TO: Dane Palanjian, EPDS
FROM: Vince Mirabella
DATE: October 23, 2020

SUBJECT: Health Risk Assessment of the Core 5 Commerce Center, Perris CA

SECTION 1: PROJECT INFORMATION

1.1 - Project Name

Core 5 Commerce Center

1.2 - Project Location

The proposed Core 5 Commerce Center (Project) is located within the northeast portion of the City of Perris, on the south side of East Rider Street, west of Wilson Avenue. Regional access to the Project site is provided by Interstate Route (I-215) and the Interstate 215 East Frontage Road exit. Local access to the site is from East Rider Street, which is a secondary arterial roadway. The Project is also located within the Perris Valley Commerce Center Specific Plan (PVCCSP) area. Figure 1 provides a view of the regional view of the Project site while Figure 2 provides a local view of the Project site.

1.3 - Project Description

The Project would consist of demolishing the existing three single-family residences and pavement on the project site and construction of a new 248,442 square foot tilt-up speculative industrial building with approximately 5,000 square feet designated for supporting office staff. The Project site would be accessed by two points of ingress and egress, one along Rider Street and one along Wilson Avenue. It is assumed the easterly most driveway off Wilson Avenue will be used for truck access and circulation around the site. Truck loading docks and trailer parking will be easterly facing oriented along Wilson Avenue. A retaining wall is proposed along Wilson Avenue to adequately screen onsite trailers from the public's view. The Project complies with all the City of Perris Municipal Code's standards for Light Industrial (LI). Figure 3 provides a view of the Project site plan.

1.4 - Purpose of the Report

Since the Project is located within the PVCCSP, the Project is required to incorporate applicable mitigation measures from the Perris Valley Commerce Center Specific Plan Environmental Impact Report (EIR)[1]. Because these measures are a requirement for implementing projects within the PVCCSP, they are not considered to be project-specific mitigation measures. The PVCCSP EIR mitigation measure applicable to this Project dealing with health risk assessments is as follows:

MM AIR 15 To identify potential implementing development project-specific impacts resulting from the use of diesel trucks, proposed implementing development projects that include an excess of 10 dock doors for a single building, a minimum of 100 truck trips per day, 40 truck trips with TRUs [Transport Refrigeration Units] per day, or TRU operations

[1] City of Perris 2011. Perris Valley Commerce Center Specific Plan Environmental Impact Report (State Clearinghouse No. 2009081086)

exceeding 300 hours per week, and that are subject to CEQA and are located adjacent to sensitive land uses; shall have a facility-specific Health Risk Assessment performed to assess the diesel particulate matter impacts from mobile-source traffic generated by that implementing development project. The results of the Health Risk Assessment shall be included in the CEQA documentation for each implementing development project.

As will be noted below, this Project has more than 10 dock doors and more than 100 truck trips per day. Consequently, this report responds to the requirement to prepare a facility-specific health risk assessment to evaluate the potential health impacts to sensitive receptors from the operation of the Project's diesel mobile source traffic. In particular, this health risk assessment (HRA) focuses on the emissions of diesel particulate matter (DPM) from the operation of the heavy-duty diesel truck vehicles[2] that would serve the Project on a day-to-day basis. DPM has been identified by the California Air Resources Board (ARB) as a carcinogenic substance responsible for nearly 70 percent of the airborne cancer risk in California.[3] The estimated health risk impacts were compared to the health risk significance thresholds recommended by the South Coast Air Quality Management District (SCAQMD) for use in CEQA assessments.

This HRA employed the following tools to estimate the health impacts of the Project:

- The California Air Resources Board (ARB) EMFAC2017 mobile emission source model[4] to calculate exhaust and idling emissions from the Project's operational diesel trucks
- The U.S. Environmental Protection Agency (EPA) AMS/EPA Regulatory Model (AERMOD Version 19191) air dispersion model[5] to estimate DPM impacts to sensitive receptors)
- The ARB HARP2[6] health risk assessment model to estimate the Project's health impacts

1.5 - Conclusion

- The preparation of this health risk assessment addresses the contents of the PVCCSP Mitigation Measure MM AIR 15 dealing with the preparation of a health risk assessment that quantifies the public health risks resulting from diesel particulate matter emissions from the operation of the Project.
- The Project's operation would generate a lifetime cancer risk at the maximum impacted sensitive receptor of 0.8 in one million, less than the SCAQMD project-level and cumulative health risk significance threshold of 10 in one million. Therefore, the Project's operation would a less than significant health risk impact, and no mitigation is required beyond what is identified in the PVCCSP EIR.

[2] Heavy duty trucks are defined as trucks with 2 or more axles in excess of 8,500 pounds gross vehicle weight rating

[3] California Air Resources Board 2017. Study Links California Regulations, Dramatic Declines in Cancer Risk from Exposure to Air Toxics. Website: https://ww2.arb.ca.gov/news/study-links-california-regulations-dramatic-declines-cancer-risk-exposure-air-toxics

[4] California Air Resources Board 2017. EMFAC2017 User's Guide. Website: https://ww3.arb.ca.gov/msei/downloads/emfac2017_users_guide_final.pdf

[5] US Environmental Protection Agency 2019. AERMOD Quick Reference Guide. Website: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[6] California Air Resources Board 2019. Air Dispersion Modeling and Risk Too. Website: https://ww2.arb.ca.gov/resources/documents/harp-air-dispersion-modeling-and-risk-tool

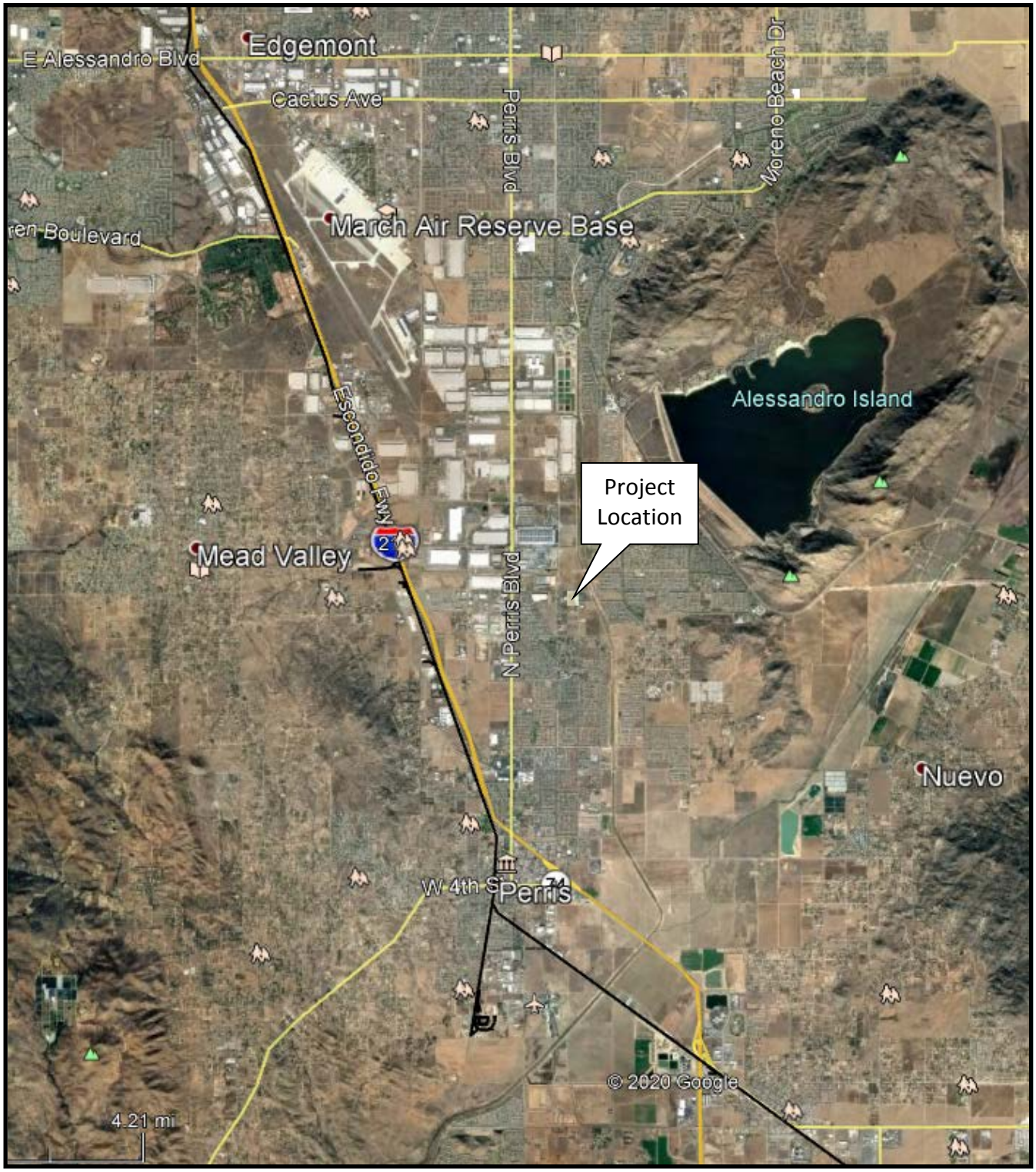


Figure 1
Regional Location Map

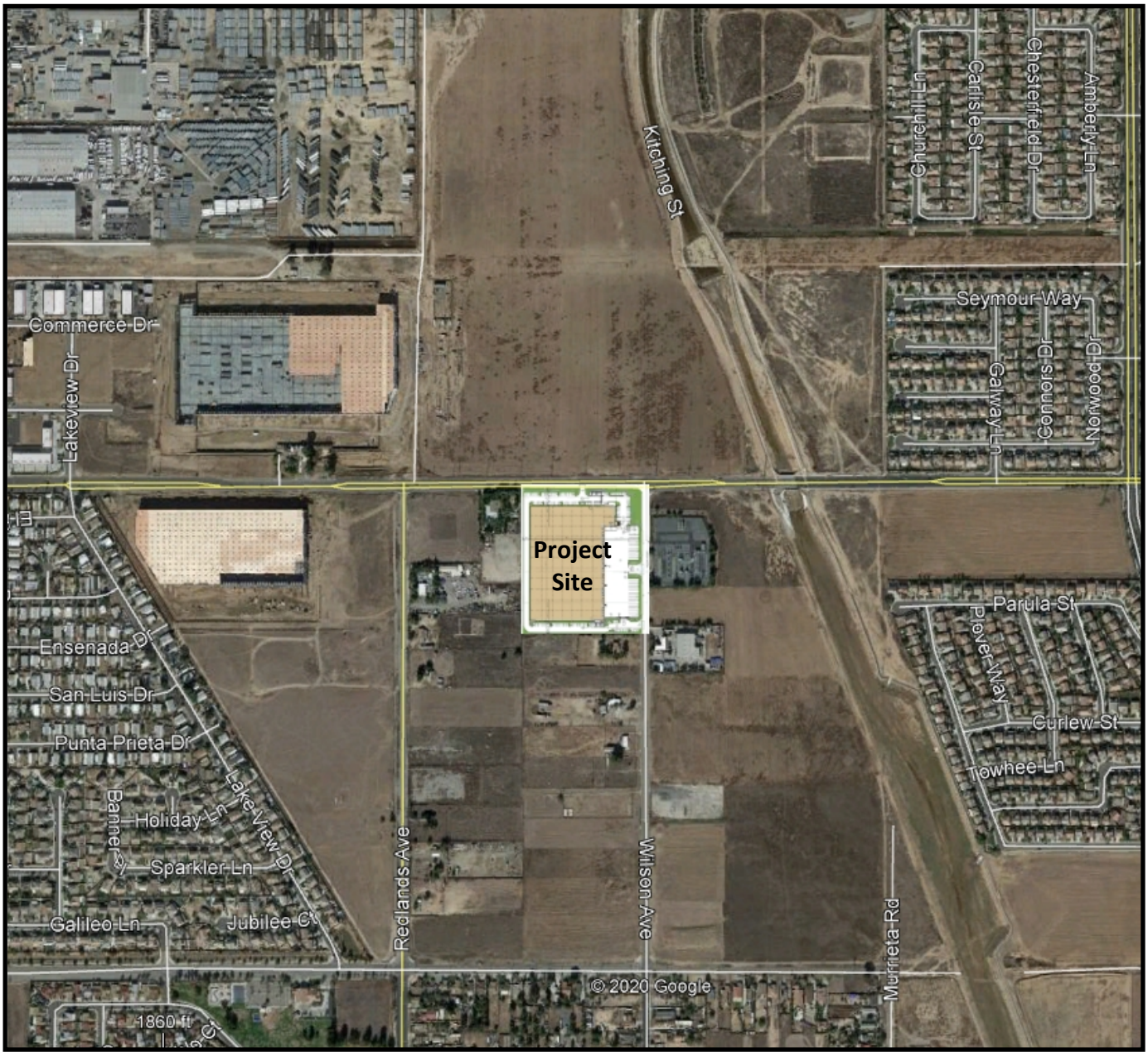


Figure 2
Local Map View

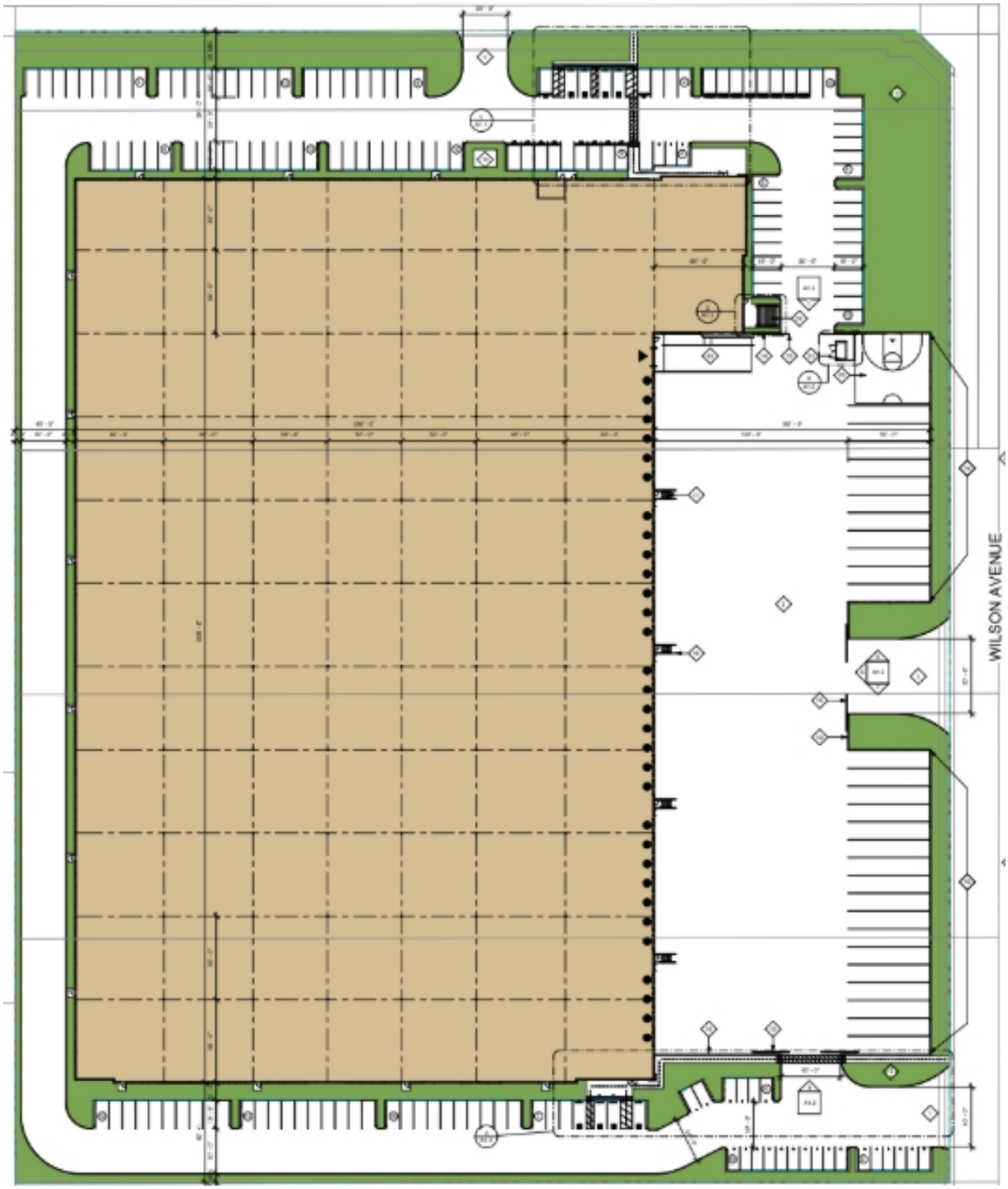


Figure 3
Site Plan

SECTION 2: HEALTH RISK ASSESSMENT

An HRA is a guide that helps determine whether the risks from current or future exposures to a toxic chemical or substance in the environment could affect a population's health. In general, the quantification of risk from the development of a project depends on the following factors:

- Identification of the toxic air contaminants (TACs) that may be present in the air;
- Estimation of the amount of TACs released from all emission sources using emission models;
- Estimation of the airborne concentrations of TACs in the geographic area of concern using air dispersion models using information about emissions, source locations, weather, and other factors; and
- Estimation of the level of exposure to different concentrations of the TACs at different geographic locations and their consequential health impacts.

Thus, an HRA identifies the TACs that could affect public health, identifies the sources and quantities of the TAC emissions, estimates where the emissions are transported by prevailing meteorological conditions, and assesses the consequential health impacts to the identified exposures. As noted above, the TAC of most concern regarding the Project is the emissions' of DPM.

The State of California Office of Environmental Health Hazards Assessment (OEHHA) has developed health risk assessment methods. As defined under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588 [Chapter 1252, Statutes of 1987, California Health and Safety Code Section 44306]),

> "A health risk assessment means a detailed, comprehensive analysis prepared pursuant to Section 44361 to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure."

Estimates of health risk and hazards that could potentially affect nearby sensitive receptors from the DPM emissions were made using the methodology described below. The methodology included assumptions regarding emission source quantification, configurations and locations, receptor locations, air dispersion modeling, and health risk modeling. For purposes of this HRA, DPM was assumed to be comprised of PM_{10} vehicle exhaust emissions.

2.1 - Emission Inventory Development

The first step to carry out the HRA involves identifying and quantifying the sources of operational DPM air emissions from the Project, also termed an emission inventory. Each piece of equipment that emits DPM is identified in terms of its location and physical characteristics (release height, release temperature, etc.) and the chemical nature of the emissions. The predominant sources of DPM emissions resulting from the Project's operation derive from the diesel truck traffic that travels to and from and within the Project site each day. These emission sources are identified below.

2.1.1 Estimation of Heavy-Duty Diesel Truck DPM Emissions

Estimates of the heavy-duty diesel truck DPM emissions are based on an emission factor and an activity level. An emission factor quantifies the amount of air emission for a specific activity, such as a gram of DPM (as PM_{10} exhaust) emitted per vehicle mile traveled or per hour of idling while the activity level is defined as the number of miles traveled or the amount of time a vehicle spends idling.

Emissions from motor vehicles can be characterized as follows:

- Combustion emissions (gram/mile or gram/hour for idling) resulting from diesel fuel combustion are the primary source of DPM emissions. The ARB EMFAC2017 mobile source emission model provides emission rates for user-defined vehicle speeds, fuel type, vehicle class, and model year.

The emissions of DPM from mobile sources are calculated as follows for running exhaust emissions and idling emissions:

$$\text{Running Exhaust Emissions}_{RE} = \sum_{i=1}^{n} (VMT_i \times EF_i)$$

$$\text{Idling Emissions}_{ID} = \sum_{i=1}^{n} \left(IdNum_i \times T_i \times EF_{idling}\right)$$

Where:

$Emissions_{RE}$ = running exhaust emissions summed over all vehicle classes (grams/day)
$Emissions_{ID}$ = idling emissions summed over all vehicle classes (grams/day)
EF_i = running exhaust emission factor for each vehicle type at a specific vehicle speed (g/mi)
EF_{idling} = idling emission factor for each vehicle class (g/hour)
VMT_i = total number of vehicle miles summed over all vehicle classes (miles per day)
$IdNum_i$ = number of idling vehicles by vehicle class
T_i = idling hours summed over all vehicle classes (hours per day)
n = number of vehicle classes
$_I$ = vehicle class

Mobile Source Activity Levels

The motor vehicle activity levels were estimated using the vehicle trip information provided in the Project Traffic Impact Memorandum[7]. This HRA focused on the potential health impacts from the operation of all heavy-duty diesel truck trips associated with the Project's operation since DPM from these large trucks comprise about 99 percent of the DPM emissions from the Project's motor vehicles. Table 1 summarizes the Project's daily vehicle trips based on information derived from the project Traffic Impact Memorandum. Table 2 presents the percentage of heavy-duty truck trips that are diesel-fueled for Riverside County in 2022, as derived from the EMFAC2017 mobile source emission model. Table 3 presents the number of heavy-duty diesel trips for the Project based on the total number of vehicle trips and the diesel vehicle percentages. As noted from these tables, heavy-duty trucks comprise 15.6 percent of the vehicle fleet or 83 vehicle trips per day. Of this total, 78 trips per day are heavy-duty diesel trips.

[7] EPD Solutions, Inc. 2020. Traffic Impact Memorandum, EPDS September 30, 2020

Table 1: Project Daily Operational Vehicle Trips

Warehouse		
Area	**Trip Rate**	
248.360 TSF	2.13 Trips/TSF	
Fleet Mix	**Percentage of Fleet**	**Vehicle Trips per day**
Passenger Cars (LDA,LDT1,LDT2, MDV)	84.4	435
2-axle trucks (LDTT1, LHDT2)	1.1	7
3-axle trucks (MHDT)	2.2	13
4 and 5+axle trucks (HHDT)	12.3	74
Total	100.0	529

LDA = light duty automobile, LDT1 and LDT2 = light duty trucks, MDV = medium duty vehicle,
LHDT1 and LHDT2 = light heavy-duty trucks, MHDT = medium heavy-duty truck,
HHDT = heavy heavy-duty truck
TSF = thousand square feet
Source: Traffic Impact Memorandum, EPDS September 30, 2020

Table 2: Diesel Vehicle Fleet

Type of Vehicle	Diesel Fuel Vehicles (% of Vehicle Trips)
Light-heavy duty truck (LHDT1)	50.4
Light-heavy duty truck (LHDT2)	71.3
Medium-heavy duty truck (MHDT)	90.0
Heavy-heavy duty truck (HHDT)	100.0
Source: see Attachment	

Table 3: Number of Daily Project Diesel Vehicle Trips

Type of Vehicle	Daily Diesel Vehicle Trips (trips/day)
Light-heavy duty truck (LHDT1)	3
Light-heavy duty truck (LHDT2)	0
Medium-heavy duty truck (MHDT)	12
Heavy-heavy duty truck (HHDT)	74
Total	91
Source: see Attachment	

The Project's heavy-duty diesel trucks operational emissions were estimated for vehicle travel while on the Project site and offsite as the trucks travel on the local roadway network. For travel within the Project site, all vehicles were assumed to travel at 5 miles/per hour. For travel offsite, all heavy-duty diesel trucks

were assumed to travel at 25 miles per hour. Also, all heavy-duty trucks were assumed to idle for 15 minutes per day in accordance with the recommendations from the SCAQMD. The Project was assumed to operate 24 hours per day.

DPM Emission Factors

The DPM emission factors (as PM_{10} exhaust emissions) were derived from the ARB EMFAC2017 mobile source emission model in terms of grams per mile (grams/VMT) for the running exhaust emissions and grams per idle-hour (g/idle-hr) for idling emissions. The DPM emission factors were obtained for Riverside County for the Project's opening year of 2022. The 2022 emission factors were assumed to remain constant for all future years beyond 2022. The use of 2022 emission factors would overstate potential future impacts since this approach does not consider that the emissions will decrease in future years due to fleet turnover or cleaner technology with lower emissions that will take place after 2022.

Table 4 presents the DPM (as PM_{10} exhaust) emission factors that were applied in this HRA.

Table 4: DPM Emission Factors

Type of Vehicle	Idling Emission Factor (g/idle-hr)	Running Exhaust @ 5 mph (g/mi)	Running Exhaust @ 25 mph (g/mi)
Light-heavy duty truck (LHDT1)	0.787	0.075	0.027
Light-heavy duty truck (LHDT2)	0.787	0.068	0.026
Medium-heavy duty truck (MHDT)	0.147	0.069	0.035
Heavy-heavy duty truck (HHDT)	0.015	0.041	0.016
Emission factors for Riverside County in 2022 Source: see Attachment			

Onsite vehicles were assumed to enter/depart the Project at the eastern driveway with half the vehicle trips to the northern half of the loading docks and the other half to the southern half of the loading docks. The offsite vehicle trip distribution on the local roadway network was not provided as part of the project Traffic Impact Memorandum. Therefore, it was assumed that the principal offsite truck travel route was from the Project to the I-215 freeway via Wilson Avenue, Rider Street, Perris Boulevard, and the Ramona Expressway. Figure 4 provides the locations of the onsite and offsite heavy-duty diesel truck emission sources.

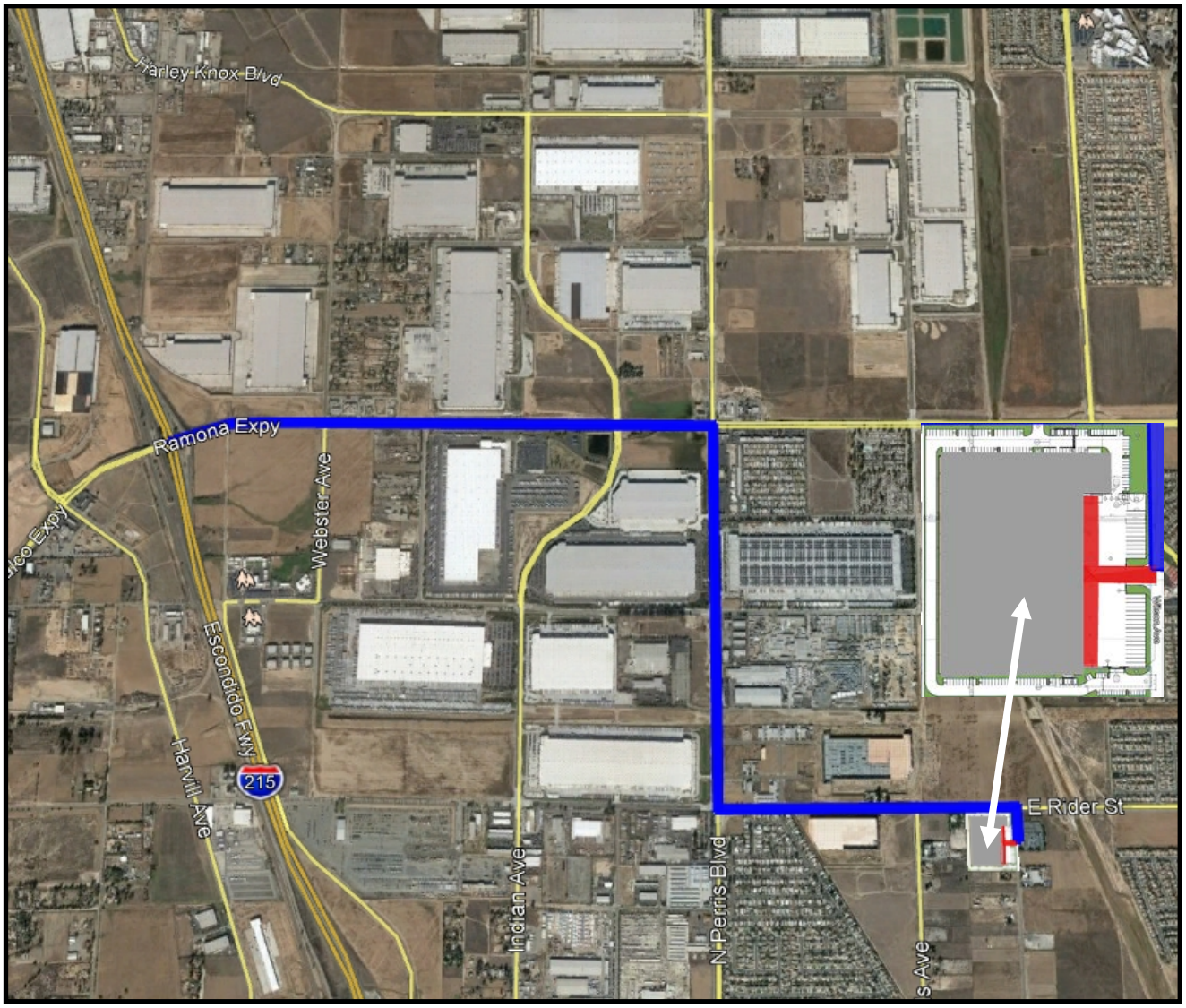


Figure 4
Locations of Project DPM Mobile Emissions

Table 5: DPM Emissions from Project Heavy-Duty Diesel Emission Sources (2022 Analysis Year)

Emission Source	Vehicles per day	Weighted Emission Factor(1) (g/hr)	Total Daily Idling Time (hours/day)	Total Emissions (g/sec)
Diesel Truck Idle	44	0.058	11.1	7.44E-06
Emission Source	**Vehicle Trips per day**	**Weighted Emission Factor(1) (g/mi)**	**Total Daily VMT (miles/day)**	**Total Emissions (g/sec)**
Onsite Diesel Truck Travel (Drwy to loading docks)	88	0.046	7.07	3.76E-06
Offsite Diesel Truck Travel Drwy>Rider St>Perris Blvd>Ramona Exprwy>I215	88	0.019	289.0	6.26E-05

Note:
(1) The weighted emission factors were derived from the relative number of vehicle trips and their corresponding emission factors
Source: see Attachment

2.2 - Atmospheric Dispersion Methodology

Atmospheric dispersion modeling is the mathematical simulation of how air pollutants disperse in the ambient atmosphere. The modeling is performed with computer programs that solve the mathematical equations and algorithms that simulate the air pollutant dispersion. The air dispersion model uses emissions from various emission sources and meteorological data such as wind speed and direction, temperature, and atmospheric mixing rates to estimate the air pollutant impacts at locations where the emissions' impacts are to be assessed (referred to as receptor locations).

Table 6 provides the general assumptions applied in the AERMOD model. Table 7 summarizes the assumptions used to configure the various operational emission sources analyzed in this HRA. The meteorological data were taken from the SCAQMD Perris monitoring station for the time period 2010, 2011, 2014, 2015, and 2016 and is considered representative of the project site's meteorological conditions.

Table 6: General Modeling Assumptions

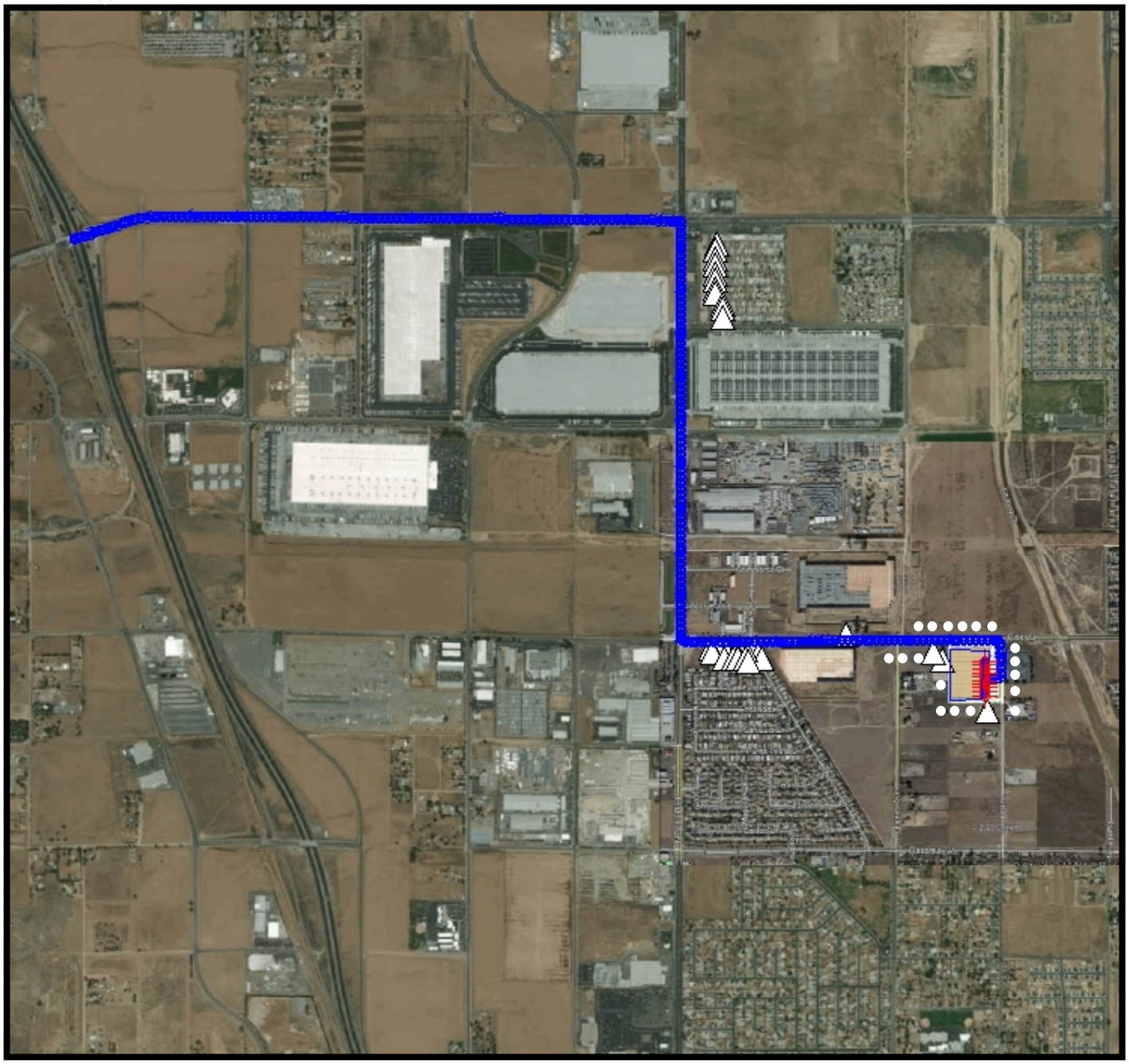
Feature	Assumption
Terrain processing	● Complex terrain; elevations were obtained for the project site using the EPA AERMAP terrain data pre-processor
Land Use	● Urban based on land use patterns surrounding the project site
Meteorological Data	● Perris, CA for the years 2010, 2011, 2014, 2015, 2016 from the SCAQMD as representative of meteorological conditions at the Project site
Receptor locations and heights	● Closest sensitive receptors placed at existing residences located 115 feet from the northwest corner of the Project and 50 feet to the south of the Project at ground level ● Receptors placed at existing residences along the offsite vehicle travel routes at residential locations at ground level
Source: see Attachment	

Table 7: Summary of Operational Emission Source Configurations

Emission Source Type	Geometric Configuration	Relevant Assumptions
Onsite Diesel Vehicle Traffic	Line Volume Source	• Stack release: height – 10.3 feet; plume height = 20 feet, line source width – 24 feet (as per USEPA Haul Truck Methodology) • All vehicles access the Project from the east driveway along Wilson Avenue • Vehicle types: see Table 3 • Emission factor: ARB EMFAC 2017; DPM (as PM_{10} exhaust) emission factors at 5 mph for 2022 for Riverside County; no credit for future emission factors • Operations: 24/7
Onsite Diesel Truck Idling	Point Sources located at loading docks	• Stack release characteristics ➢ Stack height: 12 feet ➢ Stack diameter: 0.3 feet ➢ Stack velocity: 115 miles per hour ➢ Stack temperature: 366^{o}K • Idle time: 15 minutes per truck per day • Vehicle type: heavy-duty diesel delivery trucks • Emission factor: ARB EMFAC 2017; idle emission factor for 2022 for Riverside County; no credit for future emission factors • Operations: 24/7
Offsite Vehicle Traffic	Line Volume Sources	• Stack release height: 10.3 feet; plume height = 20 feet, line source width = 72 feet (as per USEPA Haul Truck Methodology) • Emission factor: ARB EMFAC 2017; DPM (as PM_{10} exhaust) emission factors at 25 mph for heavy-duty diesel trucks for 2022, Riverside County; no credit for future emission factors • Vehicle type: see Table 3 • Travel to/from East Driveway; see Figure 4 for offsite vehicle travel routes • Operations: 24/7
Source: see Attachment		

2.2.1 Receptors

The SCAQMD defines a sensitive receptor as any residence, including private homes, condominiums, apartments, living quarters, schools, preschools, daycare centers, and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor also includes long term care hospitals, hospices, prisons, dormitories, or similar live-in housing. For purposes of this HRA sensitive receptors were placed within the air dispersion model at the location of existing residences near the Project site and at locations along the offsite Project vehicle travel route. The nearest sensitive receptors were located at existing residences, 115 feet at the northwest corner of the Project on East Rider Street, and 50 feet to the south of the Project on Wilson Avenue. The nearest worker receptors were places along the boundaries of the Project and at the electric utility station located across Wilson Avenue,50 feet east of the Project. Figure 5 shows the locations of the sensitive receptors included in the HRA.



Sensitive Residential Receptors

Worker Receptors

Figure 5
Locations of Modeled Receptors

2.3 - Health Risk Estimation Methodology

2.3.1 Significance Thresholds

Project-Level

The City of Perris has not adopted a numerical significance threshold for cancer risk or non-cancer hazards. Therefore, the significance thresholds recommended by the SCAQMD were adopted for this assessment. The relevant significance thresholds are provided below:

- Cancer Risk: ten (10) persons per million population as the maximum acceptable incremental cancer risk due to exposure to toxic air contaminants (TAC)
- Non-cancer Hazard Index: 1.0

Cumulative

The SCAQMD 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 (SCAQMD 2003)[8]. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. Therefore, the project-specific (noted above) and cumulative significance thresholds are the same. As a result, projects that do not exceed the project-specific thresholds are not considered to be cumulatively significant.

2.3.2 Cancer Risk

Cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer due to exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a 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 a million implies a likelihood that up to ten people in a population of one million equally exposed people could contract cancer if exposed continuously (24 hours per day) to the levels of TACs over a specified duration of time. This risk is an excess cancer risk that is in addition to any environmental cancer risk borne by a person not exposed to these air toxics. The California Office of Environmental Health Hazards Assessment (OEHHA) provides guidance on the application of the cancer risk determination methodology.[9]

The exposure dose is the amount of a chemical taken into the body at a given time. In particular, the exposure dose through inhalation ($Dose_{air}$) is a function of the breathing rate, the exposure frequency, and the concentration of exposures. Breathing rates change over time for different age groups and are determined for specific age groups. The $Dose_{air}$ is calculated for each of the following age groups: 3rd trimester to birth, 0 to 2, 2 to 16, and 16 to 30 years of age and the risks summed together to provide an estimate of lifetime cancer risks. To estimate the residential cancer risk, the $Dose_{air}$ is estimated by

[8] South Coast Air Quality Management District (SCAQMD) 2003. White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution

[9] California Office of Environmental Health Hazards Assessment (OEHHA) 2015. Air Toxics Hot Sport Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk. Website: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

applying the following equation to the DPM concentration at each receptor as calculated by the air dispersion model:

$$Dose_{air} = C_{DPM} \times DBR_i \times A \times EF_i \quad \text{(EQ-1)}$$

Where:

$Dose_{air}$ = dose through inhalation (mg/kg/day)
C_{DPM} = period average concentration of DPM as estimated by the air dispersion model ($\mu g/m^3$)
DBR = daily breathing rate for each age group (liters/kg-day)—see Table 8
A = Inhalation absorption factor (unitless = 1)
EF = exposure frequency (days per year)
i – number of age groups

The dose is multiplied by the cancer potency factor, the age sensitivity factors (ASF), the exposure duration (ED), and the frequency of time spent at home (FAH, for sensitive/residential receptors only) divided by averaging time (AT) to arrive at an estimate of cancer risk:

$$\text{Cancer Risk} = \sum_{I=1}^{n} Dose_{air,\,i} \times CPF \times ASF_i \times ED_i \times FAH_i/AT \quad \text{(EQ-2)}$$

Where:

Cancer Risk = Total individual excess inhalation cancer risk, defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular source for specified exposure durations; this risk is summed over all age groups; cancer risk is expressed in terms of risk per million exposed individuals.

$Dose_{air,i}$ = inhalation dose through inhalation (mg/kg-day)
CPF = inhalation cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF_i = age sensitivity factors (see Table 8)
ED_i = exposure duration (years)—see Table 8
AT = averaging time of lifetime cancer risk (70 years)
FAH_i = fraction of time spent at home—see Table 8
n = number of age groups

For this HRA's purposes, the 30-year exposure duration for sensitive/residential receptors, consistent with the OEHHA/SCAQMD guidance, was assumed to span the third trimester's time period before birth in 2022 (the Proposed Project's opening year) to the year 2051. For worker receptors, a 25-year exposure duration was assumed to span the time from 2022 to 2046.

Table 8 provides the OEHHA-recommended values for the various cancer risk parameters shown in Equation 1 and Equation 2. For DPM, the value of the CPF is 1.1 milligrams per kilogram per day.

Table 8: Exposure Assumptions for Cancer Risk – OEHHA Guidance

Age Group	Exposure Frequency, EF		Exposure Duration, ED (years)	Age Sensitivity Factors (ASF)	Time at Home Factor (TAH) (%)	Daily Breathing Rate[(1)] (DBR) (L/kg-day)
	Hours/day	Days/year				
Sensitive/Residential Receptor—Pre-birth to Adult						
3rd Trimester to Birth	24	350	0.25	10	85	361
0 to 2 years	24	350	2	10	85	1,090
2 to 16 years	24	350	14	3	72	745
16 to 30 years	24	350	14	1	73	335
Worker Receptor						
16-41 years	12	250	25	1	1	250

Note:
(1) Daily breathing rates are representative of the 95th percentile breathing rates
(L/kg-day) = liters per kilogram body weight per day
Source: OEHHA 2015

2.3.3 Chronic Non-cancer Hazard

TACs can also cause chronic (long-term) effects on non-cancer illnesses such as reproductive effects or birth defects, or adverse environmental effects. Non-cancer health risks are conveyed in terms of the hazard index (HI), a ratio of the predicted concentration of the facility's reported TAC emissions to a concentration considered acceptable to public health professionals. A significant risk is defined as an HI of 1 or greater. A HI of less than 1 indicates that no significant health risks are expected from the facility's TAC emissions. The following equation gives the relationship for the non-cancer hazards for TACs.

$$HI = C_{ann}/REL \qquad \text{(EQ-3)}$$

Where:

HI = Hazard Index: an expression of the potential for chronic non-cancer health risks
C_{ann} = Annual average TAC concentration ($\mu g/m^3$)
REL = Reference Exposure Level: the DPM concentration at which no adverse health effects are anticipated

As predicted by the air dispersion model, annual concentrations of DPM are used to estimate chronic non-cancer hazards. The OEHHA has defined a REL for DPM of 5 $\mu g/m^3$.

The cancer risk and chronic non-cancer hazard methodology described above in Equations 1 to 3 and in Table 8 have been incorporated into the ARB Hot Spots Analysis and Reporting Program (HARP2) model that was used to estimate the Project's operational health impacts. The principal assumptions employed in the HAPR2 model are shown in Table 9.

Table 9: HARP2 Model Assumptions

Feature	Assumption
DPM Concentrations	● Period average and 1-hour average concentrations of DPM from the AERMOD air dispersion model
Individual Cancer Risk	● 30-year exposure duration with age-sensitivity factors ● High-end 95th percentile daily breathing rates ● Time at home factors (see Table 8) ● Pathways: inhalation, soil ingestion, dermal, mother's milk, homegrown produce ● Deposition rate: 0.02 m/sec
Chronic Non-cancer Hazard	● OEHHA Derived Method
Pathways	● Inhalation, soil ingestion, mother's milk, homegrown produce
Source: see Attachment	

2.4 - Results of the Health Risk Assessment

Table 10 presents a summary of the cancer risks and chronic non-cancer hazards resulting from the Project's operational DPM emissions along with the SCAQMD health risk significance thresholds. As noted from Table 10, the estimated maximum cancer risk for a sensitive receptor is 0.8 in one million and 0.4 in one million for a worker receptor. These risk levels are less than the 10 in one million significance threshold. Figure 6 shows the location of the maximum estimated sensitive residential cancer risk. Also, the estimated non-cancer hazard index is less than the significance threshold, as well. Therefore, the Project's operation would not have a significant health impact, and no mitigation is required.

Table 10: Summary of Proposed Project Health Risk Assessment

Location[1]	Cancer Risk (per million)		Exceeds Significance Threshold?
	Maximum Lifetime Proposed Project Risk	Significance Threshold	
Maximum Impacted Sensitive Receptor	0.8	10	No
Maximum Impacted Worker Receptor	0.4	10	No
Location[1]	**Chronic Non-Cancer Hazard Index**		**Exceeds Significance Threshold?**
	Estimated Hazard Index	**Significance Threshold**	
Maximum Impacted Sensitive Receptor	<0.01	1.0	No

Note:
[1] The maximum impacted sensitive receptor is located at existing residences west of the Project along East Rider Street near the intersection with West Perris Boulevard
The maximum impacted worker receptor is located to the east of the Project across Wilson Avenue
Source: Attachment

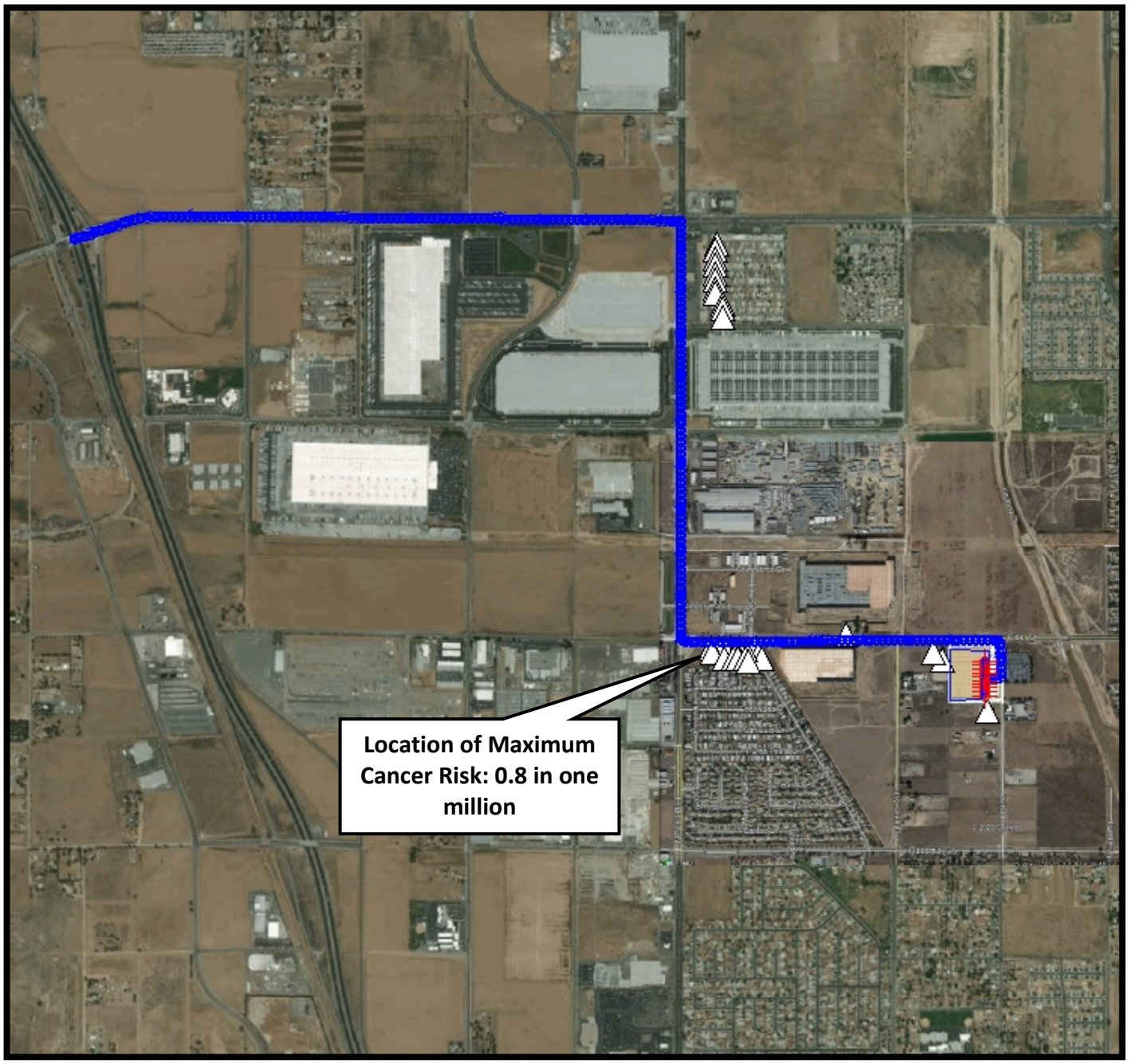


Figure 6
Location of the Maximum Lifetime Cancer Risk

Attachment
Supporting Technical Documentation

Core 5 Rider Street Project **2022**
Emission Assumptions **DPM** Emissions

Emission Factors

1) Vehicle Emissions

a) Truck and Auto Traffic
(1) EMFAC2017
(a) Calculations for Riverside County
(b) Truck Mix
Trip generation derived from EPDS Trip Generatin Memorandum
EMFAC2017 to derive the % of diesel truck vehicles
(d) Vehicle Travel Speed
Onsite Travel 5 mph
Offsite Travel 25 mph for heavy duty haul trucks
(e) Truck Idle time: 15 minutes (truck idling applies to LHDT1, LHDT2, MHDT, and HHDT diesel vehicles)
(f) Emission factors for DPM emissions
(g) Emissions calculated for 2022

Traffic Allocation

1) Onsite travel emssions generated from vehicles traveling to warehouse building loading docks
2) Onsite idling emissions generated for heavy duty diesel trucks
3) Offsite travel trips assumed to all travel fro,m the project to thr I215 Freeway via Rider St, Berris Blvd, and Ramona Expry

Emission Source Configuration

1) Vehicle traffic represented by a line source
2) Vehiocle idling represented by a series of point sources
3) Onsite idling represented as a line source

Onsite Travel Links

Driveway	Travel Distance (m)
Building 1 East Side North Half of Loading Docks	122
Building 1 East Side South Half of Loading Docks	135

Off site Travel Links

Diesel Vehicles	Travel Distance (m)	% Trips
Offsite1: Project Drwy>Rider St>Perris Blvd>Ramona Exprwy>I215	5250	100%

Other Input Parameters

Facility Operations for Warehouses (hr/day): 24

Core 5 Rider Street Project
Emissions Summary for Travel and Idling

2022
DPM

Onsite Diesel Running Emissions

Location / AERMOD Source ID - Onsite Exhaust		Diesel Emissions (g/sec)
Building 1 East Side North Loafing Docks	(ONEXHN)	1.78E-06
Building 1 East Side South Loading Docks	(ONEXHS)	1.97E-06
Total		**3.75E-06**

Onsite Diesel Idling Onsite - Idling

2	Diesel Emissions (g/sec)	Number of Idling Sources	Emissions per Idling Source (g/sec)
Building 1 - East Side North Docks ONIDN1-5	3.72E-06	5	7.44E-07
Building 1 - East Side South Docks ONIDS1-5	3.72E-06	5	7.44E-07
TOTAL	**7.44E-06**		

Offsite Diesel Running Emissions

Offsite DSL Emissions/AERMOD ID (OFFB1)	DSL Emissions
Offsite1: Project Drwy>Rider St>Perris Blvd>Ramona Exprwy>I215	6.25E-05

Core 5 Rider Street Project

Mobile Source Operational Mobile Source Emission Summary

Pollutant: **DPM**
Year: **2022**

Emission Source	Description	Weighted Emission Factor (g/hr)	Total Daily Idling Time (hours/day)	Total Emissions (g/sec)
Idle	Onsite Vehicle Idling Emissions	0.058	11.08	7.44E-06

		Weighted Emission Factor (g/mi)	Total Daily VMT (miles/day)	Total Emissions (g/sec)
Onsite	Onsite Vehicle Travel (Entrance to Loading Docks)	0.046	7.07	3.75E-06
Offsite1	Project Drwy>I215 Freeway	0.019	288.98	6.25E-05

Core 5 Rider Street Project **2022**
Vehicle Trip Allocation to Buildings

Building	Building Size Total (sq-ft)
Building 1	248,442
Total	248,442

Trip Generation - High Cube Warehouse

Trip Generation Rate 2.13 trips/TSF as per Traffic Trip Generation Memorandum

Building	trips/day (Non-PCE)
Building 1	529
Total	529

Diesel Vehicle Allocation for Warehouse

	Vehicle Distribution	Daily Trip Rate (trips/TSF)	Daily Trips	EMFAC2017 Vehicle Default	Adjusted Fleet	Number of EMFAC2017 % Diesel	Number of Daily Diesel Trips	Total Number Daily GAS Trips	Total Number of Diesel+GAS Trips
LDA (Passenger Car)	84.40%	1.75	435	52.7%	50.36%	1.0%	3	257	259
LDT1				5.3%	5.07%	0.0%	0	26	26
LDT2				17.0%	16.19%	0.7%	0	83	83
MDT				13.4%	12.79%	2.3%	0	66	66
LHDT1 (2 axle truck)	1.10%	0.03	7	2.4%	0.86%	50.4%	3	3	6
LHDT2				0.6%	0.24%	71.3%	0	2	2
MHDT (3 axle truck)	2.20%	0.052	13	1.9%	2.20%	90.0%	12	1	13
HHDT (4 and 5+ axle trucks)	12.30%	0.298	74	6.7%	12.30%	100.0%	74	0	74
	100.0%		529	100.0%	100.0%	Total All Vehicles	91	438	529
						Total Trucks	89	6	94

Vehicle distribution extracted from the Project Trip Generation Memorandum, EPD Solutions, October 7, 2020
% Diesel taken from EMFAC2017 for the Riverside County in 2022

Passenger Car	Adjusted Fleet	% Total
LDA (Passenger Car)	50.36%	59.7%
LDT1	5.07%	6.0%
LDT2	16.19%	19.2%
MDT	12.79%	15.1%
	84.40%	100.0%

Trucks	Adjusted Fleet	% Total
LHDT1 (2 axle truck)	0.86%	5.5%
LHDT2	0.24%	1.5%
MHDT (3 axle truck)	2.20%	14.1%
HHDT (4+ axle truck)	12.30%	78.8%
	15.60%	100.0%

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: RIVERSIDE
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. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Catego	Model Year	Speed	Fuel	VMT
RIVERSIDE	2022	LDA	Aggregated	Aggregated	DSL	301308.5
RIVERSIDE	2022	LDT1	Aggregated	Aggregated	DSL	864.4774
RIVERSIDE	2022	LDT2	Aggregated	Aggregated	DSL	64682.45
RIVERSIDE	2022	LHDT1	Aggregated	Aggregated	DSL	691058.9
RIVERSIDE	2022	LHDT2	Aggregated	Aggregated	DSL	266862.2
RIVERSIDE	2022	MDV	Aggregated	Aggregated	DSL	181512.8
RIVERSIDE	2022	T6-MHDT	Aggregated	Aggregated	DSL	974620.3
RIVERSIDE	2022	T7-HHDT	Aggregated	Aggregated	DSL	3904544
RIVERSIDE	2022	LDA	Aggregated	Aggregated	GAS	30295680
RIVERSIDE	2022	LDT1	Aggregated	Aggregated	GAS	3076688
RIVERSIDE	2022	LDT2	Aggregated	Aggregated	GAS	9768782
RIVERSIDE	2022	LHDT1	Aggregated	Aggregated	GAS	680334.7
RIVERSIDE	2022	LHDT2	Aggregated	Aggregated	GAS	107419.4
RIVERSIDE	2022	MDV	Aggregated	Aggregated	GAS	7586688
RIVERSIDE	2022	T6-MHDT	Aggregated	Aggregated	GAS	107896.5
RIVERSIDE	2022	T7-HHDT	Aggregated	Aggregated	GAS	664.5949

	DSL VMT	GAS VMT	Total	%DSL	%GAS	% Total
LDA	301309	30295680	30596989	1.0%	99.0%	52.7%
LDT1	864	3076688	3077552	0.0%	100.0%	5.3%
LDT2	64682	9768782	9833464	0.7%	99.3%	17.0%
LHDT1	691059	680335	1371394	50.4%	49.6%	2.4%
LHDT2	266862	107419	374282	71.3%	28.7%	0.6%
MDV	181513	7586688	7768201	2.3%	97.7%	13.4%
T6-MHDT	974620	107896	1082517	90.0%	10.0%	1.9%
T7-HHDT	3904544	665	3905209	100.0%	0.0%	6.7%
	6385454	51624153	58009607			100.0%

Core 5 Rider Street Project **2022**
Diesel Vehicle Emissions **DPM**

Processes Modeled
Diesel truck exhaust
Diesel truck idling

Facility Operations: 24 **hrs/day, 52weeks/year**
Assumption: one-half truck trips to the northern dock doors and one-half to the southern dock doors on the eastern side of the building

Onsite Roadway Links **DPM Emissions**

Link	Truck Type	Average Speed (mph)	Emission Factor (g/mi)	Trips per day (in and out)	Link Length (m)	Link Length (mi)	Emissions Over Link (g/day)	Daily Emissions (lbs/day)	Average Emissions (g/sec)	Weighted Emission Factor (g/mi)	Total VMT (miles/day)	Total Emissions (g/sec)
	LHDT1	5	0.075	1	122	0.08	8.435E-03	1.86E-05	9.76E-08			
Project DRWY>East Side North Loading Docks	LHDT2	5	0.068	0	122	0.08	2.535E-06	5.58E-09	2.93E-11			
Travel to Building 1 - East side, North (OnExhN)	MHDT	5	0.069	6	122	0.08	3.054E-02	6.73E-05	3.54E-07			
	HHDT	5	0.041	37	122	0.08	1.149E-01	2.53E-04	1.33E-06	0.046	3.358	1.781E-06
				44								
Project DRWY>East Side South Loading Docks	LHDT1	5	0.075	1	135	0.08	9.334E-03	2.06E-05	1.08E-07			
Travel to Building 1 - East side, South (OnExhS)	LHDT2	5	0.068	0	135	0.08	2.805E-06	6.18E-09	3.25E-11			
	MHDT	5	0.069	6	135	0.08	3.380E-02	7.44E-05	3.91E-07			
	HHDT	5	0.041	37	135	0.08	1.272E-01	2.80E-04	1.47E-06	0.046	3.715	1.971E-06
				44								
											7.073	3.75E-06

Diesel truck Idling Emissions **DPM Emissions** **Idle Time (minutes)** 15

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	# Vehicles	Emissions (g/day)	Daily Emissions (lbs/day)	Average Emissions (g/sec)	Weighted Emission Factor (g/hr)	Total Idling Time (hr/day)	Total Emissions (g./sec)
Idle at Building 1 - East Side, North (ONIDN)	LHDT1	0.787	15	1	1.45E-01	3.20E-04	1.68E-06			
	LHDT2	0.787	15	0	4.85E-05	1.07E-07	5.62E-10			
	MHDT	0.147	15	3	1.07E-01	2.35E-04	1.24E-06			
	HHDT	0.015	15	19	6.94E-02	1.53E-04	8.03E-07			
				22	3.21E-01	7.08E-04	3.72E-06	0.058	5.54	3.72E-06
Idle at Building 1 - East Side, South (ONIDS)	LHDT1	0.787	15	1	1.45E-01	3.20E-04	1.68E-06			
	LHDT2	0.787	15	0	4.85E-05	1.07E-07	5.62E-10			
	MHDT	0.147	15	3	1.07E-01	2.35E-04	1.24E-06			
	HHDT	0.015	15	19	6.94E-02	1.53E-04	8.03E-07			
				22	3.21E-01	7.080E-04	3.72E-06	0.058	5.54	3.72E-06

NOTES:
Onsite diesel truck travel emissions as per CARB EMFAC2017 for Riverside County, 5 mph 7.44E-06
Onsite diesel truck Idle emissions as per CARB EMFAC2017 for Riverside County

Core 5 Rider Street Project

Offsite DSL Vehicle Travel Emissions	**DPM**	**2022**
Total Number of Daily DSL Trips	91	
Hours of Operation	24	

Offsite Travel Link, OFFSITE1	**Trip Length (m)**	**% total Trips**
Project Drwy>Rider St>Perris Blvd>Romona Exp>I215	5250	100%

	Number of Trips	**Trip Length (mi)**	**Speed (mph)**	**Emission Factor (g/mi)**	**Emissions (g/sec)**	**Weighted Emission Factor (g/mi)**	**Total Daily VMT (miles/day)**	**Total Emissions (g/sec)**
LHDT1-DSL	3	3.26	25	0.027	2.99E-06			
LHDT2-DSL	0	3.26	25	0.026	9.61E-10			
MHDT-DSL	12	3.26	25	0.035	1.54E-05			
HHDT-DSL	74	3.26	25	0.016	4.41E-05			
Total	89				**6.25E-05**	0.019	288.98	6.25E-05

Emission Factor derived from EMFAC2017 for Riverside County in 2021

EMFAC2017 Running Exhaust and Idling Emission Factors - Riverside County 2022

Emission Factors @ 5 mph

Vehicle Class	RunEx Emission Factor (g/mi)
LHDT1-DSL	0.075
LHDT2-DSL	0.068
MHDT-DSL	0.069
HHDT-DSL	0.041

Emission Factors @ 25 mph

Vehicle Class	RunEx Emission Factor (g/mi)
LHDT1-DSL	0.027
LHDT2-DSL	0.026
MHDT-DSL	0.035
HHDT-DSL	0.016

Idling Emissions

Vehicle Class	Emission Factor (g/hr)
LHDT1-DSL	0.787
LHDT2-DSL	0.787
MHDT-DSL	0.147
HHDT-DSL	0.015

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX

♀ *** AERMOD - VERSION 19191 *** *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc *** 10/07/20
*** AERMET - VERSION 16216 *** *** *** 17:03:08

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** MODEL SETUP OPTIONS SUMMARY ***

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

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

**Model Uses URBAN Dispersion Algorithm for the SBL for 268 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 2189641.0 ; 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 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 268 Source(s); 1 Source Group(s); and 31 Receptor(s)

with: 10 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 258 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 PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 442.00 ; 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 = 4.0 MB of RAM.

**Input Runstream File: aermod.inp
**Output Print File: aermod.out

**Detailed Error/Message File: Core5_DPM.err
**File for Summary of Results: Core5_DPM.sum

♀ *** AERMOD - VERSION 19191 *** *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc *** 10/07/20
*** AERMET - VERSION 16216 *** *** *** 17:03:08
PAGE 2
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

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

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

1.54, 3.09, 5.14, 8.23, 10.80,

♀ *** AERMOD - VERSION 19191 *** *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc *** 10/07/20
*** AERMET - VERSION 16216 *** *** *** 17:03:08
PAGE 3
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

Surface file: ..\PerrisADJU\PERI_V9_ADJU\PERI_v9.SFC Met Version: 16216
Profile file: ..\PerrisADJU\PERI_V9_ADJU\PERI_v9.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 3171 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2010 Year: 2010

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
10	01	01	1	01	-7.9	0.125	-9.000	-9.000	-999.	106.	21.2	0.19	0.61	1.00	1.30	335.	9.1	282.5	5.5
10	01	01	1	02	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	142.	9.1	280.9	5.5
10	01	01	1	03	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	324.	9.1	280.4	5.5
10	01	01	1	04	-1.3	0.064	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	294.	9.1	278.8	5.5
10	01	01	1	05	-3.9	0.088	-9.000	-9.000	-999.	62.	15.0	0.19	0.61	1.00	0.90	205.	9.1	278.1	5.5
10	01	01	1	06	-1.3	0.065	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	3.	9.1	277.0	5.5
10	01	01	1	07	-8.0	0.125	-9.000	-9.000	-999.	106.	21.0	0.19	0.61	1.00	1.30	99.	9.1	277.0	5.5
10	01	01	1	08	-3.3	0.086	-9.000	-9.000	-999.	61.	16.8	0.19	0.61	0.54	0.90	319.	9.1	278.8	5.5
10	01	01	1	09	20.1	0.128	0.307	0.010	49.	110.	-9.0	0.19	0.61	0.33	0.90	239.	9.1	284.2	5.5
10	01	01	1	10	56.7	0.087	0.560	0.010	107.	62.	-1.0	0.19	0.61	0.26	0.40	188.	9.1	289.2	5.5
10	01	01	1	11	81.5	0.323	0.867	0.008	277.	441.	-35.9	0.19	0.61	0.23	2.70	310.	9.1	290.9	5.5
10	01	01	1	12	97.1	0.281	1.058	0.008	421.	357.	-19.7	0.19	0.61	0.22	2.20	357.	9.1	293.1	5.5
10	01	01	1	13	92.2	0.279	1.117	0.008	523.	354.	-20.4	0.19	0.61	0.22	2.20	356.	9.1	293.8	5.5
10	01	01	1	14	77.6	0.275	1.102	0.008	595.	347.	-23.2	0.19	0.61	0.23	2.20	50.	9.1	294.2	5.5
10	01	01	1	15	54.9	0.230	1.006	0.008	640.	266.	-19.2	0.19	0.61	0.27	1.80	53.	9.1	293.8	5.5
10	01	01	1	16	12.3	0.206	0.613	0.008	648.	225.	-61.5	0.19	0.61	0.36	1.80	11.	9.1	292.5	5.5
10	01	01	1	17	-3.6	0.087	-9.000	-9.000	-999.	71.	15.6	0.19	0.61	0.64	0.90	351.	9.1	290.4	5.5
10	01	01	1	18	-3.8	0.087	-9.000	-9.000	-999.	62.	15.2	0.19	0.61	1.00	0.90	186.	9.1	287.5	5.5
10	01	01	1	19	-3.8	0.087	-9.000	-9.000	-999.	62.	15.2	0.19	0.61	1.00	0.90	275.	9.1	285.9	5.5
10	01	01	1	20	-1.2	0.064	-9.000	-9.000	-999.	39.	18.1	0.19	0.61	1.00	0.40	181.	9.1	285.4	5.5

```
10 01 01   1 21   -7.8  0.125 -9.000 -9.000 -999.  106.    21.3  0.19   0.61   1.00    1.30  318.    9.1  284.9    5.5
10 01 01   1 22   -3.8  0.088 -9.000 -9.000 -999.   62.    15.1  0.19   0.61   1.00    0.90  196.    9.1  283.1    5.5
10 01 01   1 23   -3.8  0.088 -9.000 -9.000 -999.   62.    15.1  0.19   0.61   1.00    0.90  330.    9.1  281.4    5.5
10 01 01   1 24   -7.9  0.125 -9.000 -9.000 -999.  106.    21.2  0.19   0.61   1.00    1.30  332.    9.1  280.9    5.5


 First hour of profile data
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 10 01 01 01    5.5 0 -999.  -99.00   282.6   99.0  -99.00  -99.00
 10 01 01 01    9.1 1  335.    1.30  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
♀ *** AERMOD - VERSION  19191 ***   *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc                ***       10/07/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       17:03:08
                                                                                          PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                          *** THE SUMMARY OF MAXIMUM PERIOD ( 43824 HRS) RESULTS ***


                         ** 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      0.00136 AT (  479199.96,  3743321.35,   442.00,   442.00,    0.00)  DC
          2ND HIGHEST VALUE IS      0.00129 AT (  479227.91,  3743319.70,   442.00,   442.00,    0.00)  DC
          3RD HIGHEST VALUE IS      0.00124 AT (  479269.00,  3743318.88,   442.00,   442.00,    0.00)  DC
          4TH HIGHEST VALUE IS      0.00122 AT (  479248.46,  3743318.06,   442.00,   442.00,    0.00)  DC
          5TH HIGHEST VALUE IS      0.00119 AT (  479370.11,  3743318.06,   441.00,   441.00,    0.00)  DC
          6TH HIGHEST VALUE IS      0.00114 AT (  479306.81,  3743316.42,   441.44,   441.44,    0.00)  DC
          7TH HIGHEST VALUE IS      0.00112 AT (  479327.36,  3743315.59,   441.00,   441.00,    0.00)  DC
          8TH HIGHEST VALUE IS      0.00109 AT (  479712.04,  3743372.31,   440.00,   440.00,    0.00)  DC
          9TH HIGHEST VALUE IS      0.00108 AT (  479289.55,  3743313.95,   442.00,   442.00,    0.00)  DC
         10TH HIGHEST VALUE IS      0.00098 AT (  480041.65,  3743300.80,   439.00,   439.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
♀ *** AERMOD - VERSION  19191 ***   *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc                ***       10/07/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       17:03:08
                                                                                          PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

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


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

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

 ALL      HIGH   1ST HIGH VALUE IS      0.00500  ON 10121516: AT (  480041.65,  3743300.80,   439.00,   439.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
♀ *** AERMOD - VERSION  19191 ***   *** C:\temp\Core5\AERMOD\Core5_DPM\Core5_DPM.isc                ***       10/07/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       17:03:08
                                                                                          PAGE   6
 *** 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 14 Warning Message(s)
A Total of 2028 Informational Message(s)

A Total of 43824 Hours Were Processed

A Total of 978 Calm Hours Identified

A Total of 1050 Missing Hours Identified (2.40 Percent)

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

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

SO W320	383	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	384	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	385	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	386	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	387	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	388	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	389	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	390	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	391	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	392	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
ME W186	1011	MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used	0.50
ME W187	1011	MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET	
MX W450	17521	CHKDAT: Record Out of Sequence in Meteorological File at:	14010101
MX W450	17521	CHKDAT: Record Out of Sequence in Meteorological File at:	2 year gap

HARP2 - HRACalc (dated 19044) 10/7/2020 5:08:59 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors set to 0
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
HOMEGROWN CROP PATHWAY SETTINGS

Household type: HouseholdsthatGarden
Fraction leafy: 0.137
Fraction exposed: 0.137

Fraction protected: 0.137
Fraction root: 0.137

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: DBRs changed|FAH changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to: C:\temp\Core5\HARP2\CORE 5 RIDER STREET BUSINESS CENTER PROJECT\hra\HARP2_Core5CancerRisk.csv
Cancer risk total by receptor saved to: C:\temp\Core5\HARP2\CORE 5 RIDER STREET BUSINESS CENTER PROJECT\hra\HARP2_Core5CancerRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v19044 10/7/2020 5:08:59 PM - Cancer Risk - Input File: C:\temp\Core5\HARP2\CORE 5 RIDER STREET BUSINESS CENTER PROJECT\hra\HARP2_Core5HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_F	MMILK_RI	WATER_RI	FISH_RISK	CROP_RISI	BEEF_RISK	DAIRY_RIS	PIG_RISK	CHICKEN_I	EGG_RISK	1ST_DRIVE	2ND_DRIVER
1	ALL		480075.4	3743273	0.00071	9901	DieselExhF	4.84E-07	30YrCance	*	4.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
2	ALL		480041.7	3743301	0.00089	9901	DieselExhF	6.07E-07	30YrCance	*	6.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
3	ALL		480244.7	3743081	0.00083	9901	DieselExhF	5.66E-07	30YrCance	*	5.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
4	ALL		479712	3743372	0.00097	9901	DieselExhF	6.61E-07	30YrCance	*	6.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
5	ALL		479370.1	3743318	0.00106	9901	DieselExhF	7.23E-07	30YrCance	*	7.23E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
6	ALL		479377.5	3743296	0.00068	9901	DieselExhF	4.64E-07	30YrCance	*	4.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
7	ALL		479388.2	3743278	0.00053	9901	DieselExhF	3.61E-07	30YrCance	*	3.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
8	ALL		479327.4	3743316	0.001	9901	DieselExhF	6.82E-07	30YrCance	*	6.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
9	ALL		479306.8	3743316	0.00102	9901	DieselExhF	6.95E-07	30YrCance	*	6.95E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
10	ALL		479289.6	3743314	0.00097	9901	DieselExhF	6.61E-07	30YrCance	*	6.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
11	ALL		479269	3743319	0.00111	9901	DieselExhF	7.57E-07	30YrCance	*	7.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
12	ALL		479248.5	3743318	0.00109	9901	DieselExhF	7.43E-07	30YrCance	*	7.43E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
13	ALL		479227.9	3743320	0.00115	9901	DieselExhF	7.84E-07	30YrCance	*	7.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
14	ALL		479200	3743321	0.00122	9901	DieselExhF	8.32E-07	30YrCance	*	8.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
15	ALL		479204.1	3743300	0.00074	9901	DieselExhF	5.05E-07	30YrCance	*	5.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
16	ALL		479246.8	3743279	0.00055	9901	DieselExhF	3.75E-07	30YrCance	*	3.75E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
17	ALL		479280.5	3743279	0.00055	9901	DieselExhF	3.75E-07	30YrCance	*	3.75E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
18	ALL		479301.1	3743280	0.00055	9901	DieselExhF	3.75E-07	30YrCance	*	3.75E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
19	ALL		479325.7	3743282	0.00056	9901	DieselExhF	3.82E-07	30YrCance	*	3.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
20	ALL		479340.5	3743265	0.00047	9901	DieselExhF	3.20E-07	30YrCance	*	3.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
21	ALL		479217.2	3744850	0.00026	9901	DieselExhF	1.77E-07	30YrCance	*	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
22	ALL		479213.9	3744827	0.00028	9901	DieselExhF	1.91E-07	30YrCance	*	1.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
23	ALL		479213.9	3744795	0.00028	9901	DieselExhF	1.91E-07	30YrCance	*	1.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
24	ALL		479212.3	3744770	0.00029	9901	DieselExhF	1.98E-07	30YrCance	*	1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
25	ALL		479214.8	3744736	0.00029	9901	DieselExhF	1.98E-07	30YrCance	*	1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
26	ALL		479213.1	3744713	0.0003	9901	DieselExhF	2.05E-07	30YrCance	*	2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
27	ALL		479215.6	3744681	0.0003	9901	DieselExhF	2.05E-07	30YrCance	*	2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
28	ALL		479215.6	3744661	0.0003	9901	DieselExhF	2.05E-07	30YrCance	*	2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
29	ALL		479241.1	3744625	0.00026	9901	DieselExhF	1.77E-07	30YrCance	*	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
30	ALL		479241.1	3744603	0.00026	9901	DieselExhF	1.77E-07	30YrCance	*	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA
31	ALL		479241.9	3744569	0.00026	9901	DieselExhF	1.77E-07	30YrCance	*	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA

♀ *** AERMOD - VERSION 19191 *** *** Core 5 DPM Concentrations at Worker REceptors *** 10/08/20
*** AERMET - VERSION 16216 *** *** *** 10:25:48

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** MODEL SETUP OPTIONS SUMMARY ***

- -

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

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

**Model Uses URBAN Dispersion Algorithm for the SBL for 268 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 2189641.0 ; 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 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 268 Source(s); 1 Source Group(s); and 25 Receptor(s)

with: 10 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 258 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 PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 442.00 ; 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 =   4.0 MB of RAM.

**Input Runstream File: aermod.inp
**Output Print File: aermod.out

**Detailed Error/Message File: Core5_DPM_Workers.err
**File for Summary of Results: Core5_DPM_Workers.sum

♀*** AERMOD - VERSION 19191 ***   *** Core 5 DPM Concentrations at Worker REceptors   ***   10/08/20
*** AERMET - VERSION 16216 ***   ***   ***   10:25:48
PAGE 2
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

```
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1
```

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

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

1.54,   3.09,   5.14,   8.23, 10.80,

♀*** AERMOD - VERSION 19191 ***   *** Core 5 DPM Concentrations at Worker REceptors   ***   10/08/20
*** AERMET - VERSION 16216 ***   ***   ***   10:25:48
PAGE 3
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

Surface file: ..\PerrisADJU\PERI_V9_ADJU\PERI_v9.SFC   Met Version: 16216
Profile file: ..\PerrisADJU\PERI_V9_ADJU\PERI_v9.PFL
Surface format: FREE
Profile format: FREE
Surface station no.:   3171   Upper air station no.:   3190
Name: UNKNOWN   Name: UNKNOWN
Year: 2010   Year: 2010

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
10	01	01	1	01	-7.9	0.125	-9.000	-9.000	-999.	106.	21.2	0.19	0.61	1.00	1.30	335.	9.1	282.5	5.5
10	01	01	1	02	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	142.	9.1	280.9	5.5
10	01	01	1	03	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	324.	9.1	280.4	5.5
10	01	01	1	04	-1.3	0.064	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	294.	9.1	278.8	5.5
10	01	01	1	05	-3.9	0.088	-9.000	-9.000	-999.	62.	15.0	0.19	0.61	1.00	0.90	205.	9.1	278.1	5.5
10	01	01	1	06	-1.3	0.065	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	3.	9.1	277.0	5.5
10	01	01	1	07	-8.0	0.125	-9.000	-9.000	-999.	106.	21.0	0.19	0.61	1.00	1.30	99.	9.1	277.0	5.5
10	01	01	1	08	-3.3	0.086	-9.000	-9.000	-999.	61.	16.8	0.19	0.61	0.54	0.90	319.	9.1	278.8	5.5
10	01	01	1	09	20.1	0.128	0.307	0.010	49.	110.	-9.0	0.19	0.61	0.33	0.90	239.	9.1	284.2	5.5
10	01	01	1	10	56.7	0.087	0.560	0.010	107.	62.	-1.0	0.19	0.61	0.26	0.40	188.	9.1	289.2	5.5
10	01	01	1	11	81.5	0.323	0.867	0.008	277.	441.	-35.9	0.19	0.61	0.23	2.70	310.	9.1	290.9	5.5
10	01	01	1	12	97.1	0.281	1.058	0.008	421.	357.	-19.7	0.19	0.61	0.22	2.20	357.	9.1	293.1	5.5
10	01	01	1	13	92.2	0.279	1.117	0.008	523.	354.	-20.4	0.19	0.61	0.22	2.20	356.	9.1	293.8	5.5
10	01	01	1	14	77.6	0.275	1.102	0.008	595.	347.	-23.2	0.19	0.61	0.23	2.20	50.	9.1	294.2	5.5
10	01	01	1	15	54.9	0.230	1.006	0.008	640.	266.	-19.2	0.19	0.61	0.27	1.80	53.	9.1	293.8	5.5
10	01	01	1	16	12.3	0.206	0.613	0.008	648.	225.	-61.5	0.19	0.61	0.36	1.80	11.	9.1	292.5	5.5
10	01	01	1	17	-3.6	0.087	-9.000	-9.000	-999.	71.	15.6	0.19	0.61	0.64	0.90	351.	9.1	290.4	5.5
10	01	01	1	18	-3.8	0.087	-9.000	-9.000	-999.	62.	15.2	0.19	0.61	1.00	0.90	186.	9.1	287.5	5.5
10	01	01	1	19	-3.8	0.087	-9.000	-9.000	-999.	62.	15.2	0.19	0.61	1.00	0.90	275.	9.1	285.9	5.5
10	01	01	1	20	-1.2	0.064	-9.000	-9.000	-999.	39.	18.1	0.19	0.61	1.00	0.40	181.	9.1	285.4	5.5

```
10 01 01   1 21   -7.8  0.125 -9.000 -9.000 -999.  106.    21.3  0.19   0.61   1.00    1.30  318.    9.1  284.9    5.5
10 01 01   1 22   -3.8  0.088 -9.000 -9.000 -999.   62.    15.1  0.19   0.61   1.00    0.90  196.    9.1  283.1    5.5
10 01 01   1 23   -3.8  0.088 -9.000 -9.000 -999.   62.    15.1  0.19   0.61   1.00    0.90  330.    9.1  281.4    5.5
10 01 01   1 24   -7.9  0.125 -9.000 -9.000 -999.  106.    21.2  0.19   0.61   1.00    1.30  332.    9.1  280.9    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 10 01 01 01    5.5 0 -999.  -99.00   282.6   99.0  -99.00  -99.00
 10 01 01 01    9.1 1  335.    1.30  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
♀ *** AERMOD - VERSION  19191 ***   *** Core 5 DPM Concentrations at Worker REceptors                ***       10/08/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       10:25:48
                                                                                    PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                          *** THE SUMMARY OF MAXIMUM PERIOD ( 43824 HRS) RESULTS ***


                         ** 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      0.00163 AT (  480318.86,  3743247.05,   438.00,   438.00,    0.00)  DC
         2ND HIGHEST VALUE IS      0.00162 AT (  480318.10,  3743275.30,   438.00,   438.00,    0.00)  DC
         3RD HIGHEST VALUE IS      0.00155 AT (  480318.10,  3743207.36,   438.00,   438.00,    0.00)  DC
         4TH HIGHEST VALUE IS      0.00146 AT (  480187.57,  3743381.40,   439.00,   439.00,    0.00)  DC
         5TH HIGHEST VALUE IS      0.00134 AT (  480074.60,  3743317.87,   439.00,   439.00,    0.00)  DC
         6TH HIGHEST VALUE IS      0.00132 AT (  480136.42,  3743382.16,   439.00,   439.00,    0.00)  DC
         7TH HIGHEST VALUE IS      0.00125 AT (  480228.79,  3743387.51,   438.00,   438.00,    0.00)  DC
         8TH HIGHEST VALUE IS      0.00115 AT (  480080.70,  3743380.64,   439.00,   439.00,    0.00)  DC
         9TH HIGHEST VALUE IS      0.00106 AT (  480278.40,  3743385.98,   438.00,   438.00,    0.00)  DC
        10TH HIGHEST VALUE IS      0.00103 AT (  480029.56,  3743382.16,   439.00,   439.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
♀ *** AERMOD - VERSION  19191 ***   *** Core 5 DPM Concentrations at Worker REceptors                ***       10/08/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       10:25:48
                                                                                    PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

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


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

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

 ALL      HIGH   1ST HIGH VALUE IS      0.00704  ON 14041207: AT (  480318.10,  3743275.30,   438.00,   438.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
♀ *** AERMOD - VERSION  19191 ***   *** Core 5 DPM Concentrations at Worker REceptors                ***       10/08/20
 *** AERMET - VERSION  16216 ***   ***                                                    ***       10:25:48
                                                                                    PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***
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--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 14 Warning Message(s)
A Total of 2028 Informational Message(s)

A Total of 43824 Hours Were Processed

A Total of 978 Calm Hours Identified

A Total of 1050 Missing Hours Identified (2.40 Percent)

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

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

SO W320	383	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	384	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	385	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	386	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	387	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	388	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	389	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	390	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	391	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
SO W320	392	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
ME W186	1011	MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used	0.50
ME W187	1011	MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET	
MX W450	17521	CHKDAT: Record Out of Sequence in Meteorological File at:	14010101
MX W450	17521	CHKDAT: Record Out of Sequence in Meteorological File at:	2 year gap

Core5 Commerce Center **Cancer Risk Calculator** **Assumptio Assumes DPM concentration is constant over time**

Cancer Risk Calculation at the Maximum Impacted Worker Receptor

25-year SCAQMD Guidance **Maximum Risk: 0.43 per million**

Year	Year	Annual DPM (ug/m3)	CPF (mg/kg-day)^-1	DBR (l/kg-day)	ED (years)	EF (days)	AT (years)	TAH (%)	ASF	Risk (risk/million)
1	2022	0.00704	1.1	230	0.68	365	25550	1	1	0.02
2	2023	0.00704	1.1	230	0.68	365	25550	1	1	0.02
3	2020	0.00704	1.1	230	0.68	365	25550	1	1	0.02
4	2021	0.00704	1.1	230	0.68	365	25550	1	1	0.02
5	2022	0.00704	1.1	230	0.68	365	25550	1	1	0.02
6	2023	0.00704	1.1	230	0.68	365	25550	1	1	0.02
7	2024	0.00704	1.1	230	0.68	365	25550	1	1	0.02
8	2025	0.00704	1.1	230	0.68	365	25550	1	1	0.02
9	2026	0.00704	1.1	230	0.68	365	25550	1	1	0.02
10	2027	0.00704	1.1	230	0.68	365	25550	1	1	0.02
11	2028	0.00704	1.1	230	0.68	365	25550	1	1	0.02
12	2029	0.00704	1.1	230	0.68	365	25550	1	1	0.02
13	2030	0.00704	1.1	230	0.68	365	25550	1	1	0.02
14	2031	0.00704	1.1	230	0.68	365	25550	1	1	0.02
15	2032	0.00704	1.1	230	0.68	365	25550	1	1	0.02
16	2033	0.00704	1.1	230	0.68	365	25550	1	1	0.02
17	2034	0.00704	1.1	230	0.68	365	25550	1	1	0.02
18	2035	0.00704	1.1	230	0.68	365	25550	1	1	0.02
19	2036	0.00704	1.1	230	0.68	365	25550	1	1	0.02
20	2037	0.00704	1.1	230	0.68	365	25550	1	1	0.02
21	2038	0.00704	1.1	230	0.68	365	25550	1	1	0.02
22	2039	0.00704	1.1	230	0.68	365	25550	1	1	0.02
23	2040	0.00704	1.1	230	0.68	365	25550	1	1	0.02
24	2041	0.00704	1.1	230	0.68	365	25550	1	1	0.02
25	2042	0.00704	1.1	230	0.68	365	25550	1	1	0.02