



534 Struck Avenue

MOBILE SOURCE HEALTH RISK ASSESSMENT

CITY OF ORANGE

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

MARCH 31, 2021

TABLE OF CONTENTS

TABLE OF CONTENTS	I
APPENDICES	I
LIST OF EXHIBITS	II
LIST OF TABLES	II
LIST OF ABBREVIATED TERMS.....	III
EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Site Location.....	4
1.2 Project Description.....	4
2 BACKGROUND.....	8
2.1 Background on Recommended Methodology	8
2.2 Emissions Estimation	8
2.3 Exposure Quantification	13
2.4 Carcinogenic Chemical Risk.....	16
2.5 Non-carcinogenic Exposures.....	17
2.6 Toxic Air Pollutants from Project Construction Activities.....	17
2.7 Potential Project-Related DPM Source Cancer and Non-Cancer Risks	18
3 REFERENCES.....	22
4 CERTIFICATION	24

APPENDICES

APPENDIX 2.1: AERMOD MODEL INPUT/OUTPUT

APPENDIX 2.2: RISK CALCULATIONS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP	5
EXHIBIT 1-B: SITE PLAN	6
EXHIBIT 2-A: MODELED EMISSION SOURCES	11
EXHIBIT 2-B: WIND ROSE (SRA 17)	14
EXHIBIT 2-C: MODELED RECEPTORS	20

LIST OF TABLES

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS	2
TABLE 2-1: 2022 WEIGHTED AVERAGE DPM EMISSIONS FACTORS	10
TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS (2022 ANALYSIS YEAR)	12
TABLE 2-3: AERMOD MODEL PARAMETERS.....	13
TABLE 2-4: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)	15
TABLE 2-5: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER).....	15

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	534 Struck Avenue
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TA	Traffic Assessment
TAC	Toxic Air Contaminant
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

This page intentionally left blank

EXECUTIVE SUMMARY

This report evaluates the potential mobile source health risk impacts to sensitive receptors (residents) 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 R5, which represents the proposed Orange City Yard Affordable Housing Project, located approximately 220 feet north of the Project site. Receptor R5 is placed at the approximate location of where the future building façade is anticipated. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 1.03 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 0.0004, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the scenario analyze herein, and DPM generally 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 R4, which represents the Meter Tech Services & Equipment located at 1035 N. Parker Street, approximately 22 feet west of the Project site. Receptor R4 is placed at the building façade where a worker could remain for at least one hour. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.23 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 0.001, 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.

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 Individual Receptor	1.03	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.23	10	NO
Time Period	Location	Maximum Hazard Index	Significance Threshold	Exceeds Significance Threshold
Annual Average	Maximum Exposed Sensitive Receptor	0.0004	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	0.001	1.0	NO

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to sensitive receptors (residents) 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 (1) 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* (2). 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 534 Struck Avenue Project is located south of Struck Avenue and east of Batavia Street in the City of Orange, as shown on Exhibit 1-A. Existing uses that surround the Project site includes mostly manufacturing industrial land uses to the west and east, with public-institutional uses to the north and the nearest multi-family residential land uses located northeast of the Project site.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is to consist of a 57,900 square foot building with truck terminal use, which would replace the existing 40,000 square foot manufacturing use as shown on Exhibit 1-B. The Project is anticipated to be constructed in one phase by 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 *534 Struck Avenue Traffic Assessment* (TA) prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 306 two-way vehicular trips per day (153 inbound and 153 outbound) which includes 148 two-way truck trips per day (74 inbound and 74 outbound) (3). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 148 two-way truck trips generated by the Project.

EXHIBIT 1-A: LOCATION MAP

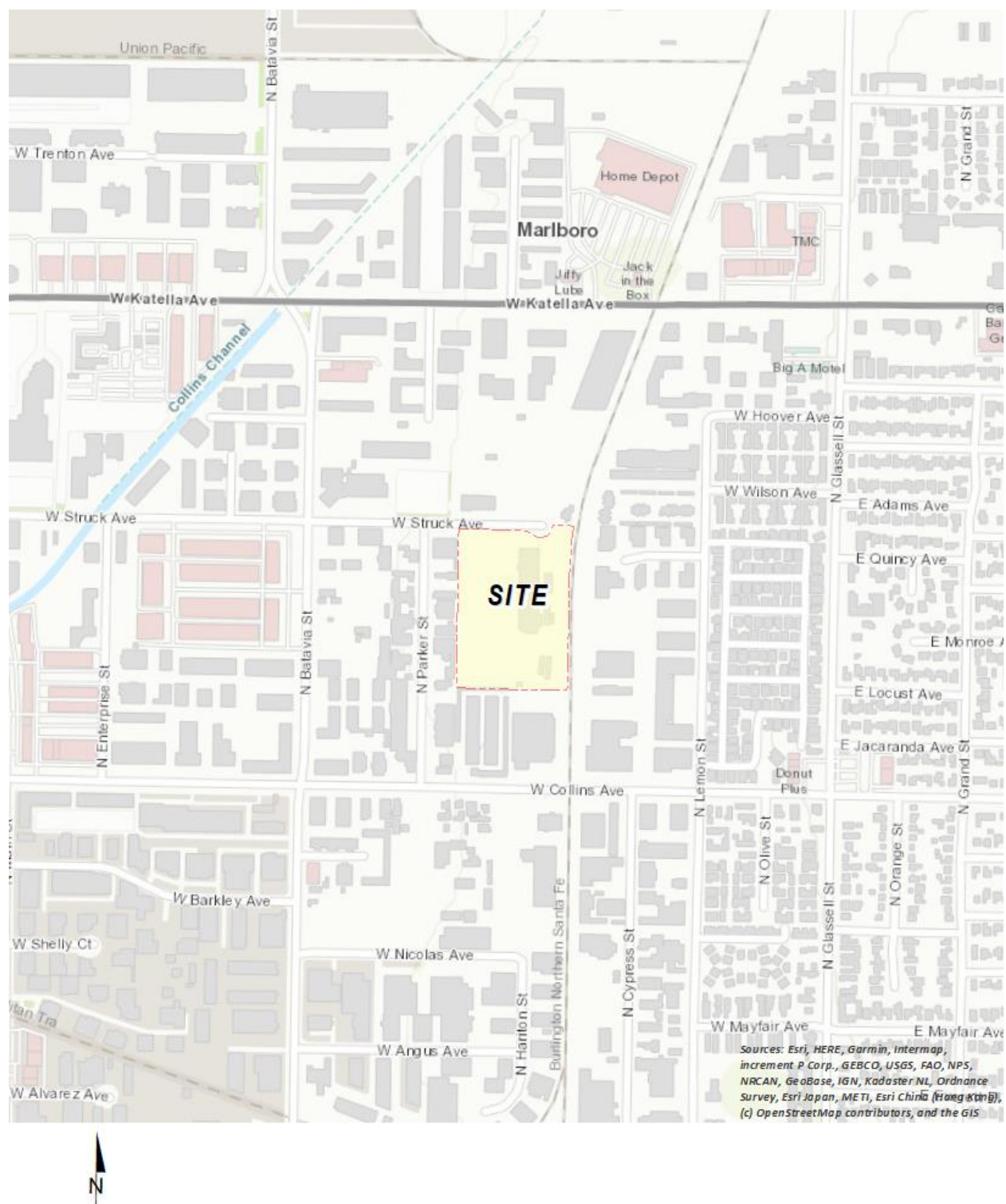
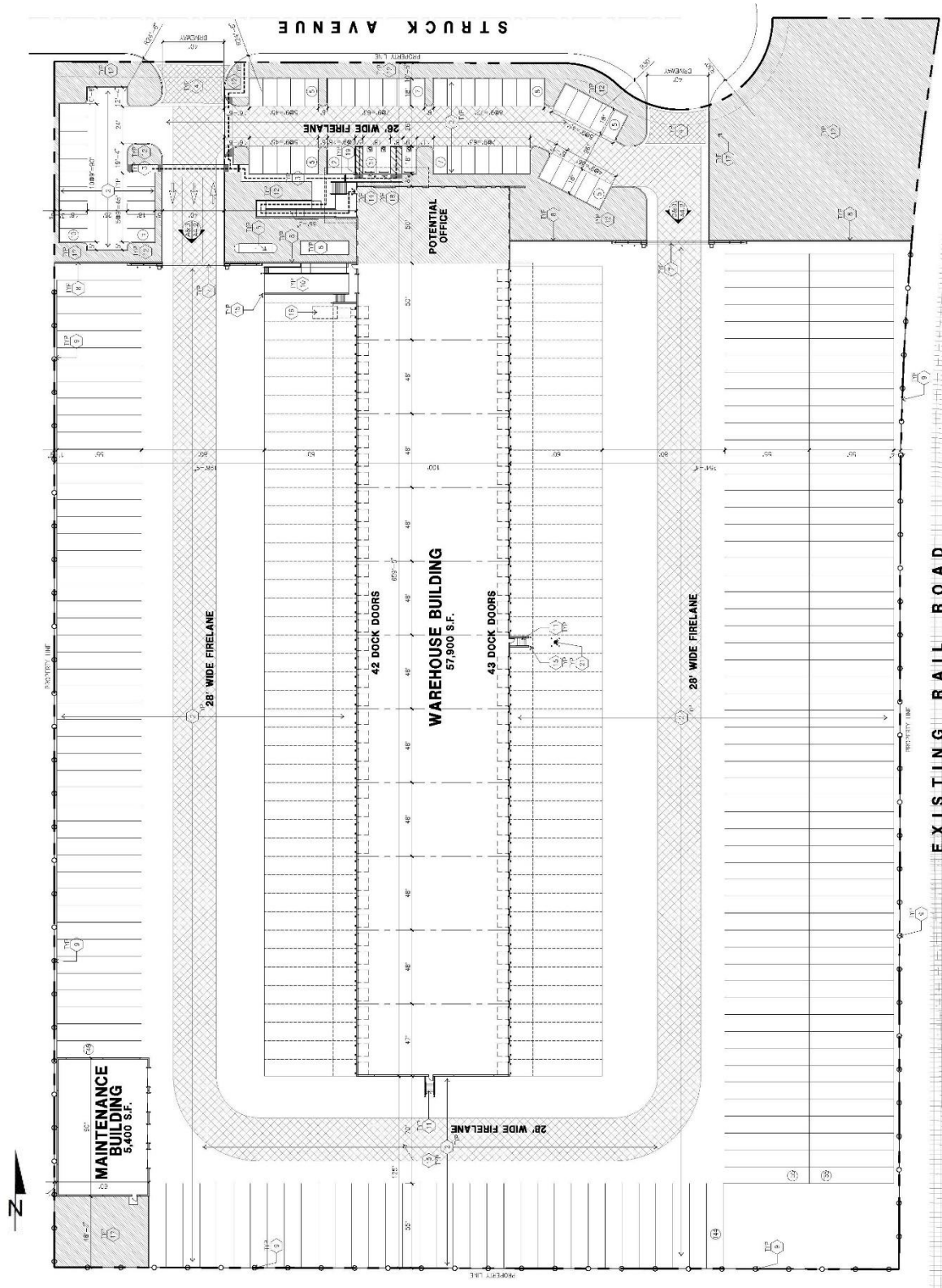


EXHIBIT 1-B: SITE PLAN



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 $\mu\text{g}/\text{m}^3$ 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 $10\mu\text{m}$ 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 (4). 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 vehicle 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 SCAQMD 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. The

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.

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 – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-1. As a conservative measure, a 2022 EMFAC 2017 run was conducted for Orange County 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 be incorporated into vehicles after 2022. Additionally, based on EMFAC 2017, Light-Heavy-Duty Trucks are comprised of 39.94% diesel, Medium-Heavy-Duty Trucks are comprised of 79.05% diesel, and Heavy-Heavy-Duty Trucks are comprised of 92.16% diesel. Thus, Trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation.

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):

$$\text{Emissions}_{\text{speedA}} \text{ (g/s)} = \text{EF}_{\text{RunExhaust}} \text{ (g/VMT)} * \text{Distance (VMT/trip)} * \text{Number of Trips (trips/day)} / \text{seconds per day}$$

Where:

$\text{Emissions}_{\text{speedA}}$ (g/s): Vehicle emissions at a given speed A;

$\text{EF}_{\text{RunExhaust}}$ (g/VMT): EMFAC running exhaust PM₁₀ 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 PM₁₀ 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 PM₁₀ 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):

$$\text{Emissions}_{\text{idle}} \text{ (g/s)} = \text{EF}_{\text{idle}} \text{ (g/hr)} * \text{Number of Trips (trips/day)} * \text{Idling Time (min/trip)} * \frac{60 \text{ minutes}}{\text{per hour}} / \text{seconds per day}$$

Where:

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

EF_{idle}(g/s): EMFAC idle exhaust PM₁₀ emission factor.

TABLE 2-1: 2022 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

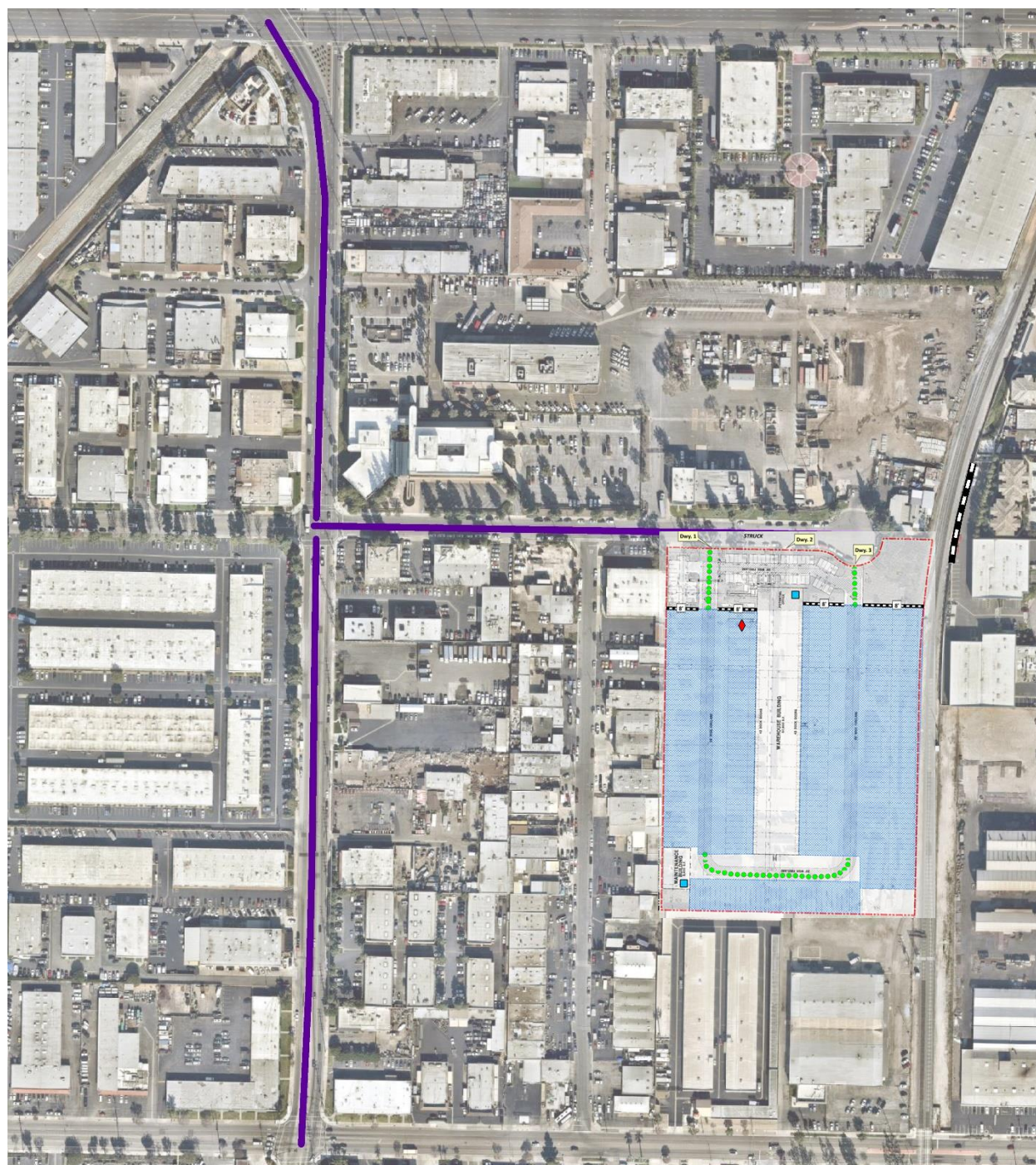
Speed	Weighted Average
0 (idling)	0.07541 (g/idle-hr)
5	0.03923 (g/s)
25	0.01802 (g/s)

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 2-2. The modeled emission sources are illustrated on Exhibit 2-A. The modeling domain is limited to the Project’s primary truck route and includes off-site sources in the study area for approximately ½ 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 (6) (in the case of the Project, the primary source of emissions is the on-site idling and on-site 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 (7), 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 *534 Struck Avenue Traffic Assessment* (TA) prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 306 two-way vehicular trips per day (153 inbound and 153 outbound) which includes 148 two-way truck trips per day (74 inbound and 74 outbound) (3). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 148 two-way truck trips generated by the Project.

EXHIBIT 2-A: MODELED EMISSION SOURCES

**LEGEND:**

-  On-Site Truck Idling
-  On-Site Truck Travel
-  Off-Site Truck Travel

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

Truck Emission Rates						
Source	Trucks Per Day	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 West Side	37			0.0754	0.70	8.074E-06
On-Site Idling East Side	37			0.0754	0.70	8.074E-06
On-Site Travel	148	51.51	0.0392		2.02	2.339E-05
Off-Site Travel 100% on Struck Ave.	148	32.97	0.0180		0.59	6.877E-06
Off-Site Travel 50% NB on N. Batavia St.	74	15.33	0.0180		0.28	3.199E-06
Off-Site Travel 50% SB on N. Batavia St.	74	18.24	0.0180		0.33	3.804E-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 (1). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the Lakes AERMOD View (Version 9.9.0) 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 (8).

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 US EPA methodology, the Project's 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.

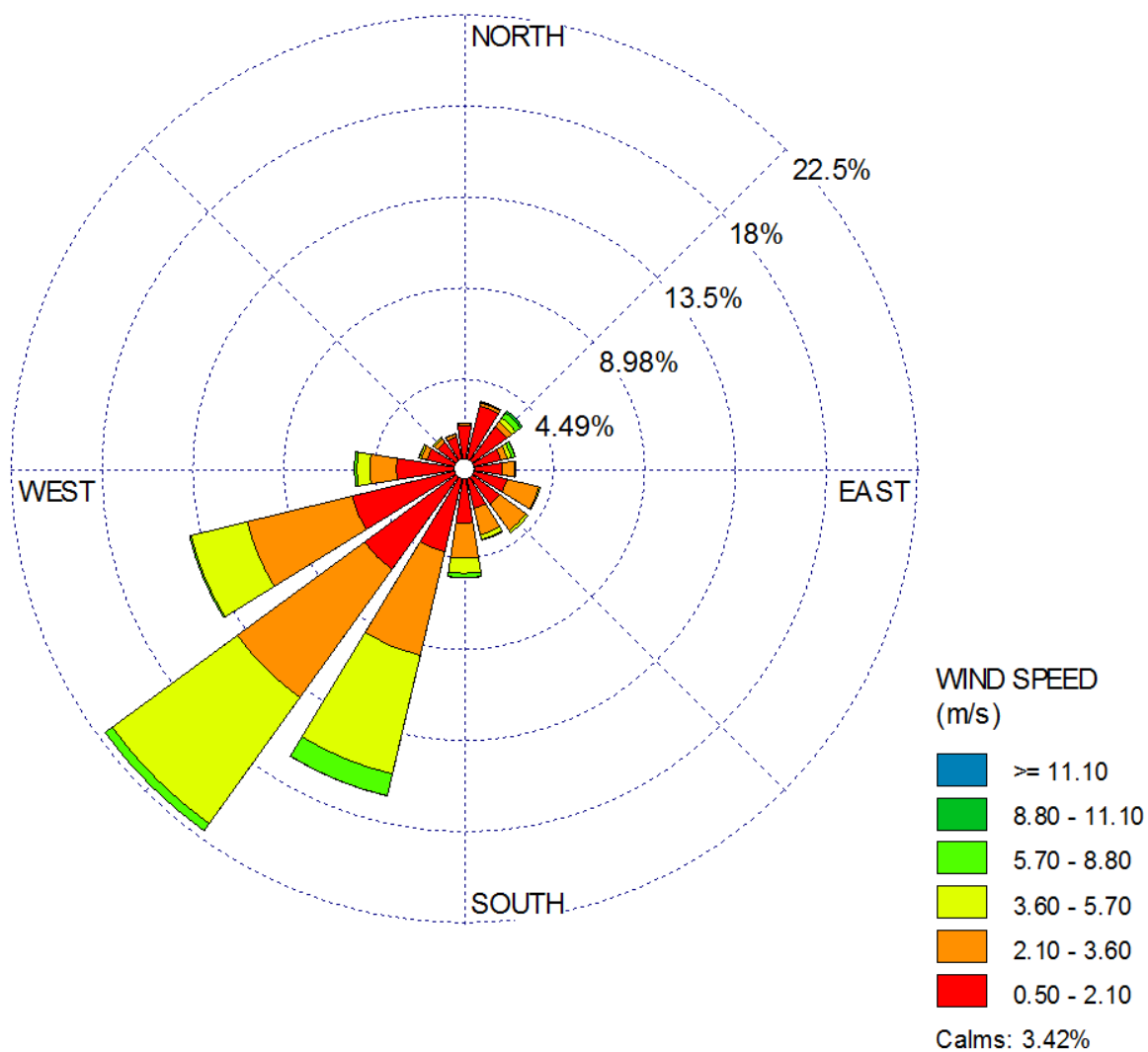
SCAQMD-recommended model parameters are presented in Table 2-3 (9). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Santa Ana Airport (KSNA) monitoring station (SRA 17) was used to represent local weather conditions and prevailing winds (10). A wind rose exhibit of the KSNA monitoring station is provided at Exhibit 2-B.

TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban (Population 3,010,232)
Terrain (Flat/Elevated)	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 17)



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 workers would have a lesser impact than what has already been disclosed in the HRA at the MEIR, MEIW, and MEISC.

Consistent with SCAQMD modeling guidance, all receptors were set to the elevation so that only ground-level concentrations are analyzed (11).

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 summarize the Exposure Parameters for Residents and Offsite Workers based on 2015 OEHHA Guidelines. 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	365	24
16 to 30	261	1	14	0.73	365	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

The SCAQMD CEQA Air Quality Handbook (1993) states that 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 (1), 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.

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.

$$\text{DOSE}_{\text{air}} = (\text{C}_{\text{air}} \times [\text{BR}/\text{BW}] \times A \times \text{EF}) \times (1 \times 10^{-6})$$

Where:

DOSE _{air}	=	chronic daily intake (mg/kg/day)
C _{air}	=	concentration of contaminant in air (ug/m ³)
[BR/BW] BW-day)	=	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 x 10 ⁻⁶	=	conversion factors (ug to mg, L to m ³)
RISK _{air} = DOSE _{air} x CPF x ED/AT		

Where:

DOSE _{air}	=	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 OEHHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHHA as 5 $\mu\text{g}/\text{m}^3$ (OEHHHA 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 ($\mu\text{g}/\text{m}^3$).
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 (OEHHHA) 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) (12):

“The Proposed Amended Rules are separate from the CEQA significance thresholds. The SCAQMD staff is currently evaluating how to implement the Revised OEHHH Guidelines under CEQA. The SCAQMD staff will evaluate a variety of options on how to evaluate health risks under the Revised OEHHH 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 RISKS²

Individual Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R5, which represents the proposed Orange City Yard Affordable Housing Project, located approximately 220 feet north of the Project site. Receptor R5 is placed at the approximate location of where the future building façade is anticipated. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 1.03 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 0.0004, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the scenario analyze herein, and DPM generally 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 R4, which represents the Meter Tech Services & Equipment located at 1035 N. Parker Street, approximately 22 feet west of the Project site. Receptor R4 is placed at the building façade where a worker could remain for at least one hour. At the MEIW, the maximum incremental cancer risk impact at this location is 0.23 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 0.001, 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

2 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHH Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHH 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.

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.

EXHIBIT 2-C: MODELED RECEPTORS

**LEGEND:**

● Receptor Locations

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

This page intentionally left blank

3 REFERENCES

1. **South Coast Air Quality Management District.** Mobile Source Toxics Analysis. [Online] 2003.
http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html.
2. **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>.
3. **Urban Crossroads, Inc.** *534 Truck Avenue Traffic Assessment*. 2020.
4. **California Air Resources Board.** EMFAC 2017. [Online] <https://www.arb.ca.gov/emfac/2017/>.
5. **California Department of Transportation.** EMFAC Software. [Online]
<http://www.dot.ca.gov/hq/env/air/pages/emfac.htm>.
6. **Air Resources Board.** *Air Quality and Land Use Handbook: A Community Health Perspective*. 2005.
7. **Wong, Jillian.** *Planning, Rule Development & Area Sources*. December 22, 2016.
8. **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.
9. —. User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] April 2018.
https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.
10. **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>.
11. —. South Coast AQMD Modeling Guidance for AERMOD. [Online] [Cited: September 18, 2019.] <http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance>.
12. —. 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>.

This page intentionally left blank

4 CERTIFICATION

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed 534 Struck Avenue 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 directly at (949) 336-5987.

Haseeb Qureshi
Associate Principal
URBAN CROSSROADS, INC.
260 E. Baker, Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

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

This page intentionally left blank

APPENDIX 2.1:

AERMOD MODEL INPUT/OUTPUT

This page intentionally left blank

**AVERAGE EMISSION FACTOR
ORANGE COUNTY 2022**

Speed	LHD1	MHD	HHD
0	0.316847	0.09625	0.01752
5	0.02005	0.03819	0.04347
25	0.007822	0.021969	0.01771

Speed	Weighted Average Emissions
0	0.07541
5	0.03923
25	0.01802

Emission Rates - 2022 Emission Factors

Truck Emission Rates						
Source	Trucks Per Day	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 West Side	37			0.0754	0.70	8.074E-06
On-Site Idling East Side	37			0.0754	0.70	8.074E-06
On-Site Travel	148	51.51	0.0392		2.02	2.339E-05
Off-Site Travel 100% on Struck Ave.	148	32.97	0.0180		0.59	6.877E-06
Off-Site Travel 50% NB on N. Batavia St.	74	15.33	0.0180		0.28	3.199E-06
Off-Site Travel 50% SB on N. Batavia St.	74	18.24	0.0180		0.33	3.804E-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_cl	fuel	temperatu	relative_h	process	speed_tim	pollutant
2022	Annual	Orange (S	HHDT	Dsl	60	70	RUNEX	5	PM10
2022	Annual	Orange (S	HHDT	Dsl	60	70	RUNEX	25	PM10
2022	Annual	Orange (S	LHDT1	Dsl	60	70	RUNEX	5	PM10
2022	Annual	Orange (S	LHDT1	Dsl	60	70	RUNEX	25	PM10
2022	Annual	Orange (S	MHDT	Dsl	60	70	RUNEX	5	PM10
2022	Annual	Orange (S	MHDT	Dsl	60	70	RUNEX	25	PM10
2022	Annual	Orange (S	HHDT	Dsl			IDLEX		PM10
2022	Annual	Orange (S	LHDT1	Dsl			IDLEX		PM10
2022	Annual	Orange (S	MHDT	Dsl			IDLEX		PM10

emission_rate

0.047175

0.019216

0.050197

0.019584

0.048307

0.027788

0.019013

0.793273

0.121748

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: Orange

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
Orange	2022	HHDT	Aggregate	Aggregate	Gasoline	9.612146
Orange	2022	HHDT	Aggregate	Aggregate	Diesel	10986.32
Orange	2022	HHDT	Aggregate	Aggregate	Natural Ga	925.558
Orange	2022	LHDT1	Aggregate	Aggregate	Gasoline	36147.87
Orange	2022	LHDT1	Aggregate	Aggregate	Diesel	24040.18
Orange	2022	MHDT	Aggregate	Aggregate	Gasoline	7524.247
Orange	2022	MHDT	Aggregate	Aggregate	Diesel	28402.73

HHDT% GAS/NG	0.078444
HHDT% DSL	0.921556
LHDT1% GAS	0.600582
LHDT1% DSL	0.399418
MHDT% GAS	0.209432
MHDT% DSL	0.790568

```

** Lakes Environmental AERMOD MPI
**
*****
**
** AERMOD INPUT PRODUCED BY:
** AERMOD VIEW VER. 9.9.0
** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 5/23/2020
** FILE: C:\LAKES\AERMOD VIEW\13102 HRA\13102 HRA.ADI
**
*****
**
**
*****
** AERMOD CONTROL PATHWAY
*****
**
**
CO STARTING
  TITLEONE C:\LAKES\AERMOD VIEW\13102 HRA\13102 HRA.ISC
  MODELOPT DFAULT CONC
  AVERTIME ANNUAL
  URBANOPT 3010232
  POLLUTID DPM
  RUNORNOT RUN
  ERRORFIL "13102 HRA.ERR"

```

CO FINISHED

```

**
*****
** AERMOD SOURCE PATHWAY
*****
**
**
SO STARTING
** SOURCE LOCATION **
** SOURCE ID - TYPE - X COORD. - Y COORD. **
** -----
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE1
** DESCRSRC ON-SITE IDLING
** PREFIX
** LENGTH OF SIDE = 8.59
** CONFIGURATION = ADJACENT
** EMISSION RATE = 0.00001606
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 2
** 420505.511, 3740914.461, 51.81, 3.49, 4.00
** 420506.238, 3740775.319, 51.65, 3.49, 4.00
** -----

```

LOCATION L0000425	VOLUME	420505.533	3740910.166	51.81
LOCATION L0000426	VOLUME	420505.578	3740901.576	51.80
LOCATION L0000427	VOLUME	420505.623	3740892.986	51.79
LOCATION L0000428	VOLUME	420505.668	3740884.396	51.78
LOCATION L0000429	VOLUME	420505.713	3740875.806	51.77
LOCATION L0000430	VOLUME	420505.758	3740867.216	51.76
LOCATION L0000431	VOLUME	420505.803	3740858.627	51.75
LOCATION L0000432	VOLUME	420505.847	3740850.037	51.74
LOCATION L0000433	VOLUME	420505.892	3740841.447	51.73
LOCATION L0000434	VOLUME	420505.937	3740832.857	51.72
LOCATION L0000435	VOLUME	420505.982	3740824.267	51.71
LOCATION L0000436	VOLUME	420506.027	3740815.677	51.70
LOCATION L0000437	VOLUME	420506.072	3740807.087	51.69
LOCATION L0000438	VOLUME	420506.117	3740798.497	51.68
LOCATION L0000439	VOLUME	420506.161	3740789.907	51.67
LOCATION L0000440	VOLUME	420506.206	3740781.318	51.66

** END OF LINE VOLUME SOURCE ID = SLINE1

**

** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES

** LINE VOLUME SOURCE ID = SLINE2

** DESCRSRC ON-SITE TRAVEL

** PREFIX

** LENGTH OF SIDE = 8.59

** CONFIGURATION = ADJACENT

** EMISSION RATE = 0.00002162

** VERTICAL DIMENSION = 6.99

** SZINIT = 3.25

** NODES = 8

** 420599.967, 3740961.689, 52.73, 3.49, 4.00

** 420614.499, 3740950.427, 52.93, 3.49, 4.00

** 420619.585, 3740939.165, 52.65, 3.49, 4.00

** 420621.765, 3740927.539, 52.68, 3.49, 4.00

** 420618.132, 3740740.806, 51.93, 3.49, 4.00

** 420618.132, 3740737.900, 51.93, 3.49, 4.00

** 420487.346, 3740739.716, 50.89, 3.49, 4.00

** 420488.436, 3740968.955, 51.55, 3.49, 4.00

**

LOCATION L0000441	VOLUME	420603.362	3740959.058	52.78
LOCATION L0000442	VOLUME	420610.152	3740953.796	52.87
LOCATION L0000443	VOLUME	420615.771	3740947.611	52.86
LOCATION L0000444	VOLUME	420619.307	3740939.782	52.67
LOCATION L0000445	VOLUME	420621.044	3740931.388	52.67
LOCATION L0000446	VOLUME	420621.674	3740922.866	52.66
LOCATION L0000447	VOLUME	420621.507	3740914.277	52.63
LOCATION L0000448	VOLUME	420621.340	3740905.689	52.59
LOCATION L0000449	VOLUME	420621.173	3740897.100	52.56
LOCATION L0000450	VOLUME	420621.006	3740888.512	52.52
LOCATION L0000451	VOLUME	420620.839	3740879.924	52.49
LOCATION L0000452	VOLUME	420620.672	3740871.335	52.45
LOCATION L0000453	VOLUME	420620.505	3740862.747	52.42

LOCATION	L0000454	VOLUME	420620.338	3740854.159	52.39
LOCATION	L0000455	VOLUME	420620.170	3740845.570	52.35
LOCATION	L0000456	VOLUME	420620.003	3740836.982	52.32
LOCATION	L0000457	VOLUME	420619.836	3740828.393	52.28
LOCATION	L0000458	VOLUME	420619.669	3740819.805	52.25
LOCATION	L0000459	VOLUME	420619.502	3740811.217	52.21
LOCATION	L0000460	VOLUME	420619.335	3740802.628	52.18
LOCATION	L0000461	VOLUME	420619.168	3740794.040	52.14
LOCATION	L0000462	VOLUME	420619.001	3740785.452	52.11
LOCATION	L0000463	VOLUME	420618.834	3740776.863	52.07
LOCATION	L0000464	VOLUME	420618.667	3740768.275	52.04
LOCATION	L0000465	VOLUME	420618.500	3740759.686	52.01
LOCATION	L0000466	VOLUME	420618.332	3740751.098	51.97
LOCATION	L0000467	VOLUME	420618.165	3740742.510	51.94
LOCATION	L0000468	VOLUME	420614.153	3740737.955	51.90
LOCATION	L0000469	VOLUME	420605.564	3740738.074	51.83
LOCATION	L0000470	VOLUME	420596.975	3740738.194	51.76
LOCATION	L0000471	VOLUME	420588.385	3740738.313	51.69
LOCATION	L0000472	VOLUME	420579.796	3740738.432	51.63
LOCATION	L0000473	VOLUME	420571.207	3740738.552	51.56
LOCATION	L0000474	VOLUME	420562.618	3740738.671	51.49
LOCATION	L0000475	VOLUME	420554.029	3740738.790	51.42
LOCATION	L0000476	VOLUME	420545.439	3740738.909	51.35
LOCATION	L0000477	VOLUME	420536.850	3740739.029	51.28
LOCATION	L0000478	VOLUME	420528.261	3740739.148	51.22
LOCATION	L0000479	VOLUME	420519.672	3740739.267	51.15
LOCATION	L0000480	VOLUME	420511.083	3740739.387	51.08
LOCATION	L0000481	VOLUME	420502.494	3740739.506	51.01
LOCATION	L0000482	VOLUME	420493.904	3740739.625	50.94
LOCATION	L0000483	VOLUME	420487.356	3740741.747	50.90
LOCATION	L0000484	VOLUME	420487.397	3740750.337	50.92
LOCATION	L0000485	VOLUME	420487.438	3740758.927	50.95
LOCATION	L0000486	VOLUME	420487.478	3740767.517	50.97
LOCATION	L0000487	VOLUME	420487.519	3740776.107	50.99
LOCATION	L0000488	VOLUME	420487.560	3740784.697	51.02
LOCATION	L0000489	VOLUME	420487.601	3740793.287	51.04
LOCATION	L0000490	VOLUME	420487.642	3740801.877	51.07
LOCATION	L0000491	VOLUME	420487.683	3740810.467	51.09
LOCATION	L0000492	VOLUME	420487.723	3740819.057	51.12
LOCATION	L0000493	VOLUME	420487.764	3740827.646	51.14
LOCATION	L0000494	VOLUME	420487.805	3740836.236	51.17
LOCATION	L0000495	VOLUME	420487.846	3740844.826	51.19
LOCATION	L0000496	VOLUME	420487.887	3740853.416	51.22
LOCATION	L0000497	VOLUME	420487.928	3740862.006	51.24
LOCATION	L0000498	VOLUME	420487.969	3740870.596	51.27
LOCATION	L0000499	VOLUME	420488.009	3740879.186	51.29
LOCATION	L0000500	VOLUME	420488.050	3740887.776	51.32
LOCATION	L0000501	VOLUME	420488.091	3740896.366	51.34
LOCATION	L0000502	VOLUME	420488.132	3740904.956	51.37
LOCATION	L0000503	VOLUME	420488.173	3740913.545	51.39

LOCATION L0000504	VOLUME	420488.214	3740922.135	51.42
LOCATION L0000505	VOLUME	420488.254	3740930.725	51.44
LOCATION L0000506	VOLUME	420488.295	3740939.315	51.46
LOCATION L0000507	VOLUME	420488.336	3740947.905	51.49
LOCATION L0000508	VOLUME	420488.377	3740956.495	51.51
LOCATION L0000509	VOLUME	420488.418	3740965.085	51.54

** END OF LINE VOLUME SOURCE ID = SLINE2

**

** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES

** LINE VOLUME SOURCE ID = SLINE3

** DESCRSRC OFF-SITE TRAVEL TO N. BATAVIA ST.

** PREFIX

** LENGTH OF SIDE = 8.59

** CONFIGURATION = ADJACENT

** EMISSION RATE = 5.773E-06

** VERTICAL DIMENSION = 6.99

** SZINIT = 3.25

** NODES = 2

** 420594.374, 3740980.355, 52.60, 3.49, 4.00

** 420235.881, 3740983.904, 49.97, 3.49, 4.00

**

LOCATION L0000510	VOLUME	420590.079	3740980.397	52.57
LOCATION L0000511	VOLUME	420581.489	3740980.482	52.51
LOCATION L0000512	VOLUME	420572.900	3740980.567	52.44
LOCATION L0000513	VOLUME	420564.310	3740980.652	52.38
LOCATION L0000514	VOLUME	420555.721	3740980.737	52.32
LOCATION L0000515	VOLUME	420547.131	3740980.823	52.25
LOCATION L0000516	VOLUME	420538.542	3740980.908	52.19
LOCATION L0000517	VOLUME	420529.952	3740980.993	52.13
LOCATION L0000518	VOLUME	420521.362	3740981.078	52.06
LOCATION L0000519	VOLUME	420512.773	3740981.163	52.00
LOCATION L0000520	VOLUME	420504.183	3740981.248	51.94
LOCATION L0000521	VOLUME	420495.594	3740981.333	51.88
LOCATION L0000522	VOLUME	420487.004	3740981.418	51.81
LOCATION L0000523	VOLUME	420478.414	3740981.503	51.75
LOCATION L0000524	VOLUME	420469.825	3740981.588	51.69
LOCATION L0000525	VOLUME	420461.235	3740981.673	51.62
LOCATION L0000526	VOLUME	420452.646	3740981.758	51.56
LOCATION L0000527	VOLUME	420444.056	3740981.843	51.50
LOCATION L0000528	VOLUME	420435.467	3740981.928	51.43
LOCATION L0000529	VOLUME	420426.877	3740982.013	51.37
LOCATION L0000530	VOLUME	420418.287	3740982.098	51.31
LOCATION L0000531	VOLUME	420409.698	3740982.183	51.25
LOCATION L0000532	VOLUME	420401.108	3740982.268	51.18
LOCATION L0000533	VOLUME	420392.519	3740982.353	51.12
LOCATION L0000534	VOLUME	420383.929	3740982.438	51.06
LOCATION L0000535	VOLUME	420375.340	3740982.523	50.99
LOCATION L0000536	VOLUME	420366.750	3740982.608	50.93
LOCATION L0000537	VOLUME	420358.160	3740982.693	50.87
LOCATION L0000538	VOLUME	420349.571	3740982.779	50.80

LOCATION L0000539	VOLUME	420340.981	3740982.864	50.74
LOCATION L0000540	VOLUME	420332.392	3740982.949	50.68
LOCATION L0000541	VOLUME	420323.802	3740983.034	50.62
LOCATION L0000542	VOLUME	420315.212	3740983.119	50.55
LOCATION L0000543	VOLUME	420306.623	3740983.204	50.49
LOCATION L0000544	VOLUME	420298.033	3740983.289	50.43
LOCATION L0000545	VOLUME	420289.444	3740983.374	50.36
LOCATION L0000546	VOLUME	420280.854	3740983.459	50.30
LOCATION L0000547	VOLUME	420272.265	3740983.544	50.24
LOCATION L0000548	VOLUME	420263.675	3740983.629	50.17
LOCATION L0000549	VOLUME	420255.085	3740983.714	50.11
LOCATION L0000550	VOLUME	420246.496	3740983.799	50.05
LOCATION L0000551	VOLUME	420237.906	3740983.884	49.98

** END OF LINE VOLUME SOURCE ID = SLINE3

**

** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES

** LINE VOLUME SOURCE ID = SLINE4

** DESCRSRC OFF-SITE TRAVEL 50% NB ON N. BATAVIA ST.

** PREFIX

** LENGTH OF SIDE = 8.59

** CONFIGURATION = ADJACENT

** EMISSION RATE = 2.685E-06

** VERTICAL DIMENSION = 6.99

** SZINIT = 3.25

** NODES = 4

** 420237.482, 3740989.178, 49.96, 3.49, 4.00

** 420241.715, 3741197.989, 50.16, 3.49, 4.00

** 420234.660, 3741261.479, 50.06, 3.49, 4.00

** 420203.621, 3741313.681, 50.26, 3.49, 4.00

**

LOCATION L0000552	VOLUME	420237.569	3740993.472	49.96
LOCATION L0000553	VOLUME	420237.743	3741002.061	49.97
LOCATION L0000554	VOLUME	420237.917	3741010.649	49.98
LOCATION L0000555	VOLUME	420238.091	3741019.237	49.99
LOCATION L0000556	VOLUME	420238.265	3741027.825	50.00
LOCATION L0000557	VOLUME	420238.440	3741036.413	50.01
LOCATION L0000558	VOLUME	420238.614	3741045.002	50.01
LOCATION L0000559	VOLUME	420238.788	3741053.590	50.02
LOCATION L0000560	VOLUME	420238.962	3741062.178	50.03
LOCATION L0000561	VOLUME	420239.136	3741070.766	50.04
LOCATION L0000562	VOLUME	420239.310	3741079.355	50.05
LOCATION L0000563	VOLUME	420239.484	3741087.943	50.05
LOCATION L0000564	VOLUME	420239.658	3741096.531	50.06
LOCATION L0000565	VOLUME	420239.832	3741105.119	50.07
LOCATION L0000566	VOLUME	420240.006	3741113.708	50.08
LOCATION L0000567	VOLUME	420240.180	3741122.296	50.09
LOCATION L0000568	VOLUME	420240.354	3741130.884	50.10
LOCATION L0000569	VOLUME	420240.529	3741139.472	50.10
LOCATION L0000570	VOLUME	420240.703	3741148.061	50.11
LOCATION L0000571	VOLUME	420240.877	3741156.649	50.12

LOCATION L0000572	VOLUME	420241.051	3741165.237	50.13
LOCATION L0000573	VOLUME	420241.225	3741173.825	50.14
LOCATION L0000574	VOLUME	420241.399	3741182.414	50.15
LOCATION L0000575	VOLUME	420241.573	3741191.002	50.15
LOCATION L0000576	VOLUME	420241.538	3741199.581	50.16
LOCATION L0000577	VOLUME	420240.589	3741208.118	50.14
LOCATION L0000578	VOLUME	420239.641	3741216.655	50.13
LOCATION L0000579	VOLUME	420238.692	3741225.193	50.12
LOCATION L0000580	VOLUME	420237.743	3741233.730	50.10
LOCATION L0000581	VOLUME	420236.795	3741242.268	50.09
LOCATION L0000582	VOLUME	420235.846	3741250.805	50.08
LOCATION L0000583	VOLUME	420234.898	3741259.343	50.06
LOCATION L0000584	VOLUME	420231.368	3741267.015	50.08
LOCATION L0000585	VOLUME	420226.978	3741274.398	50.11
LOCATION L0000586	VOLUME	420222.588	3741281.782	50.14
LOCATION L0000587	VOLUME	420218.198	3741289.165	50.17
LOCATION L0000588	VOLUME	420213.808	3741296.549	50.19
LOCATION L0000589	VOLUME	420209.418	3741303.932	50.22
LOCATION L0000590	VOLUME	420205.028	3741311.315	50.25

** END OF LINE VOLUME SOURCE ID = SLINE4

**

** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES

** LINE VOLUME SOURCE ID = SLINE5

** DESCRSRC OFF-SITE TRAVEL 50% SB ON N. BATAVIA ST.

** PREFIX

** LENGTH OF SIDE = 8.59

** CONFIGURATION = ADJACENT

** EMISSION RATE = 3.194E-06

** VERTICAL DIMENSION = 6.99

** SZINIT = 3.25

** NODES = 4

** 420237.482, 3740975.069, 49.99, 3.49, 4.00

** 420236.071, 3740757.793, 49.20, 3.49, 4.00

** 420234.660, 3740681.606, 49.01, 3.49, 4.00

** 420230.428, 3740578.611, 48.93, 3.49, 4.00

**

LOCATION L0000591	VOLUME	420237.454	3740970.774	49.97
LOCATION L0000592	VOLUME	420237.398	3740962.185	49.94
LOCATION L0000593	VOLUME	420237.343	3740953.595	49.91
LOCATION L0000594	VOLUME	420237.287	3740945.005	49.88
LOCATION L0000595	VOLUME	420237.231	3740936.415	49.85
LOCATION L0000596	VOLUME	420237.175	3740927.825	49.82
LOCATION L0000597	VOLUME	420237.119	3740919.236	49.79
LOCATION L0000598	VOLUME	420237.064	3740910.646	49.76
LOCATION L0000599	VOLUME	420237.008	3740902.056	49.72
LOCATION L0000600	VOLUME	420236.952	3740893.466	49.69
LOCATION L0000601	VOLUME	420236.896	3740884.876	49.66
LOCATION L0000602	VOLUME	420236.841	3740876.286	49.63
LOCATION L0000603	VOLUME	420236.785	3740867.697	49.60
LOCATION L0000604	VOLUME	420236.729	3740859.107	49.57

LOCATION	L0000605	VOLUME	420236.673	3740850.517	49.54
LOCATION	L0000606	VOLUME	420236.617	3740841.927	49.51
LOCATION	L0000607	VOLUME	420236.562	3740833.337	49.47
LOCATION	L0000608	VOLUME	420236.506	3740824.748	49.44
LOCATION	L0000609	VOLUME	420236.450	3740816.158	49.41
LOCATION	L0000610	VOLUME	420236.394	3740807.568	49.38
LOCATION	L0000611	VOLUME	420236.339	3740798.978	49.35
LOCATION	L0000612	VOLUME	420236.283	3740790.388	49.32
LOCATION	L0000613	VOLUME	420236.227	3740781.798	49.29
LOCATION	L0000614	VOLUME	420236.171	3740773.209	49.26
LOCATION	L0000615	VOLUME	420236.115	3740764.619	49.22
LOCATION	L0000616	VOLUME	420236.038	3740756.029	49.20
LOCATION	L0000617	VOLUME	420235.879	3740747.441	49.17
LOCATION	L0000618	VOLUME	420235.720	3740738.852	49.15
LOCATION	L0000619	VOLUME	420235.561	3740730.264	49.13
LOCATION	L0000620	VOLUME	420235.402	3740721.675	49.11
LOCATION	L0000621	VOLUME	420235.243	3740713.087	49.09
LOCATION	L0000622	VOLUME	420235.084	3740704.498	49.07
LOCATION	L0000623	VOLUME	420234.925	3740695.910	49.05
LOCATION	L0000624	VOLUME	420234.766	3740687.321	49.02
LOCATION	L0000625	VOLUME	420234.542	3740678.734	49.01
LOCATION	L0000626	VOLUME	420234.190	3740670.152	49.00
LOCATION	L0000627	VOLUME	420233.837	3740661.569	48.99
LOCATION	L0000628	VOLUME	420233.484	3740652.986	48.99
LOCATION	L0000629	VOLUME	420233.131	3740644.403	48.98
LOCATION	L0000630	VOLUME	420232.779	3740635.821	48.97
LOCATION	L0000631	VOLUME	420232.426	3740627.238	48.97
LOCATION	L0000632	VOLUME	420232.073	3740618.655	48.96
LOCATION	L0000633	VOLUME	420231.721	3740610.072	48.95
LOCATION	L0000634	VOLUME	420231.368	3740601.490	48.95
LOCATION	L0000635	VOLUME	420231.015	3740592.907	48.94
LOCATION	L0000636	VOLUME	420230.662	3740584.324	48.93

** END OF LINE VOLUME SOURCE ID = SLINE5

** SOURCE PARAMETERS **

** LINE VOLUME SOURCE ID = SLINE1

SRCPARAM	L0000425	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000426	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000427	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000428	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000429	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000430	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000431	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000432	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000433	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000434	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000435	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000436	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000437	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000438	0.000001004	3.49	4.00	3.25
SRCPARAM	L0000439	0.000001004	3.49	4.00	3.25

	SRCPARAM L0000440	0.000001004	3.49	4.00	3.25
**	-----				
**	LINE VOLUME SOURCE ID = SLINE2				
	SRCPARAM L0000441	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000442	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000443	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000444	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000445	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000446	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000447	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000448	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000449	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000450	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000451	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000452	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000453	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000454	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000455	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000456	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000457	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000458	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000459	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000460	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000461	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000462	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000463	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000464	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000465	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000466	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000467	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000468	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000469	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000470	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000471	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000472	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000473	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000474	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000475	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000476	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000477	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000478	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000479	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000480	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000481	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000482	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000483	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000484	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000485	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000486	0.0000003133	3.49	4.00	3.25
	SRCPARAM L0000487	0.0000003133	3.49	4.00	3.25

SRCPARAM	L0000488	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000489	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000490	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000491	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000492	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000493	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000494	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000495	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000496	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000497	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000498	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000499	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000500	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000501	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000502	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000503	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000504	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000505	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000506	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000507	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000508	0.0000003133	3.49	4.00	3.25
SRCPARAM	L0000509	0.0000003133	3.49	4.00	3.25

**

** LINE VOLUME SOURCE ID = SLINE3

SRCPARAM	L0000510	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000511	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000512	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000513	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000514	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000515	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000516	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000517	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000518	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000519	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000520	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000521	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000522	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000523	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000524	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000525	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000526	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000527	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000528	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000529	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000530	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000531	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000532	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000533	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000534	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000535	0.0000001375	3.49	4.00	3.25

SRCPARAM	L0000536	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000537	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000538	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000539	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000540	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000541	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000542	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000543	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000544	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000545	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000546	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000547	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000548	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000549	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000550	0.0000001375	3.49	4.00	3.25
SRCPARAM	L0000551	0.0000001375	3.49	4.00	3.25

**

** LINE VOLUME SOURCE ID = SLINE4

SRCPARAM	L0000552	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000553	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000554	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000555	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000556	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000557	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000558	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000559	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000560	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000561	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000562	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000563	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000564	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000565	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000566	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000567	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000568	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000569	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000570	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000571	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000572	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000573	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000574	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000575	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000576	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000577	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000578	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000579	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000580	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000581	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000582	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000583	0.00000006885	3.49	4.00	3.25

SRCPARAM	L0000584	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000585	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000586	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000587	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000588	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000589	0.00000006885	3.49	4.00	3.25
SRCPARAM	L0000590	0.00000006885	3.49	4.00	3.25

**

** LINE VOLUME SOURCE ID = SLINE5

SRCPARAM	L0000591	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000592	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000593	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000594	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000595	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000596	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000597	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000598	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000599	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000600	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000601	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000602	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000603	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000604	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000605	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000606	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000607	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000608	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000609	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000610	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000611	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000612	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000613	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000614	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000615	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000616	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000617	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000618	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000619	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000620	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000621	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000622	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000623	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000624	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000625	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000626	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000627	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000628	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000629	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000630	0.00000006943	3.49	4.00	3.25
SRCPARAM	L0000631	0.00000006943	3.49	4.00	3.25

SRCPARAM L0000632	0.00000006943	3.49	4.00	3.25
SRCPARAM L0000633	0.00000006943	3.49	4.00	3.25
SRCPARAM L0000634	0.00000006943	3.49	4.00	3.25
SRCPARAM L0000635	0.00000006943	3.49	4.00	3.25
SRCPARAM L0000636	0.00000006943	3.49	4.00	3.25

** -----

URBANSRC ALL

SRCGROUP ALL

SO FINISHED

**

** AERMOD RECEPTOR PATHWAY

**

**

RE STARTING

INCLUDED "13102 HRA.ROU"

RE FINISHED

**

** AERMOD METEOROLOGY PATHWAY

**

**

ME STARTING

SURFFILE KSNA_V9_ADJU\KSNA_V9.SFC

PROFFILE KSNA_V9_ADJU\KSNA_V9.PFL

SURFDATA 93184 2012

UAIRDATA 3190 2012

PROFBASE 17.0 METERS

ME FINISHED

**

** AERMOD OUTPUT PATHWAY

**

**

OU STARTING

** AUTO-GENERATED PLOTFILES

PLOTFILE ANNUAL ALL "13102 HRA.AD\AN00GALL.PLT" 31

SUMMFILE "13102 HRA.SUM"

OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- 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 580 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
0.50
ME W187 580 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
HRA.ISC *** 05/23/20
*** AERMET - VERSION 16216 *** ***
*** 08:51:29

PAGE 1
*** MODELOPTs: RegDEFAULT 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 212 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 3010232.0 ; 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: 212 Source(s); 1 Source Group(s); and 19 Receptor(s)**

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 212 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) = 17.00 ; 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: 13102 HRA.ERR

**File for Summary of Results: 13102 HRA.SUM

▲ *** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
HRA.ISC *** 05/23/20
*** AERMET - VERSION 16216 *** ***
*** 08:51:29

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

*** VOLUME SOURCE DATA ***

INIT.	URBAN	NUMBER	EMISSION	RATE		BASE	RELEASE	INIT.
SOURCE		EMISSION	RATE					
SZ	SOURCE	PART.	(GRAMS/SEC)	X	Y	ELEV.	HEIGHT	SY
ID		SCALAR	VARY					
(METERS)		CATS.		(METERS)	(METERS)	(METERS)	(METERS)	(METERS)
		BY						
L0000425		0	0.10040E-05	420505.5	3740910.2	51.8	3.49	4.00
3.25	YES							
L0000426		0	0.10040E-05	420505.6	3740901.6	51.8	3.49	4.00
3.25	YES							
L0000427		0	0.10040E-05	420505.6	3740893.0	51.8	3.49	4.00
3.25	YES							
L0000428		0	0.10040E-05	420505.7	3740884.4	51.8	3.49	4.00
3.25	YES							
L0000429		0	0.10040E-05	420505.7	3740875.8	51.8	3.49	4.00
3.25	YES							
L0000430		0	0.10040E-05	420505.8	3740867.2	51.8	3.49	4.00
3.25	YES							
L0000431		0	0.10040E-05	420505.8	3740858.6	51.8	3.49	4.00
3.25	YES							
L0000432		0	0.10040E-05	420505.8	3740850.0	51.7	3.49	4.00
3.25	YES							
L0000433		0	0.10040E-05	420505.9	3740841.4	51.7	3.49	4.00
3.25	YES							
L0000434		0	0.10040E-05	420505.9	3740832.9	51.7	3.49	4.00
3.25	YES							
L0000435		0	0.10040E-05	420506.0	3740824.3	51.7	3.49	4.00
3.25	YES							

L0000436	0	0.10040E-05	420506.0	3740815.7	51.7	3.49	4.00
3.25 YES							
L0000437	0	0.10040E-05	420506.1	3740807.1	51.7	3.49	4.00
3.25 YES							
L0000438	0	0.10040E-05	420506.1	3740798.5	51.7	3.49	4.00
3.25 YES							
L0000439	0	0.10040E-05	420506.2	3740789.9	51.7	3.49	4.00
3.25 YES							
L0000440	0	0.10040E-05	420506.2	3740781.3	51.7	3.49	4.00
3.25 YES							
L0000441	0	0.31330E-06	420603.4	3740959.1	52.8	3.49	4.00
3.25 YES							
L0000442	0	0.31330E-06	420610.2	3740953.8	52.9	3.49	4.00
3.25 YES							
L0000443	0	0.31330E-06	420615.8	3740947.6	52.9	3.49	4.00
3.25 YES							
L0000444	0	0.31330E-06	420619.3	3740939.8	52.7	3.49	4.00
3.25 YES							
L0000445	0	0.31330E-06	420621.0	3740931.4	52.7	3.49	4.00
3.25 YES							
L0000446	0	0.31330E-06	420621.7	3740922.9	52.7	3.49	4.00
3.25 YES							
L0000447	0	0.31330E-06	420621.5	3740914.3	52.6	3.49	4.00
3.25 YES							
L0000448	0	0.31330E-06	420621.3	3740905.7	52.6	3.49	4.00
3.25 YES							
L0000449	0	0.31330E-06	420621.2	3740897.1	52.6	3.49	4.00
3.25 YES							
L0000450	0	0.31330E-06	420621.0	3740888.5	52.5	3.49	4.00
3.25 YES							
L0000451	0	0.31330E-06	420620.8	3740879.9	52.5	3.49	4.00
3.25 YES							
L0000452	0	0.31330E-06	420620.7	3740871.3	52.4	3.49	4.00
3.25 YES							
L0000453	0	0.31330E-06	420620.5	3740862.7	52.4	3.49	4.00
3.25 YES							
L0000454	0	0.31330E-06	420620.3	3740854.2	52.4	3.49	4.00
3.25 YES							
L0000455	0	0.31330E-06	420620.2	3740845.6	52.3	3.49	4.00
3.25 YES							
L0000456	0	0.31330E-06	420620.0	3740837.0	52.3	3.49	4.00
3.25 YES							
L0000457	0	0.31330E-06	420619.8	3740828.4	52.3	3.49	4.00
3.25 YES							
L0000458	0	0.31330E-06	420619.7	3740819.8	52.2	3.49	4.00
3.25 YES							
L0000459	0	0.31330E-06	420619.5	3740811.2	52.2	3.49	4.00
3.25 YES							
L0000460	0	0.31330E-06	420619.3	3740802.6	52.2	3.49	4.00
3.25 YES							

L0000476	0	0.31330E-06	420545.4	3740738.9	51.3	3.49	4.00
3.25 YES							
L0000477	0	0.31330E-06	420536.8	3740739.0	51.3	3.49	4.00
3.25 YES							
L0000478	0	0.31330E-06	420528.3	3740739.1	51.2	3.49	4.00
3.25 YES							
L0000479	0	0.31330E-06	420519.7	3740739.3	51.1	3.49	4.00
3.25 YES							
L0000480	0	0.31330E-06	420511.1	3740739.4	51.1	3.49	4.00
3.25 YES							
L0000481	0	0.31330E-06	420502.5	3740739.5	51.0	3.49	4.00
3.25 YES							
L0000482	0	0.31330E-06	420493.9	3740739.6	50.9	3.49	4.00
3.25 YES							
L0000483	0	0.31330E-06	420487.4	3740741.7	50.9	3.49	4.00
3.25 YES							
L0000484	0	0.31330E-06	420487.4	3740750.3	50.9	3.49	4.00
3.25 YES							
L0000485	0	0.31330E-06	420487.4	3740758.9	50.9	3.49	4.00
3.25 YES							
L0000486	0	0.31330E-06	420487.5	3740767.5	51.0	3.49	4.00
3.25 YES							
L0000487	0	0.31330E-06	420487.5	3740776.1	51.0	3.49	4.00
3.25 YES							
L0000488	0	0.31330E-06	420487.6	3740784.7	51.0	3.49	4.00
3.25 YES							
L0000489	0	0.31330E-06	420487.6	3740793.3	51.0	3.49	4.00
3.25 YES							
L0000490	0	0.31330E-06	420487.6	3740801.9	51.1	3.49	4.00
3.25 YES							
L0000491	0	0.31330E-06	420487.7	3740810.5	51.1	3.49	4.00
3.25 YES							
L0000492	0	0.31330E-06	420487.7	3740819.1	51.1	3.49	4.00
3.25 YES							
L0000493	0	0.31330E-06	420487.8	3740827.6	51.1	3.49	4.00
3.25 YES							
L0000494	0	0.31330E-06	420487.8	3740836.2	51.2	3.49	4.00
3.25 YES							
L0000495	0	0.31330E-06	420487.8	3740844.8	51.2	3.49	4.00
3.25 YES							
L0000496	0	0.31330E-06	420487.9	3740853.4	51.2	3.49	4.00
3.25 YES							
L0000497	0	0.31330E-06	420487.9	3740862.0	51.2	3.49	4.00
3.25 YES							
L0000498	0	0.31330E-06	420488.0	3740870.6	51.3	3.49	4.00
3.25 YES							
L0000499	0	0.31330E-06	420488.0	3740879.2	51.3	3.49	4.00
3.25 YES							
L0000500	0	0.31330E-06	420488.0	3740887.8	51.3	3.49	4.00
3.25 YES							

L0000501	0	0.31330E-06	420488.1	3740896.4	51.3	3.49	4.00
3.25	YES						
L0000502	0	0.31330E-06	420488.1	3740905.0	51.4	3.49	4.00
3.25	YES						
L0000503	0	0.31330E-06	420488.2	3740913.5	51.4	3.49	4.00
3.25	YES						
L0000504	0	0.31330E-06	420488.2	3740922.1	51.4	3.49	4.00
3.25	YES						
▲ *** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102 HRA.ISC *** 05/23/20 *** AERMET - VERSION 16216 *** *** 08:51:29							

PAGE 4

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

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

L0000505	0	0.31330E-06	420488.3	3740930.7	51.4	3.49	4.00
3.25	YES						
L0000506	0	0.31330E-06	420488.3	3740939.3	51.5	3.49	4.00
3.25	YES						
L0000507	0	0.31330E-06	420488.3	3740947.9	51.5	3.49	4.00
3.25	YES						
L0000508	0	0.31330E-06	420488.4	3740956.5	51.5	3.49	4.00
3.25	YES						
L0000509	0	0.31330E-06	420488.4	3740965.1	51.5	3.49	4.00
3.25	YES						
L0000510	0	0.13750E-06	420590.1	3740980.4	52.6	3.49	4.00
3.25	YES						
L0000511	0	0.13750E-06	420581.5	3740980.5	52.5	3.49	4.00
3.25	YES						
L0000512	0	0.13750E-06	420572.9	3740980.6	52.4	3.49	4.00
3.25	YES						
L0000513	0	0.13750E-06	420564.3	3740980.7	52.4	3.49	4.00
3.25	YES						
L0000514	0	0.13750E-06	420555.7	3740980.7	52.3	3.49	4.00
3.25	YES						
L0000515	0	0.13750E-06	420547.1	3740980.8	52.2	3.49	4.00
3.25	YES						

L0000516	0	0.13750E-06	420538.5	3740980.9	52.2	3.49	4.00
3.25 YES							
L0000517	0	0.13750E-06	420530.0	3740981.0	52.1	3.49	4.00
3.25 YES							
L0000518	0	0.13750E-06	420521.4	3740981.1	52.1	3.49	4.00
3.25 YES							
L0000519	0	0.13750E-06	420512.8	3740981.2	52.0	3.49	4.00
3.25 YES							
L0000520	0	0.13750E-06	420504.2	3740981.2	51.9	3.49	4.00
3.25 YES							
L0000521	0	0.13750E-06	420495.6	3740981.3	51.9	3.49	4.00
3.25 YES							
L0000522	0	0.13750E-06	420487.0	3740981.4	51.8	3.49	4.00
3.25 YES							
L0000523	0	0.13750E-06	420478.4	3740981.5	51.8	3.49	4.00
3.25 YES							
L0000524	0	0.13750E-06	420469.8	3740981.6	51.7	3.49	4.00
3.25 YES							
L0000525	0	0.13750E-06	420461.2	3740981.7	51.6	3.49	4.00
3.25 YES							
L0000526	0	0.13750E-06	420452.6	3740981.8	51.6	3.49	4.00
3.25 YES							
L0000527	0	0.13750E-06	420444.1	3740981.8	51.5	3.49	4.00
3.25 YES							
L0000528	0	0.13750E-06	420435.5	3740981.9	51.4	3.49	4.00
3.25 YES							
L0000529	0	0.13750E-06	420426.9	3740982.0	51.4	3.49	4.00
3.25 YES							
L0000530	0	0.13750E-06	420418.3	3740982.1	51.3	3.49	4.00
3.25 YES							
L0000531	0	0.13750E-06	420409.7	3740982.2	51.2	3.49	4.00
3.25 YES							
L0000532	0	0.13750E-06	420401.1	3740982.3	51.2	3.49	4.00
3.25 YES							
L0000533	0	0.13750E-06	420392.5	3740982.4	51.1	3.49	4.00
3.25 YES							
L0000534	0	0.13750E-06	420383.9	3740982.4	51.1	3.49	4.00
3.25 YES							
L0000535	0	0.13750E-06	420375.3	3740982.5	51.0	3.49	4.00
3.25 YES							
L0000536	0	0.13750E-06	420366.8	3740982.6	50.9	3.49	4.00
3.25 YES							
L0000537	0	0.13750E-06	420358.2	3740982.7	50.9	3.49	4.00
3.25 YES							
L0000538	0	0.13750E-06	420349.6	3740982.8	50.8	3.49	4.00
3.25 YES							
L0000539	0	0.13750E-06	420341.0	3740982.9	50.7	3.49	4.00
3.25 YES							
L0000540	0	0.13750E-06	420332.4	3740982.9	50.7	3.49	4.00
3.25 YES							

L0000541	0	0.13750E-06	420323.8	3740983.0	50.6	3.49	4.00
3.25	YES						
L0000542	0	0.13750E-06	420315.2	3740983.1	50.5	3.49	4.00
3.25	YES						
L0000543	0	0.13750E-06	420306.6	3740983.2	50.5	3.49	4.00
3.25	YES						
L0000544	0	0.13750E-06	420298.0	3740983.3	50.4	3.49	4.00
3.25	YES						

▲ *** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 *** ***
 *** 08:51:29

PAGE 5

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

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

L0000545	0	0.13750E-06	420289.4	3740983.4	50.4	3.49	4.00
3.25	YES						
L0000546	0	0.13750E-06	420280.9	3740983.5	50.3	3.49	4.00
3.25	YES						
L0000547	0	0.13750E-06	420272.3	3740983.5	50.2	3.49	4.00
3.25	YES						
L0000548	0	0.13750E-06	420263.7	3740983.6	50.2	3.49	4.00
3.25	YES						
L0000549	0	0.13750E-06	420255.1	3740983.7	50.1	3.49	4.00
3.25	YES						
L0000550	0	0.13750E-06	420246.5	3740983.8	50.0	3.49	4.00
3.25	YES						
L0000551	0	0.13750E-06	420237.9	3740983.9	50.0	3.49	4.00
3.25	YES						
L0000552	0	0.68850E-07	420237.6	3740993.5	50.0	3.49	4.00
3.25	YES						
L0000553	0	0.68850E-07	420237.7	3741002.1	50.0	3.49	4.00
3.25	YES						
L0000554	0	0.68850E-07	420237.9	3741010.6	50.0	3.49	4.00
3.25	YES						
L0000555	0	0.68850E-07	420238.1	3741019.2	50.0	3.49	4.00
3.25	YES						

L0000556	0	0.68850E-07	420238.3	3741027.8	50.0	3.49	4.00
3.25 YES							
L0000557	0	0.68850E-07	420238.4	3741036.4	50.0	3.49	4.00
3.25 YES							
L0000558	0	0.68850E-07	420238.6	3741045.0	50.0	3.49	4.00
3.25 YES							
L0000559	0	0.68850E-07	420238.8	3741053.6	50.0	3.49	4.00
3.25 YES							
L0000560	0	0.68850E-07	420239.0	3741062.2	50.0	3.49	4.00
3.25 YES							
L0000561	0	0.68850E-07	420239.1	3741070.8	50.0	3.49	4.00
3.25 YES							
L0000562	0	0.68850E-07	420239.3	3741079.4	50.0	3.49	4.00
3.25 YES							
L0000563	0	0.68850E-07	420239.5	3741087.9	50.0	3.49	4.00
3.25 YES							
L0000564	0	0.68850E-07	420239.7	3741096.5	50.1	3.49	4.00
3.25 YES							
L0000565	0	0.68850E-07	420239.8	3741105.1	50.1	3.49	4.00
3.25 YES							
L0000566	0	0.68850E-07	420240.0	3741113.7	50.1	3.49	4.00
3.25 YES							
L0000567	0	0.68850E-07	420240.2	3741122.3	50.1	3.49	4.00
3.25 YES							
L0000568	0	0.68850E-07	420240.4	3741130.9	50.1	3.49	4.00
3.25 YES							
L0000569	0	0.68850E-07	420240.5	3741139.5	50.1	3.49	4.00
3.25 YES							
L0000570	0	0.68850E-07	420240.7	3741148.1	50.1	3.49	4.00
3.25 YES							
L0000571	0	0.68850E-07	420240.9	3741156.6	50.1	3.49	4.00
3.25 YES							
L0000572	0	0.68850E-07	420241.1	3741165.2	50.1	3.49	4.00
3.25 YES							
L0000573	0	0.68850E-07	420241.2	3741173.8	50.1	3.49	4.00
3.25 YES							
L0000574	0	0.68850E-07	420241.4	3741182.4	50.1	3.49	4.00
3.25 YES							
L0000575	0	0.68850E-07	420241.6	3741191.0	50.1	3.49	4.00
3.25 YES							
L0000576	0	0.68850E-07	420241.5	3741199.6	50.2	3.49	4.00
3.25 YES							
L0000577	0	0.68850E-07	420240.6	3741208.1	50.1	3.49	4.00
3.25 YES							
L0000578	0	0.68850E-07	420239.6	3741216.7	50.1	3.49	4.00
3.25 YES							
L0000579	0	0.68850E-07	420238.7	3741225.2	50.1	3.49	4.00
3.25 YES							
L0000580	0	0.68850E-07	420237.7	3741233.7	50.1	3.49	4.00
3.25 YES							

L0000596	0	0.69430E-07	420237.2	3740927.8	49.8	3.49	4.00
3.25 YES							
L0000597	0	0.69430E-07	420237.1	3740919.2	49.8	3.49	4.00
3.25 YES							
L0000598	0	0.69430E-07	420237.1	3740910.6	49.8	3.49	4.00
3.25 YES							
L0000599	0	0.69430E-07	420237.0	3740902.1	49.7	3.49	4.00
3.25 YES							
L0000600	0	0.69430E-07	420237.0	3740893.5	49.7	3.49	4.00
3.25 YES							
L0000601	0	0.69430E-07	420236.9	3740884.9	49.7	3.49	4.00
3.25 YES							
L0000602	0	0.69430E-07	420236.8	3740876.3	49.6	3.49	4.00
3.25 YES							
L0000603	0	0.69430E-07	420236.8	3740867.7	49.6	3.49	4.00
3.25 YES							
L0000604	0	0.69430E-07	420236.7	3740859.1	49.6	3.49	4.00
3.25 YES							
L0000605	0	0.69430E-07	420236.7	3740850.5	49.5	3.49	4.00
3.25 YES							
L0000606	0	0.69430E-07	420236.6	3740841.9	49.5	3.49	4.00
3.25 YES							
L0000607	0	0.69430E-07	420236.6	3740833.3	49.5	3.49	4.00
3.25 YES							
L0000608	0	0.69430E-07	420236.5	3740824.7	49.4	3.49	4.00
3.25 YES							
L0000609	0	0.69430E-07	420236.5	3740816.2	49.4	3.49	4.00
3.25 YES							
L0000610	0	0.69430E-07	420236.4	3740807.6	49.4	3.49	4.00
3.25 YES							
L0000611	0	0.69430E-07	420236.3	3740799.0	49.3	3.49	4.00
3.25 YES							
L0000612	0	0.69430E-07	420236.3	3740790.4	49.3	3.49	4.00
3.25 YES							
L0000613	0	0.69430E-07	420236.2	3740781.8	49.3	3.49	4.00
3.25 YES							
L0000614	0	0.69430E-07	420236.2	3740773.2	49.3	3.49	4.00
3.25 YES							
L0000615	0	0.69430E-07	420236.1	3740764.6	49.2	3.49	4.00
3.25 YES							
L0000616	0	0.69430E-07	420236.0	3740756.0	49.2	3.49	4.00
3.25 YES							
L0000617	0	0.69430E-07	420235.9	3740747.4	49.2	3.49	4.00
3.25 YES							
L0000618	0	0.69430E-07	420235.7	3740738.9	49.1	3.49	4.00
3.25 YES							
L0000619	0	0.69430E-07	420235.6	3740730.3	49.1	3.49	4.00
3.25 YES							
L0000620	0	0.69430E-07	420235.4	3740721.7	49.1	3.49	4.00
3.25 YES							

L0000621	0	0.69430E-07	420235.2	3740713.1	49.1	3.49	4.00
3.25	YES						
L0000622	0	0.69430E-07	420235.1	3740704.5	49.1	3.49	4.00
3.25	YES						
L0000623	0	0.69430E-07	420234.9	3740695.9	49.0	3.49	4.00
3.25	YES						
L0000624	0	0.69430E-07	420234.8	3740687.3	49.0	3.49	4.00
3.25	YES						
*** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102 HRA.ISC *** 05/23/20 *** AERMET - VERSION 16216 *** *** 08:51:29							

PAGE 7

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

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

L0000625	0	0.69430E-07	420234.5	3740678.7	49.0	3.49	4.00
3.25	YES						
L0000626	0	0.69430E-07	420234.2	3740670.2	49.0	3.49	4.00
3.25	YES						
L0000627	0	0.69430E-07	420233.8	3740661.6	49.0	3.49	4.00
3.25	YES						
L0000628	0	0.69430E-07	420233.5	3740653.0	49.0	3.49	4.00
3.25	YES						
L0000629	0	0.69430E-07	420233.1	3740644.4	49.0	3.49	4.00
3.25	YES						
L0000630	0	0.69430E-07	420232.8	3740635.8	49.0	3.49	4.00
3.25	YES						
L0000631	0	0.69430E-07	420232.4	3740627.2	49.0	3.49	4.00
3.25	YES						
L0000632	0	0.69430E-07	420232.1	3740618.7	49.0	3.49	4.00
3.25	YES						
L0000633	0	0.69430E-07	420231.7	3740610.1	48.9	3.49	4.00
3.25	YES						
L0000634	0	0.69430E-07	420231.4	3740601.5	48.9	3.49	4.00
3.25	YES						
L0000635	0	0.69430E-07	420231.0	3740592.9	48.9	3.49	4.00
3.25	YES						

L0000636 0 0.69430E-07 420230.7 3740584.3 48.9 3.49 4.00
 3.25 YES
 *** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 *** ***
 *** 08:51:29

PAGE 8
 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS

SRCGROUP ID	SOURCE IDs					
-----	-----					
ALL	L0000425	, L0000426	, L0000427	, L0000428	, L0000429	,
L0000430	, L0000431	, L0000432	,			
	L0000433	, L0000434	, L0000435	, L0000436	, L0000437	,
L0000438	, L0000439	, L0000440	,			
	L0000441	, L0000442	, L0000443	, L0000444	, L0000445	,
L0000446	, L0000447	, L0000448	,			
	L0000449	, L0000450	, L0000451	, L0000452	, L0000453	,
L0000454	, L0000455	, L0000456	,			
	L0000457	, L0000458	, L0000459	, L0000460	, L0000461	,
L0000462	, L0000463	, L0000464	,			
	L0000465	, L0000466	, L0000467	, L0000468	, L0000469	,
L0000470	, L0000471	, L0000472	,			
	L0000473	, L0000474	, L0000475	, L0000476	, L0000477	,
L0000478	, L0000479	, L0000480	,			
	L0000481	, L0000482	, L0000483	, L0000484	, L0000485	,
L0000486	, L0000487	, L0000488	,			
	L0000489	, L0000490	, L0000491	, L0000492	, L0000493	,
L0000494	, L0000495	, L0000496	,			
	L0000497	, L0000498	, L0000499	, L0000500	, L0000501	,
L0000502	, L0000503	, L0000504	,			
	L0000505	, L0000506	, L0000507	, L0000508	, L0000509	,
L0000510	, L0000511	, L0000512	,			

L0000518	L0000513 , L0000519	, L0000514 , L0000520	, L0000515 ,	, L0000516	, L0000517	,
L0000526	L0000521 , L0000527	, L0000522 , L0000528	, L0000523 ,	, L0000524	, L0000525	,
L0000534	L0000529 , L0000535	, L0000530 , L0000536	, L0000531 ,	, L0000532	, L0000533	,
L0000542	L0000537 , L0000543	, L0000538 , L0000544	, L0000539 ,	, L0000540	, L0000541	,
L0000550	L0000545 , L0000551	, L0000546 , L0000552	, L0000547 ,	, L0000548	, L0000549	,
L0000558	L0000553 , L0000559	, L0000554 , L0000560	, L0000555 ,	, L0000556	, L0000557	,
L0000566	L0000561 , L0000567	, L0000562 , L0000568	, L0000563 ,	, L0000564	, L0000565	,
L0000574	L0000569 , L0000575	, L0000570 , L0000576	, L0000571 ,	, L0000572	, L0000573	,
L0000582	L0000577 , L0000583	, L0000578 , L0000584	, L0000579 ,	, L0000580	, L0000581	,

*** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 ***
 *** 08:51:29

PAGE 9

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS

SRCGROUP ID

SOURCE IDs

L0000590	L0000585 , L0000591	, L0000586 , L0000592	, L0000587 ,	, L0000588	, L0000589	,
L0000598	L0000593 , L0000599	, L0000594 , L0000600	, L0000595 ,	, L0000596	, L0000597	,
	L0000601	, L0000602	, L0000603	, L0000604	, L0000605	,

L0000606 , L0000607 , L0000608 ,
 L0000614 , L0000615 , L0000616 ,
 L0000622 , L0000623 , L0000624 ,
 L0000630 , L0000631 , L0000632 ,

L0000633 , L0000634 , L0000635 , L0000636 ,
 *** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 ***
 *** 08:51:29

PAGE 10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES

URBAN ID	URBAN POP	SOURCE IDs
-----	-----	-----
L0000429	3010232.	L0000425 , L0000426 , L0000427 , L0000428 ,
L0000432	, L0000430	, L0000431 ,
	, L0000432	
L0000438	L0000433 , L0000434 , L0000435 , L0000436 , L0000437 ,	
	, L0000439 , L0000440 ,	
L0000446	L0000441 , L0000442 , L0000443 , L0000444 , L0000445 ,	
	, L0000447 , L0000448 ,	
L0000454	L0000449 , L0000450 , L0000451 , L0000452 , L0000453 ,	
	, L0000455 , L0000456 ,	
L0000462	L0000457 , L0000458 , L0000459 , L0000460 , L0000461 ,	
	, L0000463 , L0000464 ,	
L0000470	L0000465 , L0000466 , L0000467 , L0000468 , L0000469 ,	
	, L0000471 , L0000472 ,	
L0000478	L0000473 , L0000474 , L0000475 , L0000476 , L0000477 ,	
	, L0000479 , L0000480 ,	

L0000486	L0000481 , L0000487	, L0000482 , L0000488	, L0000483 ,	, L0000484	, L0000485	,
L0000494	L0000489 , L0000495	, L0000490 , L0000496	, L0000491 ,	, L0000492	, L0000493	,
L0000502	L0000497 , L0000503	, L0000498 , L0000504	, L0000499 ,	, L0000500	, L0000501	,
L0000510	L0000505 , L0000511	, L0000506 , L0000512	, L0000507 ,	, L0000508	, L0000509	,
L0000518	L0000513 , L0000519	, L0000514 , L0000520	, L0000515 ,	, L0000516	, L0000517	,
L0000526	L0000521 , L0000527	, L0000522 , L0000528	, L0000523 ,	, L0000524	, L0000525	,
L0000534	L0000529 , L0000535	, L0000530 , L0000536	, L0000531 ,	, L0000532	, L0000533	,
L0000542	L0000537 , L0000543	, L0000538 , L0000544	, L0000539 ,	, L0000540	, L0000541	,
L0000550	L0000545 , L0000551	, L0000546 , L0000552	, L0000547 ,	, L0000548	, L0000549	,
L0000558	L0000553 , L0000559	, L0000554 , L0000560	, L0000555 ,	, L0000556	, L0000557	,
L0000566	L0000561 , L0000567	, L0000562 , L0000568	, L0000563 ,	, L0000564	, L0000565	,
L0000574	L0000569 , L0000575	, L0000570 , L0000576	, L0000571 ,	, L0000572	, L0000573	,
L0000582	L0000577 , L0000583	, L0000578 , L0000584	, L0000579 ,	, L0000580	, L0000581	,

*** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20

*** AERMET - VERSION 16216 ***
 *** 08:51:29

PAGE 11

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES

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

L0000590	L0000585 , L0000591	L0000586 , L0000592	L0000587 ,	L0000588 ,	L0000589 ,
L0000598	L0000593 , L0000599	L0000594 , L0000600	L0000595 ,	L0000596 ,	L0000597 ,
L0000606	L0000601 , L0000607	L0000602 , L0000608	L0000603 ,	L0000604 ,	L0000605 ,
L0000614	L0000609 , L0000615	L0000610 , L0000616	L0000611 ,	L0000612 ,	L0000613 ,
L0000622	L0000617 , L0000623	L0000618 , L0000624	L0000619 ,	L0000620 ,	L0000621 ,
L0000630	L0000625 , L0000631	L0000626 , L0000632	L0000627 ,	L0000628 ,	L0000629 ,

L0000633 , L0000634 , L0000635 , L0000636 ,
 *** AERMOD - VERSION 19191 *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 ***
 *** 08:51:29

PAGE 12

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

(420623.6, 3741036.5,	52.9,	52.9,	0.0);	(420714.5,
3741002.1, 53.1,	53.1,	0.0);		
(420683.9, 3740986.7,	53.0,	53.0,	0.0);	(420476.9,
3741002.9, 51.0,	51.0,	0.0);		
(420617.1, 3740989.2,	52.8,	52.8,	0.0);	(420458.8,
3740945.5, 51.0,	51.0,	0.0);		
(420459.6, 3740903.0,	51.0,	51.0,	0.0);	(420458.4,
3740834.5, 51.0,	51.0,	0.0);		
(420459.2, 3740796.8,	51.0,	51.0,	0.0);	(420514.1,
3740717.8, 51.2,	51.2,	0.0);		
(420488.5, 3740718.6,	51.1,	51.1,	0.0);	(420654.4,
3740888.6, 53.0,	53.0,	0.0);		
(420457.6, 3740749.9,	50.9,	50.9,	0.0);	(420457.2,
3740738.7, 50.9,	50.9,	0.0);		
(420456.0, 3740703.8,	50.8,	50.8,	0.0);	(420485.2,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL

DATA ***

Surface file: KSNA_V9_ADJU\KSNA_V9.SFC

Met Version: 16216

Profile file: KSNA_V9_ADJU\KSNA_V9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 93184

Name: UNKNOWN

Upper air station no.: 3190

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	-4.5	0.082	-9.000	-9.000	-999.	56.	11.0	0.12	2.65	
1.00	0.87	62.		5.8	283.8	2.0								
12	01	01	1	02	-3.5	0.073	-9.000	-9.000	-999.	47.	9.9	0.12	2.65	
1.00	0.77	27.		5.8	283.1	2.0								
12	01	01	1	03	-3.5	0.073	-9.000	-9.000	-999.	47.	9.9	0.12	2.65	
1.00	0.77	336.		5.8	283.1	2.0								
12	01	01	1	04	-3.3	0.070	-9.000	-9.000	-999.	45.	9.7	0.12	2.65	
1.00	0.74	34.		5.8	283.1	2.0								
12	01	01	1	05	-3.0	0.068	-9.000	-9.000	-999.	42.	9.4	0.12	2.65	
1.00	0.70	154.		5.8	282.5	2.0								
12	01	01	1	06	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.12	2.65	
1.00	0.00	0.		5.8	282.0	2.0								
12	01	01	1	07	-2.0	0.059	-9.000	-9.000	-999.	34.	9.0	0.12	2.65	
1.00	0.55	343.		5.8	281.4	2.0								
12	01	01	1	08	-2.6	0.066	-9.000	-9.000	-999.	40.	9.7	0.12	2.65	
0.53	0.69	25.		5.8	281.4	2.0								
12	01	01	1	09	21.6	0.133	0.252	0.010	27.	116.	-9.9	0.12	2.65	
0.31	1.03	344.		5.8	282.5	2.0								
12	01	01	1	10	115.6	0.162	0.713	0.008	114.	156.	-3.3	0.12	2.65	
0.24	1.06	233.		5.8	286.4	2.0								
12	01	01	1	11	160.9	0.126	1.129	0.005	325.	108.	-1.1	0.12	2.65	
0.21	0.67	261.		5.8	291.4	2.0								
12	01	01	1	12	187.0	0.138	1.467	0.005	614.	123.	-1.3	0.12	2.65	
0.20	0.75	252.		5.8	294.9	2.0								
12	01	01	1	13	186.9	0.189	1.755	0.005	1051.	197.	-3.3	0.12	2.65	
0.20	1.23	280.		5.8	297.5	2.0								
12	01	01	1	14	168.3	0.247	1.857	0.005	1383.	295.	-8.1	0.12	2.65	

0.21	1.86	268.	5.8	299.2	2.0							
12 01 01	1 15	115.3	0.275	1.688	0.005	1517.	346.	-16.3	0.12	2.65		
0.24	2.25	248.	5.8	298.1	2.0							
12 01 01	1 16	41.5	0.262	1.211	0.005	1552.	322.	-39.2	0.12	2.65		
0.33	2.32	227.	5.8	295.9	2.0							
12 01 01	1 17	-17.9	0.217	-9.000	-9.000	-999.	244.	52.0	0.12	2.65		
0.60	2.18	227.	5.8	292.5	2.0							
12 01 01	1 18	-24.7	0.250	-9.000	-9.000	-999.	300.	68.7	0.12	2.65		
1.00	2.50	219.	5.8	288.8	2.0							
12 01 01	1 19	-5.2	0.088	-9.000	-9.000	-999.	91.	12.0	0.12	2.65		
1.00	0.94	201.	5.8	287.5	2.0							
12 01 01	1 20	-3.5	0.073	-9.000	-9.000	-999.	47.	10.0	0.12	2.65		
1.00	0.77	259.	5.8	287.0	2.0							
12 01 01	1 21	-2.6	0.064	-9.000	-9.000	-999.	39.	9.1	0.12	2.65		
1.00	0.65	264.	5.8	286.4	2.0							
12 01 01	1 22	-4.4	0.081	-9.000	-9.000	-999.	55.	10.9	0.12	2.65		
1.00	0.86	211.	5.8	285.9	2.0							
12 01 01	1 23	-4.2	0.079	-9.000	-9.000	-999.	53.	10.7	0.12	2.65		
1.00	0.84	247.	5.8	284.9	2.0							
12 01 01	1 24	-7.1	0.103	-9.000	-9.000	-999.	80.	14.1	0.12	2.65		
1.00	1.09	236.	5.8	283.8	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	62.	0.87	283.8	99.0	-99.00	-99.00

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

```

*** AERMOD - VERSION 19191 ***      *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
HRA.ISC                               ***      05/23/20
*** AERMET - VERSION 16216 ***      ***
***                               ***      08:51:29

```

PAGE 15

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

```

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5
YEARS FOR SOURCE GROUP: ALL ***
      INCLUDING SOURCE(S): L0000425 , L0000426
, L0000427 , L0000428 , L0000429 ,
      L0000430 , L0000431 , L0000432 , L0000433 , L0000434
, L0000435 , L0000436 , L0000437 ,
      L0000438 , L0000439 , L0000440 , L0000441 , L0000442
, L0000443 , L0000444 , L0000445 ,
      L0000446 , L0000447 , L0000448 , L0000449 , L0000450
, L0000451 , L0000452 , . . . ,

```

*** 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
-----
420623.60    3741036.49      0.00154    420714.52
3741002.06    0.00114
420683.92    3740986.70      0.00153    420476.91
3741002.89    0.00256
420617.12    3740989.18      0.00252    420458.78
3740945.49    0.00311
420459.59    3740903.00      0.00394    420458.38
3740834.46    0.00421
420459.19    3740796.78      0.00382    420514.10
3740717.81    0.00268
420488.45    3740718.61      0.00246    420654.40
3740888.57    0.00287
420457.58    3740749.88      0.00259    420457.18
3740738.66    0.00226
420455.98    3740703.78      0.00141    420485.24
3740558.68    0.00042
420468.40    3740558.28      0.00042    420681.30
3740999.39    0.00147
420587.67    3741041.73      0.00162

```

```

^ *** AERMOD - VERSION 19191 ***   *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
HRA.ISC                        ***   05/23/20
*** AERMET - VERSION 16216 ***   ***
***                                08:51:29

```

```

PAGE 16
*** 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      0.00421 AT ( 420458.38, 3740834.46,

```

51.00,	51.00,	0.00)	DC			
	2ND HIGHEST VALUE IS			0.00394	AT (	420459.59, 3740903.00,
51.00,	51.00,	0.00)	DC			
	3RD HIGHEST VALUE IS			0.00382	AT (	420459.19, 3740796.78,
51.00,	51.00,	0.00)	DC			
	4TH HIGHEST VALUE IS			0.00311	AT (	420458.78, 3740945.49,
51.00,	51.00,	0.00)	DC			
	5TH HIGHEST VALUE IS			0.00287	AT (	420654.40, 3740888.57,
53.00,	53.00,	0.00)	DC			
	6TH HIGHEST VALUE IS			0.00268	AT (	420514.10, 3740717.81,
51.20,	51.20,	0.00)	DC			
	7TH HIGHEST VALUE IS			0.00259	AT (	420457.58, 3740749.88,
50.94,	50.94,	0.00)	DC			
	8TH HIGHEST VALUE IS			0.00256	AT (	420476.91, 3741002.89,
51.00,	51.00,	0.00)	DC			
	9TH HIGHEST VALUE IS			0.00252	AT (	420617.12, 3740989.18,
52.82,	52.82,	0.00)	DC			
	10TH HIGHEST VALUE IS			0.00246	AT (	420488.45, 3740718.61,
51.07,	51.07,	0.00)	DC			

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

▲ *** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\13102 HRA\13102
 HRA.ISC *** 05/23/20
 *** AERMET - VERSION 16216 *** ***
 *** 08:51:29

PAGE 17

*** 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	1864 Informational Message(s)
A Total of	43848 Hours Were Processed
A Total of	1500 Calm Hours Identified
A Total of	364 Missing Hours Identified (0.83 Percent)

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

***** WARNING MESSAGES *****

ME W186 580 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
0.50

ME W187 580 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

*** AERMOD Finishes Successfully ***

APPENDIX 2.2:

RISK CALCULATIONS

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

Source (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
	(ug/m ³)	(mg/m ³)			URF (ug/m ³) ⁻¹	CPF (mg/kg/day) ⁻¹	DOSE (mg/kg-day)	RISK	REL (ug/m ³)	RfD (mg/kg/day)	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00182	1.82E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	6.3E-07	2.0E-08	5.0E+00	1.4E-03	3.6E-04							
TOTAL								2.0E-08			3.6E-04	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 Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
	(ug/m ³)	(mg/m ³)			URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
					(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)
	0.00182	1.82E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.9E-06	4.9E-07	5.0E+00	1.4E-03	3.6E-04							
TOTAL								4.9E-07			3.6E-04	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 (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
	(ug/m ³)	(mg/m ³)			URF (ug/m ³) ⁻¹	CPF (mg/kg/day) ⁻¹	DOSE (mg/kg-day)	RISK	REL (ug/m ³)	RfD (mg/kg/day)	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00182	1.82E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.0E-06	4.5E-07	5.0E+00	1.4E-03	3.6E-04							
TOTAL								4.5E-07			3.6E-04	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 (a)	Mass GLC		Weight Fraction (d)	Contaminant (e)	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
	(ug/m ³)	(mg/m ³)			URF (ug/m ³) ⁻¹	CPF (mg/kg/day) ⁻¹	DOSE (mg/kg-day)	RISK	REL (ug/m ³)	RfD (mg/kg/day)	RESP (l)	CNS/PNS (m)	CV/BL (n)	IMMUN (o)	KIDN (p)	GI/LV (q)	REPRO (r)	EYES (s)
	(b)	(c)			(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00182	1.82E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	4.6E-07	7.0E-08	5.0E+00	1.4E-03	3.6E-04							
TOTAL								7.0E-08			3.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

0.07

** 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) 1.03

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**									
		(ug/m ³)	(mg/m ³)			URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	3.63E-03	3.63E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	5.7E-07	2.1E-07	5.0E+00	1.4E-03	7.3E-04							
TOTAL									2.3E-07 0.23			7.6E-04	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

Note:

Exposure factors used to calculate contaminant intake

RESP	Respiratory System	exposure frequency (days/year)	250
CNS/PNS	Central/Peripheral Nervous System	exposure duration (years)	25
CV/BL	Cardiovascular/Blood System	inhalation rate (L/kg-day))	230
IMMUN	Immune System	inhalation absorption factor	1
KIDN	Kidney	averaging time (years)	70
GI/LV	Gastrointestinal System/Liver		
REPRO	Reproductive System (e.g. teratogenic and developmental effects)		
EYES	Eye irritation and/or other effects		