APPENDIX B:
HEALTH RISK ASSESSMENT

1. Health Risk Assessment

1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

DRG Builders (the project applicant) proposes to develop the project site located at 7842 Hembree Lane in the Town of Windsor, California with 24 single-family dwelling units. The site is currently undeveloped and surrounded by residential uses. The proposed project would subdivide the existing vacant corner lot into 24 attached and detached single-family residential lots. Approximately 2.1 acres in the eastern part of the parcel will remain open space. The following provides the background methodology used for the construction health risk assessment for the proposed project.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction activities on sensitive receptors (BAAQMD, 2017). Project construction is anticipated to take place starting at the beginning of October 2023 and be completed by October 2025 (approximately 523 workdays). The nearest sensitive receptors to the project site include the single-family residences surrounding the project site. Additional sensitive receptors within 1,000 feet of the site are preschool children at Mother Earth's Children Preschool Sunflower, approximately 305 feet to the north and senior residents at the Residential Care Specialists assisted living facility, approximately 820 feet to the north. The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2017) that evaluate construction-related health risks associated with residential, commercial, and industrial projects. According to the screening tables, the receptors are closer than the distance of 200 meters (656 feet) that would screen out potential health risks and, therefore, could be potentially impacted from the proposed construction activities. As a result, a site-specific construction health risk assessment (HRA) has been prepared for the proposed project. This HRA considers the health impact to off-site sensitive receptors (i.e., children at the nearby residences and preschool, and senior residents at the assisted living facility) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and the Office of Environmental Health Hazard Assessment (OEHHA, 2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks may not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors (both children and adults) stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day

outdoors at their residences (USEPA, 2011). This would result in lower exposures to construction related DPM emissions and lower estimated risk values.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

For preschool children students, the following conservative assumptions were used:

- It was assumed that maximum exposed receptor (preschool child) stood outside and are subject to DPM for 8 hours per weekday and approximately 180 construction days per year.

- The calculated risk for children age 2 to age 9 is multiplied by a factor of 3 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

For senior residents in the Residential Care Specialists location, the following conservative assumptions were used:

- It was assumed that maximum exposed receptor (patient) stood outside and are subject to DPM for 8 hours per weekday and approximately 260 construction days per year.

1.2 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 $\mu g/m^3$

The methodology used in this HRA is consistent with the following BAAQMD and the OEHHA guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. May 2017.
- BAAQMD, 2016. *Planning Healthy Places*. May 2016.
- BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction.* May 2010.
- BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Version 3.0. May 2012.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* February 2015.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction were evaluated for off-site sensitive receptors in close proximity to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds adopted for this HRA.

1.3 CONSTRUCTION EMISSIONS

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2022.1 (CAPCOA, 2022). DPM emissions were based on the CalEEMod construction runs, using annual exhaust PM_{10} construction emissions presented in average pounds (lbs) per day. The $PM_{2.5}$ emissions were taken from the CalEEMod output for annual $PM_{2.5}$ Total (exhaust and fugitive dust) also presented in average lbs per day.

The proposed project was assumed to take place over 24 months (523 workdays) from October 2023 to October 2025. The average daily emission rates from construction equipment used during the proposed project were determined by dividing the annual average emissions for each construction year by the number of construction days per year for each calendar year of construction (i.e., 2023,2024, and 2025). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 0.38-mile haul route within 1,000 feet of the project site. The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A of the HRA.

1.4 DISPERSION MODELING

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds on sensitive receptors near the project. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as poly-area sources. The off-site mobile sources were modeled as adjacent line volume sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the BAAQMD for the nearest representative meteorological station (Sonoma County Airport) with the five latest available years (2013 to 2017) of record were used to represent local weather conditions and prevailing winds.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic, and an initial vertical dispersion parameter of 1.93 m was used, per California Air Resources Board (CARB) guidance (2000).

To determine contaminant impacts during construction hours, the model's Season-Hour-Day (HRDOW) scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground floor receptors; 6.1 m for 2nd floor receptors) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break. In addition, a scalar factor was applied to the risk calculations to account for the number of days receptors are exposed to construction emissions per year.

A unit emission rate of 1 gram per second was used for all modeling runs. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Appendix A to obtain the maximum flagpole-level concentrations at the off-site maximum exposed receptors (MER). The air dispersion modeling predicted the off-site MER is a single-family residence north of the site. The MER location is the receptor location associated with the maximum predicted AERMOD concentrations from the on-site emission source. The calculated on-site emission rates are approximately 3 to 4 orders of magnitude higher than the calculated off-site emission rates (see Appendix A). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MER concentrations and, consequently, highest calculated health risks.

The air dispersion model output for the emission sources is presented in Appendix B. The model output DPM and $PM_{2.5}$ concentrations from the construction emission sources are provided in Appendix C.

1.5 RISK CHARACTERIZATION

1.5.1 Carcinogenic Chemical Risk

A threshold of ten in a million ($10x10^{-6}$) has been established as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) 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 for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\text{Dose}_{\text{AIR,per age group}} = (C_{air} \times EF \times [\frac{BR}{BW}] \times A \times CF)$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg-day), per age group
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (number of days/365 days)
BR/BW	=	daily breathing rate normalized to body weight (L/kg-day)

A	=	inhalation absorption factor (default = 1)
CF	=	conversion factor ($1x10^{-6}$, µg to mg, L to m^3)

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two-week period away from home each year (OEHHA, 2015). The 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

Age Groups	BR/BW (L/kg-day)	ED	ASF	FAH
Third trimester	361	0.25	10	0.85
0-2 age group	1,090	2	10	0.85

For construction analysis, the exposure duration spans the length of construction (e.g., 523 workdays, approximately 2 years). As the length of construction is 2 years, only the third trimester and 0-2 age bins apply to the construction analysis for the off-site residential receptors.

To represent the unique characteristics of preschool children and senior residents, the assessment employed the USEPA's guidance to develop viable dose estimates based on reasonable maximum exposure, defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. Lifetime risk values for the population at Mother Earth's Children Preschool were adjusted to account for an exposure of 180 school days per year (age 2 to 9 years), and senior residents at Residential Care Specialists were adjusted for exposure year-round (i.e., 365 days per year, age 16 to 70 years). In addition, the calculated risk for preschool children is multiplied by an ASF weighting factor of 3 (for children ages 2 to 9) to account for specific life sensitivity to pollutant exposures (OEHHA, 2015). To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

Dose_{AIR}	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific $(\text{mg/kg-day})^{-1}$
ASF	=	age sensitivity factor, per age group
FAH	=	fraction of time at home, per age group (for residential receptors only)
ED	=	exposure duration (years)
AT	=	averaging time period over which exposure duration is averaged (70 years)

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that

expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1x10^6$ (i.e. 1 million).

The calculated results are provided in Appendix C.

1.5.2 Non-Carcinogenic Hazards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

1.5.3 Criteria Pollutants

The BAAQMD has recently incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact.

1.6 CONSTRUCTION HRA RESULTS

The calculated results are provided in Appendix C and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY – UNMITIGATED

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ ($\mu g/m^3$)
Maximum Exposed Individual Resident (MEIR)	**43.13**	0.09	**0.43**
Mother Earth's Children Preschool Student	1.23	0.02	0.11
Residential Care Specialists, LLC Senior Resident	0.12	0.01	0.04
BAAQMD Threshold	10	1.0	0.30
Exceeds Threshold?	**Yes**	**No**	**Yes**

Note: Cancer risk calculated using 2015 OEHHA HRA Guidance Manual.

Cancer risk for the maximum exposed individual resident (MEIR) from project-related construction emissions was calculated to be 43.13 in a million, which would exceed the 10 in a million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 24-month construction period; therefore, all calculated residential risk values were multiplied by a factor of 10. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day, 260 construction days per year and exposed to all of the daily construction emissions. Lastly, the cancer risks for the maximum exposed preschool student and residential care specialist senior resident were calculated to be 1.23 in a million and 0.12 in a million, respectively, and would not exceed the significance threshold of 10 in a million.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for all the off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards are within acceptable limits. For the MEIR, the maximum annual $PM_{2.5}$ concentration of 0.43 $\mu g/m^3$ would exceed the BAAQMD significance threshold of 0.3 micrograms per cubic meter ($\mu g/m^3$). However, the annual $PM_{2.5}$ concentrations at both the maximum exposed receptor for the preschool and senior care facility would not exceed the BAAQMD significance threshold.

Because cancer risk and annual $PM_{2.5}$ concentrations for the MEIR would exceed the BAAQMD significance threshold due to construction activities associated with the proposed project, the following measure is proposed:

> **Mitigation Measure AQ-1:** The proposed project's construction contractors shall use equipment that meets the United States Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 interim emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated that such equipment is not available. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Tier 4 interim emissions standard for a similarly sized engine, as defined by the CARB's regulations.

- Prior to issuance of any construction permit, ensure that all construction plans submitted to the Town of Windsor Planning Division and/or Building Division clearly show the requirement for Tier 4 Interim emission standards for construction equipment more than 50 horsepower.

- Maintain a list of all operating equipment in use on the project site for verification by the Town of Windsor Building Division or their designee. The construction equipment list shall state the makes, models, and number of construction equipment on-site. Ensure that all equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations.

- Communicate with all sub-contractors in contracts and construction documents that all non-essential idling of construction equipment is restricted to 5 minutes or less in compliance with California Air Resources Board Rule 2449 and is responsible for ensuring that this requirement is met.

Mitigation Measure AQ-1 would reduce the project's localized construction emissions, as shown in the following Table 2. The results indicate that, with mitigation, cancer risk and annual $PM_{2.5}$ concentration would be less than the BAAQMD's significance thresholds for residential-based receptors. As mentioned previously, it was conservatively assumed that the residents were outdoors 8 hours a day, 260 construction days per year, and were exposed to all the daily construction emissions. Additionally, the CalEEMod default equipment mix would produce a conservative estimate for construction DPM emissions that would otherwise occur. Therefore, the proposed project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be *less than significant* with mitigation.

TABLE 2. CONSTRUCTION RISK SUMMARY - MITIGATED

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ ($\mu g/m^3$)
Maximum Exposed Individual Resident (MEIR)	9.80	0.02	0.26
Mother Earth's Children Preschool Student	0.27	0.01	0.07
Residential Care Specialists, LLC Senior Resident	0.03	0.001	0.02
BAAQMD Threshold	**10**	**1.0**	**0.30**
Exceeds Threshold?	**No**	**No**	**No**

Note: Cancer risk calculated using 2015 OEHHA HRA Guidance Manual.
Risks incorporate Mitigation Measure AQ-1, which includes using construction equipment which meets USEPA Tier 4 Interim engine requirements for equipment over 50 horsepower.

2. References

Bay Area Air Quality Management District. 2017. *California Environmental Quality Act Air Quality Guidelines.*

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———.2013-2017. Meteorological Data Set for Sonoma County Airport.

California Air Pollution Control Officers Association (CAPCOA). 2022. California Emissions Estimator Model (CalEEMod). Version 2022.1. Developed by: ICF in collaboration with the Sacramento Metropolitan Air Quality Management District.

California Air Resources Board (CARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.*

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* Dated February 2015.

United States Environmental Protection Agency (USEPA). 2011. *Exposure Factors Handbook 2011 Edition (Final).* EPA/600/R-09/052F, 2011.

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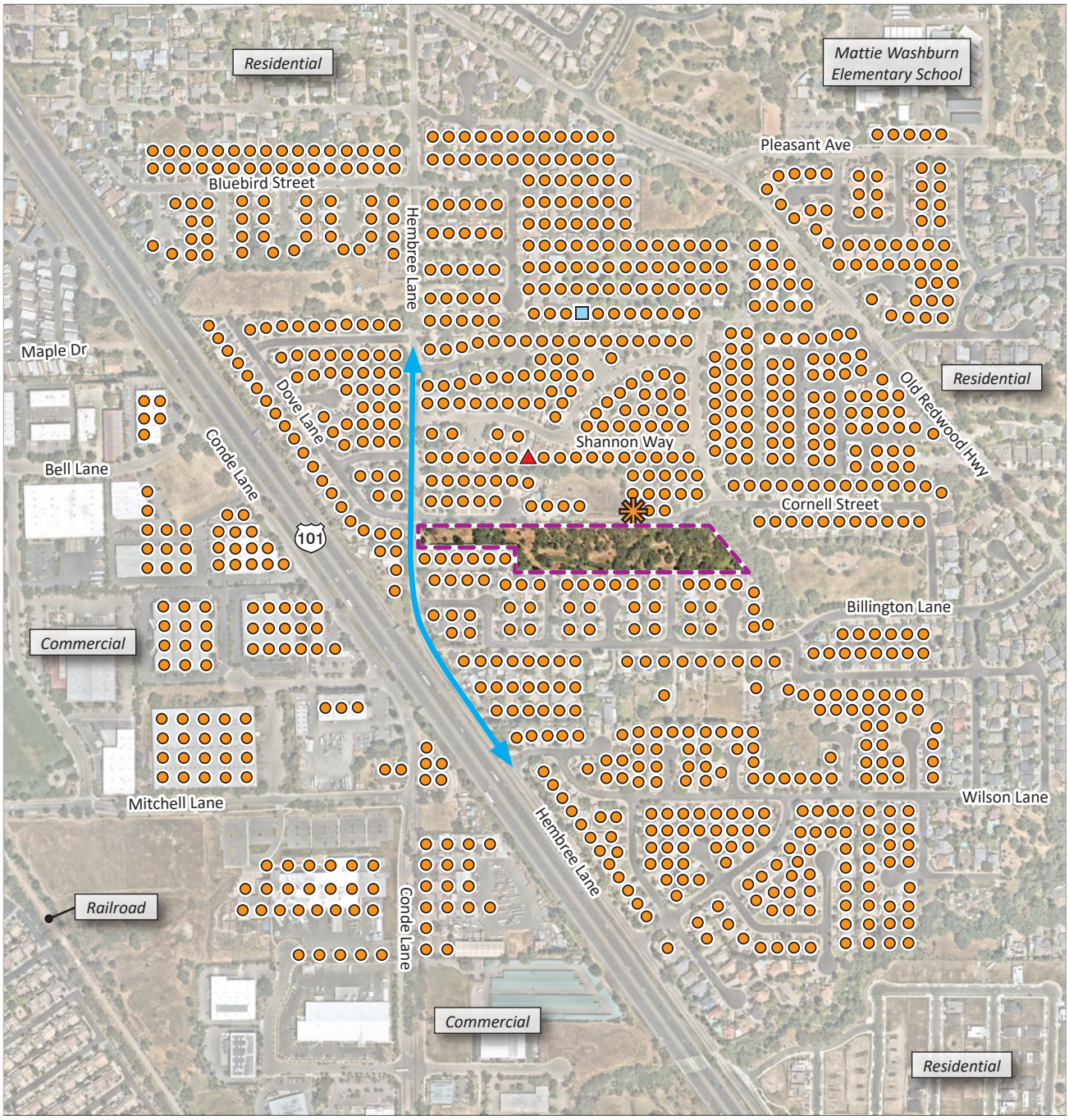

Source: Nearmap, Inc., 2022; PlaceWorks, 2022.

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Scale (Feet)

Figure 1
Project Sources and Off-Site Receptor Locations

Appendix A. Emission Rate Calculations

Average Daily Emissions and Emission Rates for Construction HRA (Unmitigated)

Onsite Construction PM10 Exhaust Emissions[1]

Year	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
2023	0.28	3.50E-02	4.41E-03
2024	0.64	8.00E-02	1.01E-02
2025	0.31	3.81E-02	4.80E-03

Onsite Construction PM2.5 Total Emissions[2]

Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
0.85	1.06E-01	1.34E-02
1.19	1.49E-01	1.87E-02
0.25	3.06E-02	3.86E-03

Offsite Construction PM10 Exhaust Emissions[1]

Year	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) [3]	Emission Rate (lbs/hr)	Emission Rate (g/s)
2023	0.01	1.89E-04	2.36E-05	2.97E-06
2024	0.02	3.77E-04	4.72E-05	5.94E-06
2025	0.005	9.43E-05	1.18E-05	1.49E-06

Offsite Construction PM2.5 Total Emissions[2]

Year	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) [3]	Emission Rate (lbs/hr)	Emission Rate (g/s)
2023	0.01	1.89E-04	2.36E-05	2.97E-06
2024	0.02	3.77E-04	4.72E-05	5.94E-06
2025	0.005	9.43E-05	1.18E-05	1.49E-06

Note: Emissions evenly distributed over 26 modeled volume sources.

Hauling Length (miles)	20	miles
Haul Length within 1,000 ft of Site (mile) [3]	0.38	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4]	8	hours

Year	Workdays	Duration [5]
2023	65	0.25
2024	262	1.00
2025	196	0.75

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.38-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

Construction PM2.5 Total and PM10 Exhaust

		Unmitigated	
		Construction Phase	
Construction Activity & Year		PM2.5 Total (avg lbs/day)	PM10 Exhaust (avg lbs/day)
3.1 Site Preparation - 2023			
Unmitigated Construction On-Site			
Off-road equipment		0.22	0.24
Dust From Material Movement		0.53	-
	TOTAL	0.75	0.24
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.3 Grading - 2023			
Unmitigated Construction On-Site			
Off-road equipment		0.04	0.04
Dust From Material Movement		0.06	
	TOTAL	0.1	0.04
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.005	0.01
2023 Totals			
	2023 On-site	**0.850**	**0.280**
	2023 Off-site	**0.010**	**0.010**

3.5 Grading - 2024			
Unmitigated Construction On-Site			
Off-road equipment		0.01	0.01
Dust From Material Movement		0.01	
	TOTAL	0.02	0.01
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.7 Building Construction - 2024			
Unmitigated Construction On-Site			
Off-road equipment		0.32	0.35
	TOTAL	0.32	0.35
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
2024 Totals			
	2024 On-site	**1.190**	**0.640**
	2024 Off-site	**0.020**	**0.020**
3.9 Building Construction - 2025			
Unmitigated Construction On-Site			
Off-road equipment		0.21	0.23
	TOTAL	0.21	0.23
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.11 Paving - 2025			
Unmitigated Construction On-Site			
Off-road equipment		0.03	0.03
Paving		-	-
	TOTAL	0.03	0.05
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		-	-
Hauling		-	-
	TOTAL	-	-

3.13 Architectural Coating - 2025			
Unmitigated Construction On-Site			
Off-road equipment		0.01	0.01
Architectural Coating		-	-
	TOTAL	0.01	0.03
Unmitigated Construction Off-Site			
Worker		-	-
Vendor		-	-
Hauling		-	-
	TOTAL	-	-
2025 Totals			
	2025 On-site	**0.245**	**0.305**
	2025 Off-site	**0.005**	**0.005**

Average Daily Emissions and Emission Rates for Construction HRA (Mitigated)

Onsite Construction PM10 Exhaust Emissions[1]

Year	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
2023	0.015	1.88E-03	2.36E-04
2024	0.12	1.44E-02	1.81E-03
2025	0.12	1.44E-02	1.81E-03

Onsite Construction PM2.5 Total Emissions[2]

Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
0.605	7.56E-02	9.53E-03
0.71	8.81E-02	1.11E-02
0.08	9.38E-03	1.18E-03

Offsite Construction PM10 Exhaust Emissions[1]

Year	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) [3]	Emission Rate (lbs/hr)	Emission Rate (g/s)
2023	0.01	1.89E-04	2.36E-05	2.97E-06
2024	0.02	3.77E-04	4.72E-05	5.94E-06
2025	0.005	9.43E-05	1.18E-05	1.49E-06

Offsite Construction PM2.5 Total Emissions[2]

Year	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) [3]	Emission Rate (lbs/hr)	Emission Rate (g/s)
2023	0.01	1.89E-04	2.36E-05	2.97E-06
2024	0.02	3.77E-04	4.72E-05	5.94E-06
2025	0.005	9.43E-05	1.18E-05	1.49E-06

Note: Emissions evenly distributed over 26 modeled volume sources.

Hauling Length (miles)	20	miles
Haul Length within 1,000 ft of Site (mile) [3]	0.38	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4]	8	hours

Year	Workdays	Duration [5]
2023	65	0.25
2024	262	1.00
2025	196	0.75

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.38-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

Construction PM2.5 Exhaust and PM10 Exhaust

		Mitigated	
		Construction Phase	
Construction Activity & Year		PM2.5 Total (avg lbs/day)	PM10 Exhaust (avg lbs/day)
3.1 Site Preparation - 2023			
Mitigated Construction On-Site			
Off-road equipment		0.01	0.01
Dust From Material Movement		0.53	-
	TOTAL	0.54	0.01
Mitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.3 Grading - 2023			
Mitigated Construction On-Site			
Off-road equipment		0.01	0.01
Dust From Material Movement		0.06	
	TOTAL	0.065	0.01
Mitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.005	0.01
2023 Totals			
	2023 On-site	**0.605**	**0.015**
	2023 Off-site	**0.010**	**0.010**

3.5 Grading - 2024			
Mitigated Construction On-Site			
Off-road equipment		0.01	0.01
Dust From Material Movement		0.01	
	TOTAL	0.02	0.01
Mitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.7 Building Construction - 2024			
Mitigated Construction On-Site			
Off-road equipment		0.08	0.09
	TOTAL	0.08	0.09
Mitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
2024 Totals			
	2024 On-site	**0.705**	**0.115**
	2024 Off-site	**0.020**	**0.020**
3.9 Building Construction - 2025			
Mitigated Construction On-Site			
Off-road equipment		0.06	0.06
	TOTAL	0.06	0.06
Mitigated Construction Off-Site			
Worker		-	-
Vendor		0.01	0.01
Hauling		-	-
	TOTAL	0.01	0.01
3.11 Paving - 2025			
Mitigated Construction On-Site			
Off-road equipment		0.01	0.01
Paving		-	-
	TOTAL	0.01	0.03
Mitigated Construction Off-Site			
Worker		-	-
Vendor		-	-
Hauling		-	-
	TOTAL	-	-

3.13 Architectural Coating - 2025

Mitigated Construction On-Site			
Off-road equipment		0.01	0.01
Architectural Coating		-	-
	TOTAL	0.01	0.03
Mitigated Construction Off-Site			
Worker		-	-
Vendor		-	-
Hauling		-	-
	TOTAL	-	-
2025 Totals			
	2025 On-site	**0.075**	**0.115**
	2025 Off-site	**0.005**	**0.005**

Average Daily Emissions - Construction Unmitigated

Total Construction Days	2023	2024	2025			Calendar Days
523	65	262	196			732

Phase 1: Unmigated Run - with Best Control Measures for Fugitive Dust						
average lbs/day (max)	ROG	NOx	Exhaust PM10	Fugitive PM10	Exhaust PM2.5	Fugitive PM2.5
Unmit.	1	8	0.36	1	0.33	1
BAAQMD Threshold	54	54	82	BMP	54	BMP
Exceeds Threshold	No	No	No	NA	No	NA

Construction Schedule

Phase Name	Start Date	End Date	CalEEMod Days	Total Days
Site Preparation	10/1/2023	12/7/2023	49	**67**
Rough Grading	12/8/2023	1/4/2024	20	**27**
Building Construction	1/5/2024	10/1/2025	454	**635**
Asphalt Paving	8/14/2025	10/1/2025	35	**48**
Architectural Coating	8/14/2025	10/1/2025	35	**48**

Number of Construction Days Per Year			
2023	10/1/2023	12/31/2023	65
2024	1/1/2024	12/31/2024	262
2025	1/1/2025	10/1/2025	196
	TOTAL CONSTRUCTION DAYS		523

Total Days Per Year		
1/1/2023	12/31/2023	260
1/1/2024	12/31/2024	262
1/1/2025	12/31/2025	261
	TOTAL DAYS	783

Appendix B. Air Dispersion Model Output

Model Output - Unit Emissions Rates (1g/s)

```
*** AERMOD - VERSION 21112  ***   *** Hembree Lane Residential Construction HRA                          ***        10/24/22
*** AERMET - VERSION  18081 ***   ***                                                                   ***        11:36:19
                                                                                                                  PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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    75 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =    496801.0 ;  Urban Roughness Length =  1.000 m

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

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

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates  1 Short Term Average(s) of:   1-HR
    and Calculates PERIOD Averages

**This Run Includes:     75 Source(s);       2 Source Group(s); and    1101 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     74 VOLUME source(s)
                and:      1 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 a total of     0 line(s)
```

Model Output - Unit Emissions Rates (1g/s)

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

**The AERMET Input Meteorological Data Version Date:  18081

**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) =    34.70 ;  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 =      3.8 MB of RAM.

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

**Detailed Error/Message File:   Hembree Lane Residential Project.err
**File for Summary of Results:   Hembree Lane Residential Project.sum
```

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000001	0	0.13514E-01	517719.1	4265028.9	35.6	4.15	3.83	3.26	YES	HRDOW
L0000002	0	0.13514E-01	517714.4	4265035.6	35.7	4.15	3.83	3.26	YES	HRDOW
L0000003	0	0.13514E-01	517709.6	4265042.3	35.6	4.15	3.83	3.26	YES	HRDOW
L0000004	0	0.13514E-01	517704.9	4265049.0	35.7	4.15	3.83	3.26	YES	HRDOW
L0000005	0	0.13514E-01	517700.2	4265055.8	35.7	4.15	3.83	3.26	YES	HRDOW
L0000006	0	0.13514E-01	517695.4	4265062.5	35.7	4.15	3.83	3.26	YES	HRDOW
L0000007	0	0.13514E-01	517690.7	4265069.2	35.6	4.15	3.83	3.26	YES	HRDOW
L0000008	0	0.13514E-01	517685.9	4265075.9	35.6	4.15	3.83	3.26	YES	HRDOW
L0000009	0	0.13514E-01	517681.2	4265082.7	35.7	4.15	3.83	3.26	YES	HRDOW
L0000010	0	0.13514E-01	517676.4	4265089.4	35.7	4.15	3.83	3.26	YES	HRDOW
L0000011	0	0.13514E-01	517671.7	4265096.1	35.8	4.15	3.83	3.26	YES	HRDOW
L0000012	0	0.13514E-01	517667.0	4265102.8	35.8	4.15	3.83	3.26	YES	HRDOW
L0000013	0	0.13514E-01	517662.2	4265109.6	35.8	4.15	3.83	3.26	YES	HRDOW
L0000014	0	0.13514E-01	517657.5	4265116.3	35.8	4.15	3.83	3.26	YES	HRDOW
L0000015	0	0.13514E-01	517652.7	4265123.0	35.8	4.15	3.83	3.26	YES	HRDOW
L0000016	0	0.13514E-01	517648.0	4265129.7	35.9	4.15	3.83	3.26	YES	HRDOW
L0000017	0	0.13514E-01	517643.1	4265136.4	35.9	4.15	3.83	3.26	YES	HRDOW
L0000018	0	0.13514E-01	517638.2	4265143.0	35.9	4.15	3.83	3.26	YES	HRDOW
L0000019	0	0.13514E-01	517633.3	4265149.6	35.9	4.15	3.83	3.26	YES	HRDOW
L0000020	0	0.13514E-01	517628.5	4265156.2	36.1	4.15	3.83	3.26	YES	HRDOW
L0000021	0	0.13514E-01	517624.0	4265163.1	36.2	4.15	3.83	3.26	YES	HRDOW
L0000022	0	0.13514E-01	517620.3	4265170.5	36.3	4.15	3.83	3.26	YES	HRDOW
L0000023	0	0.13514E-01	517616.6	4265177.9	36.3	4.15	3.83	3.26	YES	HRDOW
L0000024	0	0.13514E-01	517613.1	4265185.3	36.2	4.15	3.83	3.26	YES	HRDOW
L0000025	0	0.13514E-01	517610.7	4265193.1	36.1	4.15	3.83	3.26	YES	HRDOW
L0000026	0	0.13514E-01	517608.3	4265201.0	36.1	4.15	3.83	3.26	YES	HRDOW
L0000027	0	0.13514E-01	517606.5	4265209.0	36.0	4.15	3.83	3.26	YES	HRDOW
L0000028	0	0.13514E-01	517605.1	4265217.1	36.0	4.15	3.83	3.26	YES	HRDOW
L0000029	0	0.13514E-01	517603.7	4265225.2	35.9	4.15	3.83	3.26	YES	HRDOW
L0000030	0	0.13514E-01	517602.3	4265233.4	35.9	4.15	3.83	3.26	YES	HRDOW
L0000031	0	0.13514E-01	517601.8	4265241.6	35.8	4.15	3.83	3.26	YES	HRDOW
L0000032	0	0.13514E-01	517601.6	4265249.8	35.8	4.15	3.83	3.26	YES	HRDOW
L0000033	0	0.13514E-01	517601.4	4265258.0	35.9	4.15	3.83	3.26	YES	HRDOW
L0000034	0	0.13514E-01	517601.3	4265266.2	35.9	4.15	3.83	3.26	YES	HRDOW
L0000035	0	0.13514E-01	517601.1	4265274.5	36.0	4.15	3.83	3.26	YES	HRDOW
L0000036	0	0.13514E-01	517600.9	4265282.7	36.1	4.15	3.83	3.26	YES	HRDOW
L0000037	0	0.13514E-01	517600.8	4265290.9	36.2	4.15	3.83	3.26	YES	HRDOW
L0000038	0	0.13514E-01	517600.8	4265299.1	36.3	4.15	3.83	3.26	YES	HRDOW

Model Output - Unit Emissions Rates (1g/s)

L0000039	0	0.13514E-01	517600.8	4265307.4	36.4	4.15	3.83	3.26	YES	HRDOW
L0000040	0	0.13514E-01	517600.9	4265315.6	36.4	4.15	3.83	3.26	YES	HRDOW

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000041	0	0.13514E-01	517600.9	4265323.8	36.4	4.15	3.83	3.26	YES	HRDOW
L0000042	0	0.13514E-01	517600.9	4265332.1	36.4	4.15	3.83	3.26	YES	HRDOW
L0000043	0	0.13514E-01	517601.0	4265340.3	36.4	4.15	3.83	3.26	YES	HRDOW
L0000044	0	0.13514E-01	517601.0	4265348.5	36.5	4.15	3.83	3.26	YES	HRDOW
L0000045	0	0.13514E-01	517601.0	4265356.8	36.7	4.15	3.83	3.26	YES	HRDOW
L0000046	0	0.13514E-01	517601.1	4265365.0	36.8	4.15	3.83	3.26	YES	HRDOW
L0000047	0	0.13514E-01	517601.1	4265373.2	36.8	4.15	3.83	3.26	YES	HRDOW
L0000048	0	0.13514E-01	517601.1	4265381.4	36.9	4.15	3.83	3.26	YES	HRDOW
L0000049	0	0.13514E-01	517601.2	4265389.7	36.9	4.15	3.83	3.26	YES	HRDOW
L0000050	0	0.13514E-01	517601.2	4265397.9	36.9	4.15	3.83	3.26	YES	HRDOW
L0000051	0	0.13514E-01	517601.2	4265406.1	36.9	4.15	3.83	3.26	YES	HRDOW
L0000052	0	0.13514E-01	517601.3	4265414.4	36.9	4.15	3.83	3.26	YES	HRDOW
L0000053	0	0.13514E-01	517601.3	4265422.6	36.8	4.15	3.83	3.26	YES	HRDOW
L0000054	0	0.13514E-01	517601.3	4265430.8	36.9	4.15	3.83	3.26	YES	HRDOW
L0000055	0	0.13514E-01	517601.4	4265439.0	37.0	4.15	3.83	3.26	YES	HRDOW
L0000056	0	0.13514E-01	517601.5	4265447.3	37.1	4.15	3.83	3.26	YES	HRDOW
L0000057	0	0.13514E-01	517601.6	4265455.5	37.2	4.15	3.83	3.26	YES	HRDOW
L0000058	0	0.13514E-01	517601.7	4265463.7	37.3	4.15	3.83	3.26	YES	HRDOW
L0000059	0	0.13514E-01	517601.8	4265472.0	37.3	4.15	3.83	3.26	YES	HRDOW
L0000060	0	0.13514E-01	517601.9	4265480.2	37.4	4.15	3.83	3.26	YES	HRDOW
L0000061	0	0.13514E-01	517602.0	4265488.4	37.4	4.15	3.83	3.26	YES	HRDOW
L0000062	0	0.13514E-01	517602.2	4265496.7	37.4	4.15	3.83	3.26	YES	HRDOW
L0000063	0	0.13514E-01	517602.3	4265504.9	37.3	4.15	3.83	3.26	YES	HRDOW
L0000064	0	0.13514E-01	517602.4	4265513.1	37.2	4.15	3.83	3.26	YES	HRDOW
L0000065	0	0.13514E-01	517602.5	4265521.3	37.2	4.15	3.83	3.26	YES	HRDOW
L0000066	0	0.13514E-01	517602.5	4265529.6	37.3	4.15	3.83	3.26	YES	HRDOW
L0000067	0	0.13514E-01	517602.2	4265537.8	37.4	4.15	3.83	3.26	YES	HRDOW
L0000068	0	0.13514E-01	517601.9	4265546.0	37.5	4.15	3.83	3.26	YES	HRDOW
L0000069	0	0.13514E-01	517601.6	4265554.2	37.6	4.15	3.83	3.26	YES	HRDOW
L0000070	0	0.13514E-01	517601.2	4265562.5	37.6	4.15	3.83	3.26	YES	HRDOW
L0000071	0	0.13514E-01	517600.5	4265570.7	37.5	4.15	3.83	3.26	YES	HRDOW
L0000072	0	0.13514E-01	517599.9	4265578.9	37.5	4.15	3.83	3.26	YES	HRDOW
L0000073	0	0.13514E-01	517599.2	4265587.1	37.5	4.15	3.83	3.26	YES	HRDOW
L0000074	0	0.13514E-01	517598.5	4265595.3	37.5	4.15	3.83	3.26	YES	HRDOW

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
PAREA1	0	0.49036E-04	517609.8	4265330.0	36.3	4.15	6	1.93	YES	HRDOW

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ONSITE	PAREA1 ,
HAUL	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
	L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 ,
	L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 ,
	L0000025 , L0000026 , L0000027 , L0000028 , L0000029 , L0000030 , L0000031 , L0000032 ,
	L0000033 , L0000034 , L0000035 , L0000036 , L0000037 , L0000038 , L0000039 , L0000040 ,
	L0000041 , L0000042 , L0000043 , L0000044 , L0000045 , L0000046 , L0000047 , L0000048 ,
	L0000049 , L0000050 , L0000051 , L0000052 , L0000053 , L0000054 , L0000055 , L0000056 ,
	L0000057 , L0000058 , L0000059 , L0000060 , L0000061 , L0000062 , L0000063 , L0000064 ,
	L0000065 , L0000066 , L0000067 , L0000068 , L0000069 , L0000070 , L0000071 , L0000072 ,
	L0000073 , L0000074 ,

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs
	496801.	PAREA1 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 ,
		L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,
		L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 ,
		L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , L0000029 , L0000030 , L0000031 ,
		L0000032 , L0000033 , L0000034 , L0000035 , L0000036 , L0000037 , L0000038 , L0000039 ,
		L0000040 , L0000041 , L0000042 , L0000043 , L0000044 , L0000045 , L0000046 , L0000047 ,
		L0000048 , L0000049 , L0000050 , L0000051 , L0000052 , L0000053 , L0000054 , L0000055 ,
		L0000056 , L0000057 , L0000058 , L0000059 , L0000060 , L0000061 , L0000062 , L0000063 ,
		L0000064 , L0000065 , L0000066 , L0000067 , L0000068 , L0000069 , L0000070 , L0000071 ,
		L0000072 , L0000073 , L0000074 ,

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = PAREA1 ; SOURCE TYPE = AREAPOLY :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.1000E+01
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.0000E+00	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000001 to L0000074 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.1000E+01
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.0000E+00	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

Model Output – Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC		X-COORD (M)	Y-COORD (M)	CONC	
517619.02	4265347.59	8.81686		517637.98	4265346.54	11.94351	
517662.98	4265346.54	13.57730		517687.98	4265346.54	14.69743	
517762.98	4265346.54	20.72871		517787.98	4265346.54	21.86287	
517812.98	4265346.54	22.33852		517887.98	4265346.54	23.03265	MEIR Location
517912.98	4265346.54	22.81534		518262.98	4265346.54	0.49129	
517620.27	4265371.54	5.43117		517637.98	4265371.54	6.85322	
517662.98	4265371.54	8.05724		517687.98	4265371.54	9.05405	
517712.98	4265371.54	10.14744		517737.98	4265371.54	11.56265	
517762.98	4265371.54	12.78098		517787.98	4265371.54	13.65243	
517887.98	4265371.54	14.61919		517912.98	4265371.54	14.38490	
517937.98	4265371.54	13.71058		517962.98	4265371.54	12.42108	
517987.98	4265371.54	9.37957		518012.98	4265371.54	6.06932	
518037.98	4265371.54	3.92145		518062.98	4265371.54	2.65979	
518087.98	4265371.54	1.91034		518112.98	4265371.54	1.44763	
518137.98	4265371.54	1.13902		518162.98	4265371.54	0.92397	
518187.98	4265371.54	0.76696		518212.98	4265371.54	0.64860	
518237.98	4265371.54	0.54959		518262.98	4265371.54	0.47708	
517620.53	4265396.54	3.67967		517637.98	4265396.54	4.48933	
517662.98	4265396.54	5.34786		517687.98	4265396.54	6.12958	
517712.98	4265396.54	6.98303		517737.98	4265396.54	7.85853	
517762.98	4265396.54	8.67451		517787.98	4265396.54	9.28355	
517812.98	4265396.54	9.67870		517837.98	4265396.54	9.89738	
517862.98	4265396.54	10.02863		517887.98	4265396.54	10.02086	
517912.98	4265396.54	9.81640		517937.98	4265396.54	9.29461	
517962.98	4265396.54	8.24449		517987.98	4265396.54	6.49410	
518012.98	4265396.54	4.64984		518037.98	4265396.54	3.27828	
518062.98	4265396.54	2.35138		518087.98	4265396.54	1.74550	
518112.98	4265396.54	1.34834		518137.98	4265396.54	1.07082	
518162.98	4265396.54	0.87643		518187.98	4265396.54	0.72596	
518212.98	4265396.54	0.61585		518237.98	4265396.54	0.53205	
518262.98	4265396.54	0.46449		517619.77	4265419.53	2.80681	
517637.98	4265421.54	3.29940		517662.98	4265421.54	3.99150	
517687.98	4265421.54	4.65042		517712.98	4265421.54	5.25304	
517737.98	4265421.54	5.86363	Preschool MER	517762.98	4265421.54	6.43922	
517787.98	4265421.54	6.92138		517812.98	4265421.54	7.22202	
517837.98	4265421.54	7.40989		517862.98	4265421.54	7.49090	

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC		X-COORD (M)	Y-COORD (M)	CONC	
517619.02	4265347.59	22.17915		517637.98	4265346.54	13.20723	
517662.98	4265346.54	7.96863		517687.98	4265346.54	5.40983	
517762.98	4265346.54	2.30632		517787.98	4265346.54	1.83242	
517812.98	4265346.54	1.48117		517887.98	4265346.54	0.85938	MEIR Location
517912.98	4265346.54	0.73300		518262.98	4265346.54	0.17370	
517620.27	4265371.54	21.26981		517637.98	4265371.54	13.05334	
517662.98	4265371.54	7.77979		517687.98	4265371.54	5.25904	
517712.98	4265371.54	3.78743		517737.98	4265371.54	2.85842	
517762.98	4265371.54	2.21711		517787.98	4265371.54	1.76395	
517887.98	4265371.54	0.83204		517912.98	4265371.54	0.71068	
517937.98	4265371.54	0.61240		517962.98	4265371.54	0.53655	
517987.98	4265371.54	0.47314		518012.98	4265371.54	0.41862	
518037.98	4265371.54	0.37399		518062.98	4265371.54	0.33617	
518087.98	4265371.54	0.30355		518112.98	4265371.54	0.27574	
518137.98	4265371.54	0.25149		518162.98	4265371.54	0.23073	
518187.98	4265371.54	0.21300		518212.98	4265371.54	0.19734	
518237.98	4265371.54	0.18373		518262.98	4265371.54	0.17166	
517620.53	4265396.54	20.99944		517637.98	4265396.54	12.89320	
517662.98	4265396.54	7.57626		517687.98	4265396.54	5.07807	
517712.98	4265396.54	3.65399		517737.98	4265396.54	2.73789	
517762.98	4265396.54	2.12394		517787.98	4265396.54	1.68867	
517812.98	4265396.54	1.36923		517837.98	4265396.54	1.12838	
517862.98	4265396.54	0.94552		517887.98	4265396.54	0.80197	
517912.98	4265396.54	0.68754		517937.98	4265396.54	0.59591	
517962.98	4265396.54	0.52282		517987.98	4265396.54	0.46108	
518012.98	4265396.54	0.40885		518037.98	4265396.54	0.36639	
518062.98	4265396.54	0.32994		518087.98	4265396.54	0.29827	
518112.98	4265396.54	0.27114		518137.98	4265396.54	0.24684	
518162.98	4265396.54	0.22714		518187.98	4265396.54	0.20994	
518212.98	4265396.54	0.19470		518237.98	4265396.54	0.18111	
518262.98	4265396.54	0.16917		517619.77	4265419.53	21.57564	
517637.98	4265421.54	12.77387		517662.98	4265421.54	7.55080	
517687.98	4265421.54	5.03549		517712.98	4265421.54	3.55485	
517737.98	4265421.54	2.64343	Preschool MER	517762.98	4265421.54	2.04628	

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	
518112.98	4265571.54	150.45846	(14110708)	518137.98	4265571.54	157.45232	(13110608)	
518162.98	4265571.54	161.21755	(13110608)	518187.98	4265571.54	161.31734	(13110608)	
518212.98	4265571.54	156.36535	(13110608)	518237.98	4265571.54	146.95490	(13110608)	
518262.98	4265571.54	140.11983	(15011309)	517624.55	4265601.32	134.98388	(13111508)	
517637.98	4265596.54	138.39080	(13111508)	517662.98	4265596.54	142.12502	(13111308)	
517687.98	4265596.54	144.69943	(13111308)	517712.98	4265596.54	143.91262	(13111308)	
517737.98	4265596.54	139.68808	(13111308)	517762.98	4265596.54	141.61885	(13020409)	
517787.98	4265596.54	148.48764	(13020409)	517812.98	4265596.54	152.09234	(13020409)	Residential
517837.98	4265596.54	152.05701	(13020409)	517862.98	4265596.54	152.91815	(14110408)	Care
517887.98	4265596.54	155.47148	(14110408)	517912.98	4265596.54	155.70128	(13022808)	Specialist
517937.98	4265596.54	153.32576	(13022808)	517962.98	4265596.54	149.39956	(14110708)	MER
517987.98	4265596.54	158.48581	(14110708)	518012.98	4265596.54	164.47642	(14110708)	
518037.98	4265596.54	166.45811	(14110708)	518062.98	4265596.54	171.84016	(14110708)	
518087.98	4265596.54	164.44250	(14110708)	518112.98	4265596.54	150.60478	(14110708)	
518137.98	4265596.54	138.00618	(13110608)	518162.98	4265596.54	144.85377	(13110608)	
518187.98	4265596.54	148.74537	(13110608)	518212.98	4265596.54	148.55790	(13110608)	
518237.98	4265596.54	144.56863	(13110608)	518262.98	4265596.54	136.79750	(13110608)	
517616.25	4265628.33	125.21729	(13111508)	517637.98	4265621.54	129.83305	(13111308)	
517662.98	4265621.54	133.52190	(13111308)	517687.98	4265621.54	134.27453	(13111308)	
517712.98	4265621.54	131.89730	(13111308)	517737.98	4265621.54	126.37887	(13111308)	
517762.98	4265621.54	133.44463	(13020409)	517787.98	4265621.54	139.46613	(13020409)	
517812.98	4265621.54	142.41643	(13020409)	517837.98	4265621.54	141.78018	(13020409)	
517862.98	4265621.54	142.82338	(14110408)	517887.98	4265621.54	145.36555	(14110408)	
517912.98	4265621.54	145.14647	(13022808)	517937.98	4265621.54	143.31146	(13022808)	
517962.98	4265621.54	139.64728	(14010309)	517987.98	4265621.54	143.39358	(14110708)	
518012.98	4265621.54	150.44676	(14110708)	518037.98	4265621.54	160.82778	(14110708)	
518062.98	4265621.54	162.08183	(14110708)	518087.98	4265621.54	158.19104	(14110708)	
518112.98	4265621.54	148.67191	(14110708)	518137.98	4265621.54	133.64751	(14110708)	
518162.98	4265621.54	127.49917	(13110608)	518187.98	4265621.54	133.79448	(13110608)	
518212.98	4265621.54	136.87813	(13110608)	518237.98	4265621.54	137.38681	(13110608)	
518262.98	4265621.54	134.35410	(13110608)	517617.42	4265647.72	119.28109	(13111308)	
517637.98	4265646.54	123.08028	(13111308)	517662.98	4265646.54	125.09917	(13111308)	
517687.98	4265646.54	124.37552	(13111308)	517712.98	4265646.54	120.69489	(13111308)	
517737.98	4265646.54	118.49128	(13020409)	517762.98	4265646.54	126.19609	(13020409)	
517787.98	4265646.54	131.42641	(13020409)	517812.98	4265646.54	133.71550	(13020409)	
517837.98	4265646.54	132.56873	(13020409)	517862.98	4265646.54	133.80147	(14110408)	

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	
518112.98	4265571.54	35.95110	(15022608)	518137.98	4265571.54	36.00076	(15022608)	
518162.98	4265571.54	35.31065	(17110808)	518187.98	4265571.54	34.75336	(17110808)	
518212.98	4265571.54	33.84579	(17110808)	518237.98	4265571.54	32.97763	(17110808)	
518262.98	4265571.54	32.16472	(17110808)	517624.55	4265601.32	397.30828	(17010509)	
517637.98	4265596.54	320.77025	(17010509)	517662.98	4265596.54	215.75425	(17010509)	
517687.98	4265596.54	155.03325	(17010509)	517712.98	4265596.54	117.06337	(17010509)	
517737.98	4265596.54	91.33758	(17010509)	517762.98	4265596.54	72.59997	(17010509)	
517787.98	4265596.54	64.57565	(15022608)	517812.98	4265596.54	59.88544	(17110808)	Residential
517837.98	4265596.54	55.85380	(17110808)	517862.98	4265596.54	52.42413	(17110808)	Care
517887.98	4265596.54	49.15002	(17110808)	517912.98	4265596.54	46.47385	(17110808)	Specialist
517937.98	4265596.54	44.23110	(17110808)	517962.98	4265596.54	42.24704	(17110808)	MER
517987.98	4265596.54	40.56210	(17110808)	518012.98	4265596.54	38.74092	(17110808)	
518037.98	4265596.54	37.00766	(17110808)	518062.98	4265596.54	35.57083	(15022608)	
518087.98	4265596.54	36.36579	(15022608)	518112.98	4265596.54	36.23509	(15022608)	
518137.98	4265596.54	36.29749	(15022608)	518162.98	4265596.54	35.66755	(17110808)	
518187.98	4265596.54	34.59373	(17110808)	518212.98	4265596.54	33.66557	(17110808)	
518237.98	4265596.54	32.85100	(17110808)	518262.98	4265596.54	32.08423	(17110808)	
517616.25	4265628.33	341.80020	(14121916)	517637.98	4265621.54	301.69869	(17010509)	
517662.98	4265621.54	211.34888	(17010509)	517687.98	4265621.54	154.65661	(17010509)	
517712.98	4265621.54	117.89944	(17010509)	517737.98	4265621.54	92.68078	(17010509)	
517762.98	4265621.54	74.00133	(17010509)	517787.98	4265621.54	64.96471	(15113016)	
517812.98	4265621.54	58.54232	(15113016)	517837.98	4265621.54	53.76495	(15022608)	
517862.98	4265621.54	50.36264	(15022608)	517887.98	4265621.54	47.32110	(15102708)	
517912.98	4265621.54	44.84008	(15102708)	517937.98	4265621.54	42.75154	(15102708)	
517962.98	4265621.54	40.77728	(15102708)	517987.98	4265621.54	39.01038	(15102708)	
518012.98	4265621.54	37.30823	(15102708)	518037.98	4265621.54	36.28172	(15022608)	
518062.98	4265621.54	36.37168	(15022608)	518087.98	4265621.54	36.71854	(15022608)	
518112.98	4265621.54	37.51905	(15022608)	518137.98	4265621.54	36.43406	(15022608)	
518162.98	4265621.54	35.01509	(17110808)	518187.98	4265621.54	34.11082	(17110808)	
518212.98	4265621.54	33.31058	(17110808)	518237.98	4265621.54	32.48697	(17110808)	
518262.98	4265621.54	31.80693	(17110808)	517617.42	4265647.72	250.86668	(17122516)	
517637.98	4265646.54	246.79725	(14121916)	517662.98	4265646.54	200.85663	(17010509)	
517687.98	4265646.54	152.74985	(17010509)	517712.98	4265646.54	118.15814	(17010509)	

Model Output – Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43848 HRS) RESULTS ***

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

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
	MEIR Location			
ONSITE	1ST HIGHEST VALUE IS	23.03265 AT (517887.98, 4265346.54, 37.64, 37.64, 1.50)	DC	
	2ND HIGHEST VALUE IS	22.81534 AT (517912.98, 4265346.54, 37.88, 37.88, 1.50)	DC	
	3RD HIGHEST VALUE IS	22.33852 AT (517812.98, 4265346.54, 37.47, 37.47, 1.50)	DC	
	4TH HIGHEST VALUE IS	21.86287 AT (517787.98, 4265346.54, 37.21, 37.21, 1.50)	DC	
	5TH HIGHEST VALUE IS	20.72871 AT (517762.98, 4265346.54, 37.02, 37.02, 1.50)	DC	
	6TH HIGHEST VALUE IS	14.69743 AT (517687.98, 4265346.54, 36.55, 36.55, 1.50)	DC	
	7TH HIGHEST VALUE IS	14.66421 AT (517947.94, 4265258.69, 37.51, 37.51, 1.50)	DC	
	8TH HIGHEST VALUE IS	14.61919 AT (517887.98, 4265371.54, 37.94, 37.94, 1.50)	DC	
	9TH HIGHEST VALUE IS	14.59889 AT (517897.94, 4265258.69, 37.60, 37.60, 1.50)	DC	
	10TH HIGHEST VALUE IS	14.51104 AT (517872.94, 4265258.69, 37.40, 37.40, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	25.22185 AT (517622.94, 4265208.69, 36.27, 36.27, 1.50)	DC	
	2ND HIGHEST VALUE IS	22.64696 AT (517618.26, 4265476.07, 37.35, 37.35, 1.50)	DC	
	3RD HIGHEST VALUE IS	22.33057 AT (517659.33, 4265146.69, 35.58, 35.58, 1.50)	DC	
	4TH HIGHEST VALUE IS	22.17915 AT (517619.02, 4265347.59, 36.42, 36.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	21.75006 AT (517589.95, 4265490.51, 37.46, 37.46, 1.50)	DC	
	6TH HIGHEST VALUE IS	21.57796 AT (517619.52, 4265497.04, 37.44, 37.44, 1.50)	DC	
	7TH HIGHEST VALUE IS	21.57564 AT (517619.77, 4265419.53, 36.88, 36.88, 1.50)	DC	
	8TH HIGHEST VALUE IS	21.26981 AT (517620.27, 4265371.54, 36.65, 36.65, 1.50)	DC	
	9TH HIGHEST VALUE IS	20.99944 AT (517620.53, 4265396.54, 36.89, 36.89, 1.50)	DC	
	10TH HIGHEST VALUE IS	20.70222 AT (517587.69, 4265360.23, 36.95, 36.95, 1.50)	DC	

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

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ONSITE HIGH 1ST HIGH VALUE IS	994.47055	ON 14111108:	AT (517723.75, 4265293.73, 36.59, 36.59, 1.50)	DC	
HAUL HIGH 1ST HIGH VALUE IS	553.57837	ON 17121516:	AT (517587.69, 4265360.23, 36.95, 36.95, 1.50)	DC	

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

Model Output - Unit Emissions Rates (1g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL 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 1226 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 694 Calm Hours Identified

A Total of 532 Missing Hours Identified (1.21 Percent)

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

******** WARNING MESSAGES ********
ME W186 1164 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
ME W187 1164 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

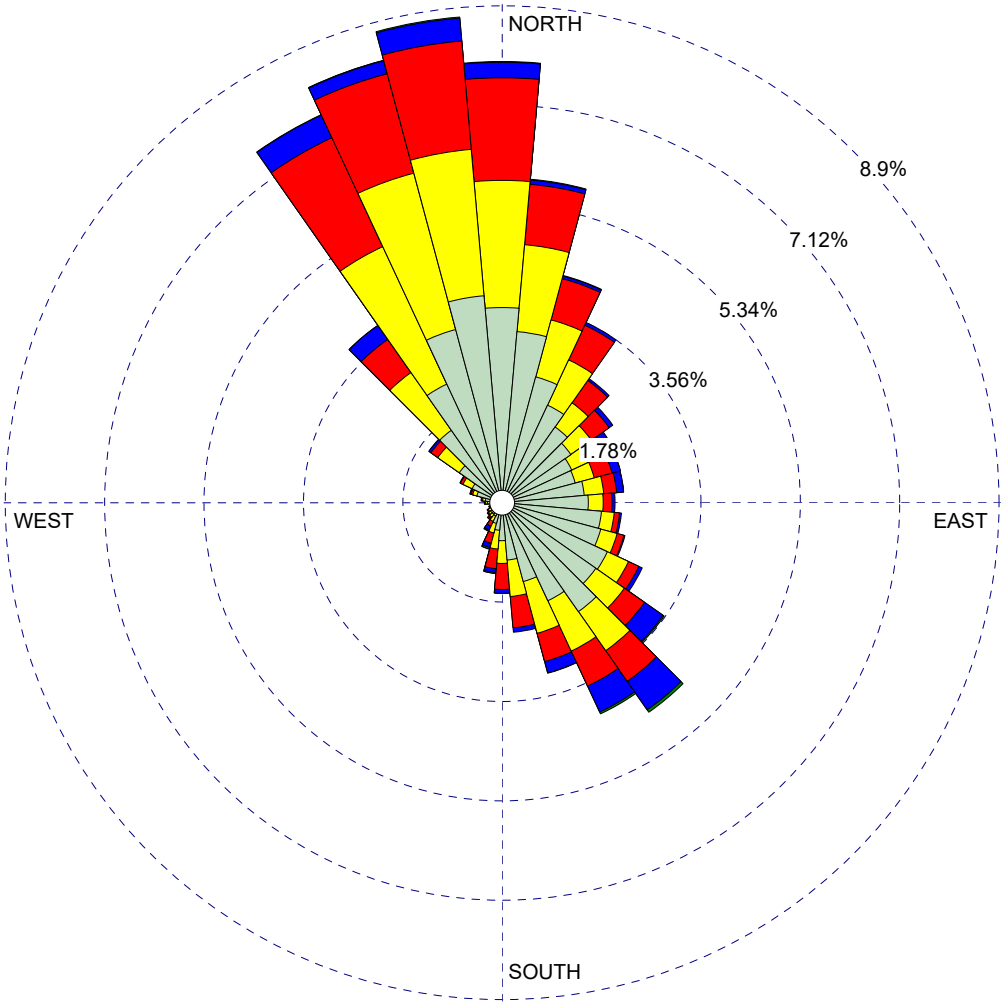
****
*** AERMOD Finishes Successfully ***
****

WIND ROSE PLOT:

Oakland International Airport

DISPLAY:

Wind Speed
Flow Vector (blowing to)



WIND SPEED
(Knots)

- >= 21.58
- 17.11 - 21.58
- 11.08 - 17.11
- 7.00 - 11.08
- 4.08 - 7.00
- 0.97 - 4.08

Calms: 1.58%

COMMENTS:	DATA PERIOD: **Start Date: 1/1/2013 - 00:00** **End Date: 1/1/2018 - 23:59**	COMPANY NAME: **PlaceWorks**	
		MODELER: **EP**	
	CALM WINDS: **1.58%**	TOTAL COUNT: **43767 hrs.**	
	AVG. WIND SPEED: **4.91 Knots**	DATE: **10/24/2022**	PROJECT NO.:

Appendix C. Construction Risk Calculations

Table C1
MEIR Concentrations for Health Risk Calculations

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MEIR Conc. ($\mu g/m^3$)	Total MEIR Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Residential Receptors - Unmitigated						
DPM	2023	On-Site Emissions	23.03	4.41E-03	1.02E-01	1.02E-01
		Truck Route	0.86	2.97E-06	2.55E-06	
	2024	On-Site Emissions	23.03	1.01E-02	2.32E-01	2.32E-01
		Truck Route	0.86	5.94E-06	5.11E-06	
	2025	On-Site Emissions	23.03	4.80E-03	1.11E-01	1.11E-01
		Truck Route	0.86	1.49E-06	1.28E-06	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2023	On-Site Emissions	23.03	1.34E-02	3.08E-01	3.08E-01
		Truck Route	0.86	2.97E-06	2.55E-06	
	2024	On-Site Emissions	23.03	1.87E-02	4.32E-01	4.32E-01
		Truck Route	0.86	5.94E-06	5.11E-06	
	2025	On-Site Emissions	23.03	3.86E-03	8.89E-02	8.89E-02
		Truck Route	0.86	1.49E-06	1.28E-06	
				Maximum Annual $PM_{2.5}$ Concentration		**0.43**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 517887.98 E, 4265346.54 N

[1] Model Output at the MEIR based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

NOTE: The MEIR location is the receptor location associated with the maximum predicted AERMOD concentrations from off-road equipment (i.e., on-site emissions). The calculated on-site emission rates are approximately 3 to 4 orders of magnitude higher than the calculated off-site (hauling) emission rates (see Column d). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MEIR concentrations and, consequently, highest calculated health risks.

Table C2
MEIR Health Risk Calculations

Source		MEIR	Weight	Contaminant			Dose (by age bin)		Carcinogenic Risks (by age bin)		**Total Cancer Risk**	**Chronic Hazards [3]**	
		Conc. ($\mu g/m^3$)	Fraction		URF $(\mu g/m^3)^{-1}$	CPF $(mg/kg/day)^{-1}$	3rd Trimester (mg/kg-day)	0 < 2 years (mg/kg-day)	3rd Trimester per million	0 < 2 years per million	per million	REL ($\mu g/m^3$)	RESP
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(m)	(n)	(o)
Residential Receptors - Unmitigated													
2023	On & Off-Site Emissions	1.02E-01	1.00E+00	DPM	3.0E-04	1.1E+00	3.52E-05	1.06E-04	1.12E+00	0.00E+00	1.12	5.0E+00	2.03E-02
2024		2.32E-01	1.00E+00	DPM	3.0E-04	1.1E+00	8.04E-05	2.43E-04	0.00E+00	3.09E+01	30.9	5.0E+00	4.64E-02
2025		1.11E-01	1.00E+00	DPM	3.0E-04	1.1E+00	3.83E-05	1.16E-04	0.00E+00	1.11E+01	11.07	5.0E+00	2.21E-02
											43.13		**0.089**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 517887.98 E, 4265346.54 N

		3rd Trimester	0 < 2 years
	OEHHA age bin	3rd Trimester	0 < 2 years
	exposure year(s)	2022	2022-2023
Dose Exposure Factors:	exposure frequency (days/year)	350	350
	inhalation rate (L/kg-day) [1]	361	1090
	inhalation absorption factor	1	1
	conversion factor (mg/µg; m^3/L)	1.0E-06	1.0E-06
Risk Calculation Factors:	age sensitivity factor	10	10
	averaging time (years)	70	70
	per million	1.0E+06	1.0E+06
	fraction of time at home	0.85	0.85

exposure durations per age bin			exposure durations (year)	
	Construction Year	Duration [2]	3rd Trimester	0 < 2 years
	2023	0.25	0.25	
	2024	1.00		1.00
	2025	0.75		0.75
	Total	2.00	0.25	1.75

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Construction durations determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C3
MEIR Concentrations for Risk Calculations - Mitigated

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MEIR Conc. ($\mu g/m^3$)	Total MEIR Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP						
DPM	2023	On-Site Emissions	23.03	2.36E-04	5.44E-03	5.44E-03
		Truck Route	0.86	2.97E-06	2.55E-06	
	2024	On-Site Emissions	23.03	1.81E-03	4.17E-02	4.17E-02
		Truck Route	0.86	5.94E-06	5.11E-06	
	2025	On-Site Emissions	23.03	1.81E-03	4.17E-02	4.17E-02
		Truck Route	0.86	1.49E-06	1.28E-06	
					Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations	
$PM_{2.5}$	2023	On-Site Emissions	23.03	9.53E-03	2.19E-01	2.19E-01
		Truck Route	0.86	2.97E-06	2.55E-06	
	2024	On-Site Emissions	23.03	1.11E-02	2.56E-01	2.56E-01
		Truck Route	0.86	5.94E-06	5.11E-06	
	2025	On-Site Emissions	23.03	1.18E-03	2.72E-02	2.72E-02
		Truck Route	0.86	1.49E-06	1.28E-06	
				Maximum Annual $PM_{2.5}$ Concentration		**0.26**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 517887.98 E, 4265346.54 N

[1] Model Output at the MEIR based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

NOTE: The MEIR location is the receptor location associated with the maximum predicted AERMOD concentrations from off-road equipment (i.e., on-site emissions). The calculated on-site emission rates are approximately 3 to 4 orders of magnitude higher than the calculated off-site (hauling) emission rates (see Column d). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MEIR concentrations and, consequently, highest calculated health risks.

Table C4
MEIR Health Risk Calculations - Mitigated

Source		MEIR	Weight	Contaminant			Dose (by age bin)		Carcinogenic Risks (by age bin)		**Total Cancer Risk**	**Chronic Hazards [3]**	
		Conc. ($\mu g/m^3$)	Fraction		URF $(\mu g/m^3)^{-1}$	CPF $(mg/kg/day)^{-1}$	3rd Trimester (mg/kg-day)	0 < 2 years (mg/kg-day)	3rd Trimester per million	0 < 2 years per million	per million	REL ($\mu g/m^3$)	RESP
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(m)	(n)	(o)
Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP													
2023	On & Off-Site Emissions	5.44E-03	1.00E+00	DPM	3.0E-04	1.1E+00	1.88E-06	5.69E-06	6.01E-02	0.00E+00	0.1	5.0E+00	1.09E-03
2024		4.17E-02	1.00E+00	DPM	3.0E-04	1.1E+00	1.44E-05	4.36E-05	0.00E+00	5.56E+00	5.6	5.0E+00	8.34E-03
2025		4.17E-02	1.00E+00	DPM	3.0E-04	1.1E+00	1.44E-05	4.36E-05	0.00E+00	4.18E+00	4.2	5.0E+00	8.34E-03
											9.80		**0.018**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 517887.98 E, 4265346.54 N

	OEHHA age bin	3rd Trimester	0 < 2 years
	exposure year(s)	2022	2022-2023
Dose Exposure Factors:	exposure frequency (days/year)	350	350
	inhalation rate (L/kg-day) [1]	361	1090
	inhalation absorption factor	1	1
	conversion factor (mg/µg; m^3/L)	1.0E-06	1.0E-06
Risk Calculation Factors:	age sensitivity factor	10	10
	averaging time (years)	70	70
	per million	1.0E+06	1.0E+06
	fraction of time at home	0.85	0.85

exposure durations per age bin			exposure durations (year)	
Construction Year		Duration [2]	3rd Trimester	0 < 2 years
	2023	0.25	0.25	
	2024	1.00		1.00
	2025	0.75		0.75
Total		2.00	0.25	1.75

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Construction durations determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C5
Preschool MER Concentrations for Risk Calculations

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MER Conc. ($\mu g/m^3$)	Total MER Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Preschool Receptors - Unmitigated						
DPM	2023	On-Site Emissions	5.86	4.41E-03	2.59E-02	2.59E-02
		Truck Route	2.64	2.97E-06	7.85E-06	
	2024	On-Site Emissions	5.86	1.01E-02	5.91E-02	5.91E-02
		Truck Route	2.64	5.94E-06	1.57E-05	
	2025	On-Site Emissions	5.86	4.80E-03	2.82E-02	2.82E-02
		Truck Route	2.64	1.49E-06	3.93E-06	
			Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations			
$PM_{2.5}$	2023	On-Site Emissions	5.86	1.34E-02	7.85E-02	7.85E-02
		Truck Route	2.64	2.97E-06	7.85E-06	
	2024	On-Site Emissions	5.86	1.87E-02	1.10E-01	1.10E-01
		Truck Route	2.64	5.94E-06	1.57E-05	
	2025	On-Site Emissions	5.86	3.86E-03	2.26E-02	2.26E-02
		Truck Route	2.64	1.49E-06	3.93E-06	
				Maximum Annual $PM_{2.5}$ Concentration		**0.11**
Mother Earth's Children Preschool UTM coordinates: 517737.98 E, 4265421.54 N						

[1] Model Output at the MER based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C6
Preschool MER Health Risk Calculations

Source		MER	Weight	Contaminant			Dose (by age bin)	Carcinogenic Risks (by age bin)	**Total Cancer Risk**	**Chronic Hazards [3]**	
		Conc. ($\mu g/m^3$)	Fraction		URF $(\mu g/m^3)^{-1}$	CPF $(mg/kg/day)^{-1}$	Preschool 2 < 9 years (mg/kg-day)	Preschool 2 < 9 years per million	per million	REL ($\mu g/m^3$)	RESP
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Preschool Receptors - Unmitigated											
2023	On & Off-Site Emissions	2.59E-02	1.00E+00	DPM	3.0E-04	1.1E+00	8.16E-06	9.18E-02	0.1	5.0E+00	5.17E-03
2024		5.91E-02	1.00E+00	DPM	3.0E-04	1.1E+00	1.87E-05	8.40E-01	0.8	5.0E+00	1.18E-02
2025		2.82E-02	1.00E+00	DPM	3.0E-04	1.1E+00	8.89E-06	3.00E-01	0.3	5.0E+00	5.63E-03
								Total	**1.23**		**0.023**

		Preschool
	OEHHA age bin	2 < 9 years
	exposure year(s)	2023-2025
Dose Exposure Factors:	exposure frequency (days/year)	180
	8-hour inhalation rate (L/kg-day) [1]	640
	inhalation absorption factor	1
	conversion factor (mg/µg; m^3/L)	1.0E-06
Risk Calculation Factors:	age sensitivity factor	3
	averaging time (years)	70
	per million	1.0E+06

exposure durations per age bin			
	Construction Year	Duration [2]	2 < 9 years
	2023	0.25	0.25
	2024	1.00	1.00
	2025	0.75	0.75
	Total	2.00	2.00

[1] Inhalation rate taken as the 8-hour 95th percentile breathing rates, Moderate Activity (OEHHA, 2015).

[2] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C7
Preschool MER Concentrations for Risk Calculations - Mitigated

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MER Conc. ($\mu g/m^3$)	Total MER Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Preschool Receptors - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP						
DPM	2023	On-Site Emissions	5.86	2.36E-04	1.39E-03	1.39E-03
		Truck Route	2.64	2.97E-06	7.85E-06	
	2024	On-Site Emissions	5.86	1.81E-03	1.06E-02	1.06E-02
		Truck Route	2.64	5.94E-06	1.57E-05	
	2025	On-Site Emissions	5.86	1.81E-03	1.06E-02	1.06E-02
		Truck Route	2.64	1.49E-06	3.93E-06	
				Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations		
$PM_{2.5}$	2023	On-Site Emissions	5.86	9.53E-03	5.59E-02	5.59E-02
		Truck Route	2.64	2.97E-06	7.85E-06	
	2024	On-Site Emissions	5.86	1.11E-02	6.51E-02	6.51E-02
		Truck Route	2.64	5.94E-06	1.57E-05	
	2025	On-Site Emissions	5.86	1.18E-03	6.93E-03	6.93E-03
		Truck Route	2.64	1.49E-06	3.93E-06	
				Maximum Annual $PM_{2.5}$ Concentration		**0.065**
Mother Earth's Children Preschool UTM coordinates: 517737.98 E, 4265421.54 N						

[1] Model Output at the MER based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C8
Preschool MER Health Risk Calculations - Mitigated

Source		MER	Weight	Contaminant			Dose (by age bin)	Carcinogenic Risks (by age bin)	**Total Cancer Risk**	**Chronic Hazards [3]**	
		Conc. ($\mu g/m^3$)	Fraction		URF $(\mu g/m^3)^{-1}$	CPF $(mg/kg/day)^{-1}$	Preschool 2 < 9 years (mg/kg-day)	Preschool 2 < 9 years per million	per million	REL ($\mu g/m^3$)	RESP
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Preschool Receptors - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP												
2023	On & Off-Site Emissions	1.39E-03	1.00E+00	DPM	3.0E-04	1.1E+00	4.40E-07	4.95E-03	0.00	5.0E+00	2.79E-04
2024		1.06E-02	1.00E+00	DPM	3.0E-04	1.1E+00	3.36E-06	1.51E-01	0.15	5.0E+00	2.13E-03
2025		1.06E-02	1.00E+00	DPM	3.0E-04	1.1E+00	3.35E-06	1.13E-01	0.11	5.0E+00	2.12E-03
								Total	**0.27**		**0.005**

	OEHHA age bin	Preschool 2 < 9 years
	exposure year(s)	2023-2025
Dose Exposure Factors:	exposure frequency (days/year)	180
	8-hour inhalation rate (L/kg-day) [1]	640
	inhalation absorption factor	1
	conversion factor (mg/µg; m^3/L)	1.0E-06
Risk Calculation Factors:	age sensitivity factor	3
	averaging time (years)	70
	per million	1.0E+06

exposure durations per age bin			
	Construction Year	Duration [2]	2 < 9 years
	2023	0.25	0.25
	2024	1.00	1.00
	2025	0.75	0.75
	Total	2.00	2.00

[1] Inhalation rate taken as the 8-hour 95th percentile breathing rates, Moderate Activity (OEHHA, 2015).

[2] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C9
Senior Resident MER Concentrations for Risk Calculations

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MER Conc. ($\mu g/m^3$)	Total MER Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Residential Care Specialists, LLC - Unmitigated						
DPM	2023	On-Site Emissions	1.88	4.41E-03	8.31E-03	8.31E-03
		Truck Route	0.91	2.97E-06	2.69E-06	
	2024	On-Site Emissions	1.88	1.01E-02	1.90E-02	1.90E-02
		Truck Route	0.91	5.94E-06	5.39E-06	
	2025	On-Site Emissions	1.88	4.80E-03	9.05E-03	9.05E-03
		Truck Route	0.91	1.49E-06	1.35E-06	
			Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations			
$PM_{2.5}$	2023	On-Site Emissions	1.88	1.34E-02	2.52E-02	2.52E-02
		Truck Route	0.91	2.97E-06	2.69E-06	
	2024	On-Site Emissions	1.88	1.87E-02	3.53E-02	3.53E-02
		Truck Route	0.91	5.94E-06	5.39E-06	
	2025	On-Site Emissions	1.88	3.86E-03	7.27E-03	7.27E-03
		Truck Route	0.91	1.49E-06	1.35E-06	
					Maximum Annual $PM_{2.5}$ Concentration	**0.035**
Residential Care Specialists, LLC UTM coordinates: 517812.98 E, 4265596.54 N						

[1] Model Output at the MER based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C10
Senior Resident MER Health Risk Calculations

Source		MER Conc. ($\mu g/m^3$) (b)	Weight Fraction (c)	Contaminant (d)	URF $(\mu g/m^3)^{-1}$ (e)	CPF $(mg/kg/day)^{-1}$ (f)	Dose (by age bin) Assisted Living 16-70 years (mg/kg-day) (g)	Carcinogenic Risks (by age bin) Assisted Living 16-70 years per million (h)	**Total Cancer Risk** per million (i)	**Chronic Hazards** [3] REL ($\mu g/m^3$) (j)	RESP (k)
(a)											
Residential Care Specialists, LLC - Unmitigated											
2023	On & Off-Site Emissions	8.31E-03	1.00E+00	DPM	3.0E-04	1.1E+00	2.41E-06	9.03E-03	0.01	5.0E+00	1.66E-03
2024		1.90E-02	1.00E+00	DPM	3.0E-04	1.1E+00	5.51E-06	8.26E-02	0.08	5.0E+00	3.80E-03
2025		9.05E-03	1.00E+00	DPM	3.0E-04	1.1E+00	2.62E-06	2.96E-02	0.03	5.0E+00	1.81E-03
								Total	**0.12**		**0.007**

		Residential Care Specialists, LLC (Assisted Living)
	OEHHA age bin	16-70 years
	exposure year(s)	2023-2025
Dose Exposure Factors:	exposure frequency (days/year)	365
	inhalation rate (L/kg-day) [1]	290
	inhalation absorption factor	1
	conversion factor (mg/µg; m^3/L)	1.0E-06
Risk Calculation Factors:	age sensitivity factor	1
	averaging time (years)	70
	per million	1.0E+06

exposure durations per age bin			
	Construction Year	Duration [2]	16 - 70 years
	2023	0.25	0.25
	2024	1.00	1.00
	2025	0.75	0.75
	Total	2.00	2.00

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C11
Senior Care MER Concentrations for Risk Calculations - Mitigated

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MER Conc. ($\mu g/m^3$)	Total MER Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Residential Care Specialists, LLC - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP						
DPM	2023	On-Site Emissions	1.88	2.36E-04	4.45E-04	4.48E-04
		Truck Route	0.91	2.97E-06	2.69E-06	
	2024	On-Site Emissions	1.88	1.81E-03	3.41E-03	3.42E-03
		Truck Route	0.91	5.94E-06	5.39E-06	
	2025	On-Site Emissions	1.88	1.81E-03	3.41E-03	3.41E-03
		Truck Route	0.91	1.49E-06	1.35E-06	
			Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations			
$PM_{2.5}$	2023	On-Site Emissions	1.88	9.53E-03	1.79E-02	1.79E-02
		Truck Route	0.91	2.97E-06	2.69E-06	
	2024	On-Site Emissions	1.88	1.11E-02	2.09E-02	2.09E-02
		Truck Route	0.91	5.94E-06	5.39E-06	
	2025	On-Site Emissions	1.88	1.18E-03	2.22E-03	2.23E-03
		Truck Route	0.91	1.49E-06	1.35E-06	
					Maximum Annual $PM_{2.5}$ Concentration	**0.021**
Residential Care Specialists, LLC UTM coordinates: 517812.98 E, 4265596.54 N						

[1] Model Output at the MER based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C12
Senior Care MER Health Risk Calculations - Mitigated

Source		MER Conc. ($\mu g/m^3$) (a)	Weight Fraction (b)	Contaminant (c)	URF $(\mu g/m^3)^{-1}$ (d)	CPF $(mg/kg/day)^{-1}$ (e)	Dose (by age bin) Assisted Living 16-70 years (mg/kg-day) (f)	Carcinogenic Risks (by age bin) Assisted Living 16-70 years per million (g)	**Total Cancer Risk** per million (h)	**Chronic Hazards [3]** REL ($\mu g/m^3$) (i)	RESP (j)
Residential Care Specialists, LLC - Mitigated Run: Tier 4 Interim Engines for eq. >50 HP											
2023	On & Off-Site Emissions	4.48E-04	1.00E+00	DPM	3.0E-04	1.1E+00	1.30E-07	4.87E-04	0.0005	5.0E+00	8.95E-05
2024		3.42E-03	1.00E+00	DPM	3.0E-04	1.1E+00	9.91E-07	1.49E-02	0.015	5.0E+00	6.83E-04
2025		3.41E-03	1.00E+00	DPM	3.0E-04	1.1E+00	9.90E-07	1.11E-02	0.011	5.0E+00	6.82E-04
								Total	**0.026**		**0.001**

Residential Care Specialists, LLC (Assisted Living)

	OEHHA age bin	16-70 years
	exposure year(s)	2023-2025
Dose Exposure Factors:	exposure frequency (days/year)	365
	inhalation rate (L/kg-day) [1]	290
	inhalation absorption factor	1
	conversion factor ($mg/\mu g$; m^3/L)	1.0E-06
Risk Calculation Factors:	age sensitivity factor	1
	averaging time (years)	70
	per million	1.0E+06

exposure durations per age bin			
	Construction Year	Duration [2]	16 - 70 years
	2023	0.25	0.25
	2024	1.00	1.00
	2025	0.75	0.75
	Total	2.00	2.00

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Construction duration determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.