094

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

Pollutant Emission Rate (gr/sec)	0.00018
Pollutant Emission Rate (gr/sec/source)	9.77E-06

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

**TOG DSL Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	221
Pollutant Mass Emission Rate (gr/mi)	0.004609

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

Pollutant Emission Rate (gr/sec)	0.00014
Pollutant Emission Rate (gr/sec/source)	8.04E-06

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

**TOG DSL Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	5.75E-07

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

**TOG DSL Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	13
Pollutant Mass Emission Rate (gr/mi)	0.141660

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)	0.00010
Pollutant Emission Rate (gr/sec/source)	6.30E-06

3 **SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)**

**TOG DSL Emissions**

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	3.44E-07

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**TOG DSL Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	30
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.09E-06

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**TOG DSL Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	39
Pollutant Mass Emission Rate (gr/mi)	0.141660

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

Pollutant Emission Rate (gr/sec)	0.00046
Pollutant Emission Rate (gr/sec/source)	1.31E-05

## On-Road Mobile Sources Emission Rate Computation

### Minimum Speed Scenario

**NB/405 (Sources N\_M\_1 to N\_M\_18)**

#### **TOG DSL Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	194
Pollutant Mass Emission Rate (gr/mi)	0.069132

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

Pollutant Emission Rate (gr/sec)	0.00191
Pollutant Emission Rate (gr/sec/source)	1.06E-04

**SB/405 (Sources S\_M\_1 to S\_M\_18)**

#### **TOG DSL Emissions**

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	230
Pollutant Mass Emission Rate (gr/mi)	0.069132

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

Pollutant Emission Rate (gr/sec)	0.00226
Pollutant Emission Rate (gr/sec/source)	1.25E-04

1 **SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)**

#### **TOG DSL Emissions**

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	5.75E-07

2 **NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)**

#### **TOG DSL Emissions**

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	13
Pollutant Mass Emission Rate (gr/mi)	0.141660

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)	0.00010
Pollutant Emission Rate (gr/sec/source)	6.30E-06

3 **SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)**

**TOG DSL Emissions**

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	3.44E-07

4 **NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)**

**TOG DSL Emissions**

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	30
Pollutant Mass Emission Rate (gr/mi)	0.012128

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

Pollutant Emission Rate (gr/sec)	0.00001
Pollutant Emission Rate (gr/sec/source)	1.09E-06

5 **SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)**

**TOG DSL Emissions**

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	39
Pollutant Mass Emission Rate (gr/mi)	0.141660

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

Pollutant Emission Rate (gr/sec)	0.00046
Pollutant Emission Rate (gr/sec/source)	1.31E-05

## On-Road Mobile Sources Emission Rate Computation

### Average Speed Scenario

#### NB/405 (Sources N\_M\_1 to N\_M\_18)

##### DSL Particulate Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	243
Pollutant Mass Emission Rate (gr/mi)	0.015

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

Pollutant Emission Rate (gr/sec)	0.00052
Pollutant Emission Rate (gr/sec/source)	2.88E-05

#### SB/405 (Sources S\_M\_1 to S\_M\_18)

##### DSL Particulate Emissions

Number of Sources	18
Link Length (meters)	823
Volume/Baseline (VPH)	221
Pollutant Mass Emission Rate (gr/mi)	0.011

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

Pollutant Emission Rate (gr/sec)	0.00035
Pollutant Emission Rate (gr/sec/source)	1.92E-05

#### 1 SB ON/NB Avalon (Sources SB\_ON\_NB\_A\_1 to SB\_ON\_NB\_A\_16)

##### DSL Particulate Emissions

Number of Sources	16
Link Length (meters)	293
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.021

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

Pollutant Emission Rate (gr/sec)	0.00002
Pollutant Emission Rate (gr/sec/source)	9.96E-07

#### 2 NB OFF/NB Avalon (Sources NB\_OFF\_NB\_A\_1 to NB\_OFF\_NB\_AVALON\_16)

##### DSL Particulate Emissions

Number of Sources	16
Link Length (meters)	317
Volume/Baseline (VPH)	13
Pollutant Mass Emission Rate (gr/mi)	0.029

## 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)	0.00002
Pollutant Emission Rate (gr/sec/source)	1.29E-06

### 3 SB ON/SB Avalon (Sources SB\_ON\_SB\_A\_1 to SB\_ON\_SB\_A\_27)

#### DSL Particulate Emissions

Number of Sources	27
Link Length (meters)	296
Volume/Baseline (VPH)	15
Pollutant Mass Emission Rate (gr/mi)	0.021

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

Pollutant Emission Rate (gr/sec)	0.00002
Pollutant Emission Rate (gr/sec/source)	5.96E-07

### 4 NB\_ON/Avalon (Sources NB\_ON\_A\_1 to NB\_ON\_A\_13)

#### DSL Particulate Emissions

Number of Sources	13
Link Length (meters)	226
Volume/Baseline (VPH)	30
Pollutant Mass Emission Rate (gr/mi)	0.021

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

Pollutant Emission Rate (gr/sec)	0.00002
Pollutant Emission Rate (gr/sec/source)	1.89E-06

### 5 SB OFF/Avalon (Sources SB\_OFF\_A\_1 to SB\_OFF\_A\_35)

#### DSL Particulate Emissions

Number of Sources	35
Link Length (meters)	480
Volume/Baseline (VPH)	39
Pollutant Mass Emission Rate (gr/mi)	0.029

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

Pollutant Emission Rate (gr/sec)	0.00009
Pollutant Emission Rate (gr/sec/source)	2.68E-06



## **APPENDIX C**

### Dispersion Model Input Table





S_OFF_A_13	382951.4	3745201.2	9.7	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_14	382957.4	3745189.1	9.8	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_15	382961.7	3745177.6	9.8	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_16	382965.1	3745164.8	9.9	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_17	382966.9	3745152.5	9.9	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_18	382967.2	3745140.1	10.0	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_19	382966.4	3745125.9	9.8	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_20	382964.1	3745113.3	9.5	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_21	382960.4	3745101.0	9.3	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_22	382955.5	3745088.1	9.0	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_23	382950.6	3745076.2	8.8	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_24	382945.8	3745064.1	8.5	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_25	382941.09	3745052.09	8.3	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_26	382941.69	3745040.28	8.0	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_27	382951.85	3745031.27	7.8	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_28	382963.58	3745024.58	7.6	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_29	382976.25	3745019.08	7.3	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_30	382988.9	3745013.62	7.1	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_31	383001.04	3745009.63	6.9	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_32	383014.46	3745005.91	6.7	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_33	383028.4	3745002.15	6.4	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_34	383041.24	3744998.49	6.2	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06
S_OFF_A_35	383054.28	3744996.32	6.0	0.0	6.37	2.40	6.75E-03	6.75E-03	9.13E-04	2.67E-04	2.05E-04	6.28E-05	6.28E-05	1.31E-05	1.31E-05	2.68E-06

## **APPENDIX D**

Dispersion Model Output Summary Files

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.  
\*\*NO PARTICLE DEPOSITION Data Provided.  
\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F  
\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:  
1. Stack-tip Downwash.  
2. Model Accounts for ELEVated Terrain Effects.  
3. Use Calms Processing Routine.  
4. Use Missing Data Processing Routine.  
5. No Exponential Decay.  
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:  
ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 1-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 374 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:  
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.

\*\*Input Runstream File: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_1\_FIRST.DTA  
 \*\*Output Print File: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_1\_FIRST.LST

\*\*File for Summary of Results: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_1\_FIRST.SUM  
 \*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Minimum Speed Scenario

\*\*\* 02/07/21  
 \*\*\* 09:00:29  
 PAGE 2

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* METEOROLOGICAL DAYS SELECTED FOR PROCESSING \*\*\*  
 (1=YES; 0=NO)

1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

\*\*\* UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES \*\*\*  
 (METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Minimum Speed Scenario

\*\*\* 02/07/21  
 \*\*\* 09:00:29  
 PAGE 3

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA \*\*\*

Surface file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.SFC  
 Profile file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.PFL  
 Surface format: FREE  
 Profile format: FREE  
 Surface station no.: 23129 Upper air station no.: 3190  
 Name: UNKNOWN Name: UNKNOWN  
 Year: 2012 Year: 2012

Met Version: 16216

First 24 hours of scalar data																				
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
12	01	01	1	01	-5.3	0.094	-9.000	-9.000	-999.	70.	14.3	0.10	2.68	1.00	1.13	322.	7.9	282.0		2.0
12	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	281.4		2.0	
12	01	01	1	03	-2.5	0.068	-9.000	-9.000	-999.	43.	11.4	0.10	2.68	1.00	0.74	79.	7.9	280.9		2.0
12	01	01	1	04	-3.2	0.075	-9.000	-9.000	-999.	49.	11.7	0.10	2.68	1.00	0.86	137.	7.9	280.9		2.0
12	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	280.4		2.0	
12	01	01	1	06	-5.2	0.093	-9.000	-9.000	-999.	68.	14.0	0.10	2.68	1.00	1.11	92.	7.9	279.9		2.0
12	01	01	1	07	-2.3	0.066	-9.000	-9.000	-999.	41.	11.5	0.10	2.68	1.00	0.69	67.	7.9	278.8		2.0
12	01	01	1	08	-1.7	0.060	-9.000	-9.000	-999.	36.	11.4	0.10	2.68	0.54	0.65	91.	7.9	279.9		2.0
12	01	01	1	09	36.2	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.10	2.68	0.31	0.00	0.	7.9	283.8		2.0
12	01	01	1	10	108.4	0.139	0.707	0.009	119.	124.	-2.3	0.10	2.68	0.24	0.92	319.	7.9	287.5		2.0
12	01	01	1	11	160.5	0.114	1.137	0.005	334.	93.	-1.0	0.10	2.68	0.21	0.62	23.	7.9	292.5		2.0
12	01	01	1	12	186.7	0.125	1.473	0.005	623.	105.	-1.0	0.10	2.68	0.20	0.69	18.	7.9	295.4		2.0
12	01	01	1	13	186.8	0.130	1.761	0.005	1065.	112.	-1.1	0.10	2.68	0.20	0.74	250.	7.9	297.5		2.0
12	01	01	1	14	161.7	0.150	1.834	0.005	1387.	139.	-1.9	0.10	2.68	0.21	0.96	347.	7.9	300.4		2.0
12	01	01	1	15	105.5	0.243	1.633	0.005	1499.	288.	-12.4	0.10	2.68	0.24	2.11	194.	7.9	295.9		2.0
12	01	01	1	16	32.4	0.211	1.109	0.005	1530.	233.	-26.3	0.10	2.68	0.33	1.98	186.	7.9	295.4		2.0
12	01	01	1	17	-20.5	0.250	-9.000	-9.000	-999.	300.	69.2	0.10	2.68	0.60	2.81	293.	7.9	291.4		2.0
12	01	01	1	18	-25.4	0.257	-9.000	-9.000	-999.	313.	72.8	0.10	2.68	1.00	2.90	301.	7.9	288.1		2.0
12	01	01	1	19	-21.0	0.211	-9.000	-9.000	-999.	233.	49.0	0.10	2.68	1.00	2.40	313.	7.9	286.4		2.0
12	01	01	1	20	-25.7	0.258	-9.000	-9.000	-999.	315.	73.3	0.10	2.68	1.00	2.91	302.	7.9	286.4		2.0
12	01	01	1	21	-22.5	0.225	-9.000	-9.000	-999.	256.	55.7	0.10	2.68	1.00	2.55	306.	7.9	285.4		2.0
12	01	01	1	22	-9.3	0.126	-9.000	-9.000	-999.	111.	19.5	0.10	2.68	1.00	1.48	284.	7.9	285.9		2.0

12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/07/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Carbon Monoxide (CO) / Minimum Speed Scenario \*\*\* 09:00:29  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
---------	----------	--------------	------------	----------	-------------------------------	---------	---------

ALL HIGH 1ST HIGH VALUE IS 239.52741 ON 13041207: AT ( 382912.50, 3745024.00, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/07/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Carbon Monoxide (CO) / Minimum Speed Scenario \*\*\* 09:00:29  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET



\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/07/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Carbon Monoxide (CO) / Average Speed Scenario \*\*\* 12:07:31  
PAGE 1

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 8-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 374 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.

\*\*Input Runstream File: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_8\_FIRST.DTA  
\*\*Output Print File: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_8\_FIRST.LST

\*\*File for Summary of Results: F:\WD Passport\carson\project docs\_3\freeway hra\model\CO\_8\_FIRST.SUM  
\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\*  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Average Speed Scenario \*\*\*

02/07/21  
12:07:31  
PAGE 2

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* METEOROLOGICAL DAYS SELECTED FOR PROCESSING \*\*\*  
(1=YES; 0=NO)

1  
1  
1  
1  
1  
1  
1  
1  
1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

\*\*\* UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES \*\*\*  
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,  
\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\*  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Average Speed Scenario \*\*\*

02/07/21  
12:07:31  
PAGE 3

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA \*\*\*

Surface file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.SFC Met Version: 16216  
Profile file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.PFL  
Surface format: FREE  
Profile format: FREE  
Surface station no.: 23129 Upper air station no.: 3190  
Name: UNKNOWN Name: UNKNOWN  
Year: 2012 Year: 2012

First 24 hours of scalar data																						
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT
12	01	01	1	01	-5.3	0.094	-9.000	-9.000	-999.	70.	14.3	0.10	2.68	1.00	1.13	322.	7.9	282.0	2.0			
12	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	281.4	2.0			
12	01	01	1	03	-2.5	0.068	-9.000	-9.000	-999.	43.	11.4	0.10	2.68	1.00	0.74	79.	7.9	280.9	2.0			
12	01	01	1	04	-3.2	0.075	-9.000	-9.000	-999.	49.	11.7	0.10	2.68	1.00	0.86	137.	7.9	280.9	2.0			
12	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	280.4	2.0			
12	01	01	1	06	-5.2	0.093	-9.000	-9.000	-999.	68.	14.0	0.10	2.68	1.00	1.11	92.	7.9	279.9	2.0			
12	01	01	1	07	-2.3	0.066	-9.000	-9.000	-999.	41.	11.5	0.10	2.68	1.00	0.69	67.	7.9	278.8	2.0			
12	01	01	1	08	-1.7	0.060	-9.000	-9.000	-999.	36.	11.4	0.10	2.68	0.54	0.65	91.	7.9	279.9	2.0			
12	01	01	1	09	36.2	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.10	2.68	0.31	0.00	0.	7.9	283.8	2.0			
12	01	01	1	10	108.4	0.139	0.707	0.009	119.	124.	-2.3	0.10	2.68	0.24	0.92	319.	7.9	287.5	2.0			
12	01	01	1	11	160.5	0.114	1.137	0.005	334.	93.	-1.0	0.10	2.68	0.21	0.62	23.	7.9	292.5	2.0			
12	01	01	1	12	186.7	0.125	1.473	0.005	623.	105.	-1.0	0.10	2.68	0.20	0.69	18.	7.9	295.4	2.0			
12	01	01	1	13	186.8	0.130	1.761	0.005	1065.	112.	-1.1	0.10	2.68	0.20	0.74	250.	7.9	297.5	2.0			
12	01	01	1	14	161.7	0.150	1.834	0.005	1387.	139.	-1.9	0.10	2.68	0.21	0.96	347.	7.9	300.4	2.0			
12	01	01	1	15	105.5	0.243	1.633	0.005	1499.	288.	-12.4	0.10	2.68	0.24	2.11	194.	7.9	295.9	2.0			
12	01	01	1	16	32.4	0.211	1.109	0.005	1530.	233.	-26.3	0.10	2.68	0.33	1.98	186.	7.9	295.4	2.0			
12	01	01	1	17	-20.5	0.250	-9.000	-9.000	-999.	300.	69.2	0.10	2.68	0.60	2.81	293.	7.9	291.4	2.0			
12	01	01	1	18	-25.4	0.257	-9.000	-9.000	-999.	313.	72.8	0.10	2.68	1.00	2.90	301.	7.9	288.1	2.0			
12	01	01	1	19	-21.0	0.211	-9.000	-9.000	-999.	233.	49.0	0.10	2.68	1.00	2.40	313.	7.9	286.4	2.0			
12	01	01	1	20	-25.7	0.258	-9.000	-9.000	-999.	315.	73.3	0.10	2.68	1.00	2.91	302.	7.9	286.4	2.0			
12	01	01	1	21	-22.5	0.225	-9.000	-9.000	-999.	256.	55.7	0.10	2.68	1.00	2.55	306.	7.9	285.4	2.0			
12	01	01	1	22	-9.3	0.126	-9.000	-9.000	-999.	111.	19.5	0.10	2.68	1.00	1.48	284.	7.9	285.9	2.0			

12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/07/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Average Speed Scenario \*\*\* 12:07:31  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 8-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
---------	----------	--------------	------------	----------	-------------------------------	---------	---------

ALL HIGH 1ST HIGH VALUE IS 118.12114 ON 14021308: AT ( 383017.50, 3744971.50, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/07/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Carbon Monoxide (CO) / Average Speed Scenario \*\*\* 12:07:31  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT ARM2 URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

-----  
\*\*Model Is Setup For Calculation of Average CONcEntration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.  
\*\*NO PARTICLE DEPOSITION Data Provided.  
\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F  
\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion  
with a Minimum NO2/NOx Ratio of 0.500  
and a Maximum NO2/NOx Ratio of 0.900
7. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: NO2

\*\*Note that special processing requirements apply for the 1-hour NO2 NAAQS - check available guidance.  
Model will process user-specified ranks of daily maximum 1-hour values averaged across the number of years modeled.  
For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be simulated using the MULTYEAR keyword.  
Multi-year PERIOD and 1-hour values should only be done in a single model run using the MULTYEAR option with a  
single multi-year meteorological data file using STARTEND keyword.

\*\*Model Calculates 1 Short Term Average(s) of: 1-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 374 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)



12 01 01	1 10	108.4	0.139	0.707	0.009	119.	124.	-2.3	0.10	2.68	0.24	0.92	319.	7.9	287.5	2.0
12 01 01	1 11	160.5	0.114	1.137	0.005	334.	93.	-1.0	0.10	2.68	0.21	0.62	23.	7.9	292.5	2.0
12 01 01	1 12	186.7	0.125	1.473	0.005	623.	105.	-1.0	0.10	2.68	0.20	0.69	18.	7.9	295.4	2.0
12 01 01	1 13	186.8	0.130	1.761	0.005	1065.	112.	-1.1	0.10	2.68	0.20	0.74	250.	7.9	297.5	2.0
12 01 01	1 14	161.7	0.150	1.834	0.005	1387.	139.	-1.9	0.10	2.68	0.21	0.96	347.	7.9	300.4	2.0
12 01 01	1 15	105.5	0.243	1.633	0.005	1499.	288.	-12.4	0.10	2.68	0.24	2.11	194.	7.9	295.9	2.0
12 01 01	1 16	32.4	0.211	1.109	0.005	1530.	233.	-26.3	0.10	2.68	0.33	1.98	186.	7.9	295.4	2.0
12 01 01	1 17	-20.5	0.250	-9.000	-9.000	-999.	300.	69.2	0.10	2.68	0.60	2.81	293.	7.9	291.4	2.0
12 01 01	1 18	-25.4	0.257	-9.000	-9.000	-999.	313.	72.8	0.10	2.68	1.00	2.90	301.	7.9	288.1	2.0
12 01 01	1 19	-21.0	0.211	-9.000	-9.000	-999.	233.	49.0	0.10	2.68	1.00	2.40	313.	7.9	286.4	2.0
12 01 01	1 20	-25.7	0.258	-9.000	-9.000	-999.	315.	73.3	0.10	2.68	1.00	2.91	302.	7.9	286.4	2.0
12 01 01	1 21	-22.5	0.225	-9.000	-9.000	-999.	256.	55.7	0.10	2.68	1.00	2.55	306.	7.9	285.4	2.0
12 01 01	1 22	-9.3	0.126	-9.000	-9.000	-999.	111.	19.5	0.10	2.68	1.00	1.48	284.	7.9	285.9	2.0
12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* Imperial Avalon \*\*\* 02/12/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* Nitrogen Dioxide (NO2) / Minimum Speed Scenario \*\*\* 11:59:55  
 PAGE 4

\*\*\* MODELOPTS: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT ARM2 URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM 1ST-HIGHEST MAX DAILY 1-HR RESULTS AVERAGED OVER 1 YEARS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	28.00096 AT ( 382912.50, 3745024.00, 7.00, 7.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	27.81525 AT ( 383017.50, 3744971.50, 7.00, 7.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	26.04886 AT ( 383000.00, 3744971.50, 7.00, 7.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	25.53983 AT ( 382930.00, 3745006.50, 7.00, 7.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	23.90962 AT ( 382982.50, 3744971.50, 7.00, 7.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	23.60037 AT ( 382947.50, 3744989.00, 7.00, 7.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	23.07464 AT ( 382912.50, 3745006.50, 7.00, 7.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	22.04294 AT ( 382895.00, 3745024.00, 7.00, 7.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	21.88885 AT ( 382965.00, 3744971.50, 7.00, 7.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	21.68498 AT ( 382895.00, 3745041.50, 7.00, 7.00, 0.00)	DC	

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* Imperial Avalon \*\*\* 02/12/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* Nitrogen Dioxide (NO2) / Minimum Speed Scenario \*\*\* 11:59:55  
 PAGE 5

\*\*\* MODELOPTS: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT ARM2 URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 476 Informational Message(s)  
 A Total of 8760 Hours Were Processed  
 A Total of 190 Calm Hours Identified

A Total of 60 Missing Hours Identified ( 0.68 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 695 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 695 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET







12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Gasoline) / Minimum Speed Scenario \*\*\* 13:10:47  
PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK  
GROUP ID AVERAGE CONC (YYMMDDHH) RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-  
ID

ALL HIGH 1ST HIGH VALUE IS 1.86589 ON 13041207: AT ( 382912.50, 3745024.00, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Gasoline) / Minimum Speed Scenario \*\*\* 13:10:47  
PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 2 Warning Message(s)  
A Total of 1017 Informational Message(s)  
  
A Total of 43848 Hours Were Processed  
  
A Total of 747 Calm Hours Identified  
  
A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 8-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 374 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.



12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 14:33:17  
PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 8-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK  
GROUP ID AVERAGE CONC (YYMMDDHH) RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-  
ID

ALL HIGH 1ST HIGH VALUE IS 0.71677 ON 12122008: AT ( 383017.50, 3744971.50, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 14:33:17  
PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 2 Warning Message(s)  
A Total of 1017 Informational Message(s)  
A Total of 43848 Hours Were Processed  
A Total of 747 Calm Hours Identified  
A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Diesel) / Minimum Speed Scenario \*\*\* 15:29:59  
PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK  
GROUP ID AVERAGE CONC (YYMMDDHH) RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-  
ID

ALL HIGH 1ST HIGH VALUE IS 0.40613 ON 13041207: AT ( 383017.50, 3744971.50, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Diesel) / Minimum Speed Scenario \*\*\* 15:29:59  
PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 2 Warning Message(s)  
A Total of 1017 Informational Message(s)  
  
A Total of 43848 Hours Were Processed  
  
A Total of 747 Calm Hours Identified  
  
A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET



```

*** AERMOD - VERSION 19191 ***   *** Imperial Avalon                               ***   02/09/21
*** AERMET - VERSION 16216 ***   *** Total Organic Gases (Diesel) / Average Speed Scenario ***   16:18:48
                                                                           ***   PAGE 1

```

```

*** MODELOPTs:   RegDFault CONC  ELEV  FLGPOL  NODRYDPLT  NOWETDPLT  URBAN  ADJ_U*

```

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

```

**Model Is Setup For Calculation of Average CONCentration Values.

```

```

  -- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT = F
**Model Uses NO WET DEPLETION.  WETDPLT = F

```

```

**Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),
  for Total of 1 Urban Area(s):
  Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

```

```

**Model Uses Regulatory DEFAULT Options:
  1. Stack-tip Downwash.
  2. Model Accounts for ELEVated Terrain Effects.
  3. Use Calms Processing Routine.
  4. Use Missing Data Processing Routine.
  5. No Exponential Decay.
  6. Urban Roughness Length of 1.0 Meter Assumed.

```

```

**Other Options Specified:
  ADJ_U* - Use ADJ_U* option for SBL in AERMET
  CCVR_Sub - Meteorological data includes CCVR substitutions
  TEMP_Sub - Meteorological data includes TEMP substitutions

```

```

**Model Accepts FLAGPOLE Receptor Heights.

```

```

**The User Specified a Pollutant Type of: OTHER

```

```

**Model Calculates 1 Short Term Average(s) of: 8-HR

```

```

**This Run Includes: 143 Source(s); 1 Source Group(s); and 374 Receptor(s)

  with: 0 POINT(s), including
         0 POINTCAP(s) and 0 POINTHOR(s)
  and: 143 VOLUME source(s)
  and: 0 AREA type source(s)
  and: 0 LINE source(s)
  and: 0 RLINE/RLINEXT source(s)
  and: 0 OPENPIT source(s)
  and: 0 BUOYANT LINE source(s) with 0 line(s)

```

```

**Model Set To Continue RUNning After the Setup Testing.

```

```

**The AERMET Input Meteorological Data Version Date: 16216

```

```

**Output Options Selected:
  Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
  Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
  Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

```

```

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

```

```

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
                Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
                Output Units = MICROGRAMS/M**3

```

```

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

```



12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Diesel) / Average Speed Scenario \*\*\* 16:18:48  
PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 8-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK  
GROUP ID AVERAGE CONC (YYMMDDHH) RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-  
ID

ALL HIGH 1ST HIGH VALUE IS 0.13022 ON 12122008: AT ( 383017.50, 3744971.50, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Total Organic Gases (Diesel) / Average Speed Scenario \*\*\* 16:18:48  
PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 2 Warning Message(s)  
A Total of 1017 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 747 Calm Hours Identified

A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 693 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 693 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 24-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 262 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.



12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 13:49:15  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 5.76196 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 13:49:15  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 581 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 581 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/08/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:21:42  
PAGE 1

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),

for Total of 1 Urban Area(s):

Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET

CCVR\_Sub - Meteorological data includes CCVR substitutions

TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 24-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 94 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.





12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:21:42  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
------------------	--------------	------------	----------	-------------------------------	---------	---------

ALL HIGH 1ST HIGH VALUE IS 5.77402 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 3.07) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:21:42  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186	413	MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used	0.50
ME W187	413	MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET	



\*\*Input Runstream File: F:\WD Passport\carson\project docs\_3\freeway hra\model\PM10\_24\_THIRD.DTA  
\*\*Output Print File: F:\WD Passport\carson\project docs\_3\freeway hra\model\PM10\_24\_THIRD.LST

\*\*File for Summary of Results: F:\WD Passport\carson\project docs\_3\freeway hra\model\PM10\_24\_THIRD.SUM  
\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:43:22  
PAGE 2

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* METEOROLOGICAL DAYS SELECTED FOR PROCESSING \*\*\*  
(1=YES; 0=NO)

1  
1  
1  
1  
1  
1  
1  
1  
1  
1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

\*\*\* UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES \*\*\*  
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:43:22  
PAGE 3

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA \*\*\*

Surface file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.SFC Met Version: 16216  
Profile file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.PFL  
Surface format: FREE  
Profile format: FREE  
Surface station no.: 23129 Upper air station no.: 3190  
Name: UNKNOWN Name: UNKNOWN  
Year: 2012 Year: 2012

First 24 hours of scalar data																						
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT
12	01	01	1	01	-5.3	0.094	-9.000	-9.000	-999.	70.	14.3	0.10	2.68	1.00	1.13	322.	7.9	282.0	2.0			
12	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	281.4	2.0			
12	01	01	1	03	-2.5	0.068	-9.000	-9.000	-999.	43.	11.4	0.10	2.68	1.00	0.74	79.	7.9	280.9	2.0			
12	01	01	1	04	-3.2	0.075	-9.000	-9.000	-999.	49.	11.7	0.10	2.68	1.00	0.86	137.	7.9	280.9	2.0			
12	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	280.4	2.0			
12	01	01	1	06	-5.2	0.093	-9.000	-9.000	-999.	68.	14.0	0.10	2.68	1.00	1.11	92.	7.9	279.9	2.0			
12	01	01	1	07	-2.3	0.066	-9.000	-9.000	-999.	41.	11.5	0.10	2.68	1.00	0.69	67.	7.9	278.8	2.0			
12	01	01	1	08	-1.7	0.060	-9.000	-9.000	-999.	36.	11.4	0.10	2.68	0.54	0.65	91.	7.9	279.9	2.0			
12	01	01	1	09	36.2	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.10	2.68	0.31	0.00	0.	7.9	283.8	2.0			
12	01	01	1	10	108.4	0.139	0.707	0.009	119.	124.	-2.3	0.10	2.68	0.24	0.92	319.	7.9	287.5	2.0			
12	01	01	1	11	160.5	0.114	1.137	0.005	334.	93.	-1.0	0.10	2.68	0.21	0.62	23.	7.9	292.5	2.0			
12	01	01	1	12	186.7	0.125	1.473	0.005	623.	105.	-1.0	0.10	2.68	0.20	0.69	18.	7.9	295.4	2.0			
12	01	01	1	13	186.8	0.130	1.761	0.005	1065.	112.	-1.1	0.10	2.68	0.20	0.74	250.	7.9	297.5	2.0			
12	01	01	1	14	161.7	0.150	1.834	0.005	1387.	139.	-1.9	0.10	2.68	0.21	0.96	347.	7.9	300.4	2.0			
12	01	01	1	15	105.5	0.243	1.633	0.005	1499.	288.	-12.4	0.10	2.68	0.24	2.11	194.	7.9	295.9	2.0			
12	01	01	1	16	32.4	0.211	1.109	0.005	1530.	233.	-26.3	0.10	2.68	0.33	1.98	186.	7.9	295.4	2.0			
12	01	01	1	17	-20.5	0.250	-9.000	-9.000	-999.	300.	69.2	0.10	2.68	0.60	2.81	293.	7.9	291.4	2.0			
12	01	01	1	18	-25.4	0.257	-9.000	-9.000	-999.	313.	72.8	0.10	2.68	1.00	2.90	301.	7.9	288.1	2.0			
12	01	01	1	19	-21.0	0.211	-9.000	-9.000	-999.	233.	49.0	0.10	2.68	1.00	2.40	313.	7.9	286.4	2.0			
12	01	01	1	20	-25.7	0.258	-9.000	-9.000	-999.	315.	73.3	0.10	2.68	1.00	2.91	302.	7.9	286.4	2.0			
12	01	01	1	21	-22.5	0.225	-9.000	-9.000	-999.	256.	55.7	0.10	2.68	1.00	2.55	306.	7.9	285.4	2.0			
12	01	01	1	22	-9.3	0.126	-9.000	-9.000	-999.	111.	19.5	0.10	2.68	1.00	1.48	284.	7.9	285.9	2.0			

12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:43:22  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 5.52037m ON 13010324: AT ( 383000.00, 3744955.00, 7.00, 7.00, 6.15) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:43:22  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:57:28  
PAGE 1

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET

CCVR\_Sub - Meteorological data includes CCVR substitutions

TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 24-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 94 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.



12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:57:28  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 5.18858 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 9.22) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 14:57:28  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET







12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 13:38:30  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 3.31462 ON 15011024: AT ( 383034.00, 3744813.00, 7.00, 7.00, 12.29) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 13:38:30  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 359 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 359 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 24-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 20 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.



12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 15:13:44  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 2.54346 ON 12121624: AT ( 382954.00, 3744813.00, 7.00, 7.00, 15.37) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 15:13:44  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 339 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 339 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs:      RegDEFAULT    CONC    ELEV    FLGPOL    NODRYDPLT    NOWETDPLT    URBAN    ADJ\_U\*

\*\*\*      MODEL SETUP OPTIONS SUMMARY      \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for    143 Source(s),  
for Total of    1 Urban Area(s):  
Urban Population =    9818605.0 ; Urban Roughness Length =    1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\*    - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates ANNUAL Averages Only

\*\*This Run Includes:    143 Source(s);      1 Source Group(s); and      262 Receptor(s)

with:    0 POINT(s), including  
         0 POINTCAP(s) and      0 POINTHOR(s)  
and:    143 VOLUME source(s)  
and:    0 AREA type source(s)  
and:    0 LINE source(s)  
and:    0 RLINE/RLINEXT source(s)  
and:    0 OPENPIT source(s)  
and:    0 BUOYANT LINE source(s) with      0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values:    c for Calm Hours  
   m for Missing Hours  
   b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) =    10.00 ; Decay Coef. =    0.000      ; Rot. Angle =    0.0  
Emission Units = GRAMS/SEC      ; Emission Rate Unit Factor =    0.10000E+07  
Output Units    = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model =      3.6 MB of RAM.



12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 07:48:54  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 3.12376 AT (	383000.00, 3744955.00,	7.00, 7.00, 0.00)	DC
	2ND HIGHEST VALUE IS 2.90789 AT (	382964.00, 3744973.00,	7.00, 7.00, 0.00)	DC
	3RD HIGHEST VALUE IS 2.82024 AT (	382982.00, 3744955.00,	7.00, 7.00, 0.00)	DC
	4TH HIGHEST VALUE IS 2.75123 AT (	383000.00, 3744937.00,	7.00, 7.00, 0.00)	DC
	5TH HIGHEST VALUE IS 2.61609 AT (	382928.00, 3744991.00,	7.00, 7.00, 0.00)	DC
	6TH HIGHEST VALUE IS 2.59885 AT (	382946.00, 3744973.00,	7.00, 7.00, 0.00)	DC
	7TH HIGHEST VALUE IS 2.56501 AT (	382910.00, 3745009.00,	7.00, 7.00, 0.00)	DC
	8TH HIGHEST VALUE IS 2.55576 AT (	382964.00, 3744955.00,	7.00, 7.00, 0.00)	DC
	9TH HIGHEST VALUE IS 2.54268 AT (	383041.00, 3744886.00,	7.00, 7.00, 0.00)	DC
	10TH HIGHEST VALUE IS 2.51169 AT (	382982.00, 3744937.00,	7.00, 7.00, 0.00)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 07:48:54  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 581 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 581 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET







12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 15:56:38  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 3.12845 AT (	383000.00, 3744955.00,	7.00, 7.00, 3.07)	DC
	2ND HIGHEST VALUE IS 2.89934 AT (	382964.00, 3744973.00,	7.00, 7.00, 3.07)	DC
	3RD HIGHEST VALUE IS 2.82552 AT (	382982.00, 3744955.00,	7.00, 7.00, 3.07)	DC
	4TH HIGHEST VALUE IS 2.76788 AT (	383000.00, 3744937.00,	7.00, 7.00, 3.07)	DC
	5TH HIGHEST VALUE IS 2.60966 AT (	382928.00, 3744991.00,	7.00, 7.00, 3.07)	DC
	6TH HIGHEST VALUE IS 2.59751 AT (	382946.00, 3744973.00,	7.00, 7.00, 3.07)	DC
	7TH HIGHEST VALUE IS 2.57324 AT (	383041.00, 3744886.00,	7.00, 7.00, 3.07)	DC
	8TH HIGHEST VALUE IS 2.56193 AT (	382964.00, 3744955.00,	7.00, 7.00, 3.07)	DC
	9TH HIGHEST VALUE IS 2.55972 AT (	382910.00, 3745009.00,	7.00, 7.00, 3.07)	DC
	10TH HIGHEST VALUE IS 2.52528 AT (	382982.00, 3744937.00,	7.00, 7.00, 3.07)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/08/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 15:56:38  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 08:27:50  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 2.96236 AT (	383000.00, 3744955.00,	7.00, 7.00,	6.15) DC
	2ND HIGHEST VALUE IS 2.73133 AT (	382964.00, 3744973.00,	7.00, 7.00,	6.15) DC
	3RD HIGHEST VALUE IS 2.68988 AT (	382982.00, 3744955.00,	7.00, 7.00,	6.15) DC
	4TH HIGHEST VALUE IS 2.65725 AT (	383000.00, 3744937.00,	7.00, 7.00,	6.15) DC
	5TH HIGHEST VALUE IS 2.50164 AT (	383041.00, 3744886.00,	7.00, 7.00,	6.15) DC
	6TH HIGHEST VALUE IS 2.47167 AT (	382928.00, 3744991.00,	7.00, 7.00,	6.15) DC
	7TH HIGHEST VALUE IS 2.47137 AT (	382946.00, 3744973.00,	7.00, 7.00,	6.15) DC
	8TH HIGHEST VALUE IS 2.45210 AT (	382964.00, 3744955.00,	7.00, 7.00,	6.15) DC
	9TH HIGHEST VALUE IS 2.43091 AT (	382982.00, 3744937.00,	7.00, 7.00,	6.15) DC
	10TH HIGHEST VALUE IS 2.42711 AT (	382910.00, 3745009.00,	7.00, 7.00,	6.15) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM10) / Average Speed Scenario \*\*\* 08:27:50  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* MODELOPTs:     RegDEFAULT     CONC     ELEV     FLGPOL     NODRYDPLT     NOWETDPLT     URBAN     ADJ\_U\*

\*\*\*     MODEL SETUP OPTIONS SUMMARY     \*\*\*

-----  
\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

- 1. Stack-tip Downwash.
- 2. Model Accounts for ELEvated Terrain Effects.
- 3. Use Calms Processing Routine.
- 4. Use Missing Data Processing Routine.
- 5. No Exponential Decay.
- 6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET

CCVR\_Sub - Meteorological data includes CCVR substitutions

TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates ANNUAL Averages Only

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 94 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values:     c for Calm Hours  
   m for Missing Hours  
   b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 08:47:35  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 2.67300 AT ( 383000.00, 3744955.00, 7.00, 7.00, 9.22)	DC		
	2ND HIGHEST VALUE IS 2.44029 AT ( 383000.00, 3744937.00, 7.00, 7.00, 9.22)	DC		
	3RD HIGHEST VALUE IS 2.43673 AT ( 382982.00, 3744955.00, 7.00, 7.00, 9.22)	DC		
	4TH HIGHEST VALUE IS 2.43255 AT ( 382964.00, 3744973.00, 7.00, 7.00, 9.22)	DC		
	5TH HIGHEST VALUE IS 2.34527 AT ( 383041.00, 3744886.00, 7.00, 7.00, 9.22)	DC		
	6TH HIGHEST VALUE IS 2.23682 AT ( 382982.00, 3744937.00, 7.00, 7.00, 9.22)	DC		
	7TH HIGHEST VALUE IS 2.23115 AT ( 382964.00, 3744955.00, 7.00, 7.00, 9.22)	DC		
	8TH HIGHEST VALUE IS 2.22172 AT ( 382946.00, 3744973.00, 7.00, 7.00, 9.22)	DC		
	9TH HIGHEST VALUE IS 2.20038 AT ( 382928.00, 3744991.00, 7.00, 7.00, 9.22)	DC		
	10TH HIGHEST VALUE IS 2.16202 AT ( 383041.00, 3744868.00, 7.00, 7.00, 9.22)	DC		

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 08:47:35  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 09:09:10  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 1.45666 AT (	383034.00, 3744813.00,	7.00, 7.00,	12.29) DC
	2ND HIGHEST VALUE IS 1.36818 AT (	383034.00, 3744796.00,	7.00, 7.00,	12.29) DC
	3RD HIGHEST VALUE IS 1.36563 AT (	383016.00, 3744813.00,	7.00, 7.00,	12.29) DC
	4TH HIGHEST VALUE IS 1.28625 AT (	383016.00, 3744796.00,	7.00, 7.00,	12.29) DC
	5TH HIGHEST VALUE IS 1.28346 AT (	382998.00, 3744813.00,	7.00, 7.00,	12.29) DC
	6TH HIGHEST VALUE IS 1.28155 AT (	383034.00, 3744778.00,	7.00, 7.00,	12.29) DC
	7TH HIGHEST VALUE IS 1.21195 AT (	382998.00, 3744796.00,	7.00, 7.00,	12.29) DC
	8TH HIGHEST VALUE IS 1.20896 AT (	382980.00, 3744813.00,	7.00, 7.00,	12.29) DC
	9TH HIGHEST VALUE IS 1.20823 AT (	383016.00, 3744778.00,	7.00, 7.00,	12.29) DC
	10TH HIGHEST VALUE IS 1.20133 AT (	383034.00, 3744760.00,	7.00, 7.00,	12.29) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM10) / Average Speed Scenario \*\*\* 09:09:10  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 359 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 359 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 09:31:20  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 4.36598 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 0.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 09:31:20  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 581 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 581 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/09/21  
\*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 10:46:33  
 PAGE 1

\*\*\* MODEL\_OPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

---

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 143 Source(s),  
for Total of 1 Urban Area(s):  
Urban Population = 9818605.0 ; Urban Roughness Length = 1.000 m

\*\*Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

\*\*Other Options Specified:

ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
CCVR\_Sub - Meteorological data includes CCVR substitutions  
TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: OTHER

\*\*Model Calculates 1 Short Term Average(s) of: 24-HR

\*\*This Run Includes: 143 Source(s); 1 Source Group(s); and 94 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 143 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RLINEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.6 MB of RAM.





12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 10:46:33  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 4.37448 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 3.07) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 10:46:33  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 11:49:28  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
---------	----------	--------------	------------	----------	-------------------------------	---------	---------

ALL HIGH 1ST HIGH VALUE IS 4.18015m ON 13010324: AT ( 383000.00, 3744955.00, 7.00, 7.00, 6.15) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 11:49:28  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 12:05:43  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 3.92788 ON 15011024: AT ( 383000.00, 3744955.00, 7.00, 7.00, 9.22) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 12:05:43  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET







12 01 01	1 23	-21.4	0.214	-9.000	-9.000	-999.	237.	50.3	0.10	2.68	1.00	2.43	282.	7.9	285.4	2.0
12 01 01	1 24	-30.1	0.300	-9.000	-9.000	-999.	394.	98.9	0.10	2.68	1.00	3.36	300.	7.9	284.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	7.9	1	322.	1.13	282.1	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 12:28:25  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

DATE

NETWORK	GROUP ID	AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
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ALL HIGH 1ST HIGH VALUE IS 2.50729 ON 15011024: AT ( 383034.00, 3744813.00, 7.00, 7.00, 12.29) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/09/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (PM2.5) / Average Speed Scenario \*\*\* 12:28:25  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 359 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 359 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (DPM) / Average Speed Scenario \*\*\* 12:31:12  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 0.01863 AT ( 383000.00, 3744955.00, 7.00, 7.00, 0.00)	DC		
	2ND HIGHEST VALUE IS 0.01785 AT ( 382964.00, 3744973.00, 7.00, 7.00, 0.00)	DC		
	3RD HIGHEST VALUE IS 0.01678 AT ( 382982.00, 3744955.00, 7.00, 7.00, 0.00)	DC		
	4TH HIGHEST VALUE IS 0.01615 AT ( 382928.00, 3744991.00, 7.00, 7.00, 0.00)	DC		
	5TH HIGHEST VALUE IS 0.01591 AT ( 383000.00, 3744937.00, 7.00, 7.00, 0.00)	DC		
	6TH HIGHEST VALUE IS 0.01587 AT ( 382910.00, 3745009.00, 7.00, 7.00, 0.00)	DC		
	7TH HIGHEST VALUE IS 0.01577 AT ( 382946.00, 3744973.00, 7.00, 7.00, 0.00)	DC		
	8TH HIGHEST VALUE IS 0.01516 AT ( 382964.00, 3744955.00, 7.00, 7.00, 0.00)	DC		
	9TH HIGHEST VALUE IS 0.01455 AT ( 382982.00, 3744937.00, 7.00, 7.00, 0.00)	DC		
	10TH HIGHEST VALUE IS 0.01399 AT ( 382928.00, 3744973.00, 7.00, 7.00, 0.00)	DC		

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Particulates (DPM) / Average Speed Scenario \*\*\* 12:31:12  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186 581 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 581 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET







12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (DPM) / Average Speed Scenario \*\*\* 13:06:16  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 0.01848 AT ( 383000.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	2ND HIGHEST VALUE IS 0.01762 AT ( 382964.00, 3744973.00, 7.00, 7.00, 3.07)	DC		
	3RD HIGHEST VALUE IS 0.01668 AT ( 382982.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	4TH HIGHEST VALUE IS 0.01597 AT ( 382928.00, 3744991.00, 7.00, 7.00, 3.07)	DC		
	5TH HIGHEST VALUE IS 0.01590 AT ( 383000.00, 3744937.00, 7.00, 7.00, 3.07)	DC		
	6TH HIGHEST VALUE IS 0.01572 AT ( 382910.00, 3745009.00, 7.00, 7.00, 3.07)	DC		
	7TH HIGHEST VALUE IS 0.01564 AT ( 382946.00, 3744973.00, 7.00, 7.00, 3.07)	DC		
	8TH HIGHEST VALUE IS 0.01509 AT ( 382964.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	9TH HIGHEST VALUE IS 0.01454 AT ( 382982.00, 3744937.00, 7.00, 7.00, 3.07)	DC		
	10TH HIGHEST VALUE IS 0.01409 AT ( 383041.00, 3744886.00, 7.00, 7.00, 3.07)	DC		

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\*\* Particulates (DPM) / Average Speed Scenario \*\*\* 13:06:16  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET





12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 07:55:10  
 PAGE 4

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 0.19983 AT ( 382964.00, 3744973.00, 7.00, 7.00, 0.00)		DC	
	2ND HIGHEST VALUE IS 0.19353 AT ( 383000.00, 3744955.00, 7.00, 7.00, 0.00)		DC	
	3RD HIGHEST VALUE IS 0.18337 AT ( 382928.00, 3744991.00, 7.00, 7.00, 0.00)		DC	
	4TH HIGHEST VALUE IS 0.18164 AT ( 382910.00, 3745009.00, 7.00, 7.00, 0.00)		DC	
	5TH HIGHEST VALUE IS 0.17295 AT ( 382982.00, 3744955.00, 7.00, 7.00, 0.00)		DC	
	6TH HIGHEST VALUE IS 0.17118 AT ( 382946.00, 3744973.00, 7.00, 7.00, 0.00)		DC	
	7TH HIGHEST VALUE IS 0.15445 AT ( 382964.00, 3744955.00, 7.00, 7.00, 0.00)		DC	
	8TH HIGHEST VALUE IS 0.15071 AT ( 383000.00, 3744937.00, 7.00, 7.00, 0.00)		DC	
	9TH HIGHEST VALUE IS 0.15014 AT ( 382910.00, 3744991.00, 7.00, 7.00, 0.00)		DC	
	10TH HIGHEST VALUE IS 0.14695 AT ( 382928.00, 3744973.00, 7.00, 7.00, 0.00)		DC	

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 07:55:10  
 PAGE 5

\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 581 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 581 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET



\*\*Input Runstream File: F:\WD Passport\carson\project docs\_3\freeway hra\model\GASOLINE\_CHRONIC\_SECOND.DTA  
 \*\*Output Print File: F:\WD Passport\carson\project docs\_3\freeway hra\model\GASOLINE\_CHRONIC\_SECOND.LST

\*\*File for Summary of Results: F:\WD Passport\carson\project docs\_3\freeway hra\model\GASOLINE\_CHRONIC\_SECOND.SUM  
 \*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 08:33:58  
 PAGE 2

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* METEOROLOGICAL DAYS SELECTED FOR PROCESSING \*\*\*  
 (1=YES; 0=NO)

1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

\*\*\* UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES \*\*\*  
 (METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 08:33:58  
 PAGE 3

\*\*\* MODELOPTS: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA \*\*\*

Surface file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.SFC Met Version: 16216  
 Profile file: F:\WD Passport\carson\project docs\_3\freeway hra\metdata\KLGB\_v9.PFL  
 Surface format: FREE  
 Profile format: FREE  
 Surface station no.: 23129 Upper air station no.: 3190  
 Name: UNKNOWN Name: UNKNOWN  
 Year: 2012 Year: 2012

First 24 hours of scalar data																					
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF TA	HT
12	01	01	1	01	-5.3	0.094	-9.000	-9.000	-999.	70.	14.3	0.10	2.68	1.00	1.13	322.	7.9	282.0	2.0		
12	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	281.4	2.0		
12	01	01	1	03	-2.5	0.068	-9.000	-9.000	-999.	43.	11.4	0.10	2.68	1.00	0.74	79.	7.9	280.9	2.0		
12	01	01	1	04	-3.2	0.075	-9.000	-9.000	-999.	49.	11.7	0.10	2.68	1.00	0.86	137.	7.9	280.9	2.0		
12	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.10	2.68	1.00	0.00	0.	7.9	280.4	2.0		
12	01	01	1	06	-5.2	0.093	-9.000	-9.000	-999.	68.	14.0	0.10	2.68	1.00	1.11	92.	7.9	279.9	2.0		
12	01	01	1	07	-2.3	0.066	-9.000	-9.000	-999.	41.	11.5	0.10	2.68	1.00	0.69	67.	7.9	278.8	2.0		
12	01	01	1	08	-1.7	0.060	-9.000	-9.000	-999.	36.	11.4	0.10	2.68	0.54	0.65	91.	7.9	279.9	2.0		
12	01	01	1	09	36.2	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.10	2.68	0.31	0.00	0.	7.9	283.8	2.0		
12	01	01	1	10	108.4	0.139	0.707	0.009	119.	124.	-2.3	0.10	2.68	0.24	0.92	319.	7.9	287.5	2.0		
12	01	01	1	11	160.5	0.114	1.137	0.005	334.	93.	-1.0	0.10	2.68	0.21	0.62	23.	7.9	292.5	2.0		
12	01	01	1	12	186.7	0.125	1.473	0.005	623.	105.	-1.0	0.10	2.68	0.20	0.69	18.	7.9	295.4	2.0		
12	01	01	1	13	186.8	0.130	1.761	0.005	1065.	112.	-1.1	0.10	2.68	0.20	0.74	250.	7.9	297.5	2.0		
12	01	01	1	14	161.7	0.150	1.834	0.005	1387.	139.	-1.9	0.10	2.68	0.21	0.96	347.	7.9	300.4	2.0		
12	01	01	1	15	105.5	0.243	1.633	0.005	1499.	288.	-12.4	0.10	2.68	0.24	2.11	194.	7.9	295.9	2.0		
12	01	01	1	16	32.4	0.211	1.109	0.005	1530.	233.	-26.3	0.10	2.68	0.33	1.98	186.	7.9	295.4	2.0		
12	01	01	1	17	-20.5	0.250	-9.000	-9.000	-999.	300.	69.2	0.10	2.68	0.60	2.81	293.	7.9	291.4	2.0		
12	01	01	1	18	-25.4	0.257	-9.000	-9.000	-999.	313.	72.8	0.10	2.68	1.00	2.90	301.	7.9	288.1	2.0		
12	01	01	1	19	-21.0	0.211	-9.000	-9.000	-999.	233.	49.0	0.10	2.68	1.00	2.40	313.	7.9	286.4	2.0		
12	01	01	1	20	-25.7	0.258	-9.000	-9.000	-999.	315.	73.3	0.10	2.68	1.00	2.91	302.	7.9	286.4	2.0		
12	01	01	1	21	-22.5	0.225	-9.000	-9.000	-999.	256.	55.7	0.10	2.68	1.00	2.55	306.	7.9	285.4	2.0		
12	01	01	1	22	-9.3	0.126	-9.000	-9.000	-999.	111.	19.5	0.10	2.68	1.00	1.48	284.	7.9	285.9	2.0		

12 01 01 1 23 -21.4 0.214 -9.000 -9.000 -999. 237. 50.3 0.10 2.68 1.00 2.43 282. 7.9 285.4 2.0  
 12 01 01 1 24 -30.1 0.300 -9.000 -9.000 -999. 394. 98.9 0.10 2.68 1.00 3.36 300. 7.9 284.2 2.0

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB\_TMP sigmaA sigmaW sigmaV  
 12 01 01 01 7.9 1 322. 1.13 282.1 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 08:33:58  
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\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 0.19236 AT ( 382964.00, 3744973.00, 7.00, 7.00, 3.07)	DC		
	2ND HIGHEST VALUE IS 0.18707 AT ( 383000.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	3RD HIGHEST VALUE IS 0.17772 AT ( 382928.00, 3744991.00, 7.00, 7.00, 3.07)	DC		
	4TH HIGHEST VALUE IS 0.17659 AT ( 382910.00, 3745009.00, 7.00, 7.00, 3.07)	DC		
	5TH HIGHEST VALUE IS 0.16806 AT ( 382982.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	6TH HIGHEST VALUE IS 0.16630 AT ( 382946.00, 3744973.00, 7.00, 7.00, 3.07)	DC		
	7TH HIGHEST VALUE IS 0.15085 AT ( 382964.00, 3744955.00, 7.00, 7.00, 3.07)	DC		
	8TH HIGHEST VALUE IS 0.14786 AT ( 383000.00, 3744937.00, 7.00, 7.00, 3.07)	DC		
	9TH HIGHEST VALUE IS 0.14699 AT ( 382910.00, 3744991.00, 7.00, 7.00, 3.07)	DC		
	10TH HIGHEST VALUE IS 0.14382 AT ( 382928.00, 3744973.00, 7.00, 7.00, 3.07)	DC		

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

\*\*\* AERMOD - VERSION 19191 \*\*\* \*\* Imperial Avalon \*\*\* 02/10/21  
 \*\*\* AERMET - VERSION 16216 \*\*\* \*\* Total Organic Gases (Gasoline) / Average Speed Scenario \*\*\* 08:33:58  
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\*\*\* MODELOPTs: RegDEFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT URBAN ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
 A Total of 2 Warning Message(s)  
 A Total of 1017 Informational Message(s)  
 A Total of 43848 Hours Were Processed  
 A Total of 747 Calm Hours Identified  
 A Total of 270 Missing Hours Identified ( 0.62 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 ME W186 413 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
 ME W187 413 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET