5200 Sheila Street

MOBILE SOURCE HEALTH RISK ASSESSMENT

CITY OF COMMERCE

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APS	Auxiliary Power System
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard Assessment
PCE	Passenger Car Equivalent
PM10	Particulate Matter 10 microns in diameter or less
Project	5200 Sheila Street
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluates the potential mobile source health risk impacts to sensitive receptors (residents and school children) and adjacent workers associated with the development of the proposed Project, more specifically, health risk impacts as a result of exposure to diesel particulate matter (DPM) emitted from heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project mobile source health risks.

The results of the health risk assessment of lifetime cancer risk from Project-generated DPM emissions are provided in Table ES-1 below for the Project.

Individual Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R3, which represents an existing residential home located at 2415 Wilma Avenue, approximately 540 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R3 is placed at the residential building façade. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.10 in one million, which is less than the South Coast Air Quality Management District's (SCAQMD's) significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.00004, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other residential receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent residences.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is Location R2, which represents the commerce corner commercial center at 2470 S Atlantic Boulevard, approximately 74 feet north of the Project site. R2 is placed at the building façade at this worker location. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.09 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0003, which would not exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers.

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the Project. Proximity to

sources of toxics is critical to determining the impact. In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70-percent drop-off in particulate pollution levels at 500 feet. Based on CARB and SCAQMD emissions and modeling analyses, an 80-percent drop-off in pollutant concentrations is expected at approximately 1,000 feet from a distribution center (1).

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.10	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.09	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	0.00004	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	0.0003	1.0	NO

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to sensitive receptors (residents and school children) and adjacent workers as a result of heavy-duty diesel trucks accessing the site.

The SCAQMD identifies that if a proposed Project is expected to generate/attract heavy-duty diesel trucks, which emit DPM, preparation of a mobile source HRA is recommended. This document serves to meet the SCAQMD's request for preparation of a HRA. The mobile source HRA has been prepared in accordance with the document Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2) and is comprised of all relevant and appropriate procedures presented by the United States Environmental Protection Agency (U.S. EPA), California EPA and SCAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to DPM exposure from a project such as the proposed Project. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulatively considerable impact.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (3). In this report the AQMD states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. In this HRA, non-carcinogenic exposures of less than 1.0 are considered less-than-significant.

1.1 SITE LOCATION

The proposed 5200 Sheila Street site is located in the City of Commerce, as shown on Exhibit 1-A. Two office buildings currently exist on the Project site. Existing land uses near the site includes a mix of industrial and commercial land uses. The nearest sensitive residential receptors are located north of Washington Boulevard.

1.2 PROJECT DESCRIPTION

The proposed Project consists of a single 114,898 square foot warehouse building as shown on Exhibit 1-B. For purposes of this assessment, the use for the building is assumed to be 40 percent general light industrial and 60 percent warehousing use. The Project is anticipated to be constructed in one phase by the year 2022.

At the time this HRA was prepared, the future tenants of the proposed Project are unknown. Because the operating hours of perspective building tenants is not known at this time, this HRA is intended to describe potential toxic emission impacts associated with the expected typical 24-hour, seven day per week operational activities at the Project site.

Per the *Traffic Assessment*, the Project trip generation includes 352 two-way vehicular trips per day (176 inbound and 176 outbound) which includes 54 two-way truck trips per day (27 inbound and 27 outbound) (4). This HRA evaluates the potential impacts resulting from diesel exhaust from the 54 two-way truck trips generated by the Project.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 BACKGROUND

2.1 BACKGROUND ON RECOMMENDED METHODOLOGY

This HRA is based on SCAQMD guidelines to produce conservative estimates of human health risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per µg/m3 is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM because it represents breathing rates that are high for the human body (95% higher than the average population).
- The emissions derived assume that every truck accessing the Project site will idle for 15 minutes under the unmitigated scenario, and this is an overestimation of actual idling times and thus conservative.[1] The California Air Resources Board (CARB's) anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 EMISSIONS ESTIMATION

2.2.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were calculated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2017 version of the EMission FACtor model (EMFAC) developed by the CARB. EMFAC 2017 is a mathematical model that CARB developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (5). The most recent version of this model, EMFAC 2017, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2017. Emission factors calculated using EMFAC 2017 are expressed in units of grams per miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2017 in EMFAC Mode for vehicles in the Los Angeles County jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed.

[1] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour (mph) – on-site vehicle movement including driving and maneuvering
- 25 mph – off-site vehicle movement including driving and maneuvering.

As a conservative measure, a 2022 EMFAC 2017 run was conducted and a static 2022 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2022 emission factors would overstate potential impacts since this approach assumes that emission factors remain "static" and do not change over time due to fleet turnover or cleaner technology with lower emissions that would incorporated into vehicles after 2022.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM10 emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (5):

$Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day) / seconds per day

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;

$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;

Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total assumed idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (5):

$Emissions_{idle}$ (g/s) = EF_{idle} (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) *

60 minutes per hour / seconds per day

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle}(g/s): EMFAC idle exhaust PM_{10} emission factor.

WEIGHTED AVERAGE DPM EMISSIONS FACTOR METHODOLOGY

The following steps are utilized to determine the weighted average DPM emissions factors used herein.

Step 1: EMFAC 2017 v 1.0.3 was run for the *Annual* season using the *Project Analysis* module for the LHD1, MHD, and HHD vehicle classes to determine the emissions generated during idling, at 5 mph (on-site travel), and 25 mph (off-site travel). Temperature was set to 60 degrees Fahrenheit and relative humidity was set to 70 percent. The EMFAC-generated emission rates by vehicle class and speed are summarized on Table 1 below.

TABLE 2-1: 2022 LOS ANGELES COUNTY DPM EMISSION FACTORS

Vehicle Class	Speed	Emissions Rate
LHDT1	idling	0.803526 (g/idle-hr)
LHDT1	5 mph	0.042925 (g/mi)
LHDT1	25 mph	0.017078 (g/mi)
MHDT	idling	0.119463 (g/idle-hr)
MHDT	5 mph	0.055595 (g/mi)
MHDT	25 mph	0.029773 (g/mi)
HHDT	idling	0.018333 (g/idle-hr)
HHDT	5 mph	0.046185 (g/mi)
HHDT	25 mph	0.019302 (g/mi)

Step 2: In order to determine the weighted average DPM emissions factors, the emissions rates summarized in Table 2-1 were weighted based on the percentage of LHDT1 (2-axle), MHDT (3-axle), and HHDT (4+axle) trucks accessing the Project. As such, LHDT = 18.52%, MHDT = 22.22%, and HHDT = 59.26%.

Step 3: Additionally, based on EMFAC 2017 vehicle population estimates, Light-Heavy-Duty Trucks are comprised of 38.16% diesel, Medium-Heavy-Duty Trucks are comprised of 81.96% diesel, and Heavy-Heavy-Duty Trucks are comprised of 95.60% diesel. Thus, trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation. In other words, these percentages are multiplied by the weighted average emission rates calculated in Step 2 above.

The weighted average emission factors are summarized on Table 2-2.

TABLE 2-2: 2022 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.08893 (g/idle-hr)
5	0.03933 (g/mi)
25	0.01757 (g/mi)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix 2.1.

The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-3. The modeled emission sources are illustrated on Exhibit 2-A (the actual model-generated source configuration is further illustrated in Appendix 2.3. The modeled truck travel routes included in the HRA are based on the truck trip distributions (inbound and outbound) available from the Project's *Traffic Assessment* (4). The modeled truck route is consistent with the trip distribution patterns identified in the Project's TIA, is supported by substantial evidence, and was modeled to determine the potential impacts to sensitive receptors along the primary truck routes. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for more than 1 mile. This modeling domain is more inclusive and conservative than using only a ¼ mile modeling domain which is the distance supported by several reputable studies which conclude that the greatest potential risks occur within a ¼ mile of the primary source of emissions (1) (in the case of the Project, the primary source of emissions is the on-site idling and travel).

On-site truck idling was estimated to occur as trucks enter and travel through the Project site. Although the Project's diesel-fueled truck and equipment operators are will be required by State law to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions be calculated assuming 15 minutes of truck idling (6), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis calculates truck idling at 15 minutes, consistent with SCAQMD's recommendation.

Per the *Traffic Assessment*, the Project trip generation includes 352 two-way vehicular trips per day (176 inbound and 176 outbound) which includes 54 two-way truck trips per day (27 inbound and 27 outbound) (4). This HRA evaluates the potential impacts resulting from diesel exhaust from the 54 two-way truck trips generated by the Project.

EXHIBIT 2-A: MODELED EMISSION SOURCES

TABLE 2-3: DPM EMISSIONS FROM PROJECT TRUCKS (2022 ANALYSIS YEAR)

Truck Emission Rates								
Source	Trucks Per Day	Length of Modeled Source	Number of Volume Sources Generated	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	27	0.07 mile	13			0.0889	0.60	6.948E-06
On-Site Travel	54	0.24 mile	45	12.90	0.0393		0.51	5.872E-06
Off-Site Travel 20% Outbound Dwy 1	5	0.02 mile	4	0.10	0.0176		0.00	2.067E-08
Off-Site Travel 80% Inbound Dwy 1	22	0.02 mile	4	0.41	0.0176		0.01	8.268E-08
Off-Site 80% Outbound Dwy 3	22	0.10 mile	19	2.18	0.0176		0.04	4.429E-07
Off-Site Travel 20% Inbound Dwy 3	5	0.10 mile	19	0.54	0.0176		0.01	1.107E-07
Off-Site Travel 100% to I-710	54	0.46 mile	86	24.91	0.0176		0.44	5.064E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

2.3 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the Lakes AERMOD View (Version 9.8.3) was used to calculate annual average particulate concentrations associated with site operations. Lakes AERMOD View was utilized to incorporate the U.S. EPA's latest AERMOD Version 19191 (7).

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in Lakes AERMOD View has been utilized to determine the release height parameters. Based on the U.S. EPA methodology, the Project's on-site modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

SCAQMD-recommended model parameters are presented in Table 2-3 (8). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's University of Southern California (USC)/Downtown Los Angeles (DTLA) monitoring station (SRA 1) was used to represent local weather conditions and prevailing winds (9). A wind rose exhibit of the USC/DTLA monitoring station is provided at Exhibit 2-B.

TABLE 2-3: AERMOD MODEL PARAMETERS

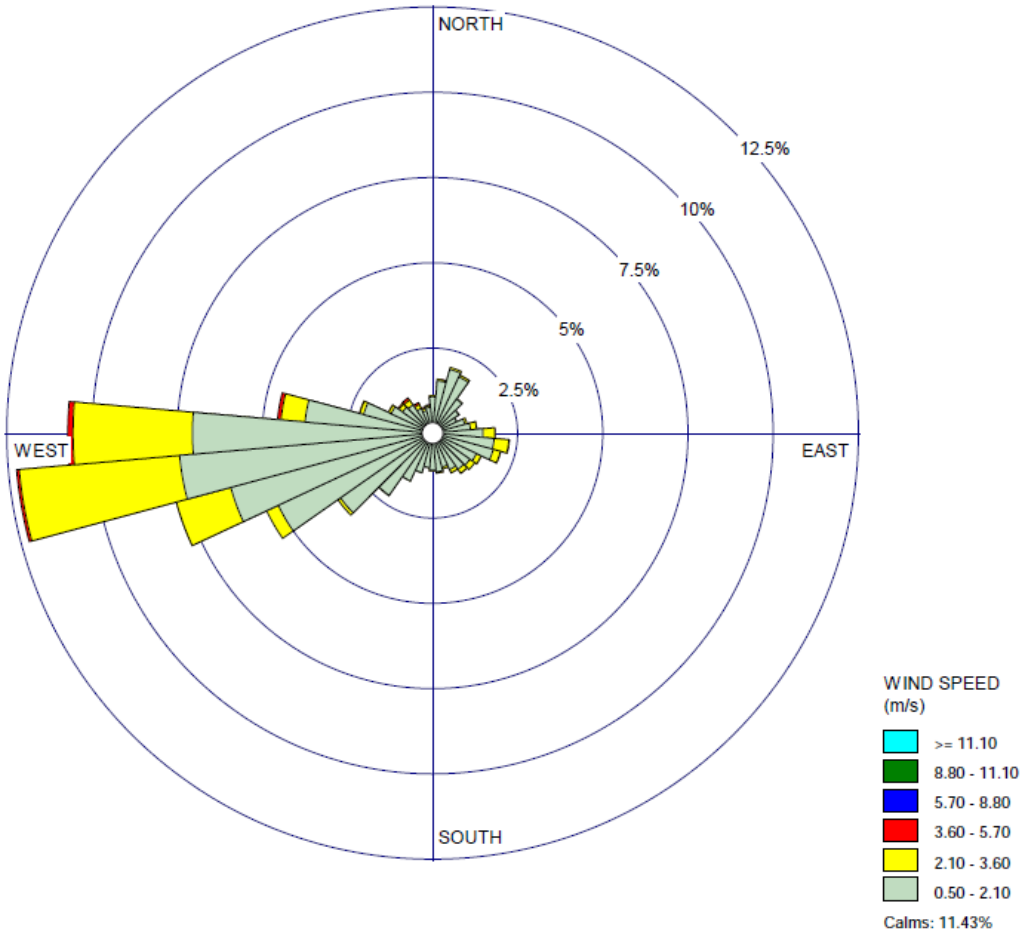
Dispersion Coefficient	Urban
Population	9,818,605
Terrain	Elevated (Regulatory Default)
Averaging Time	1 year (5-year Meteorological Data Set)
Receptor Height	0 meters (Regulatory Default)

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the Project site boundaries, each volume source location, and receptor locations in the Project site's vicinity. The AERMOD dispersion model summary output files for the proposed Project are presented in Appendix "2.1". Modeled sensitive receptors were placed at residential and non-residential locations.

EXHIBIT 2-B: WIND ROSE (SRA 1)

WIND ROSE PLOT:
USC/DTLA Monitoring Station

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2012 - 00:00 End Date: 12/31/2016 - 23:59	Urban Crossroads, Inc.	
		MODELER: HQ	
	CALM WINDS: 11.43%	TOTAL COUNT: 42792 hrs.	
	AVG. WIND SPEED: 1.27 m/s	DATE: 10/6/2020	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Receptors may be placed at applicable structure locations for residential and worker property and not necessarily the boundaries of the properties containing these uses because the human receptors (residents and workers) spend a majority of their time at the residence or in the workplace's building, and not on the property line. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residents and workers over a period of 30 or 25 years of exposure, respectively. As such, even though 30 or 25 years of outdoor exposure is unlikely to occur in practical terms (because of the amount of time spent indoors), this study assumes that a resident would be exposed over 30 years for 24-hours per day at the exterior of the structure where they reside and that a worker would be exposed over 25 years for 12-hours per day at the exterior of the property where they work, positioned on the property line closest to the Project site.

Any impacts to residents or workers located further away from the Project site than the modeled residential and worker receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIR and MEIW.

Consistent with SCAQMD modeling guidance, all receptors were set to the elevation so that only ground-level concentrations are analyzed (10).

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Tables 2-4 and 2-5 summarizes the Exposure Parameters for Residents and Offsite Worker exposure scenarios based on 2015 OEHHA Guidelines. The risk calculations include a weighting factor depending on age as illustrated on Table 2-4. In other words, the risk calculations are multiplied by either 10, 3, or 1. Additionally, the risk calculations account for the fraction of time at home multipliers also illustrated on Table 2-4. Appendix 2.2 includes the detailed risk calculation.

TABLE 2-4: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	361	10	0.25	0.85	350	24
0 to 2	1090	10	2	0.85	350	24
2 to 16	572	3	14	0.72	350	24
16 to 30	261	1	14	0.73	350	24

TABLE 2-5: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure Time (hours/day)
16 to 41	230	1	25	250	12

2.4 CARCINOGENIC CHEMICAL RISK

Based on the South Coast AQMD Air Quality Significance Thresholds (11) (April 2019), emissions of toxic air contaminants (TACs) are considered significant if a HRA shows an increased risk of greater than 10 in one million. Based on guidance from the SCAQMD in the document Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2), for purposes of this analysis, 10 in one million is used as the cancer risk threshold for the proposed Project.

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. As an example, the risk of dying from accidental drowning is 1,000 in a million which is 100 times more than the SCAQMD's threshold of 10 in one million, the nearest comparison to 10 in one million is the 7 in one million lifetime chance that an individual would be struck and killed by lightning (12).

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose.

Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day)-1 to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1×10^{-6} = conversion factors (ug to mg, L to m3)

RISKair = DOSEair x CPF x ED/AT

Where:

DOSEair	=	chronic daily intake (mg/kg/day)
CPF	=	cancer potency factor
ED	=	number of years within particular age group
AT	=	averaging time

2.5 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 µg/m^3 (OEHHA Toxicity Criteria Database, http://www.oehha.org/risk/chemicaldb/index.asp).

The non-cancer hazard index was calculated (consistent with SCAQMD methodology) as follows:

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM}	=	Hazard Index; an expression of the potential for non-cancer health effects.
C_{DPM}	=	Annual average DPM concentration (µg/m^3).
REL_{DPM}	=	Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

For purposes of this analysis the hazard index for the respiratory endpoint totaled less than one for all receptors in the project vicinity, and thus is less than significant.

2.6 TOXIC AIR POLLUTANTS FROM PROJECT CONSTRUCTION ACTIVITIES

During short-term construction activity, the Project will also result in some DPM which is a listed carcinogen and toxic air contaminant (TAC) in the State of California. The 2015 Office of Environmental Health Hazard Assessment (OEHHA) revised risk assessment guidelines suggest that construction projects as short as 2-6 months may warrant evaluation. Notwithstanding, based on Urban Crossroads' professional opinion and experience in preparing health risk assessments for development projects, given the size of the Project and the relatively small amount of construction equipment and relative short duration of construction activity, any DPM

generated from construction activity would be negligible and not result in any significant health risks and no further evaluation is required.

Furthermore, the SCAQMD has acknowledged that they are currently evaluating the applicability of age sensitivity factors and have not established CEQA guidance. More specifically in their response to comments received on SCAQMD Rules 1401 in June 2015 (see Board Meeting June 5, 2015), the SCAQMD explicitly states that (Page A-7 and A-8) (13):

"The Proposed Amended Rules are separate from the CEQA significance thresholds. The 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. In the interim, staff will continue to use the previous guidelines for CEQA determinations."

2.7 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS[2]

Individual Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R3, which represents an existing residential home located at 2415 Wilma Avenue, approximately 540 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R3 is placed at the residential building façade. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.10 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.00004, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other residential receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent residences. The nearest modeled receptors are illustrated on Exhibit 2-C.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is Location R2, which represents the commerce corner commercial center at 2470 S Atlantic Boulevard, approximately 74 feet north of the Project site. R2 is placed at the building façade at this worker location. At the MEIW, the maximum incremental cancer risk impact at this location is 0.09 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0003, which would not

2 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors are illustrated on Exhibit 2-C.

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the Project. Proximity to sources of toxics is critical to determining the impact. In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70-percent drop-off in particulate pollution levels at 500 feet. Based on CARB and SCAQMD emissions and modeling analyses, an 80-percent drop-off in pollutant concentrations is expected at approximately 1,000 feet from a distribution center (1).

EXHIBIT 2-C: MODELED RECEPTORS

LEGEND:

N

Receptor Locations — Distance from receptor to Project site boundary (in feet)

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3 REFERENCES

1. **Air Resources Board.** *Air Quality and Land Use Handbook: A Community Health Perspective.* 2005.
2. **South Coast Air Quality Managment District.** Mobile Source Toxics Analysis. [Online] 2003. http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html.
3. **Goss, Tracy A and Kroeger, Amy.** White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. [Online] South Coast Air Quality Management District, 2003. [Cited: June 6, 2019.] http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf?sfvrsn=2.
4. **Urban Crossroads, Inc.** *5200 Sheila Street Focused Traffic Assessment .* 2020.
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7. **Environmental Protection Agency.** User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] 2019. https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.
8. —. User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] April 2018. https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.
9. **South Coast Air Quality Management District.** Data for AERMOD. [Online] [Cited: June 10, 2019.] https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/data-for-aermod.
10. —. South Coast AQMD Modeling Guidance for AERMOD. [Online] [Cited: September 18, 2019.] http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance.
11. —. South Coast AQMD Air Quality Significance Thresholds. [Online] April 2019. [Cited: June 6, 2019.] http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.
12. **National Safety Council.** Injury Fact Chart. [Online] [Cited: September 18, 2019.] https://www.nsc.org/work-safety/tools-resources/injury-facts/chart.
13. **South Coast Air Quality Management District.** Agenda No. 28 Proposed Amended Rules 1401 New Source Review of Toxic Air Contaminants. [Online] June 5, 2015. [Cited: September 20, 2019 .] http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-jun1-028.pdf?sfvrsn=9.

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4 CERTIFICATION

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed 5200 Sheila Street Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me at (949) 660-1994.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

AERMOD MODEL INPUT/OUTPUT

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```
** Lakes Environmental AERMOD MPI
**
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** AERMOD INPUT PRODUCED BY:
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** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 10/6/2020
** FILE: C:\LAKES\AERMOD VIEW\13054 OP HRA REV\13054 OP HRA REV.ADI
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** AERMOD CONTROL PATHWAY
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   MODELOPT DFAULT CONC
   AVERTIME ANNUAL
   URBANOPT 9818605
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "13054 OP HRA REV.ERR"
CO FINISHED
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** AERMOD SOURCE PATHWAY
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   LOCATION L0001258     VOLUME   391925.011 3762920.962 38.95
   LOCATION L0001259     VOLUME   391918.192 3762915.740 38.98
   LOCATION L0001260     VOLUME   391911.372 3762910.517 39.01
   LOCATION L0001261     VOLUME   391904.552 3762905.294 39.04
   LOCATION L0001262     VOLUME   391897.732 3762900.071 39.07
   LOCATION L0001263     VOLUME   391890.912 3762894.848 39.10
   LOCATION L0001264     VOLUME   391884.092 3762889.626 39.13
   LOCATION L0001265     VOLUME   391877.273 3762884.403 39.16
   LOCATION L0001266     VOLUME   391870.453 3762879.180 39.19
   LOCATION L0001267     VOLUME   391863.633 3762873.957 39.22
   LOCATION L0001268     VOLUME   391856.813 3762868.734 39.25
   LOCATION L0001269     VOLUME   391849.993 3762863.512 39.21
   LOCATION L0001270     VOLUME   391843.173 3762858.289 39.10
   LOCATION L0001271     VOLUME   391836.353 3762853.066 38.98
```

LOCATION	L0001272	VOLUME	391829.534	3762847.843	38.85
LOCATION	L0001273	VOLUME	391822.714	3762842.620	38.71
LOCATION	L0001274	VOLUME	391815.894	3762837.398	38.56
LOCATION	L0001275	VOLUME	391809.074	3762832.175	38.40
LOCATION	L0001276	VOLUME	391802.254	3762826.952	38.23
LOCATION	L0001277	VOLUME	391795.434	3762821.729	38.04
LOCATION	L0001278	VOLUME	391788.614	3762816.506	37.85
LOCATION	L0001279	VOLUME	391781.795	3762811.283	37.65
LOCATION	L0001280	VOLUME	391774.975	3762806.061	37.44
LOCATION	L0001281	VOLUME	391768.155	3762800.838	37.22
LOCATION	L0001282	VOLUME	391760.950	3762796.160	37.02
LOCATION	L0001283	VOLUME	391753.740	3762791.492	36.80
LOCATION	L0001284	VOLUME	391746.529	3762786.823	36.58
LOCATION	L0001285	VOLUME	391739.319	3762782.154	36.35
LOCATION	L0001286	VOLUME	391732.108	3762777.486	36.11
LOCATION	L0001287	VOLUME	391724.898	3762772.817	35.94
LOCATION	L0001288	VOLUME	391717.687	3762768.148	35.84
LOCATION	L0001289	VOLUME	391710.477	3762763.480	35.72
LOCATION	L0001290	VOLUME	391703.266	3762758.811	35.60
LOCATION	L0001291	VOLUME	391696.056	3762754.142	35.46
LOCATION	L0001292	VOLUME	391688.845	3762749.474	35.32
LOCATION	L0001293	VOLUME	391681.635	3762744.805	35.16
LOCATION	L0001294	VOLUME	391674.424	3762740.136	35.00
LOCATION	L0001295	VOLUME	391667.214	3762735.468	34.82
LOCATION	L0001296	VOLUME	391660.003	3762730.799	34.64
LOCATION	L0001297	VOLUME	391652.793	3762726.130	34.45
LOCATION	L0001298	VOLUME	391645.582	3762721.462	34.25
LOCATION	L0001299	VOLUME	391638.372	3762716.793	34.02
LOCATION	L0001300	VOLUME	391631.161	3762712.124	33.77
LOCATION	L0001301	VOLUME	391623.951	3762707.456	33.52
LOCATION	L0001302	VOLUME	391616.740	3762702.787	33.28
LOCATION	L0001303	VOLUME	391609.530	3762698.118	33.03
LOCATION	L0001304	VOLUME	391602.319	3762693.450	32.78
LOCATION	L0001305	VOLUME	391595.109	3762688.781	32.54
LOCATION	L0001306	VOLUME	391587.898	3762684.112	32.29
LOCATION	L0001307	VOLUME	391580.688	3762679.444	32.10
LOCATION	L0001308	VOLUME	391573.477	3762674.775	31.90
LOCATION	L0001309	VOLUME	391566.267	3762670.106	31.71
LOCATION	L0001310	VOLUME	391559.056	3762665.438	31.58
LOCATION	L0001311	VOLUME	391551.846	3762660.769	31.47
LOCATION	L0001312	VOLUME	391544.635	3762656.100	31.37
LOCATION	L0001313	VOLUME	391537.424	3762651.431	31.27
LOCATION	L0001314	VOLUME	391530.214	3762646.763	31.17
LOCATION	L0001315	VOLUME	391523.003	3762642.094	31.06
LOCATION	L0001316	VOLUME	391515.793	3762637.425	30.96
LOCATION	L0001317	VOLUME	391508.582	3762632.757	30.86
LOCATION	L0001318	VOLUME	391501.372	3762628.088	30.75
LOCATION	L0001319	VOLUME	391494.161	3762623.419	30.65
LOCATION	L0001320	VOLUME	391486.951	3762618.751	30.55
LOCATION	L0001321	VOLUME	391479.740	3762614.082	30.45

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   LOCATION L0001322     VOLUME   391472.530 3762609.413 30.34
   LOCATION L0001323     VOLUME   391465.319 3762604.745 30.24
   LOCATION L0001324     VOLUME   391458.109 3762600.076 30.14
   LOCATION L0001325     VOLUME   391450.898 3762595.407 30.03
** END OF LINE VOLUME SOURCE ID = SLINE7
** SOURCE PARAMETERS **
** LINE VOLUME SOURCE ID = SLINE1
   SRCPARAM L0001136     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001137     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001138     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001139     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001140     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001141     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001142     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001143     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001144     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001145     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001146     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001147     0.0000005345      3.49      4.00      3.25
   SRCPARAM L0001148     0.0000005345      3.49      4.00      3.25
** ---------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE2
   SRCPARAM L0001149     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001150     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001151     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001152     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001153     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001154     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001155     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001156     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001157     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001158     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001159     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001160     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001161     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001162     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001163     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001164     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001165     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001166     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001167     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001168     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001169     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001170     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001171     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001172     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001173     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001174     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001175     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001176     0.0000001305      3.49      4.00      3.25
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   SRCPARAM L0001177     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001178     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001179     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001180     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001181     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001182     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001183     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001184     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001185     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001186     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001187     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001188     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001189     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001190     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001191     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001192     0.0000001305      3.49      4.00      3.25
   SRCPARAM L0001193     0.0000001305      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE3
   SRCPARAM L0001194     0.000000005167      3.49      4.00      3.25
   SRCPARAM L0001195     0.000000005167      3.49      4.00      3.25
   SRCPARAM L0001196     0.000000005167      3.49      4.00      3.25
   SRCPARAM L0001197     0.000000005167      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE4
   SRCPARAM L0001198     0.00000002067      3.49      4.00      3.25
   SRCPARAM L0001199     0.00000002067      3.49      4.00      3.25
   SRCPARAM L0001200     0.00000002067      3.49      4.00      3.25
   SRCPARAM L0001201     0.00000002067      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE5
   SRCPARAM L0001202     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001203     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001204     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001205     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001206     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001207     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001208     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001209     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001210     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001211     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001212     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001213     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001214     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001215     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001216     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001217     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001218     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001219     0.00000002331      3.49      4.00      3.25
   SRCPARAM L0001220     0.00000002331      3.49      4.00      3.25
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** ----------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE6
   SRCPARAM L0001221     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001222     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001223     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001224     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001225     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001226     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001227     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001228     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001229     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001230     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001231     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001232     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001233     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001234     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001235     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001236     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001237     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001238     0.000000005826      3.49      4.00      3.25
   SRCPARAM L0001239     0.000000005826      3.49      4.00      3.25
** ----------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE7
   SRCPARAM L0001240     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001241     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001242     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001243     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001244     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001245     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001246     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001247     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001248     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001249     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001250     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001251     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001252     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001253     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001254     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001255     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001256     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001257     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001258     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001259     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001260     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001261     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001262     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001263     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001264     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001265     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001266     0.00000005888      0.00      4.00      3.25
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SRCPARAM	L0001267	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001268	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001269	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001270	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001271	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001272	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001273	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001274	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001275	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001276	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001277	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001278	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001279	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001280	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001281	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001282	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001283	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001284	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001285	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001286	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001287	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001288	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001292	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001294	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001300	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001301	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001302	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001303	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001304	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001305	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001307	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001309	0.00000005888	0.00	4.00	3.25
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SRCPARAM	L0001311	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001312	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001313	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001314	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001315	0.00000005888	0.00	4.00	3.25
SRCPARAM	L0001316	0.00000005888	0.00	4.00	3.25

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   SRCPARAM L0001317     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001318     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001319     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001320     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001321     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001322     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001323     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001324     0.00000005888      0.00      4.00      3.25
   SRCPARAM L0001325     0.00000005888      0.00      4.00      3.25
** ---------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD RECEPTOR PATHWAY
****************************************
**
**
RE STARTING
   INCLUDED "13054 OP HRA REV.ROU"
RE FINISHED
**
****************************************
** AERMOD METEOROLOGY PATHWAY
****************************************
**
**
ME STARTING
   SURFFILE USC-DOWNTOWNLAADJU\KCQT_V9_ADJU\KCQT_V9.SFC
   PROFFILE USC-DOWNTOWNLAADJU\KCQT_V9_ADJU\KCQT_V9.PFL
   SURFDATA 93134 2012
   UAIRDATA 3190 2012
   PROFBASE 55.0 METERS
ME FINISHED
**
****************************************
** AERMOD OUTPUT PATHWAY
****************************************
**
**
OU STARTING
** AUTO-GENERATED PLOTFILES
   PLOTFILE   ANNUAL ALL "13054 OP HRA REV.AD\AN00GALL.PLT" 31
   SUMMFILE "13054 OP HRA REV.SUM"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***
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  --------- Summary of Total Messages --------

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


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


    ********   WARNING MESSAGES   ********
 ME W186     584       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     584       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                        ***        12:48:42

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  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   190 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 Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  DPM

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:    190 Source(s);       1 Source Group(s); and     446
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    190 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) =    55.00 ;  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:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   13054 OP HRA REV.ERR

 **File for Summary of Results:   13054 OP HRA REV.SUM

 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                 *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
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 L0001136         0   0.53450E-06  392067.9 3762869.0    38.5     3.49     4.00
3.25     YES
 L0001137         0   0.53450E-06  392075.8 3762865.6    38.6     3.49     4.00
3.25     YES
 L0001138         0   0.53450E-06  392083.7 3762862.3    38.7     3.49     4.00
3.25     YES
 L0001139         0   0.53450E-06  392091.7 3762859.0    38.8     3.49     4.00
3.25     YES
 L0001140         0   0.53450E-06  392099.6 3762855.7    38.9     3.49     4.00
3.25     YES
 L0001141         0   0.53450E-06  392107.5 3762852.4    39.0     3.49     4.00
3.25     YES
 L0001142         0   0.53450E-06  392115.4 3762849.1    39.2     3.49     4.00
3.25     YES
 L0001143         0   0.53450E-06  392123.4 3762845.7    39.3     3.49     4.00
3.25     YES
 L0001144         0   0.53450E-06  392131.3 3762842.4    39.5     3.49     4.00
3.25     YES
```

L0001145	0	0.53450E-06	392139.2	3762839.1	39.7	3.49	4.00	3.25 YES
L0001146	0	0.53450E-06	392147.1	3762835.8	39.9	3.49	4.00	3.25 YES
L0001147	0	0.53450E-06	392155.1	3762832.5	40.1	3.49	4.00	3.25 YES
L0001148	0	0.53450E-06	392163.0	3762829.2	40.3	3.49	4.00	3.25 YES
L0001149	0	0.13050E-06	392073.0	3762951.1	39.0	3.49	4.00	3.25 YES
L0001150	0	0.13050E-06	392069.7	3762943.2	38.9	3.49	4.00	3.25 YES
L0001151	0	0.13050E-06	392066.4	3762935.3	38.9	3.49	4.00	3.25 YES
L0001152	0	0.13050E-06	392063.1	3762927.3	38.8	3.49	4.00	3.25 YES
L0001153	0	0.13050E-06	392059.8	3762919.4	38.8	3.49	4.00	3.25 YES
L0001154	0	0.13050E-06	392056.5	3762911.5	38.7	3.49	4.00	3.25 YES
L0001155	0	0.13050E-06	392053.3	3762903.5	38.6	3.49	4.00	3.25 YES
L0001156	0	0.13050E-06	392050.0	3762895.6	38.5	3.49	4.00	3.25 YES
L0001157	0	0.13050E-06	392046.7	3762887.7	38.4	3.49	4.00	3.25 YES
L0001158	0	0.13050E-06	392044.6	3762879.4	38.3	3.49	4.00	3.25 YES
L0001159	0	0.13050E-06	392045.0	3762871.0	38.3	3.49	4.00	3.25 YES
L0001160	0	0.13050E-06	392049.3	3762863.9	38.3	3.49	4.00	3.25 YES
L0001161	0	0.13050E-06	392055.4	3762857.9	38.3	3.49	4.00	3.25 YES
L0001162	0	0.13050E-06	392063.1	3762854.0	38.4	3.49	4.00	3.25 YES
L0001163	0	0.13050E-06	392070.9	3762850.4	38.5	3.49	4.00	3.25 YES
L0001164	0	0.13050E-06	392078.7	3762846.9	38.6	3.49	4.00	3.25 YES
L0001165	0	0.13050E-06	392086.6	3762843.4	38.7	3.49	4.00	3.25 YES
L0001166	0	0.13050E-06	392094.4	3762839.9	38.8	3.49	4.00	3.25 YES
L0001167	0	0.13050E-06	392102.3	3762836.4	39.0	3.49	4.00	3.25 YES
L0001168	0	0.13050E-06	392110.1	3762832.9	39.1	3.49	4.00	3.25 YES
L0001169	0	0.13050E-06	392118.0	3762829.4	39.3	3.49	4.00	3.25 YES

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 L0001170         0   0.13050E-06  392125.8 3762826.0    39.5     3.49     4.00
3.25     YES
 L0001171         0   0.13050E-06  392133.7 3762822.5    39.7     3.49     4.00
3.25     YES
 L0001172         0   0.13050E-06  392141.5 3762819.0    39.9     3.49     4.00
3.25     YES
 L0001173         0   0.13050E-06  392149.1 3762814.9    40.2     3.49     4.00
3.25     YES
 L0001174         0   0.13050E-06  392156.5 3762810.6    40.4     3.49     4.00
3.25     YES
 L0001175         0   0.13050E-06  392164.5 3762812.5    40.6     3.49     4.00
3.25     YES
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                 *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
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 L0001176         0   0.13050E-06  392170.4 3762818.7    40.7     3.49     4.00
3.25     YES
 L0001177         0   0.13050E-06  392173.8 3762826.6    40.6     3.49     4.00
3.25     YES
 L0001178         0   0.13050E-06  392177.1 3762834.5    40.5     3.49     4.00
3.25     YES
 L0001179         0   0.13050E-06  392180.5 3762842.4    40.4     3.49     4.00
3.25     YES
 L0001180         0   0.13050E-06  392183.9 3762850.3    40.3     3.49     4.00
3.25     YES
 L0001181         0   0.13050E-06  392187.3 3762858.2    40.2     3.49     4.00
3.25     YES
 L0001182         0   0.13050E-06  392190.7 3762866.1    40.1     3.49     4.00
3.25     YES
 L0001183         0   0.13050E-06  392194.1 3762874.0    40.0     3.49     4.00
3.25     YES
 L0001184         0   0.13050E-06  392197.5 3762881.9    40.0     3.49     4.00
3.25     YES
```

L0001185	0	0.13050E-06	392200.9	3762889.8	40.0	3.49	4.00	3.25 YES
L0001186	0	0.13050E-06	392204.2	3762897.6	40.0	3.49	4.00	3.25 YES
L0001187	0	0.13050E-06	392207.6	3762905.5	40.0	3.49	4.00	3.25 YES
L0001188	0	0.13050E-06	392211.0	3762913.4	40.0	3.49	4.00	3.25 YES
L0001189	0	0.13050E-06	392214.3	3762921.4	40.0	3.49	4.00	3.25 YES
L0001190	0	0.13050E-06	392217.6	3762929.3	40.0	3.49	4.00	3.25 YES
L0001191	0	0.13050E-06	392220.9	3762937.2	40.1	3.49	4.00	3.25 YES
L0001192	0	0.13050E-06	392224.2	3762945.1	40.1	3.49	4.00	3.25 YES
L0001193	0	0.13050E-06	392227.5	3762953.1	40.2	3.49	4.00	3.25 YES
L0001194	0	0.51670E-08	392086.5	3762964.8	39.0	3.49	4.00	3.25 YES
L0001195	0	0.51670E-08	392078.6	3762968.3	39.0	3.49	4.00	3.25 YES
L0001196	0	0.51670E-08	392070.8	3762971.8	39.0	3.49	4.00	3.25 YES
L0001197	0	0.51670E-08	392062.9	3762975.2	39.0	3.49	4.00	3.25 YES
L0001198	0	0.20670E-07	392083.7	3762958.6	39.0	3.49	4.00	3.25 YES
L0001199	0	0.20670E-07	392075.9	3762962.1	39.0	3.49	4.00	3.25 YES
L0001200	0	0.20670E-07	392068.0	3762965.5	39.0	3.49	4.00	3.25 YES
L0001201	0	0.20670E-07	392060.2	3762969.0	39.0	3.49	4.00	3.25 YES
L0001202	0	0.23310E-07	392231.1	3762972.6	40.2	3.49	4.00	3.25 YES
L0001203	0	0.23310E-07	392223.1	3762975.7	40.0	3.49	4.00	3.25 YES
L0001204	0	0.23310E-07	392215.1	3762978.8	39.8	3.49	4.00	3.25 YES
L0001205	0	0.23310E-07	392207.1	3762981.9	39.6	3.49	4.00	3.25 YES
L0001206	0	0.23310E-07	392199.1	3762985.0	39.4	3.49	4.00	3.25 YES
L0001207	0	0.23310E-07	392191.1	3762988.1	39.2	3.49	4.00	3.25 YES
L0001208	0	0.23310E-07	392183.0	3762991.2	39.0	3.49	4.00	3.25 YES
L0001209	0	0.23310E-07	392175.1	3762993.8	39.0	3.49	4.00	3.25 YES

```
 L0001210         0   0.23310E-07  392168.2 3762988.6    39.0     3.49     4.00
3.25     YES
 L0001211         0   0.23310E-07  392161.4 3762983.4    39.0     3.49     4.00
3.25     YES
 L0001212         0   0.23310E-07  392154.6 3762978.2    39.0     3.49     4.00
3.25     YES
 L0001213         0   0.23310E-07  392147.7 3762973.0    39.0     3.49     4.00
3.25     YES
 L0001214         0   0.23310E-07  392140.9 3762967.8    39.0     3.49     4.00
3.25     YES
 L0001215         0   0.23310E-07  392134.1 3762962.6    39.0     3.49     4.00
3.25     YES
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                 *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
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 L0001216         0   0.23310E-07  392126.9 3762958.0    39.0     3.49     4.00
3.25     YES
 L0001217         0   0.23310E-07  392119.0 3762955.5    39.0     3.49     4.00
3.25     YES
 L0001218         0   0.23310E-07  392110.7 3762957.7    39.0     3.49     4.00
3.25     YES
 L0001219         0   0.23310E-07  392102.4 3762959.8    39.0     3.49     4.00
3.25     YES
 L0001220         0   0.23310E-07  392094.1 3762962.2    39.0     3.49     4.00
3.25     YES
 L0001221         0   0.58260E-08  392230.1 3762970.4    40.2     3.49     4.00
3.25     YES
 L0001222         0   0.58260E-08  392222.1 3762973.5    40.0     3.49     4.00
3.25     YES
 L0001223         0   0.58260E-08  392214.1 3762976.6    39.8     3.49     4.00
3.25     YES
 L0001224         0   0.58260E-08  392206.1 3762979.7    39.6     3.49     4.00
3.25     YES
```

L0001225	0	0.58260E-08	392198.1	3762982.7	39.4	3.49	4.00	3.25	YES
L0001226	0	0.58260E-08	392190.1	3762985.8	39.2	3.49	4.00	3.25	YES
L0001227	0	0.58260E-08	392182.0	3762988.9	39.0	3.49	4.00	3.25	YES
L0001228	0	0.58260E-08	392174.1	3762991.6	39.0	3.49	4.00	3.25	YES
L0001229	0	0.58260E-08	392167.2	3762986.4	39.0	3.49	4.00	3.25	YES
L0001230	0	0.58260E-08	392160.4	3762981.2	39.0	3.49	4.00	3.25	YES
L0001231	0	0.58260E-08	392153.6	3762976.0	39.0	3.49	4.00	3.25	YES
L0001232	0	0.58260E-08	392146.8	3762970.8	39.0	3.49	4.00	3.25	YES
L0001233	0	0.58260E-08	392139.9	3762965.6	39.0	3.49	4.00	3.25	YES
L0001234	0	0.58260E-08	392133.1	3762960.3	39.0	3.49	4.00	3.25	YES
L0001235	0	0.58260E-08	392125.9	3762955.8	39.0	3.49	4.00	3.25	YES
L0001236	0	0.58260E-08	392118.0	3762953.3	39.0	3.49	4.00	3.25	YES
L0001237	0	0.58260E-08	392109.7	3762955.4	39.0	3.49	4.00	3.25	YES
L0001238	0	0.58260E-08	392101.4	3762957.6	39.0	3.49	4.00	3.25	YES
L0001239	0	0.58260E-08	392093.1	3762960.0	39.0	3.49	4.00	3.25	YES
L0001240	0	0.58880E-07	392052.4	3762977.9	39.0	0.00	4.00	3.25	YES
L0001241	0	0.58880E-07	392044.5	3762981.3	39.0	0.00	4.00	3.25	YES
L0001242	0	0.58880E-07	392036.6	3762984.7	39.0	0.00	4.00	3.25	YES
L0001243	0	0.58880E-07	392028.7	3762988.2	39.0	0.00	4.00	3.25	YES
L0001244	0	0.58880E-07	392020.8	3762991.6	39.0	0.00	4.00	3.25	YES
L0001245	0	0.58880E-07	392013.7	3762988.8	39.0	0.00	4.00	3.25	YES
L0001246	0	0.58880E-07	392006.8	3762983.6	39.0	0.00	4.00	3.25	YES
L0001247	0	0.58880E-07	392000.0	3762978.4	39.0	0.00	4.00	3.25	YES
L0001248	0	0.58880E-07	391993.2	3762973.2	39.0	0.00	4.00	3.25	YES
L0001249	0	0.58880E-07	391986.4	3762968.0	39.0	0.00	4.00	3.25	YES

```
 L0001250         0   0.58880E-07  391979.6 3762962.7    39.0     0.00     4.00
3.25     YES
 L0001251         0   0.58880E-07  391972.8 3762957.5    39.0     0.00     4.00
3.25     YES
 L0001252         0   0.58880E-07  391965.9 3762952.3    38.9     0.00     4.00
3.25     YES
 L0001253         0   0.58880E-07  391959.1 3762947.1    38.9     0.00     4.00
3.25     YES
 L0001254         0   0.58880E-07  391952.3 3762941.9    38.8     0.00     4.00
3.25     YES
 L0001255         0   0.58880E-07  391945.5 3762936.6    38.9     0.00     4.00
3.25     YES
```



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                                                   *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0001256         0   0.58880E-07  391938.7 3762931.4    38.9     0.00     4.00
3.25     YES
 L0001257         0   0.58880E-07  391931.8 3762926.2    38.9     0.00     4.00
3.25     YES
 L0001258         0   0.58880E-07  391925.0 3762921.0    38.9     0.00     4.00
3.25     YES
 L0001259         0   0.58880E-07  391918.2 3762915.7    39.0     0.00     4.00
3.25     YES
 L0001260         0   0.58880E-07  391911.4 3762910.5    39.0     0.00     4.00
3.25     YES
 L0001261         0   0.58880E-07  391904.6 3762905.3    39.0     0.00     4.00
3.25     YES
 L0001262         0   0.58880E-07  391897.7 3762900.1    39.1     0.00     4.00
3.25     YES
 L0001263         0   0.58880E-07  391890.9 3762894.8    39.1     0.00     4.00
3.25     YES
 L0001264         0   0.58880E-07  391884.1 3762889.6    39.1     0.00     4.00
3.25     YES
```

L0001265	0	0.58880E-07	391877.3	3762884.4	39.2	0.00	4.00	3.25	YES
L0001266	0	0.58880E-07	391870.5	3762879.2	39.2	0.00	4.00	3.25	YES
L0001267	0	0.58880E-07	391863.6	3762874.0	39.2	0.00	4.00	3.25	YES
L0001268	0	0.58880E-07	391856.8	3762868.7	39.2	0.00	4.00	3.25	YES
L0001269	0	0.58880E-07	391850.0	3762863.5	39.2	0.00	4.00	3.25	YES
L0001270	0	0.58880E-07	391843.2	3762858.3	39.1	0.00	4.00	3.25	YES
L0001271	0	0.58880E-07	391836.4	3762853.1	39.0	0.00	4.00	3.25	YES
L0001272	0	0.58880E-07	391829.5	3762847.8	38.8	0.00	4.00	3.25	YES
L0001273	0	0.58880E-07	391822.7	3762842.6	38.7	0.00	4.00	3.25	YES
L0001274	0	0.58880E-07	391815.9	3762837.4	38.6	0.00	4.00	3.25	YES
L0001275	0	0.58880E-07	391809.1	3762832.2	38.4	0.00	4.00	3.25	YES
L0001276	0	0.58880E-07	391802.3	3762827.0	38.2	0.00	4.00	3.25	YES
L0001277	0	0.58880E-07	391795.4	3762821.7	38.0	0.00	4.00	3.25	YES
L0001278	0	0.58880E-07	391788.6	3762816.5	37.8	0.00	4.00	3.25	YES
L0001279	0	0.58880E-07	391781.8	3762811.3	37.6	0.00	4.00	3.25	YES
L0001280	0	0.58880E-07	391775.0	3762806.1	37.4	0.00	4.00	3.25	YES
L0001281	0	0.58880E-07	391768.2	3762800.8	37.2	0.00	4.00	3.25	YES
L0001282	0	0.58880E-07	391761.0	3762796.2	37.0	0.00	4.00	3.25	YES
L0001283	0	0.58880E-07	391753.7	3762791.5	36.8	0.00	4.00	3.25	YES
L0001284	0	0.58880E-07	391746.5	3762786.8	36.6	0.00	4.00	3.25	YES
L0001285	0	0.58880E-07	391739.3	3762782.2	36.3	0.00	4.00	3.25	YES
L0001286	0	0.58880E-07	391732.1	3762777.5	36.1	0.00	4.00	3.25	YES
L0001287	0	0.58880E-07	391724.9	3762772.8	35.9	0.00	4.00	3.25	YES
L0001288	0	0.58880E-07	391717.7	3762768.1	35.8	0.00	4.00	3.25	YES
L0001289	0	0.58880E-07	391710.5	3762763.5	35.7	0.00	4.00	3.25	YES

```
 L0001290         0   0.58880E-07  391703.3 3762758.8    35.6     0.00     4.00
3.25     YES
 L0001291         0   0.58880E-07  391696.1 3762754.1    35.5     0.00     4.00
3.25     YES
 L0001292         0   0.58880E-07  391688.8 3762749.5    35.3     0.00     4.00
3.25     YES
 L0001293         0   0.58880E-07  391681.6 3762744.8    35.2     0.00     4.00
3.25     YES
 L0001294         0   0.58880E-07  391674.4 3762740.1    35.0     0.00     4.00
3.25     YES
 L0001295         0   0.58880E-07  391667.2 3762735.5    34.8     0.00     4.00
3.25     YES
```



```
                                                   *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0001296         0   0.58880E-07  391660.0 3762730.8    34.6     0.00     4.00
3.25     YES
 L0001297         0   0.58880E-07  391652.8 3762726.1    34.4     0.00     4.00
3.25     YES
 L0001298         0   0.58880E-07  391645.6 3762721.5    34.2     0.00     4.00
3.25     YES
 L0001299         0   0.58880E-07  391638.4 3762716.8    34.0     0.00     4.00
3.25     YES
 L0001300         0   0.58880E-07  391631.2 3762712.1    33.8     0.00     4.00
3.25     YES
 L0001301         0   0.58880E-07  391624.0 3762707.5    33.5     0.00     4.00
3.25     YES
 L0001302         0   0.58880E-07  391616.7 3762702.8    33.3     0.00     4.00
3.25     YES
 L0001303         0   0.58880E-07  391609.5 3762698.1    33.0     0.00     4.00
3.25     YES
 L0001304         0   0.58880E-07  391602.3 3762693.4    32.8     0.00     4.00
3.25     YES
```

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 L0001305         0   0.58880E-07  391595.1 3762688.8    32.5     0.00     4.00
3.25     YES
 L0001306         0   0.58880E-07  391587.9 3762684.1    32.3     0.00     4.00
3.25     YES
 L0001307         0   0.58880E-07  391580.7 3762679.4    32.1     0.00     4.00
3.25     YES
 L0001308         0   0.58880E-07  391573.5 3762674.8    31.9     0.00     4.00
3.25     YES
 L0001309         0   0.58880E-07  391566.3 3762670.1    31.7     0.00     4.00
3.25     YES
 L0001310         0   0.58880E-07  391559.1 3762665.4    31.6     0.00     4.00
3.25     YES
 L0001311         0   0.58880E-07  391551.8 3762660.8    31.5     0.00     4.00
3.25     YES
 L0001312         0   0.58880E-07  391544.6 3762656.1    31.4     0.00     4.00
3.25     YES
 L0001313         0   0.58880E-07  391537.4 3762651.4    31.3     0.00     4.00
3.25     YES
 L0001314         0   0.58880E-07  391530.2 3762646.8    31.2     0.00     4.00
3.25     YES
 L0001315         0   0.58880E-07  391523.0 3762642.1    31.1     0.00     4.00
3.25     YES
 L0001316         0   0.58880E-07  391515.8 3762637.4    31.0     0.00     4.00
3.25     YES
 L0001317         0   0.58880E-07  391508.6 3762632.8    30.9     0.00     4.00
3.25     YES
 L0001318         0   0.58880E-07  391501.4 3762628.1    30.8     0.00     4.00
3.25     YES
 L0001319         0   0.58880E-07  391494.2 3762623.4    30.7     0.00     4.00
3.25     YES
 L0001320         0   0.58880E-07  391487.0 3762618.8    30.6     0.00     4.00
3.25     YES
 L0001321         0   0.58880E-07  391479.7 3762614.1    30.4     0.00     4.00
3.25     YES
 L0001322         0   0.58880E-07  391472.5 3762609.4    30.3     0.00     4.00
3.25     YES
 L0001323         0   0.58880E-07  391465.3 3762604.7    30.2     0.00     4.00
3.25     YES
 L0001324         0   0.58880E-07  391458.1 3762600.1    30.1     0.00     4.00
3.25     YES
 L0001325         0   0.58880E-07  391450.9 3762595.4    30.0     0.00     4.00
3.25     YES
```

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	L0001136 , L0001137 , L0001138 , L0001139 , L0001140 , L0001141 , L0001142 , L0001143 ,
	L0001144 , L0001145 , L0001146 , L0001147 , L0001148 , L0001149 , L0001150 , L0001151 ,
	L0001152 , L0001153 , L0001154 , L0001155 , L0001156 , L0001157 , L0001158 , L0001159 ,
	L0001160 , L0001161 , L0001162 , L0001163 , L0001164 , L0001165 , L0001166 , L0001167 ,
	L0001168 , L0001169 , L0001170 , L0001171 , L0001172 , L0001173 , L0001174 , L0001175 ,
	L0001176 , L0001177 , L0001178 , L0001179 , L0001180 , L0001181 , L0001182 , L0001183 ,
	L0001184 , L0001185 , L0001186 , L0001187 , L0001188 , L0001189 , L0001190 , L0001191 ,
	L0001192 , L0001193 , L0001194 , L0001195 , L0001196 , L0001197 , L0001198 , L0001199 ,
	L0001200 , L0001201 , L0001202 , L0001203 , L0001204 , L0001205 , L0001206 , L0001207 ,
	L0001208 , L0001209 , L0001210 , L0001211 , L0001212 , L0001213 , L0001214 , L0001215 ,
	L0001216 , L0001217 , L0001218 , L0001219 , L0001220 , L0001221 , L0001222 , L0001223 ,
	L0001224 , L0001225 , L0001226 , L0001227 , L0001228 , L0001229 , L0001230 , L0001231 ,
	L0001232 , L0001233 , L0001234 , L0001235 , L0001236 , L0001237 , L0001238 , L0001239 ,
	L0001240 , L0001241 , L0001242 , L0001243 , L0001244 , L0001245 , L0001246 , L0001247 ,

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             L0001248    , L0001249    , L0001250    , L0001251    , L0001252    ,
L0001253    , L0001254    , L0001255    ,

             L0001256    , L0001257    , L0001258    , L0001259    , L0001260    ,
L0001261    , L0001262    , L0001263    ,

             L0001264    , L0001265    , L0001266    , L0001267    , L0001268    ,
L0001269    , L0001270    , L0001271    ,

             L0001272    , L0001273    , L0001274    , L0001275    , L0001276    ,
L0001277    , L0001278    , L0001279    ,

             L0001280    , L0001281    , L0001282    , L0001283    , L0001284    ,
L0001285    , L0001286    , L0001287    ,

             L0001288    , L0001289    , L0001290    , L0001291    , L0001292    ,
L0001293    , L0001294    , L0001295    ,
```



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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                                SOURCE IDs
 -----------                                                ----------


             L0001296    , L0001297    , L0001298    , L0001299    , L0001300    ,
L0001301    , L0001302    , L0001303    ,

             L0001304    , L0001305    , L0001306    , L0001307    , L0001308    ,
L0001309    , L0001310    , L0001311    ,

             L0001312    , L0001313    , L0001314    , L0001315    , L0001316    ,
L0001317    , L0001318    , L0001319    ,

             L0001320    , L0001321    , L0001322    , L0001323    , L0001324    ,
L0001325    ,
```

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINED AS URBAN SOURCES
***

  URBAN ID   URBAN POP                                    SOURCE IDs
  --------   ---------                                    ----------


              9818605.   L0001136    , L0001137    , L0001138    , L0001139    ,
L0001140    , L0001141    , L0001142    ,
 L0001143    ,

             L0001144    , L0001145    , L0001146    , L0001147    , L0001148    ,
L0001149    , L0001150    , L0001151    ,

             L0001152    , L0001153    , L0001154    , L0001155    , L0001156    ,
L0001157    , L0001158    , L0001159    ,

             L0001160    , L0001161    , L0001162    , L0001163    , L0001164    ,
L0001165    , L0001166    , L0001167    ,

             L0001168    , L0001169    , L0001170    , L0001171    , L0001172    ,
L0001173    , L0001174    , L0001175    ,

             L0001176    , L0001177    , L0001178    , L0001179    , L0001180    ,
L0001181    , L0001182    , L0001183    ,

             L0001184    , L0001185    , L0001186    , L0001187    , L0001188    ,
L0001189    , L0001190    , L0001191    ,

             L0001192    , L0001193    , L0001194    , L0001195    , L0001196    ,
L0001197    , L0001198    , L0001199    ,

             L0001200    , L0001201    , L0001202    , L0001203    , L0001204    ,
L0001205    , L0001206    , L0001207    ,

             L0001208    , L0001209    , L0001210    , L0001211    , L0001212    ,
L0001213    , L0001214    , L0001215    ,

             L0001216    , L0001217    , L0001218    , L0001219    , L0001220    ,
L0001221    , L0001222    , L0001223    ,

             L0001224    , L0001225    , L0001226    , L0001227    , L0001228    ,
L0001229    , L0001230    , L0001231    ,

             L0001232    , L0001233    , L0001234    , L0001235    , L0001236    ,
L0001237    , L0001238    , L0001239    ,
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             L0001240    , L0001241    , L0001242    , L0001243    , L0001244    ,
L0001245    , L0001246    , L0001247    ,

             L0001248    , L0001249    , L0001250    , L0001251    , L0001252    ,
L0001253    , L0001254    , L0001255    ,

             L0001256    , L0001257    , L0001258    , L0001259    , L0001260    ,
L0001261    , L0001262    , L0001263    ,

             L0001264    , L0001265    , L0001266    , L0001267    , L0001268    ,
L0001269    , L0001270    , L0001271    ,

             L0001272    , L0001273    , L0001274    , L0001275    , L0001276    ,
L0001277    , L0001278    , L0001279    ,

             L0001280    , L0001281    , L0001282    , L0001283    , L0001284    ,
L0001285    , L0001286    , L0001287    ,

             L0001288    , L0001289    , L0001290    , L0001291    , L0001292    ,
L0001293    , L0001294    , L0001295    ,
```



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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINED AS URBAN SOURCES
***

  URBAN ID   URBAN POP                                     SOURCE IDs
  --------   ---------                                     ----------


             L0001296    , L0001297    , L0001298    , L0001299    , L0001300    ,
L0001301    , L0001302    , L0001303    ,

             L0001304    , L0001305    , L0001306    , L0001307    , L0001308    ,
L0001309    , L0001310    , L0001311    ,

             L0001312    , L0001313    , L0001314    , L0001315    , L0001316    ,
L0001317    , L0001318    , L0001319    ,

             L0001320    , L0001321    , L0001322    , L0001323    , L0001324    ,
L0001325    ,
```

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE:
GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

391217.3, 391317.3, 391417.3, 391517.3, 391617.3, 391717.3, 391817.3,
391917.3, 392017.3, 392117.3,
392217.3, 392317.3, 392417.3, 392517.3, 392617.3, 392717.3, 392817.3,
392917.3, 393017.3, 393117.3,
393217.3,

*** Y-COORDINATES OF GRID ***
(METERS)

3761897.2, 3761997.2, 3762097.2, 3762197.2, 3762297.2, 3762397.2, 3762497.2,
3762597.2, 3762697.2, 3762797.2,
3762897.2, 3762997.2, 3763097.2, 3763197.2, 3763297.2, 3763397.2, 3763497.2,
3763597.2, 3763697.2, 3763797.2,
3763897.2,

*** NETWORK ID: UCART1 ; NETWORK TYPE:
GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 391217.35	391317.35	391417.35	391517.35	391617.35	391717.35	391817.35	391917.35	392017.35
3763897.16	49.10	49.10	49.10	49.10	49.10	49.10	47.00	46.20	46.10
3763797.16	49.00	49.00	49.00	49.00	49.00	49.00	45.90	45.10	45.10

```
  3763697.16 |         48.00        48.00        48.00        48.00        48.00
    48.00        45.80        44.60        44.00
  3763597.16 |         47.80        47.80        47.90        47.90        47.90
    47.90        44.80        43.50        42.90
  3763497.16 |         47.00        47.00        47.00        47.00        47.00
    47.00        43.80        42.40        41.90
  3763397.16 |         46.70        46.70        46.70        46.70        46.70
    46.70        43.40        41.80        41.00
  3763297.16 |         46.00        46.00        46.00        46.00        46.00
    46.00        42.60        40.80        40.10
  3763197.16 |         46.00        46.00        46.00        46.00        46.00
    45.60        42.20        40.30        40.00
  3763097.16 |         45.40        45.40        45.40        45.50        45.50
    44.60        41.50        39.70        39.50
  3762997.16 |         45.00        45.00        45.00        44.80        44.40
    43.50        41.10        39.50        39.00
  3762897.16 |         42.00        42.10        42.10        42.10        41.90
    41.60        40.10        38.80        38.40
  3762797.16 |         36.00        36.10        36.20        36.30        36.80
    37.20        36.90        36.60        37.20
  3762697.16 |         32.30        32.30        32.30        32.40        33.10
    34.30        34.30        34.40        36.00
  3762597.16 |         30.00        30.00        30.10        30.10        30.80
    33.10        33.40        34.00        35.00
  3762497.16 |         30.00        30.00        30.00        30.00        30.70
    32.00        32.30        33.00        34.80
  3762397.16 |         30.00        30.00        30.00        30.00        30.00
    31.90        32.20        32.30        33.90
  3762297.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.30        32.00        33.90
  3762197.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.40        31.80        33.70
  3762097.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.40        31.30        32.90
  3761997.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.00        30.90        32.60
  3761897.16 |         30.00        30.00        30.00        30.00        30.00
    30.90        30.40        30.30        32.00
↑ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                        ***        12:48:42

                                   PAGE  13
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                  *** NETWORK ID: UCART1   ;  NETWORK TYPE:
GRIDCART ***

                                                 * ELEVATION HEIGHTS IN METERS *
```

```
    Y-COORD  |                                                X-COORD (METERS)
    (METERS) |     392117.35    392217.35    392317.35    392417.35    392517.35
392617.35    392717.35    392817.35    392917.35
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

  3763897.16 |         46.00        46.10        47.30        48.20        49.00
    49.00        49.00        49.30        49.30
  3763797.16 |         45.10        45.10        46.40        47.90        48.20
    48.20        48.20        49.00        49.00
  3763697.16 |         44.00        44.40        46.30        47.10        48.00
    48.00        48.00        48.10        48.10
  3763597.16 |         42.90        43.30        45.30        46.90        47.20
    48.00        48.00        48.00        48.00
  3763497.16 |         41.90        42.30        45.00        46.00        46.90
    47.00        47.00        47.90        48.00
  3763397.16 |         40.80        41.50        44.80        46.00        46.20
    46.80        46.80        47.00        47.00
  3763297.16 |         40.00        40.80        44.10        45.70        46.00
    46.00        46.00        46.80        46.80
  3763197.16 |         40.00        40.70        43.80        45.00        45.70
    45.70        45.70        46.00        46.00
  3763097.16 |         39.50        40.20        43.20        44.60        45.00
    45.00        45.00        45.60        45.60
  3762997.16 |         39.00        39.90        42.80        44.00        44.50
    44.50        44.50        45.00        45.00
  3762897.16 |         39.10        40.20        42.50        43.40        44.00
    44.00        44.00        44.50        44.50
  3762797.16 |         39.40        41.90        43.40        43.70        44.00
    44.00        44.00        44.00        43.70
  3762697.16 |         39.50        42.50        43.80        44.00        44.00
    44.00        44.00        44.00        43.00
  3762597.16 |         38.70        41.60        42.30        43.20        43.20
    43.20        43.20        43.20        42.50
  3762497.16 |         38.40        40.60        41.80        42.10        42.10
    42.10        42.10        42.10        41.50
  3762397.16 |         38.40        40.50        41.80        42.00        42.00
    42.00        42.00        42.00        40.80
  3762297.16 |         37.50        40.00        41.00        41.00        41.00
    41.00        41.00        41.00        40.30
  3762197.16 |         37.40        39.60        40.70        40.80        40.80
    40.90        40.90        40.90        39.70
  3762097.16 |         36.80        39.60        40.00        40.00        40.00
    40.00        40.00        40.00        39.20
  3761997.16 |         36.50        39.20        39.70        39.70        39.70
    39.70        39.70        39.70        38.60
  3761897.16 |         35.90        38.60        39.00        39.00        39.00
    39.00        39.00        39.00        38.10
```

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 393017.35	393117.35	393217.35
3763897.16	49.30	49.30	49.30
3763797.16	49.00	49.00	49.00
3763697.16	48.10	48.10	48.20
3763597.16	48.00	48.00	48.00
3763497.16	48.00	48.00	48.00
3763397.16	47.00	47.00	47.00
3763297.16	46.80	46.80	46.80
3763197.16	46.00	46.00	46.00
3763097.16	45.60	45.70	45.70
3762997.16	45.00	45.00	45.00
3762897.16	44.50	44.60	45.20
3762797.16	43.40	44.20	45.70
3762697.16	42.30	43.60	45.90
3762597.16	41.30	42.80	46.00
3762497.16	41.00	42.60	46.00
3762397.16	40.10	41.70	45.60
3762297.16	40.00	41.70	45.60
3762197.16	39.00	41.70	45.10
3762097.16	38.80	40.80	44.60
3761997.16	38.00	40.60	44.10
3761897.16	37.70	39.90	43.60

* HILL HEIGHT SCALES IN METERS *

```
    Y-COORD  |                                                X-COORD (METERS)
    (METERS) |     391217.35    391317.35    391417.35    391517.35    391617.35
391717.35    391817.35    391917.35    392017.35
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

  3763897.16 |         49.10        49.10        49.10        49.10        49.10
    49.10        47.00        46.20        46.10
  3763797.16 |         49.00        49.00        49.00        49.00        49.00
    49.00        45.90        45.10        45.10
  3763697.16 |         48.00        48.00        48.00        48.00        48.00
    48.00        45.80        44.60        44.00
  3763597.16 |         47.80        47.80        47.90        47.90        47.90
    47.90        44.80        43.50        42.90
  3763497.16 |         47.00        47.00        47.00        47.00        47.00
    47.00        43.80        42.40        41.90
  3763397.16 |         46.70        46.70        46.70        46.70        46.70
    46.70        43.40        41.80        41.00
  3763297.16 |         46.00        46.00        46.00        46.00        46.00
    46.00        42.60        40.80        40.10
  3763197.16 |         46.00        46.00        46.00        46.00        46.00
    45.60        42.20        40.30        40.00
  3763097.16 |         45.40        45.40        45.40        45.50        45.50
    44.60        41.50        39.70        39.50
  3762997.16 |         45.00        45.00        45.00        44.80        44.40
    43.50        41.10        39.50        39.00
  3762897.16 |         42.00        42.10        42.10        42.10        41.90
    41.60        40.10        38.80        38.40
  3762797.16 |         36.00        36.10        36.20        36.30        36.80
    37.20        36.90        36.60        37.20
  3762697.16 |         32.30        32.30        32.30        32.40        33.10
    34.30        34.30        34.40        36.00
  3762597.16 |         30.00        30.00        30.10        30.10        30.80
    33.10        33.40        34.00        35.00
  3762497.16 |         30.00        30.00        30.00        30.00        30.70
    32.00        32.30        33.00        34.80
  3762397.16 |         30.00        30.00        30.00        30.00        30.00
    31.90        32.20        32.30        33.90
  3762297.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.30        32.00        33.90
  3762197.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.40        31.80        33.70
  3762097.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.40        31.30        32.90
  3761997.16 |         30.00        30.00        30.00        30.00        30.00
    31.00        31.00        30.90        32.60
  3761897.16 |         30.00        30.00        30.00        30.00        30.00
    30.90        30.40        30.30        32.00
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 392117.35	392217.35	392317.35	392417.35	392517.35	392617.35	392717.35	392817.35	392917.35
3763897.16	46.00	46.10	47.30	48.20	49.00	49.00	49.00	49.30	49.30
3763797.16	45.10	45.10	46.40	47.90	48.20	48.20	48.20	49.00	49.00
3763697.16	44.00	44.40	46.30	47.10	48.00	48.00	48.00	48.10	48.10
3763597.16	42.90	43.30	45.30	46.90	47.20	48.00	48.00	48.00	48.00
3763497.16	41.90	42.30	45.00	46.00	46.90	47.00	47.00	47.90	48.00
3763397.16	40.80	41.50	44.80	46.00	46.20	46.80	46.80	47.00	47.00
3763297.16	40.00	40.80	44.10	45.70	46.00	46.00	46.00	46.80	46.80
3763197.16	40.00	40.70	43.80	45.00	45.70	45.70	45.70	46.00	46.00
3763097.16	39.50	40.20	43.20	44.60	45.00	45.00	45.00	45.60	45.60
3762997.16	39.00	39.90	42.80	44.00	44.50	44.50	44.50	45.00	45.00
3762897.16	39.10	40.20	42.50	43.40	44.00	44.00	44.00	44.50	44.50
3762797.16	39.40	41.90	43.40	43.70	44.00	44.00	44.00	44.00	43.70
3762697.16	39.50	42.50	43.80	44.00	44.00	44.00	44.00	44.00	43.00
3762597.16	38.70	41.60	42.30	43.20	43.20	43.20	43.20	43.20	42.50
3762497.16	38.40	40.60	41.80	42.10	42.10	42.10	42.10	42.10	41.50
3762397.16	38.40	40.50	41.80	42.00	42.00	42.00	42.00	42.00	40.80

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  3762297.16 |         37.50        40.00        41.00        41.00        41.00
    41.00        41.00        41.00        40.30
  3762197.16 |         37.40        39.60        40.70        40.80        40.80
    40.90        40.90        40.90        39.70
  3762097.16 |         36.80        39.60        40.00        40.00        40.00
    40.00        40.00        40.00        39.20
  3761997.16 |         36.50        39.20        39.70        39.70        39.70
    39.70        39.70        39.70        38.60
  3761897.16 |         35.90        38.60        39.00        39.00        39.00
    39.00        39.00        39.00        38.10
↑ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

                                  PAGE  17
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                 *** NETWORK ID: UCART1   ;  NETWORK TYPE:
GRIDCART ***

                                              * HILL HEIGHT SCALES IN METERS *

    Y-COORD  |                                              X-COORD (METERS)
    (METERS) |     393017.35    393117.35    393217.35
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

  3763897.16 |         49.30        49.30        49.30
  3763797.16 |         49.00        49.00        49.00
  3763697.16 |         48.10        48.10        48.20
  3763597.16 |         48.00        48.00        48.00
  3763497.16 |         48.00        48.00        48.00
  3763397.16 |         47.00        47.00        47.00
  3763297.16 |         46.80        46.80        46.80
  3763197.16 |         46.00        46.00        46.00
  3763097.16 |         45.60        45.70        45.70
  3762997.16 |         45.00        45.00        45.00
  3762897.16 |         44.50        44.60        45.20
  3762797.16 |         43.40        44.20        45.70
  3762697.16 |         42.30        43.60        45.90
  3762597.16 |         41.30        42.80        46.00
  3762497.16 |         41.00        42.60        46.00
  3762397.16 |         40.10        41.70        45.60
  3762297.16 |         40.00        41.70        45.60
  3762197.16 |         39.00        41.70        45.10
  3762097.16 |         38.80        40.80        44.60
  3761997.16 |         38.00        40.60        44.10
  3761897.16 |         37.70        39.90        43.60
↑ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
```

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(392027.0, 3763176.1, 40.0, 40.0, 0.0); (392108.6, 3762968.3, 39.0, 39.0, 0.0);
(392296.7, 3763107.3, 42.4, 42.4, 0.0); (392340.6, 3763044.6, 44.0, 44.0, 0.0);
(391997.2, 3762924.0, 38.6, 38.6, 0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0001244	392017.3	3762997.2	-2.02
L0001245	392017.3	3762997.2	0.50
L0001302	391617.3	3762697.2	-2.94
L0001303	391617.3	3762697.2	-0.72

*** MODELOPTs: RegDFAULT CONC ELEV 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
```

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 *** *** C:\LAKES\AERMOD VIEW\13054 OP HRA REV\13054 OP HRA REV.ISC *** 10/06/20
*** AERMET - VERSION 16216 *** *** *** 12:48:42

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

Surface file: USC-DOWNTOWNLAADJU\KCQT_V9_ADJU\KCQT_V9.SFC
Met Version: 16216
Profile file: USC-DOWNTOWNLAADJU\KCQT_V9_ADJU\KCQT_V9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 93134 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	-4.2	0.081	-9.000	-9.000	-999.	56.	11.6	0.27	2.83	1.00	0.64	306.	5.8	283.1	2.0
12	01	01	1	02	-5.0	0.089	-9.000	-9.000	-999.	63.	12.6	0.27	2.83	1.00	0.70	334.	5.8	283.1	2.0
12	01	01	1	03	-10.7	0.131	-9.000	-9.000	-999.	114.	19.1	0.27	2.83	1.00	1.01	357.	5.8	283.1	2.0
12	01	01	1	04	-18.5	0.186	-9.000	-9.000	-999.	192.	38.0	0.27	2.83	1.00	1.40	15.	5.8	285.4	2.0
12	01	01	1	05	-16.0	0.162	-9.000	-9.000	-999.	157.	28.9	0.27	2.83	1.00	1.23	44.	5.8	284.2	2.0
12	01	01	1	06	-6.9	0.104	-9.000	-9.000	-999.	82.	14.9	0.27	2.83	1.00	0.82	7.	5.8	282.5	2.0
12	01	01	1	07	-3.2	0.071	-9.000	-9.000	-999.	46.	10.4	0.27	2.83	1.00	0.55	282.	5.8	281.4	2.0
12	01	01	1	08	-7.9	0.119	-9.000	-9.000	-999.	99.	19.4	0.27	2.83	0.55	0.92	359.	5.8	282.5	2.0
12	01	01	1	09	38.2	0.213	0.345	0.006	39.	237.	-23.0	0.27	2.83	0.32	1.38	8.	5.8	290.4	2.0
12	01	01	1	10	112.7	0.212	0.730	0.006	125.	235.	-7.7	0.27	2.83	0.24	1.18	14.	5.8	294.9	2.0
12	01	01	1	11	164.8	0.219	1.173	0.005	355.	246.	-5.8	0.27	2.83	0.21	1.16	6.	5.8	297.5	2.0
12	01	01	1	12	191.0	0.225	1.516	0.005	660.	257.	-5.4	0.27	2.83	0.20	1.18	34.	5.8	299.2	2.0
12	01	01	1	13	189.9	0.179	1.806	0.005	1122.	183.	-2.7	0.27	2.83	0.20	0.82	117.	5.8	299.9	2.0
12	01	01	1	14	162.6	0.158	1.858	0.005	1426.	150.	-2.2	0.27	2.83	0.21	0.69	144.	5.8	300.4	2.0
12	01	01	1	15	109.2	0.201	1.670	0.005	1541.	216.	-6.7	0.27	2.83	0.25	1.09	202.	5.8	299.9	2.0
12	01	01	1	16	32.0	0.301	1.113	0.005	1557.	395.	-76.6	0.27	2.83	0.33	2.15	275.	5.8	295.4	2.0
12	01	01	1	17	-16.0	0.187	-9.000	-9.000	-999.	200.	38.3	0.27	2.83	0.60	1.40	287.	5.8	291.4	2.0
12	01	01	1	18	-15.4	0.159	-9.000	-9.000	-999.	153.	27.9	0.27	2.83	1.00	1.21	295.	5.8	288.8	2.0

```
 12 01 01   1 19   -5.2  0.091 -9.000 -9.000 -999.   67.     13.0  0.27   2.83
1.00    0.72  286.    5.8  287.5    2.0
 12 01 01   1 20 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.27   2.83
1.00    0.00    0.    5.8  286.4    2.0
 12 01 01   1 21   -2.9  0.069 -9.000 -9.000 -999.   44.     10.3  0.27   2.83
1.00    0.53  319.    5.8  285.9    2.0
 12 01 01   1 22   -6.0  0.098 -9.000 -9.000 -999.   73.     14.0  0.27   2.83
1.00    0.77  336.    5.8  285.4    2.0
 12 01 01   1 23  -13.5  0.148 -9.000 -9.000 -999.  137.     24.1  0.27   2.83
1.00    1.13  293.    5.8  285.4    2.0
 12 01 01   1 24   -8.8  0.118 -9.000 -9.000 -999.   98.     17.1  0.27   2.83
1.00    0.92  315.    5.8  284.9    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01    5.8 1  306.    0.64   283.2   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

                                  PAGE  22
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     L0001136    , L0001137
 , L0001138    , L0001139    , L0001140    ,
                L0001141    , L0001142    , L0001143    , L0001144    , L0001145
 , L0001146    , L0001147    , L0001148    ,
                L0001149    , L0001150    , L0001151    , L0001152    , L0001153
 , L0001154    , L0001155    , L0001156    ,
                L0001157    , L0001158    , L0001159    , L0001160    , L0001161
 , L0001162    , L0001163    ,  . . .      ,

                                  *** NETWORK ID: UCART1   ;  NETWORK TYPE:
GRIDCART ***

                                       ** CONC OF DPM      IN MICROGRAMS/M**3
                    **

    Y-COORD  |                                                X-COORD (METERS)
    (METERS) |     391217.35    391317.35    391417.35    391517.35    391617.35
391717.35    391817.35    391917.35    392017.35
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -
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```
 3763897.16 |       0.00001      0.00002      0.00002      0.00002      0.00002
 0.00002      0.00002      0.00002      0.00002
 3763797.16 |       0.00002      0.00002      0.00002      0.00002      0.00002
 0.00002      0.00002      0.00003      0.00003
 3763697.16 |       0.00002      0.00002      0.00002      0.00002      0.00002
 0.00003      0.00003      0.00003      0.00003
 3763597.16 |       0.00002      0.00002      0.00003      0.00003      0.00003
 0.00003      0.00004      0.00004      0.00004
 3763497.16 |       0.00002      0.00003      0.00003      0.00003      0.00004
 0.00004      0.00005      0.00005      0.00005
 3763397.16 |       0.00003      0.00003      0.00003      0.00004      0.00004
 0.00005      0.00006      0.00006      0.00007
 3763297.16 |       0.00003      0.00003      0.00004      0.00005      0.00005
 0.00006      0.00008      0.00009      0.00010
 3763197.16 |       0.00003      0.00004      0.00005      0.00006      0.00007
 0.00008      0.00011      0.00013      0.00015
 3763097.16 |       0.00004      0.00004      0.00005      0.00007      0.00009
 0.00011      0.00015      0.00021      0.00027
 3762997.16 |       0.00004      0.00005      0.00006      0.00008      0.00011
 0.00015      0.00023      0.00042      0.00101
 3762897.16 |       0.00004      0.00006      0.00007      0.00010      0.00014
 0.00022      0.00044      0.00112      0.00149
 3762797.16 |       0.00005      0.00006      0.00009      0.00014      0.00024
 0.00062      0.00056      0.00043      0.00083
 3762697.16 |       0.00005      0.00007      0.00013      0.00030      0.00079
 0.00032      0.00024      0.00026      0.00035
 3762597.16 |       0.00005      0.00007      0.00020      0.00038      0.00020
 0.00016      0.00015      0.00017      0.00019
 3762497.16 |       0.00004      0.00006      0.00008      0.00010      0.00010
 0.00010      0.00011      0.00011      0.00012
 3762397.16 |       0.00004      0.00004      0.00005      0.00006      0.00007
 0.00007      0.00008      0.00008      0.00008
 3762297.16 |       0.00003      0.00004      0.00004      0.00005      0.00005
 0.00006      0.00006      0.00006      0.00006
 3762197.16 |       0.00003      0.00003      0.00003      0.00004      0.00004
 0.00004      0.00005      0.00005      0.00005
 3762097.16 |       0.00002      0.00003      0.00003      0.00003      0.00003
 0.00004      0.00004      0.00004      0.00004
 3761997.16 |       0.00002      0.00002      0.00002      0.00003      0.00003
 0.00003      0.00003      0.00003      0.00003
 3761897.16 |       0.00002      0.00002      0.00002      0.00002      0.00002
 0.00003      0.00003      0.00003      0.00003
```


*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): L0001136 , L0001137 , L0001138 , L0001139 , L0001140 , L0001141 , L0001142 , L0001143 , L0001144 , L0001145 , L0001146 , L0001147 , L0001148 , L0001149 , L0001150 , L0001151 , L0001152 , L0001153 , L0001154 , L0001155 , L0001156 , L0001157 , L0001158 , L0001159 , L0001160 , L0001161 , L0001162 , L0001163 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 392117.35	392217.35	392317.35	392417.35	392517.35	392617.35	392717.35	392817.35	392917.35
3763897.16	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001
3763797.16	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001
3763697.16	0.00003	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002
3763597.16	0.00004	0.00004	0.00003	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002
3763497.16	0.00005	0.00005	0.00004	0.00004	0.00003	0.00003	0.00003	0.00002	0.00002
3763397.16	0.00007	0.00007	0.00006	0.00005	0.00004	0.00004	0.00003	0.00003	0.00003
3763297.16	0.00010	0.00009	0.00008	0.00006	0.00005	0.00005	0.00004	0.00003	0.00003
3763197.16	0.00015	0.00014	0.00011	0.00009	0.00007	0.00006	0.00005	0.00004	0.00004
3763097.16	0.00028	0.00025	0.00018	0.00013	0.00009	0.00007	0.00006	0.00005	0.00004
3762997.16	0.00078	0.00076	0.00031	0.00018	0.00012	0.00009	0.00007	0.00005	0.00004
3762897.16	0.00237	0.00222	0.00043	0.00020	0.00013	0.00009	0.00007	0.00005	0.00004
3762797.16	0.00231	0.00104	0.00035	0.00019	0.00012	0.00008	0.00006	0.00005	0.00004
3762697.16	0.00045	0.00036	0.00022	0.00014	0.00010	0.00007	0.00006	0.00005	0.00004
3762597.16	0.00021	0.00018	0.00014	0.00010	0.00008				

```
  0.00006      0.00005      0.00004      0.00003
  3762497.16 |       0.00012      0.00011      0.00010      0.00008      0.00006
  0.00005      0.00004      0.00003      0.00003
  3762397.16 |       0.00008      0.00008      0.00007      0.00006      0.00005
  0.00004      0.00004      0.00003      0.00003
  3762297.16 |       0.00006      0.00006      0.00005      0.00005      0.00004
  0.00004      0.00003      0.00003      0.00002
  3762197.16 |       0.00005      0.00005      0.00004      0.00004      0.00004
  0.00003      0.00003      0.00002      0.00002
  3762097.16 |       0.00004      0.00004      0.00004      0.00003      0.00003
  0.00003      0.00002      0.00002      0.00002
  3761997.16 |       0.00003      0.00003      0.00003      0.00003      0.00003
  0.00002      0.00002      0.00002      0.00002
  3761897.16 |       0.00003      0.00003      0.00002      0.00002      0.00002
  0.00002      0.00002      0.00002      0.00002
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\13054 OP HRA
REV\13054 OP HRA REV.ISC           ***        10/06/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        12:48:42

                                  PAGE  24
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     L0001136    , L0001137
 , L0001138    , L0001139    , L0001140    ,
                L0001141    , L0001142    , L0001143    , L0001144    , L0001145
 , L0001146    , L0001147    , L0001148    ,
                L0001149    , L0001150    , L0001151    , L0001152    , L0001153
 , L0001154    , L0001155    , L0001156    ,
                L0001157    , L0001158    , L0001159    , L0001160    , L0001161
 , L0001162    , L0001163    ,  . . .      ,

                                  *** NETWORK ID: UCART1   ;  NETWORK TYPE:
GRIDCART ***

                                       ** CONC OF DPM      IN MICROGRAMS/M**3
                     **

    Y-COORD  |                                              X-COORD (METERS)
    (METERS) |     393017.35    393117.35    393217.35
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -

  3763897.16 |       0.00001      0.00001      0.00001
  3763797.16 |       0.00001      0.00001      0.00001
  3763697.16 |       0.00002      0.00001      0.00001
  3763597.16 |       0.00002      0.00002      0.00001
  3763497.16 |       0.00002      0.00002      0.00002
```

```
  3763397.16 |       0.00002      0.00002      0.00002
  3763297.16 |       0.00003      0.00002      0.00002
  3763197.16 |       0.00003      0.00003      0.00003
  3763097.16 |       0.00004      0.00003      0.00003
  3762997.16 |       0.00004      0.00003      0.00003
  3762897.16 |       0.00004      0.00003      0.00003
  3762797.16 |       0.00003      0.00003      0.00003
  3762697.16 |       0.00003      0.00003      0.00003
  3762597.16 |       0.00003      0.00002      0.00002
  3762497.16 |       0.00003      0.00002      0.00002
  3762397.16 |       0.00002      0.00002      0.00002
  3762297.16 |       0.00002      0.00002      0.00002
  3762197.16 |       0.00002      0.00002      0.00001
  3762097.16 |       0.00002      0.00002      0.00001
  3761997.16 |       0.00002      0.00001      0.00001
  3761897.16 |       0.00001      0.00001      0.00001
```


*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001136 , L0001137 , L0001138 , L0001139 , L0001140 ,
L0001141 , L0001142 , L0001143 , L0001144 , L0001145 , L0001146 , L0001147 , L0001148 ,
L0001149 , L0001150 , L0001151 , L0001152 , L0001153 , L0001154 , L0001155 , L0001156 ,
L0001157 , L0001158 , L0001159 , L0001160 , L0001161 , L0001162 , L0001163 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
392026.98	3763176.10	0.00017	392108.59	3762968.30	0.00131
392296.74	3763107.34	0.00018	392340.57	3763044.62	0.00021
391997.22	3762924.02	0.00105			

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                  *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***

                                   ** CONC OF DPM   IN MICROGRAMS/M**3
               **

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

ALL   1ST HIGHEST VALUE IS   0.00237 AT (392117.35, 3762897.16,
39.10,   39.10,   0.00) GC UCART1
          2ND HIGHEST VALUE IS   0.00231 AT (392117.35, 3762797.16,
39.40,   39.40,   0.00) GC UCART1
          3RD HIGHEST VALUE IS   0.00222 AT (392217.35, 3762897.16,
40.20,   40.20,   0.00) GC UCART1
          4TH HIGHEST VALUE IS   0.00149 AT (392017.35, 3762897.16,
38.40,   38.40,   0.00) GC UCART1
          5TH HIGHEST VALUE IS   0.00131 AT (392108.59, 3762968.30,
39.00,   39.00,   0.00) DC
          6TH HIGHEST VALUE IS   0.00112 AT (391917.35, 3762897.16,
38.80,   38.80,   0.00) GC UCART1
          7TH HIGHEST VALUE IS   0.00105 AT (391997.22, 3762924.02,
38.64,   38.64,   0.00) DC
          8TH HIGHEST VALUE IS   0.00104 AT (392217.35, 3762797.16,
41.90,   41.90,   0.00) GC UCART1
          9TH HIGHEST VALUE IS   0.00101 AT (392017.35, 3762997.16,
39.00,   39.00,   0.00) GC UCART1
         10TH HIGHEST VALUE IS   0.00083 AT (392017.35, 3762797.16,
37.20,   37.20,   0.00) GC UCART1

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

*** MODELOPTs: RegDFAULT CONC ELEV 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 6278 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 5012 Calm Hours Identified

A Total of 1266 Missing Hours Identified (2.89 Percent)

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

******** WARNING MESSAGES ********
ME W186 584 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
0.50
ME W187 584 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

****
*** AERMOD Finishes Successfully ***
****

AVERAGE EMISSION FACTOR
LOS ANGELES COUNTY 2022

Speed	LHD1	MHD	HHD
0	0.306629	0.097915	0.01753
5	0.01638	0.045568	0.04416
25	0.006517	0.024403	0.01845

Speed	**Weighted Average Emissions**
0	**0.08893**
5	**0.03933**
25	**0.01757**

Emission Rates - 2022 Emission Factors

Truck Emission Rates								
Source	Trucks Per Day	Length of Modeled Source	Number of Volume Sources Generated	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	27	0.07 mile	13			0.0889	0.60	6.948E-06
On-Site Travel	54	0.24 mile	45	12.90	0.0393		0.51	5.872E-06
Off-Site Travel 20% Outbound Dwy 1	5	0.02 mile	4	0.10	0.0176		0.00	2.067E-08
Off-Site Travel 80% Inbound Dwy 1	22	0.02 mile	4	0.41	0.0176		0.01	8.268E-08
Off-Site 80% Outbound Dwy 3	22	0.10 mile	19	2.18	0.0176		0.04	4.429E-07
Off-Site Travel 20% Inbound Dwy 3	5	0.10 mile	19	0.54	0.0176		0.01	1.107E-07
Off-Site Travel 100% to I-710	54	0.46 mile	86	24.91	0.0176		0.44	5.064E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

calendar_y	season_m	sub_area	vehicle_class	fuel	temperatu	relative_h	process	speed_tim
2022	Annual	Los Angele	HHDT	Dsl	60	70	RUNEX	5
2022	Annual	Los Angele	HHDT	Dsl	60	70	RUNEX	25
2022	Annual	Los Angele	LHDT1	Dsl	60	70	RUNEX	5
2022	Annual	Los Angele	LHDT1	Dsl	60	70	RUNEX	25
2022	Annual	Los Angele	MHDT	Dsl	60	70	RUNEX	5
2022	Annual	Los Angele	MHDT	Dsl	60	70	RUNEX	25
2022	Annual	Los Angele	HHDT	Dsl			IDLEX	
2022	Annual	Los Angele	LHDT1	Dsl			IDLEX	
2022	Annual	Los Angele	MHDT	Dsl			IDLEX	

pollutant	emission_rate
PM10	0.046185
PM10	0.019302
PM10	0.042925
PM10	0.017078
PM10	0.055595
PM10	0.029773
PM10	0.018333
PM10	0.803526
PM10	0.119463

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: County
Region: LOS ANGELES
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population
LOS ANGE	2022	HHDT	Aggregate	Aggregate	GAS	55.46638
LOS ANGE	2022	HHDT	Aggregate	Aggregate	DSL	58358.52
LOS ANGE	2022	HHDT	Aggregate	Aggregate	NG	2627.443
LOS ANGE	2022	LHDT1	Aggregate	Aggregate	GAS	107665
LOS ANGE	2022	LHDT1	Aggregate	Aggregate	DSL	66438.77
LOS ANGE	2022	MHDT	Aggregate	Aggregate	GAS	14670
LOS ANGE	2022	MHDT	Aggregate	Aggregate	DSL	66663.52

HHDT% GAS/NG	0.043952
HHDT% DSL	0.956048
LHDT1% GAS	0.618396
LHDT1% DSL	0.381604
MHDT% GAS	0.180368
MHDT% DSL	0.819632

APPENDIX 2.2:

RISK CALCULATIONS

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Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
-0.25 to 0 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00018	1.80E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	6.2E-08	2.0E-09	5.0E+00	1.4E-03	3.6E-05							
TOTAL								2.0E-09			3.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	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	0.85
age sensitivity factor (age third trimester	10

Table 2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00018	1.80E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.9E-07	4.8E-08	5.0E+00	1.4E-03	3.6E-05							
TOTAL								4.8E-08			3.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	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	0.85
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00018	1.80E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	9.9E-08	4.5E-08	5.0E+00	1.4E-03	3.6E-05							
TOTAL								4.5E-08			3.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	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))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00018	1.80E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	4.5E-08	6.9E-09	5.0E+00	1.4E-03	3.6E-05							
TOTAL								6.9E-09			3.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
								0.01										

** 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))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) 0.10

Table 5
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
25-Year Worker Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	1.31E-03	1.31E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.1E-07	7.7E-08	5.0E+00	1.4E-03	2.6E-04							
	TOTAL								8.8E-08			3.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
									0.09										

** Key to Toxicological Endpoints

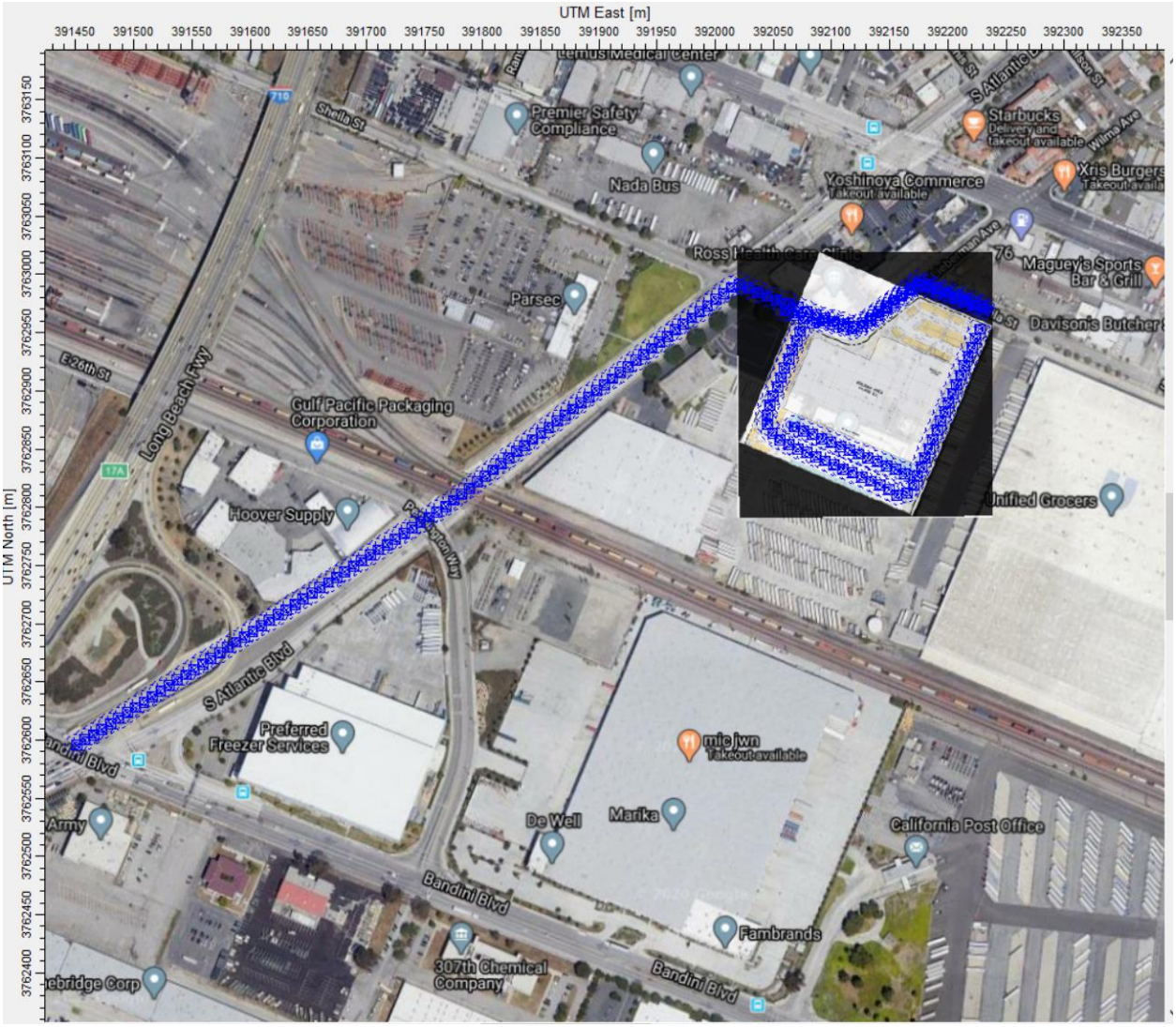
RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	250
exposure duration (years)	25
inhalation rate (L/kg-day))	230
inhalation absorption factor	1
averaging time (years)	70

APPENDIX 2.3:

AERMOD-DERIVED SOURCE CONFIGURATION AND RECEPTORS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Davison's Butcher
E 26th St
Long Beach Fwy
Gulf Pacific Packaging Corporation
Hoover Supply
Pacific Avenue Way
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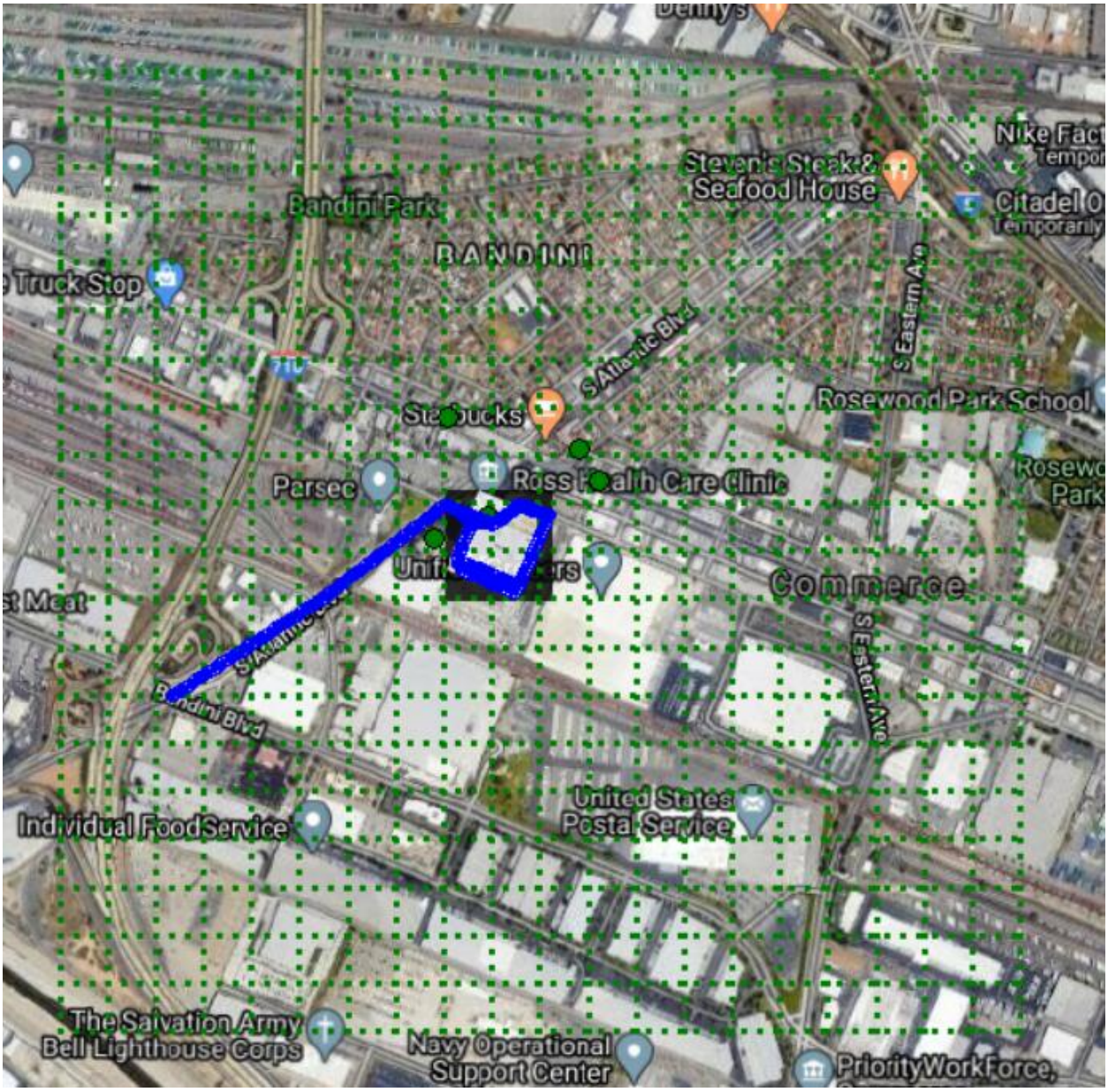
Takeout available
De Well
Marika
California Post Office
Bandini Blvd
Fambrands
307th Chemical Company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BANDINI
Truck Stop
Steven's Steak & Seafood House
Citadel O
Temporarily
S Atlantic Blvd
S Eastern Ave
Rosewood Park School
Starbucks
Persec
Commerce
Bandini Blvd
Individual Food Service
United States Postal Service
The Salvation Army Bell Lighthouse Corps
Navy Operational Support Center
Priority Work Force,

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