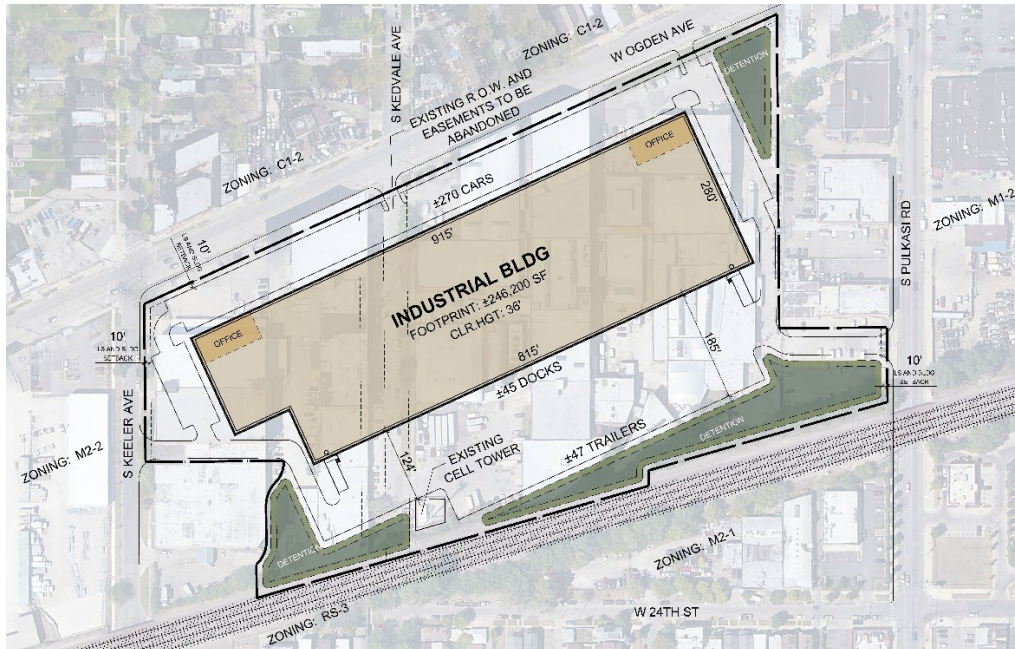




Air Quality Impact Evaluation (AQIE) for Proposed Warehouse Redevelopment Project 4041-4071 Ogden Avenue Chicago, Illinois 60623



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1. INTRODUCTION AND PURPOSE

An air quality impact evaluation (AQIE) using air dispersion modeling has been conducted by Jacob and Hefner Associates (JHA) for IDI Logistics' (IDI) proposed industrial building/warehouse project located at 4041-4071 Ogden Avenue, Chicago, Illinois 60623 ("Project"). The intent of IDI's Project plan is to demolish existing light industrial and warehousing facilities and construct a new approximately 246,200-square-foot warehouse building that includes approximately 12,300 square feet of office space at the northeast and northwest corner of the building. The building and facilities will be built on the 14.93-acre site bounded on the west by Keeler Avenue, on the north by Ogden Avenue, on the East by existing facilities at the corner of Ogden Avenue and Pulaski Road and along Pulaski Road, and on the south by the Metra rail line and BNSF railroad tracks. The proposed Project site map is provided in **Figure 1**. The completed site will have a car parking lot in front of the approximately rectangular building facing Ogden Avenue to the north-northwest and will have approximately 45 docks and a trailer parking lot behind the building, along with stormwater detention basins to the south-southeast.

IDI's proposed construction project is on a site exceeding 10 acres and is therefore subject to the planned development standards and the site plan review requirements under Title 17 of the Zoning Ordinance of the Municipal Code of Chicago. As part of the site plan review and prior to construction of such facilities, the use standards, under Section 17-9-0117-G of the Municipal Code of Chicago (MCC, 2022) requires IDI to complete a traffic study as well as an AQIE to study the potential impact of the proposed warehouse development project on air quality. The AQIE used the results of the traffic study (KLOA, 2022) completed to study traffic impacts from Project development. The AQIE will be submitted to the Chicago Department of Public Health (CDPH) for their review and written recommendation to the Zoning Administrator before zoning certification is issued for the proposed project.

JHA completed air dispersion modeling as part of this AQIE in accordance with the Air Quality Ordinance using guidance provided by CDOH and information from KLOA's traffic study to obtain site-specific traffic counts and projected transportation conditions associated with the proposed Project development. This AQIE addresses three Project-specific air pollutants (PSAPs) of concern, namely nitrogen oxides (NO_x), and particulate matter with aerodynamic diameter less than or equal to 2.5 μm and 10 μm (PM_{2.5} and PM₁₀) generated from full-scale operations at the site. In particular, the evaluation focused on the impacts on air quality from on-site mobile and stationary emission sources, and off-site mobile source emission sources adjacent to the Project development.

Emissions of PSAPs from mobile sources associated with the proposed Project was based on the U. S. Environmental Protection Agency (USEPA) Motor Vehicle Emission Simulator (MOVES3) emissions modeling system (USEPA, 2021). The vehicle emission factors from MOVES3 were provided by CDPH in an Excel lookup table (CDPH, 2022). The emission factors for vehicles and combustion heating sources were used to obtain emission estimates to run USEPA's AERMOD air dispersion modeling software program. The modeled impacts were evaluated to determine if the Project could cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) for the pollutants of concern. The purpose of this AQIE report is to document the procedures used and present the findings of the AQIE.

2. OVERVIEW OF AQIE PROCEDURES

The AQIE followed the requirements of *Air Quality Impact Evaluation Interim Guidance* (CDPH, 2021), which will be referred to as “CDPH Interim Guidance.” IDI provided information to assist JHA prepare an inventory of air pollutant emission sources associated with the warehouse redevelopment including emissions due to passenger vehicle and truck traffic from the warehouse and comfort heating/cooling equipment. Using techniques in the US Environmental Protection Agency (USEPA) AP-42 emission factors guidance documents (USEPA, 1998) and the CDPH Interim Guidance, the emissions of the following air pollutants were estimated for the sources at the proposed project:

- Oxides of nitrogen (NO_x)
- Particulate matter with aerodynamic diameter less than 10 microns (PM₁₀)
- Particulate matter with aerodynamic diameter less than 2.5 microns (PM_{2.5})

In accordance with the CDPH Interim Guidance, air quality impacts from project-related potential air pollutant emissions were evaluated using the USEPA-recommended regulatory air dispersion model AERMOD (USEPA, 2022). The latest regulatory-approved version (21112) of the AERMOD modeling system that was available in the Breeze AERMOD software package was used. AERMOD-predicted concentrations due to emissions from the warehouse development sources were combined with background ambient air concentrations monitored at locations representative of the Southwest region of Chicago for comparison with the National Ambient Air Quality Standards (NAAQS). The CDPH provided both background air concentrations and the NAAQS for the following:

- 1-hour average nitrogen dioxide (NO₂), assuming all NO_x emissions result in NO₂
- 24-hr average PM₁₀
- 24-hr average PM_{2.5}

Other data required for the AQIE modeling including mobile-source emission factors, AERMOD-ready meteorological data, terrain data, and background concentrations were acquired from the CDPH website (CDPH, 2022).

3. EMISSION INVENTORY

3.1 Traffic Emission Sources

Traffic volumes, namely passenger vehicles and truck trips generated resulting from the Project were estimated for 1-hour increments over a typical weekday in the traffic report (KLOA, 2022). **Table 1** shows the KLOA-projected traffic counts from passenger vehicles and trucks for an Institution of Transportation Engineer (ITE) land use classification code (150) for a Warehouse, as described in U.S. Department of Transportation’s Trip Generation Manual, 11th Edition.

Table 1. KLOA Traffic Study: Trip Generation from Project

| Hour of Day | 246,200 ft ² Warehouse (LUC 150) Projected Trips | |
|----------------|---|--------|
| | Passenger Vehicle | Trucks |
| 12:00 AM | 1 | 0 |
| 1:00 AM | 2 | 0 |
| 2:00 AM | 0 | 0 |
| 3:00 AM | 0 | 0 |
| 4:00 AM | 3 | 0 |
| 5:00 AM | 7 | 0 |
| 6:00 AM | 18 | 0 |
| 7:00 AM | 20 | 5 |
| 8:00 AM | 18 | 6 |
| 9:00 AM | 17 | 10 |
| 10:00 AM | 12 | 9 |
| 11:00 AM | 15 | 3 |
| 12:00 PM | 28 | 6 |
| 1:00 PM | 15 | 8 |
| 2:00 PM | 21 | 6 |
| 3:00 PM | 24 | 6 |
| 4:00 PM | 21 | 2 |
| 5:00 PM | 23 | 1 |
| 6:00 PM | 14 | 0 |
| 7:00 PM | 4 | 0 |
| 8:00 PM | 2 | 0 |
| 9:00 PM | 8 | 0 |
| 10:00 PM | 4 | 0 |
| 11:00 PM | 3 | 0 |
| | | |
| Daily Total | 280 | 62 |
| Hourly Average | 11.7 | 2.6 |
| Maximum Hourly | 28 | 10 |

Emission rates from local passenger vehicles and truck traffic associated with the proposed warehouse were estimated using the trip projections and emission factors from CDPH’s published MOVES Tables. Traffic was modeled along the following off-site and on-site stretches of roadway:

- Ogden Avenue between Kostner Avenue and Cermak Road
- Pulaski Road from 24th Street to Cermak Road
- Keeler Avenue from Ogden Avenue to the west site entrance
- On-Site passenger vehicle parking lot
- On-Site truck dock area

It was conservatively assumed that the full volume of traffic to and from the warehouse will operate on each stretch of road. Based on planned entrances and exits to the facility, only truck traffic was included for Keeler Avenue because passenger vehicles will typically enter and exit along Ogden Avenue. The other stretches of public roadway included both passenger vehicle and truck traffic.

The on-site passenger vehicle parking lot and truck dock area included traffic only from passenger vehicles and from trucks, respectively.

Traffic speed ranges were assumed to be 27.5 to 32.5 miles per hour (mph) for traffic on Ogden Avenue and Pulaski Road, 12.5 to 17.5 mph for traffic on Keeler Avenue, and 2.5 to 7.5 mph for the on-site traffic. Trucks were assumed to idle for 10 minutes per trip at the truck dock area. No idling was assumed for passenger vehicles.

The vehicle classifications “Passenger Car” with gasoline fuel, “Combination Short-Haul Truck” with diesel fuel, year 2024 for initial year of operation, and “urban unrestricted” (i.e., non-highway) for road type were additional parameters selected from the CDPH MOVES emission factor tables.

The calculated emission estimates for each of the emission sources were attributed to volume and area sources in the AERMOD dispersion model in accordance with the CDPH Interim Guidance. These traffic-related emission rate estimates are included in **Appendix A**.

3.2 Other Emissions Sources

Building heat will be supplied by natural gas burning direct-fired air handling units. Emissions estimates for this source were based on the maximum firing rate 24-hours per day all year and emission factors for the three PSAPs from AP-42 (USEPA, 1998). **Appendix A** also includes the emission rate estimate for this stationary source, which was modeled as a building area source.

3.3 Identification of Modeled Emission Sources

For the modeling study, the primary emission sources contributing to air quality impact were considered to be from increased traffic from the redevelopment project described in Section 3.1.

The only other stationary emission source considered was the combustion equipment used for providing heat to the building described in Section 3.2.

Table 2 provides a list of all the emission sources included in the model. **Appendix A** shows the calculated emissions rates of the three PSAPs of concern for passenger and truck traffic (Table A-2); for truck idling (Table A-3); and for building heat (Table A-4). **Figure 2** shows a map of the Project site identifying each of the traffic emission source road segments, and the on-site emission sources and also shows the modeling receptor grid in the vicinity of the Project site.

Table 2. List of Modeled Emission Sources

| Description | Source ID Source Type: Volume (V); Area (A); Point (P) | Segment Length (m) |
|---|--|-----------------------|
| Ogden Ave - Kostner to Keeler, Eastbound | Ogden-01-EB-Cars V | 1414 |
| Ogden Ave - Kostner to Keeler, Eastbound | Ogden-01-EB-Trucks V | 1414 |
| Ogden Ave – Keeler to Kostner, Westbound | Ogden-01-WB-Cars V | 1414 |
| Ogden Ave – Keeler to Kostner, Westbound | Ogden-01-WB-Trucks V | 1414 |
| Ogden Ave - Keeler to Ogden West Entrance, Eastbound | Ogden-02-EB-Cars V | 430 |
| Ogden Ave - Keeler to Ogden West Entrance, Eastbound | Ogden-02-EB-Trucks V | 430 |
| Ogden Ave - Ogden West Entrance to Keeler, Westbound | Ogden-02-WB-Cars V | 430 |
| Ogden Ave - Ogden West Entrance to Keeler, Westbound | Ogden-02-WB-Trucks V | 430 |
| Ogden Ave - Ogden West Entrance to East Entrance, Eastbound | Ogden-03-EB-Cars V | 528 |
| Ogden Ave - Ogden West Entrance to East Entrance, Eastbound | Ogden-03-EB-Trucks V | 528 |
| Ogden Ave - Ogden East Entrance to West Entrance, Westbound | Ogden-03-WB-Cars V | 528 |
| Ogden Ave - Ogden East Entrance to West Entrance, Westbound | Ogden-03-WB-Trucks V | 528 |
| Ogden Ave - Ogden East Entrance to Pulaski, Eastbound | Ogden-04-EB-Cars V | 400 |
| Ogden Ave - Ogden East Entrance to Pulaski, Eastbound | Ogden-04-EB-Trucks V | 400 |
| Ogden Ave - Pulaski to Ogden East Entrance, Westbound | Ogden-04-WB-Cars V | 400 |
| Ogden Ave – Pulaski to Ogden East Entrance, Westbound | Ogden-04-WB-Trucks V | 400 |
| Ogden Ave - Pulaski to Cermak, Eastbound | Ogden-05-EB-Cars V | 400 |
| Ogden Ave - Pulaski to Cermak, Eastbound | Ogden-05-EB-Trucks V | 400 |
| Ogden Ave – Cermak to Pulaski, Westbound | Ogden-05-WB-Cars V | 400 |
| Ogden Ave – Cermak to Pulaski, Westbound | Ogden-05-WB-Trucks V | 400 |
| Pulaski Rd - 24th Street to East Site Entrance, Northbound | Pulaski-01-NB-Cars V | 400 |
| Pulaski Rd - 24th Street to East Site Entrance, Northbound | Pulaski-01-NB-Trucks V | 400 |
| Pulaski Rd - East Site Entrance to 24th Street, Southbound | Pulaski-01-SB-Cars V | 400 |
| Pulaski Rd - East Site Entrance to 24th Street, Southbound | Pulaski-01-SB-Trucks V | 400 |
| Pulaski Rd - East Site Entrance to Ogden Ave, Northbound | Pulaski-02-NB-Cars V | 653 |
| Pulaski Rd - East Site Entrance to Ogden Ave, Northbound | Pulaski-02-NB-Trucks V | 653 |
| Pulaski Rd - Ogden Ave to East Site Entrance, Southbound | Pulaski-02-SB-Cars V | 653 |
| Pulaski Rd - Ogden Ave to East Site Entrance, Southbound | Pulaski-02-SB-Trucks V | 653 |
| Keeler Ave - West Site Entrance to Ogden, Northbound | Keeler-01-NB-Trucks V | 240 |

Table 2. List of Modeled Emission Sources

| Description | Source ID Source Type: Volume (V); Area (A); Point (P) | Segment Length (m) |
|--|---|-------------------------------|
| Keeler Ave - Ogden to West Site Entrance, Southbound | Keeler-01-SB-Trucks V | 240 |
| On-Site Cars in Parking Lot, Eastbound and Westbound | Cars-01 V | 2001 |
| On-Site Trucks in Truck Dock Area, Eastbound and Westbound | Trucks-01 V | 1417 |
| Cargo Loadout Zone (Off-Network, 10 min idle time/trip) | Truck-Idle A (1,930 m ²) | NA |
| Building Heat: Direct Fired Units (1.5 MMBtu/hr x 2) | Bldg Heat A (22,527 m ²) | NA |

4. DISPERSION MODEL SETUP

The dispersion model AERMOD was set up using the procedures in the CDPH Interim Guidance and the meteorological data sets available for download from the CDPH resource website (CDPH, 2022; accessed July 11, 2022).

The latest regulatory-approved versions of the AERMOD modeling system available in the Breeze AERMOD software package were used, including the following:

- AERMOD version 21112
- AERMAP version 18081 (Digital terrain preprocessor for AERMOD)
- BPIPPRM version 04274 (Building Profile Input Program with downwash algorithm for input to Prime algorithm)

USEPA released a newer AERMOD version 22112 in June 2022. However, this version has not yet been incorporated into the Breeze AERMOD software package. In USEPA's June 27, 2022 memorandum (USEPA, 2022), it was noted that AERMOD 22112 is a routine release that does not include any scientific updates to the regulatory formulation of AERMOD as described in Appendix W to 40 CFR Part 51 (USEPA, 2017)

4.1 Receptor Network

The receptor network for modeling ambient air concentrations was set up in accordance with the CDPH Interim Guidance and consisted of increased receptor spacing with increasing distance from the site, as follows:

- 25-m along the site boundary
- 50-m within 500 meters of the site
- 100-m between 500 meters and 1.5 km from the site
- 250-m between 1.5 km and 3 km from the site
- 500-m between 3 and 5 km from the site

The receptor network consisted of fence line receptors at the site boundary and nested Cartesian grids surrounding the site. Because no gated fence or other physical barrier to public access is planned at the property boundary of the Project site, the ambient air fence line receptors were placed at the footprint of the building. Receptors were also included on the property within the parking lot and truck dock area. To facilitate use of volume sources for the roadway traffic, receptors along city streets started outside the volume-source exclusion zone. In effect, receptors were placed at street curbs and excluded from the middle of the streets.

Terrain effects were evaluated for the receptors using AERMAP with automatic hill height boundary. The CDPH-provided United States Geological Survey (USGS) National Elevation Dataset (NED) files were used to run AERMAP for terrain processing of the receptor network and assigning elevations for air emission sources in the model.

4.2 Meteorological Data

The CDPH provided five years of AERMOD-ready meteorological data spanning the years from 2016 through 2020 (CDPH, 2022). project site is approximately 4.5 miles north-northeast of Midway Airport and within the region for which the Midway Airport surface station (WBAN 14819) is the CDPH-preferred meteorological dataset.

4.3 Air Emission Source Parameters

Vehicle traffic emissions along local roads and through the site driveways were modeled as adjacent volume sources following US EPA guidance (USEPA, 2011). Separate volume sources were used for trucks and for passenger vehicles. All vehicle traffic was modeled as a single lane using the outside lanes of the road nearest to ambient air receptors in the model.

Passenger vehicles were represented with the following parameters:

- 6-foot vehicle width and 5.5-foot vehicle height, resulting in volume sources with
 - Release Height = 1.42 meters
 - Initial Lateral Dimension (σ_{y0}) = 3.64 meters
 - Initial Vertical Dimension (σ_{z0}) = 1.33 meters

Trucks were represented with the following parameters:

- 8.5-foot vehicle width and 13.5-foot vehicle height, resulting in volume sources with
 - Release Height = 3.5 meters
 - Initial Lateral Dimension (σ_{y0}) = 4.00 meters
 - Initial Vertical Dimension (σ_{z0}) = 3.25 meters

The BREEZE AERMOD software routine for laying out adjacent volume sources to represent roadways was used for each stretch of road that was modeled. After developing the emission estimates for each stretch of road based on the estimated vehicle miles traveled (VMT) and CDPH-provided MOVES emission factors, the estimated emissions were divided evenly among the volume sources which represent the traffic emissions.

Although the traffic impact study provided hourly estimates of vehicle traffic over a typical 24-hour weekday, for demonstration of compliance with the 1-hour NO₂ NAAQS, the maximum hourly vehicle trip projection was modeled for the entire simulation period (rather than using variable emission rates) to be conservative. For the 24-hour PM₁₀ and PM_{2.5} NAAQS compliance, the daily average (24-hr) emission rates were modeled for daily (i.e., seven days per week).

Potential emissions from idling trucks at the loading dock were modeled as an area source with the following parameters:

- Area Length = 225 meters (length of tuck dock)
- Area Width = 8.59 meters (adjusted width for truck for haul roads [USEPA, 2011])
- Release Height = 3.5 meters
- Initial Vertical Dimension (σ_{z0}) = 3.25 meters

Potential emissions from the natural gas burning direct-fired air handling units, which will provide building heat to the warehouse were modeled as an area source with the same footprint as the warehouse building and the following parameters:

- Two direct-fired natural gas fueled makeup air units (1.5 MMBtu/hr x 2)
- Building Height & Plume Height = 36 feet
- Release Height = 5.49 meters (half of the building height)
- Initial Vertical Dimension (σ_{z0}) = 5.10 meters (Plume Height / 2.15)

4.3 AERMOD Files

Dispersion modeling was completed using files created specifically for the Breeze AERMOD modeling software. **Appendix B** contains the AERMOD submittal files used for this Project and includes four zipped folders and the “README” file to provide additional information on file types. The “Base” folder contains the base file for which model objects were created and BPIP-PRIME and AERMAP processing was completed. The remaining three folders contain the AERMOD files for analysis of NO₂, PM₁₀ and PM_{2.5}. In each folder, the AERMOD input files are those with the “.ami” extension. The AERMOD ZIP Files with the “.amz” extension contain all input and output files for AERMOD and, as applicable, BPIP-PRIME and AERMAP.

5. RESULTS OF DISPERSION MODELING

AERMOD runs were completed using five years of meteorological data to predict the concentrations of NO₂, PM_{2.5} and PM₁₀ at the receptor locations using the emissions estimated based on the MOVES3 emission factors provided by CDPH. Compliance with the NAAQS was demonstrated by summing ambient air background concentrations with the AERMOD-predicted concentrations associated with the project.

5.1 Ambient Air Background Concentrations

The CDPH website (CDPH, 2022) provided tables of ambient air background concentrations for four regions of Chicago:

- Northwest (>4 miles of the lakeshore and north of Eisenhower Expressway).
- Northeast (<4 miles of the lakeshore and north of 63rd Street)
- Southwest (≥ 4 miles of the lakeshore and south of the Eisenhower Expressway)
- Southeast (< 4 miles of the lakeshore and south of 63rd Street)

The project site is within the Southwest region. The CDPH dataset provided hourly background concentrations of 1-hr NO₂ for each of four seasons as well as the annual average NO₂ concentration. CDPH also provided background concentrations of both 24-hour and annual average PM_{2.5} and PM₁₀. The background concentrations providing the most restrictive conditions were the 1-hr average NO₂, and 24-hour average PM₁₀ and PM_{2.5}. Rather than evaluate the background concentration by season and hour of the day, the maximum of the 1-hr average NO₂ concentrations was taken as the ambient air background concentration for this analysis. Data from the years 2018, 2019, and 2020 was used for establishing the background concentrations except for the summer 1-hour NO₂, which used data from 2017, 2018, and 2019.

The following ambient air monitors identified as representative of the Southwest region, are shown below with the associated averaging time and background concentrations:

- NO₂, (1-hr): 90.68 µg/m³ (Com-Ed Maintenance Building, Monitor ID 17-031-0076)
- PM₁₀, (24-hr): 102 µg/m³ (Village Hall, Monitor ID 17-031-1016)
- PM_{2.5}, (24-hr): 23 µg/m³ (Village Hall, Monitor ID 17-031-1016)

5.2 Summary of Results

The AERMOD modeling runs estimated the potential impacts from NO₂, PM₁₀, and PM_{2.5} resulting from Project-generated on- and off-site passenger vehicle and truck emissions, and from on-site combustion heating emission sources. The modeled concentrations used for comparison with the NAAQS was selected from the model runs for five years for each pollutant based on the form of the NAAQS for which compliance is being demonstrated. The model predicted concentration was then combined with the corresponding background concentrations to determine if there was any exceedance of the NAAQS.

For each of the air pollutants of concern, the sum of the background and modeled concentrations was compared with the corresponding NAAQS and their associated averaging period. **Table 3**

provides a summary of the air dispersion modeling results and includes the ambient air background concentrations and predicted AERMOD model concentrations selected based on the form of the NAAQS (see Notes under Table 3).

TABLE 3 - Summary of AQIE Dispersion Modeling Results

| Pollutant | Averaging Period | Ambient Air Concentration (µg/m ³) | | | |
|-------------------|------------------|--|------------------------|--------------------------------|----------------------|
| | | Background | Modeled Due to Project | TOTAL Predicted ^(d) | NAAQS |
| NO ₂ | 1-hour | 90.68 | 73.55 ^(a) | 164.23 | 188.2 ^(e) |
| PM ₁₀ | 24-hour | 102 | 0.91 ^(b) | 102.9 | 150 |
| PM _{2.5} | 24-hour | 23 | 0.67 ^(c) | 23.7 | 35 |

Notes:

- a) Average of the high 8th high (H8H) 1-hour daily maximum concentrations from each of five years of meteorological data modeled, representative of the form of the NAAQS for which compliance is demonstrated with the average of the 98th percentile 1-hour daily maximum concentrations over a 3-year period.
- b) Maximum high 2nd high (H2H) 24-hour concentration over the five years of meteorological data modeled, representative of the form of the NAAQS for which compliance is demonstrated by being exceeded no more than once per year on average over a 3-year period
- c) Average of the H8H 24-hour concentrations from each of five years of meteorological data modeled, representative of the form of the NAAQS for which compliance is demonstrated with the average of the 98th percentile 24-hour concentrations over a 3-year period
- d) Sum of background and modeled concentrations attributed to the Project
- e) 1-hour NO₂ NAAQS of 100 ppb converted to mg/m³ using molecular weight of 46.01 g/mol and 24.45 liters/gram of gas at 25°C and 1 atm.

The dispersion modeling shows that the total predicted project-related ambient air concentrations were below the NAAQS for 1-hour NO₂, 24-hour PM₁₀, and 24-hour PM_{2.5}. These results demonstrate that the IDI warehouse construction project is not expected to cause or contribute to an exceedance of the NAAQS for the pollutants of concern and that there is no significant impact on air quality in the vicinity of the Project.

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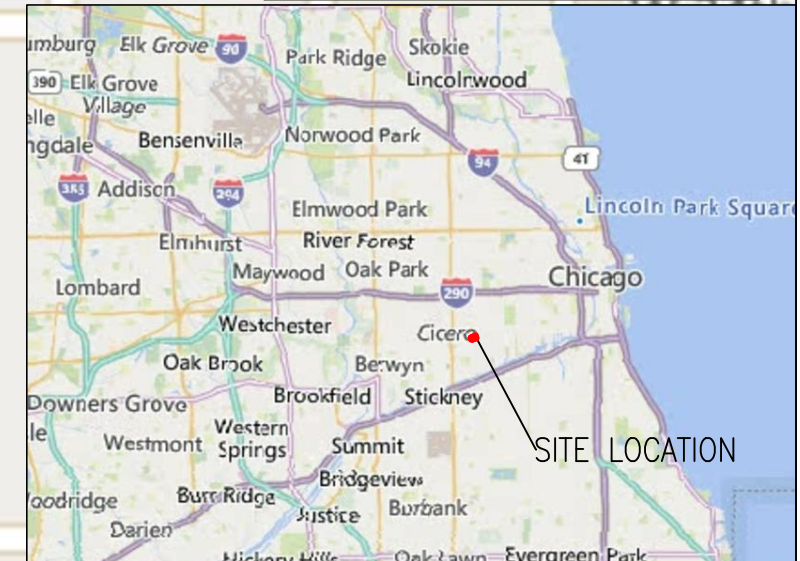
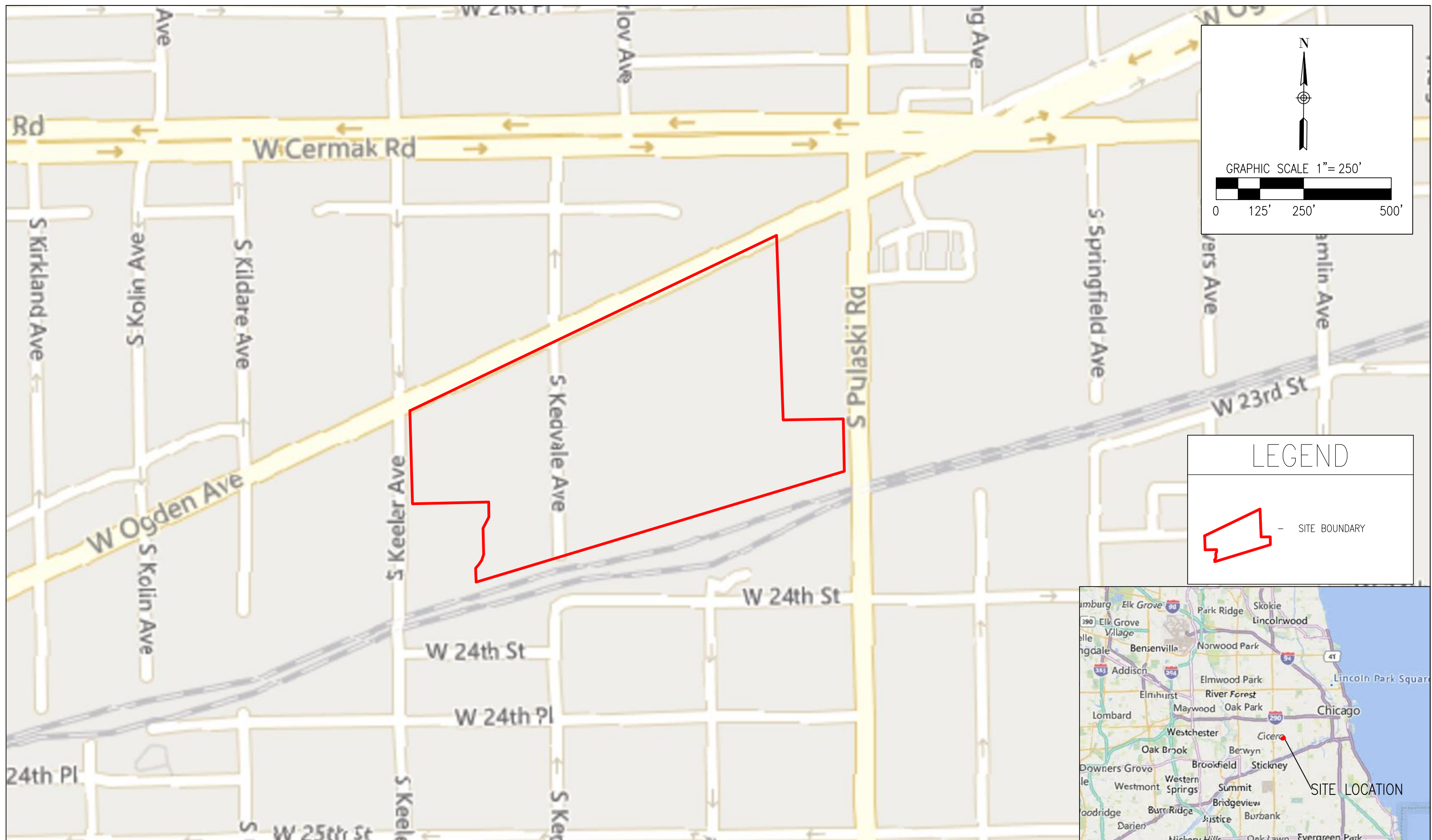
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FIGURES

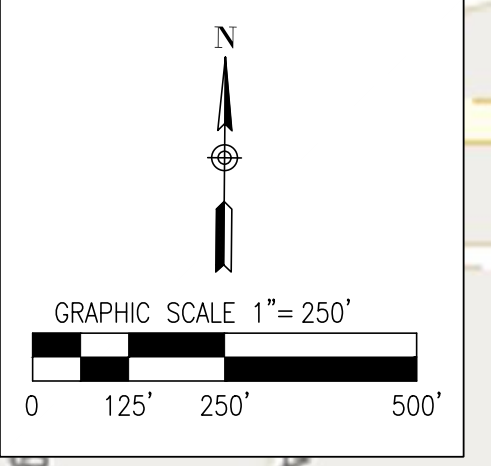
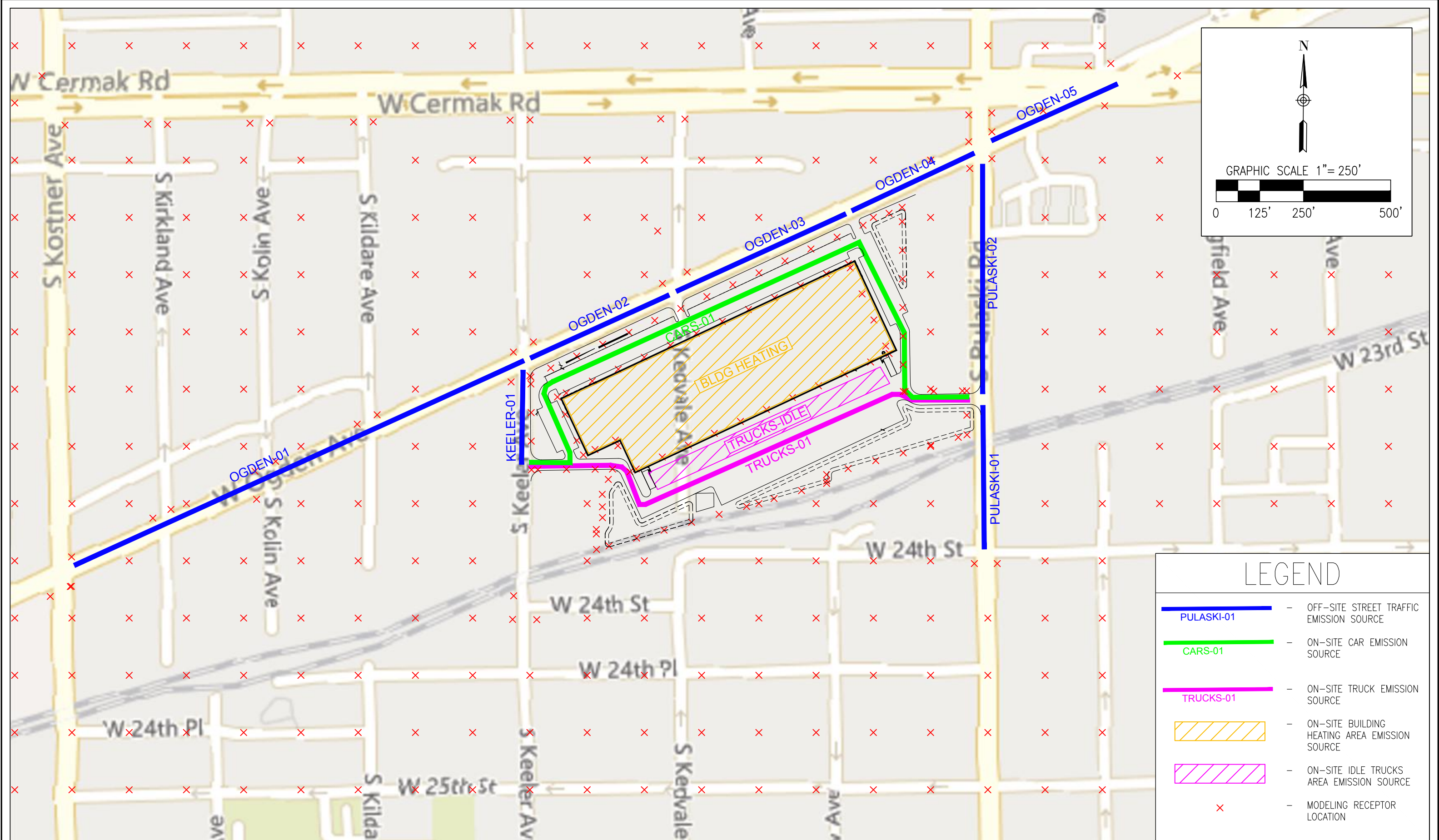



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SITE LOCATION MAP

| | |
|----------------|---------------------|
| PROJECT NAME: | OGDEN - PULASKI |
| CLIENT NAME: | IDI LOGISTICS |
| LOCATION: | CHICAGO, IL |
| DATE PREPARED: | 7/29/22 |
| SHEET: | FIG 1 JOB NO.: G425 |

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LEGEND

| | | |
|---|------------|---|
|  | PULASKI-01 | - OFF-SITE STREET TRAFFIC EMISSION SOURCE |
|  | CARS-01 | - ON-SITE CAR EMISSION SOURCE |
|  | TRUCKS-01 | - ON-SITE TRUCK EMISSION SOURCE |
|  | | - ON-SITE BUILDING HEATING AREA EMISSION SOURCE |
|  | | - ON-SITE IDLE TRUCKS AREA EMISSION SOURCE |
|  | | - MODELING RECEPTOR LOCATION |

EMISSION SOURCES AND RECEPTOR GRID

| | | | |
|----------------|---------------|----------|------|
| PROJECT NAME: | OGDEN-PULASKI | | |
| CLIENT NAME: | IDI LOGISTICS | | |
| LOCATION: | CHICAGO, IL | | |
| DATE PREPARED: | 7/29/22 | | |
| SHEET: | FIG 2 | JOB NO.: | G425 |

H:\G425\ENV\Air Modeling\CAD\220727 Air Emissions\G425 Air Emissions.dwg

APPENDIX A

Emission Rate Calculations for Project Air Emission Sources

APPENDIX A

Color-Coding Legend:

- User Input Keyed In
- User Input Selected from Identified Category in MOVES

Initial Operation Year 2024

TABLE A-1

Projected Traffic Volumes^(a)

| Hour of Day | Passenger Vehicle Trips - IN & OUT | Truck Trips - IN & OUT |
|----------------|------------------------------------|------------------------|
| 12:00 AM | 1 | 0 |
| 1:00 AM | 2 | 0 |
| 2:00 AM | 0 | 2 |
| 3:00 AM | 0 | 2 |
| 4:00 AM | 3 | 3 |
| 5:00 AM | 7 | 6 |
| 6:00 AM | 18 | 7 |
| 7:00 AM | 20 | 8 |
| 8:00 AM | 18 | 8 |
| 9:00 AM | 17 | 14 |
| 10:00 AM | 12 | 14 |
| 11:00 AM | 15 | 16 |
| 12:00 PM | 28 | 10 |
| 1:00 PM | 15 | 12 |
| 2:00 PM | 21 | 9 |
| 3:00 PM | 24 | 14 |
| 4:00 PM | 21 | 11 |
| 5:00 PM | 23 | 6 |
| 6:00 PM | 14 | 2 |
| 7:00 PM | 4 | 1 |
| 8:00 PM | 2 | 2 |
| 9:00 PM | 8 | 1 |
| 10:00 PM | 4 | 0 |
| 11:00 PM | 3 | 0 |
| Daily Total | 280 | 148 |
| Hourly Average | 11.7 | 6.2 |
| Maximum Hourly | 28 | 16 |

(a) Based on KLOA Traffic Study, 2022

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-01-EB-Cars

| | |
|-----------------------|------------------------------------|
| Segment Description | Ogden Ave - from Kostner to Keeler |
| Travel Direction | Eastbound |
| Segment Length (feet) | 1414 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.134 | 0.004 | 5.91E-03 | 1.98E-04 | 1.75E-04 |
| 1:00 AM | 1 | 0.268 | 0.007 | 1.18E-02 | 3.96E-04 | 3.51E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.402 | 0.011 | 1.77E-02 | 5.95E-04 | 5.26E-04 |
| 5:00 AM | 3.5 | 0.937 | 0.025 | 4.14E-02 | 1.39E-03 | 1.23E-03 |
| 6:00 AM | 9 | 2.410 | 0.064 | 1.06E-01 | 3.57E-03 | 3.16E-03 |
| 7:00 AM | 10 | 2.678 | 0.071 | 1.18E-01 | 3.96E-03 | 3.51E-03 |
| 8:00 AM | 9 | 2.410 | 0.064 | 1.06E-01 | 3.57E-03 | 3.16E-03 |
| 9:00 AM | 8.5 | 2.276 | 0.061 | 1.00E-01 | 3.37E-03 | 2.98E-03 |
| 10:00 AM | 6 | 1.607 | 0.043 | 7.09E-02 | 2.38E-03 | 2.10E-03 |
| 11:00 AM | 7.5 | 2.009 | 0.054 | 8.87E-02 | 2.97E-03 | 2.63E-03 |
| 12:00 PM | 14 | 3.749 | 0.100 | 1.66E-01 | 5.55E-03 | 4.91E-03 |
| 1:00 PM | 7.5 | 2.009 | 0.054 | 8.87E-02 | 2.97E-03 | 2.63E-03 |
| 2:00 PM | 10.5 | 2.812 | 0.075 | 1.24E-01 | 4.16E-03 | 3.68E-03 |
| 3:00 PM | 12 | 3.214 | 0.086 | 1.42E-01 | 4.76E-03 | 4.21E-03 |
| 4:00 PM | 10.5 | 2.812 | 0.075 | 1.24E-01 | 4.16E-03 | 3.68E-03 |
| 5:00 PM | 11.5 | 3.080 | 0.082 | 1.36E-01 | 4.56E-03 | 4.03E-03 |
| 6:00 PM | 7 | 1.875 | 0.050 | 8.28E-02 | 2.77E-03 | 2.45E-03 |
| 7:00 PM | 2 | 0.536 | 0.014 | 2.36E-02 | 7.93E-04 | 7.01E-04 |
| 8:00 PM | 1 | 0.268 | 0.007 | 1.18E-02 | 3.96E-04 | 3.51E-04 |
| 9:00 PM | 4 | 1.071 | 0.029 | 4.73E-02 | 1.59E-03 | 1.40E-03 |
| 10:00 PM | 2 | 0.536 | 0.014 | 2.36E-02 | 7.93E-04 | 7.01E-04 |
| 11:00 PM | 1.5 | 0.402 | 0.011 | 1.77E-02 | 5.95E-04 | 5.26E-04 |
| Daily Total | 140 | 37.494 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 1.562 | 0.042 | 6.90E-02 | 2.31E-03 | 2.05E-03 |
| Maximum Hourly | 14 | 3.749 | 0.100 | 1.66E-01 | 5.55E-03 | 4.91E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 54 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---------------------------------|----------------------------------|-----------------------------------|
| | | | | <i>Ogden_01_EB_Cars NOx</i> | <i>Ogden_01_EB_Cars PM10</i> | <i>Ogden_01_EB_Cars PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.55E-07 | 1.19E-08 | 1.05E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.51E-07 | 2.85E-08 | 2.53E-08 |

| | | |
|-----------------------|---|--|
| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-01-EB-Trucks

| | |
|-----------------------|------------------------------------|
| Segment Description | Ogden Ave - from Kostner to Keeler |
| Travel Direction | Eastbound |
| Segment Length (feet) | 1414 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 3:00 AM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 4:00 AM | 1.5 | 0.402 | 0.020 | 3.08E+00 | 8.77E-02 | 8.07E-02 |
| 5:00 AM | 3 | 0.803 | 0.041 | 6.16E+00 | 1.75E-01 | 1.61E-01 |
| 6:00 AM | 3.5 | 0.937 | 0.047 | 7.18E+00 | 2.05E-01 | 1.88E-01 |
| 7:00 AM | 4 | 1.071 | 0.054 | 8.21E+00 | 2.34E-01 | 2.15E-01 |
| 8:00 AM | 4 | 1.071 | 0.054 | 8.21E+00 | 2.34E-01 | 2.15E-01 |
| 9:00 AM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 10:00 AM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 11:00 AM | 8 | 2.142 | 0.108 | 1.64E+01 | 4.68E-01 | 4.30E-01 |
| 12:00 PM | 5 | 1.339 | 0.068 | 1.03E+01 | 2.92E-01 | 2.69E-01 |
| 1:00 PM | 6 | 1.607 | 0.081 | 1.23E+01 | 3.51E-01 | 3.23E-01 |
| 2:00 PM | 4.5 | 1.205 | 0.061 | 9.23E+00 | 2.63E-01 | 2.42E-01 |
| 3:00 PM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 4:00 PM | 5.5 | 1.473 | 0.074 | 1.13E+01 | 3.21E-01 | 2.96E-01 |
| 5:00 PM | 3 | 0.803 | 0.041 | 6.16E+00 | 1.75E-01 | 1.61E-01 |
| 6:00 PM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 7:00 PM | 0.5 | 0.134 | 0.007 | 1.03E+00 | 2.92E-02 | 2.69E-02 |
| 8:00 PM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 9:00 PM | 0.5 | 0.134 | 0.007 | 1.03E+00 | 2.92E-02 | 2.69E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 19.818 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.826 | 0.042 | 6.33E+00 | 1.80E-01 | 1.66E-01 |
| Maximum Hourly | 8 | 2.142 | 0.108 | 1.64E+01 | 4.68E-01 | 4.30E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 49 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Ogden_01_EB_TrucksNOx</i> | <i>Ogden_01_EB_TrucksPM10</i> | <i>Ogden_01_EB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.59E-05 | 1.02E-06 | 9.40E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 9.31E-05 | 2.65E-06 | 2.44E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-01-WB-Cars

| | |
|-----------------------|------------------------------------|
| Segment Description | Ogden Ave - from Kostner to Keeler |
| Travel Direction | Westbound |
| Segment Length (feet) | 1414 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.134 | 0.004 | 5.91E-03 | 1.98E-04 | 1.75E-04 |
| 1:00 AM | 1 | 0.268 | 0.007 | 1.18E-02 | 3.96E-04 | 3.51E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.402 | 0.011 | 1.77E-02 | 5.95E-04 | 5.26E-04 |
| 5:00 AM | 3.5 | 0.937 | 0.025 | 4.14E-02 | 1.39E-03 | 1.23E-03 |
| 6:00 AM | 9 | 2.410 | 0.064 | 1.06E-01 | 3.57E-03 | 3.16E-03 |
| 7:00 AM | 10 | 2.678 | 0.071 | 1.18E-01 | 3.96E-03 | 3.51E-03 |
| 8:00 AM | 9 | 2.410 | 0.064 | 1.06E-01 | 3.57E-03 | 3.16E-03 |
| 9:00 AM | 8.5 | 2.276 | 0.061 | 1.00E-01 | 3.37E-03 | 2.98E-03 |
| 10:00 AM | 6 | 1.607 | 0.043 | 7.09E-02 | 2.38E-03 | 2.10E-03 |
| 11:00 AM | 7.5 | 2.009 | 0.054 | 8.87E-02 | 2.97E-03 | 2.63E-03 |
| 12:00 PM | 14 | 3.749 | 0.100 | 1.66E-01 | 5.55E-03 | 4.91E-03 |
| 1:00 PM | 7.5 | 2.009 | 0.054 | 8.87E-02 | 2.97E-03 | 2.63E-03 |
| 2:00 PM | 10.5 | 2.812 | 0.075 | 1.24E-01 | 4.16E-03 | 3.68E-03 |
| 3:00 PM | 12 | 3.214 | 0.086 | 1.42E-01 | 4.76E-03 | 4.21E-03 |
| 4:00 PM | 10.5 | 2.812 | 0.075 | 1.24E-01 | 4.16E-03 | 3.68E-03 |
| 5:00 PM | 11.5 | 3.080 | 0.082 | 1.36E-01 | 4.56E-03 | 4.03E-03 |
| 6:00 PM | 7 | 1.875 | 0.050 | 8.28E-02 | 2.77E-03 | 2.45E-03 |
| 7:00 PM | 2 | 0.536 | 0.014 | 2.36E-02 | 7.93E-04 | 7.01E-04 |
| 8:00 PM | 1 | 0.268 | 0.007 | 1.18E-02 | 3.96E-04 | 3.51E-04 |
| 9:00 PM | 4 | 1.071 | 0.029 | 4.73E-02 | 1.59E-03 | 1.40E-03 |
| 10:00 PM | 2 | 0.536 | 0.014 | 2.36E-02 | 7.93E-04 | 7.01E-04 |
| 11:00 PM | 1.5 | 0.402 | 0.011 | 1.77E-02 | 5.95E-04 | 5.26E-04 |
| Daily Total | 140 | 37.494 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 1.562 | 0.042 | 6.90E-02 | 2.31E-03 | 2.05E-03 |
| Maximum Hourly | 14 | 3.749 | 0.100 | 1.66E-01 | 5.55E-03 | 4.91E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 54 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|----------------------------|-----------------------------|------------------------------|
| | <i>Ogden_01_WB_CarsNOx</i> | <i>Ogden_01_WB_CarsPM10</i> | <i>Ogden_01_WB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.55E-07 | 1.19E-08 | 1.05E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.51E-07 | 2.85E-08 | 2.53E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-01-WB-Trucks

| | |
|-----------------------|------------------------------------|
| Segment Description | Ogden Ave - from Kostner to Keeler |
| Travel Direction | Westbound |
| Segment Length (feet) | 1414 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 3:00 AM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 4:00 AM | 1.5 | 0.402 | 0.020 | 3.08E+00 | 8.77E-02 | 8.07E-02 |
| 5:00 AM | 3 | 0.803 | 0.041 | 6.16E+00 | 1.75E-01 | 1.61E-01 |
| 6:00 AM | 3.5 | 0.937 | 0.047 | 7.18E+00 | 2.05E-01 | 1.88E-01 |
| 7:00 AM | 4 | 1.071 | 0.054 | 8.21E+00 | 2.34E-01 | 2.15E-01 |
| 8:00 AM | 4 | 1.071 | 0.054 | 8.21E+00 | 2.34E-01 | 2.15E-01 |
| 9:00 AM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 10:00 AM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 11:00 AM | 8 | 2.142 | 0.108 | 1.64E+01 | 4.68E-01 | 4.30E-01 |
| 12:00 PM | 5 | 1.339 | 0.068 | 1.03E+01 | 2.92E-01 | 2.69E-01 |
| 1:00 PM | 6 | 1.607 | 0.081 | 1.23E+01 | 3.51E-01 | 3.23E-01 |
| 2:00 PM | 4.5 | 1.205 | 0.061 | 9.23E+00 | 2.63E-01 | 2.42E-01 |
| 3:00 PM | 7 | 1.875 | 0.095 | 1.44E+01 | 4.09E-01 | 3.76E-01 |
| 4:00 PM | 5.5 | 1.473 | 0.074 | 1.13E+01 | 3.21E-01 | 2.96E-01 |
| 5:00 PM | 3 | 0.803 | 0.041 | 6.16E+00 | 1.75E-01 | 1.61E-01 |
| 6:00 PM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 7:00 PM | 0.5 | 0.134 | 0.007 | 1.03E+00 | 2.92E-02 | 2.69E-02 |
| 8:00 PM | 1 | 0.268 | 0.014 | 2.05E+00 | 5.84E-02 | 5.38E-02 |
| 9:00 PM | 0.5 | 0.134 | 0.007 | 1.03E+00 | 2.92E-02 | 2.69E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 19.818 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.826 | 0.042 | 6.33E+00 | 1.80E-01 | 1.66E-01 |
| Maximum Hourly | 8 | 2.142 | 0.108 | 1.64E+01 | 4.68E-01 | 4.30E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 49 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Ogden_01_WB_TrucksNOx</i> | <i>Ogden_01_WB_TrucksPM10</i> | <i>Ogden_01_WB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.59E-05 | 1.02E-06 | 9.40E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 9.31E-05 | 2.65E-06 | 2.44E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-02-EB-Cars

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - EB between Keeler and Ogden West Entrance |
| Travel Direction | Eastbound |
| Segment Length (feet) | 430 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.041 | 0.004 | 1.80E-03 | 6.02E-05 | 5.33E-05 |
| 1:00 AM | 1 | 0.081 | 0.007 | 3.59E-03 | 1.20E-04 | 1.07E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.122 | 0.011 | 5.39E-03 | 1.81E-04 | 1.60E-04 |
| 5:00 AM | 3.5 | 0.285 | 0.025 | 1.26E-02 | 4.22E-04 | 3.73E-04 |
| 6:00 AM | 9 | 0.733 | 0.064 | 3.23E-02 | 1.08E-03 | 9.59E-04 |
| 7:00 AM | 10 | 0.814 | 0.071 | 3.59E-02 | 1.20E-03 | 1.07E-03 |
| 8:00 AM | 9 | 0.733 | 0.064 | 3.23E-02 | 1.08E-03 | 9.59E-04 |
| 9:00 AM | 8.5 | 0.692 | 0.061 | 3.05E-02 | 1.02E-03 | 9.06E-04 |
| 10:00 AM | 6 | 0.488 | 0.043 | 2.16E-02 | 7.23E-04 | 6.39E-04 |
| 11:00 AM | 7.5 | 0.610 | 0.054 | 2.69E-02 | 9.04E-04 | 7.99E-04 |
| 12:00 PM | 14 | 1.140 | 0.100 | 5.03E-02 | 1.69E-03 | 1.49E-03 |
| 1:00 PM | 7.5 | 0.610 | 0.054 | 2.69E-02 | 9.04E-04 | 7.99E-04 |
| 2:00 PM | 10.5 | 0.855 | 0.075 | 3.77E-02 | 1.26E-03 | 1.12E-03 |
| 3:00 PM | 12 | 0.977 | 0.086 | 4.31E-02 | 1.45E-03 | 1.28E-03 |
| 4:00 PM | 10.5 | 0.855 | 0.075 | 3.77E-02 | 1.26E-03 | 1.12E-03 |
| 5:00 PM | 11.5 | 0.936 | 0.082 | 4.13E-02 | 1.39E-03 | 1.23E-03 |
| 6:00 PM | 7 | 0.570 | 0.050 | 2.52E-02 | 8.43E-04 | 7.46E-04 |
| 7:00 PM | 2 | 0.163 | 0.014 | 7.19E-03 | 2.41E-04 | 2.13E-04 |
| 8:00 PM | 1 | 0.081 | 0.007 | 3.59E-03 | 1.20E-04 | 1.07E-04 |
| 9:00 PM | 4 | 0.326 | 0.029 | 1.44E-02 | 4.82E-04 | 4.26E-04 |
| 10:00 PM | 2 | 0.163 | 0.014 | 7.19E-03 | 2.41E-04 | 2.13E-04 |
| 11:00 PM | 1.5 | 0.122 | 0.011 | 5.39E-03 | 1.81E-04 | 1.60E-04 |
| Daily Total | 140 | 11.396 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.475 | 0.042 | 2.10E-02 | 7.03E-04 | 6.22E-04 |
| Maximum Hourly | 14 | 1.140 | 0.100 | 5.03E-02 | 1.69E-03 | 1.49E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 17 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---------------------------------|----------------------------------|-----------------------------------|
| | | | | <i>Ogden_02_EB_Cars NOx</i> | <i>Ogden_02_EB_Cars PM10</i> | <i>Ogden_02_EB_Cars PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.43E-07 | 1.15E-08 | 1.02E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.22E-07 | 2.76E-08 | 2.44E-08 |

| | | |
|-----------------------|---|--|
| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-02-EB-Trucks

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - EB between Keeler and Ogden West Entrance |
| Travel Direction | Eastbound |
| Segment Length (feet) | 430 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 3:00 AM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 4:00 AM | 1.5 | 0.122 | 0.020 | 9.35E-01 | 2.66E-02 | 2.45E-02 |
| 5:00 AM | 3 | 0.244 | 0.041 | 1.87E+00 | 5.33E-02 | 4.90E-02 |
| 6:00 AM | 3.5 | 0.285 | 0.047 | 2.18E+00 | 6.22E-02 | 5.72E-02 |
| 7:00 AM | 4 | 0.326 | 0.054 | 2.49E+00 | 7.11E-02 | 6.54E-02 |
| 8:00 AM | 4 | 0.326 | 0.054 | 2.49E+00 | 7.11E-02 | 6.54E-02 |
| 9:00 AM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 10:00 AM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 11:00 AM | 8 | 0.651 | 0.108 | 4.99E+00 | 1.42E-01 | 1.31E-01 |
| 12:00 PM | 5 | 0.407 | 0.068 | 3.12E+00 | 8.88E-02 | 8.17E-02 |
| 1:00 PM | 6 | 0.488 | 0.081 | 3.74E+00 | 1.07E-01 | 9.81E-02 |
| 2:00 PM | 4.5 | 0.366 | 0.061 | 2.81E+00 | 7.99E-02 | 7.35E-02 |
| 3:00 PM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 4:00 PM | 5.5 | 0.448 | 0.074 | 3.43E+00 | 9.77E-02 | 8.99E-02 |
| 5:00 PM | 3 | 0.244 | 0.041 | 1.87E+00 | 5.33E-02 | 4.90E-02 |
| 6:00 PM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 7:00 PM | 0.5 | 0.041 | 0.007 | 3.12E-01 | 8.88E-03 | 8.17E-03 |
| 8:00 PM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 9:00 PM | 0.5 | 0.041 | 0.007 | 3.12E-01 | 8.88E-03 | 8.17E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 6.024 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.251 | 0.042 | 1.92E+00 | 5.48E-02 | 5.04E-02 |
| Maximum Hourly | 8 | 0.651 | 0.108 | 4.99E+00 | 1.42E-01 | 1.31E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_02_EB_TrucksNOx</i> | <i>Ogden_02_EB_TrucksPM10</i> | <i>Ogden_02_EB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.34E-05 | 9.51E-07 | 8.75E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.66E-05 | 2.47E-06 | 2.27E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-02-WB-Cars

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - WB between Keeler and Ogden West Entrance |
| Travel Direction | Westbound |
| Segment Length (feet) | 430 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.041 | 0.004 | 1.80E-03 | 6.02E-05 | 5.33E-05 |
| 1:00 AM | 1 | 0.081 | 0.007 | 3.59E-03 | 1.20E-04 | 1.07E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.122 | 0.011 | 5.39E-03 | 1.81E-04 | 1.60E-04 |
| 5:00 AM | 3.5 | 0.285 | 0.025 | 1.26E-02 | 4.22E-04 | 3.73E-04 |
| 6:00 AM | 9 | 0.733 | 0.064 | 3.23E-02 | 1.08E-03 | 9.59E-04 |
| 7:00 AM | 10 | 0.814 | 0.071 | 3.59E-02 | 1.20E-03 | 1.07E-03 |
| 8:00 AM | 9 | 0.733 | 0.064 | 3.23E-02 | 1.08E-03 | 9.59E-04 |
| 9:00 AM | 8.5 | 0.692 | 0.061 | 3.05E-02 | 1.02E-03 | 9.06E-04 |
| 10:00 AM | 6 | 0.488 | 0.043 | 2.16E-02 | 7.23E-04 | 6.39E-04 |
| 11:00 AM | 7.5 | 0.610 | 0.054 | 2.69E-02 | 9.04E-04 | 7.99E-04 |
| 12:00 PM | 14 | 1.140 | 0.100 | 5.03E-02 | 1.69E-03 | 1.49E-03 |
| 1:00 PM | 7.5 | 0.610 | 0.054 | 2.69E-02 | 9.04E-04 | 7.99E-04 |
| 2:00 PM | 10.5 | 0.855 | 0.075 | 3.77E-02 | 1.26E-03 | 1.12E-03 |
| 3:00 PM | 12 | 0.977 | 0.086 | 4.31E-02 | 1.45E-03 | 1.28E-03 |
| 4:00 PM | 10.5 | 0.855 | 0.075 | 3.77E-02 | 1.26E-03 | 1.12E-03 |
| 5:00 PM | 11.5 | 0.936 | 0.082 | 4.13E-02 | 1.39E-03 | 1.23E-03 |
| 6:00 PM | 7 | 0.570 | 0.050 | 2.52E-02 | 8.43E-04 | 7.46E-04 |
| 7:00 PM | 2 | 0.163 | 0.014 | 7.19E-03 | 2.41E-04 | 2.13E-04 |
| 8:00 PM | 1 | 0.081 | 0.007 | 3.59E-03 | 1.20E-04 | 1.07E-04 |
| 9:00 PM | 4 | 0.326 | 0.029 | 1.44E-02 | 4.82E-04 | 4.26E-04 |
| 10:00 PM | 2 | 0.163 | 0.014 | 7.19E-03 | 2.41E-04 | 2.13E-04 |
| 11:00 PM | 1.5 | 0.122 | 0.011 | 5.39E-03 | 1.81E-04 | 1.60E-04 |
| Daily Total | 140 | 11.396 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.475 | 0.042 | 2.10E-02 | 7.03E-04 | 6.22E-04 |
| Maximum Hourly | 14 | 1.140 | 0.100 | 5.03E-02 | 1.69E-03 | 1.49E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 17 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|----------------------------|-----------------------------|------------------------------|
| | | | | <i>Ogden_02_WB_CarsNOx</i> | <i>Ogden_02_WB_CarsPM10</i> | <i>Ogden_02_WB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.43E-07 | 1.15E-08 | 1.02E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.22E-07 | 2.76E-08 | 2.44E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-02-WB-Trucks

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - WB between Keeler and Ogden West Entrance |
| Travel Direction | Westbound |
| Segment Length (feet) | 430 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 3:00 AM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 4:00 AM | 1.5 | 0.122 | 0.020 | 9.35E-01 | 2.66E-02 | 2.45E-02 |
| 5:00 AM | 3 | 0.244 | 0.041 | 1.87E+00 | 5.33E-02 | 4.90E-02 |
| 6:00 AM | 3.5 | 0.285 | 0.047 | 2.18E+00 | 6.22E-02 | 5.72E-02 |
| 7:00 AM | 4 | 0.326 | 0.054 | 2.49E+00 | 7.11E-02 | 6.54E-02 |
| 8:00 AM | 4 | 0.326 | 0.054 | 2.49E+00 | 7.11E-02 | 6.54E-02 |
| 9:00 AM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 10:00 AM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 11:00 AM | 8 | 0.651 | 0.108 | 4.99E+00 | 1.42E-01 | 1.31E-01 |
| 12:00 PM | 5 | 0.407 | 0.068 | 3.12E+00 | 8.88E-02 | 8.17E-02 |
| 1:00 PM | 6 | 0.488 | 0.081 | 3.74E+00 | 1.07E-01 | 9.81E-02 |
| 2:00 PM | 4.5 | 0.366 | 0.061 | 2.81E+00 | 7.99E-02 | 7.35E-02 |
| 3:00 PM | 7 | 0.570 | 0.095 | 4.37E+00 | 1.24E-01 | 1.14E-01 |
| 4:00 PM | 5.5 | 0.448 | 0.074 | 3.43E+00 | 9.77E-02 | 8.99E-02 |
| 5:00 PM | 3 | 0.244 | 0.041 | 1.87E+00 | 5.33E-02 | 4.90E-02 |
| 6:00 PM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 7:00 PM | 0.5 | 0.041 | 0.007 | 3.12E-01 | 8.88E-03 | 8.17E-03 |
| 8:00 PM | 1 | 0.081 | 0.014 | 6.24E-01 | 1.78E-02 | 1.63E-02 |
| 9:00 PM | 0.5 | 0.041 | 0.007 | 3.12E-01 | 8.88E-03 | 8.17E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 6.024 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.251 | 0.042 | 1.92E+00 | 5.48E-02 | 5.04E-02 |
| Maximum Hourly | 8 | 0.651 | 0.108 | 4.99E+00 | 1.42E-01 | 1.31E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 15 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Ogden_02_WB_TrucksNOx</i> | <i>Ogden_02_WB_TrucksPM10</i> | <i>Ogden_02_WB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.56E-05 | 1.01E-06 | 9.33E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 9.24E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-03-EB-Cars

| | |
|-----------------------|--|
| Segment Description | Ogden Ave - betwee Ogden West Entrance and Ogden East Entrance |
| Travel Direction | Eastbound |
| Segment Length (feet) | 528 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.050 | 0.004 | 2.21E-03 | 7.40E-05 | 6.55E-05 |
| 1:00 AM | 1 | 0.100 | 0.007 | 4.42E-03 | 1.48E-04 | 1.31E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.150 | 0.011 | 6.62E-03 | 2.22E-04 | 1.96E-04 |
| 5:00 AM | 3.5 | 0.350 | 0.025 | 1.55E-02 | 5.18E-04 | 4.58E-04 |
| 6:00 AM | 9 | 0.900 | 0.064 | 3.97E-02 | 1.33E-03 | 1.18E-03 |
| 7:00 AM | 10 | 1.000 | 0.071 | 4.42E-02 | 1.48E-03 | 1.31E-03 |
| 8:00 AM | 9 | 0.900 | 0.064 | 3.97E-02 | 1.33E-03 | 1.18E-03 |
| 9:00 AM | 8.5 | 0.850 | 0.061 | 3.75E-02 | 1.26E-03 | 1.11E-03 |
| 10:00 AM | 6 | 0.600 | 0.043 | 2.65E-02 | 8.88E-04 | 7.86E-04 |
| 11:00 AM | 7.5 | 0.750 | 0.054 | 3.31E-02 | 1.11E-03 | 9.82E-04 |
| 12:00 PM | 14 | 1.401 | 0.100 | 6.18E-02 | 2.07E-03 | 1.83E-03 |
| 1:00 PM | 7.5 | 0.750 | 0.054 | 3.31E-02 | 1.11E-03 | 9.82E-04 |
| 2:00 PM | 10.5 | 1.050 | 0.075 | 4.64E-02 | 1.55E-03 | 1.38E-03 |
| 3:00 PM | 12 | 1.200 | 0.086 | 5.30E-02 | 1.78E-03 | 1.57E-03 |
| 4:00 PM | 10.5 | 1.050 | 0.075 | 4.64E-02 | 1.55E-03 | 1.38E-03 |
| 5:00 PM | 11.5 | 1.150 | 0.082 | 5.08E-02 | 1.70E-03 | 1.51E-03 |
| 6:00 PM | 7 | 0.700 | 0.050 | 3.09E-02 | 1.04E-03 | 9.17E-04 |
| 7:00 PM | 2 | 0.200 | 0.014 | 8.83E-03 | 2.96E-04 | 2.62E-04 |
| 8:00 PM | 1 | 0.100 | 0.007 | 4.42E-03 | 1.48E-04 | 1.31E-04 |
| 9:00 PM | 4 | 0.400 | 0.029 | 1.77E-02 | 5.92E-04 | 5.24E-04 |
| 10:00 PM | 2 | 0.200 | 0.014 | 8.83E-03 | 2.96E-04 | 2.62E-04 |
| 11:00 PM | 1.5 | 0.150 | 0.011 | 6.62E-03 | 2.22E-04 | 1.96E-04 |
| Daily Total | 140 | 14.006 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.584 | 0.042 | 2.58E-02 | 8.64E-04 | 7.64E-04 |
| Maximum Hourly | 14 | 1.401 | 0.100 | 6.18E-02 | 2.07E-03 | 1.83E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 21 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---------------------------------|----------------------------------|-----------------------------------|
| | | | | <i>Ogden_03_EB_Cars NOx</i> | <i>Ogden_03_EB_Cars PM10</i> | <i>Ogden_03_EB_Cars PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.41E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.18E-07 | 2.74E-08 | 2.43E-08 |

| | | |
|-----------------------|---|--|
| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-03-EB-Trucks

| | |
|-----------------------|--|
| Segment Description | Ogden Ave - betwee Ogden West Entrance and Ogden East Entrance |
| Travel Direction | Eastbound |
| Segment Length (feet) | 528 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 3:00 AM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 4:00 AM | 1.5 | 0.150 | 0.020 | 1.15E+00 | 3.27E-02 | 3.01E-02 |
| 5:00 AM | 3 | 0.300 | 0.041 | 2.30E+00 | 6.55E-02 | 6.03E-02 |
| 6:00 AM | 3.5 | 0.350 | 0.047 | 2.68E+00 | 7.64E-02 | 7.03E-02 |
| 7:00 AM | 4 | 0.400 | 0.054 | 3.07E+00 | 8.73E-02 | 8.03E-02 |
| 8:00 AM | 4 | 0.400 | 0.054 | 3.07E+00 | 8.73E-02 | 8.03E-02 |
| 9:00 AM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 10:00 AM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 11:00 AM | 8 | 0.800 | 0.108 | 6.13E+00 | 1.75E-01 | 1.61E-01 |
| 12:00 PM | 5 | 0.500 | 0.068 | 3.83E+00 | 1.09E-01 | 1.00E-01 |
| 1:00 PM | 6 | 0.600 | 0.081 | 4.60E+00 | 1.31E-01 | 1.21E-01 |
| 2:00 PM | 4.5 | 0.450 | 0.061 | 3.45E+00 | 9.82E-02 | 9.04E-02 |
| 3:00 PM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 4:00 PM | 5.5 | 0.550 | 0.074 | 4.22E+00 | 1.20E-01 | 1.10E-01 |
| 5:00 PM | 3 | 0.300 | 0.041 | 2.30E+00 | 6.55E-02 | 6.03E-02 |
| 6:00 PM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 7:00 PM | 0.5 | 0.050 | 0.007 | 3.83E-01 | 1.09E-02 | 1.00E-02 |
| 8:00 PM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 9:00 PM | 0.5 | 0.050 | 0.007 | 3.83E-01 | 1.09E-02 | 1.00E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 7.403 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.308 | 0.042 | 2.36E+00 | 6.73E-02 | 6.19E-02 |
| Maximum Hourly | 8 | 0.800 | 0.108 | 6.13E+00 | 1.75E-01 | 1.61E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 19 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_03_EB_TrucksNOx</i> | <i>Ogden_03_EB_TrucksPM10</i> | <i>Ogden_03_EB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.46E-05 | 9.84E-07 | 9.05E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.96E-05 | 2.55E-06 | 2.35E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-03-WB-Cars

| | |
|-----------------------|--|
| Segment Description | Ogden Ave - betwee Ogden West Entrance and Ogden East Entrance |
| Travel Direction | Westbound |
| Segment Length (feet) | 528 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.050 | 0.004 | 2.21E-03 | 7.40E-05 | 6.55E-05 |
| 1:00 AM | 1 | 0.100 | 0.007 | 4.42E-03 | 1.48E-04 | 1.31E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.150 | 0.011 | 6.62E-03 | 2.22E-04 | 1.96E-04 |
| 5:00 AM | 3.5 | 0.350 | 0.025 | 1.55E-02 | 5.18E-04 | 4.58E-04 |
| 6:00 AM | 9 | 0.900 | 0.064 | 3.97E-02 | 1.33E-03 | 1.18E-03 |
| 7:00 AM | 10 | 1.000 | 0.071 | 4.42E-02 | 1.48E-03 | 1.31E-03 |
| 8:00 AM | 9 | 0.900 | 0.064 | 3.97E-02 | 1.33E-03 | 1.18E-03 |
| 9:00 AM | 8.5 | 0.850 | 0.061 | 3.75E-02 | 1.26E-03 | 1.11E-03 |
| 10:00 AM | 6 | 0.600 | 0.043 | 2.65E-02 | 8.88E-04 | 7.86E-04 |
| 11:00 AM | 7.5 | 0.750 | 0.054 | 3.31E-02 | 1.11E-03 | 9.82E-04 |
| 12:00 PM | 14 | 1.401 | 0.100 | 6.18E-02 | 2.07E-03 | 1.83E-03 |
| 1:00 PM | 7.5 | 0.750 | 0.054 | 3.31E-02 | 1.11E-03 | 9.82E-04 |
| 2:00 PM | 10.5 | 1.050 | 0.075 | 4.64E-02 | 1.55E-03 | 1.38E-03 |
| 3:00 PM | 12 | 1.200 | 0.086 | 5.30E-02 | 1.78E-03 | 1.57E-03 |
| 4:00 PM | 10.5 | 1.050 | 0.075 | 4.64E-02 | 1.55E-03 | 1.38E-03 |
| 5:00 PM | 11.5 | 1.150 | 0.082 | 5.08E-02 | 1.70E-03 | 1.51E-03 |
| 6:00 PM | 7 | 0.700 | 0.050 | 3.09E-02 | 1.04E-03 | 9.17E-04 |
| 7:00 PM | 2 | 0.200 | 0.014 | 8.83E-03 | 2.96E-04 | 2.62E-04 |
| 8:00 PM | 1 | 0.100 | 0.007 | 4.42E-03 | 1.48E-04 | 1.31E-04 |
| 9:00 PM | 4 | 0.400 | 0.029 | 1.77E-02 | 5.92E-04 | 5.24E-04 |
| 10:00 PM | 2 | 0.200 | 0.014 | 8.83E-03 | 2.96E-04 | 2.62E-04 |
| 11:00 PM | 1.5 | 0.150 | 0.011 | 6.62E-03 | 2.22E-04 | 1.96E-04 |
| Daily Total | 140 | 14.006 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.584 | 0.042 | 2.58E-02 | 8.64E-04 | 7.64E-04 |
| Maximum Hourly | 14 | 1.401 | 0.100 | 6.18E-02 | 2.07E-03 | 1.83E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 21 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|----------------------------|-----------------------------|------------------------------|
| | | | | <i>Ogden_03_WB_CarsNOx</i> | <i>Ogden_03_WB_CarsPM10</i> | <i>Ogden_03_WB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.41E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.18E-07 | 2.74E-08 | 2.43E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-03-WB-Trucks

| | |
|-----------------------|--|
| Segment Description | Ogden Ave - betwee Ogden West Entrance and Ogden East Entrance |
| Travel Direction | Westbound |
| Segment Length (feet) | 528 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 3:00 AM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 4:00 AM | 1.5 | 0.150 | 0.020 | 1.15E+00 | 3.27E-02 | 3.01E-02 |
| 5:00 AM | 3 | 0.300 | 0.041 | 2.30E+00 | 6.55E-02 | 6.03E-02 |
| 6:00 AM | 3.5 | 0.350 | 0.047 | 2.68E+00 | 7.64E-02 | 7.03E-02 |
| 7:00 AM | 4 | 0.400 | 0.054 | 3.07E+00 | 8.73E-02 | 8.03E-02 |
| 8:00 AM | 4 | 0.400 | 0.054 | 3.07E+00 | 8.73E-02 | 8.03E-02 |
| 9:00 AM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 10:00 AM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 11:00 AM | 8 | 0.800 | 0.108 | 6.13E+00 | 1.75E-01 | 1.61E-01 |
| 12:00 PM | 5 | 0.500 | 0.068 | 3.83E+00 | 1.09E-01 | 1.00E-01 |
| 1:00 PM | 6 | 0.600 | 0.081 | 4.60E+00 | 1.31E-01 | 1.21E-01 |
| 2:00 PM | 4.5 | 0.450 | 0.061 | 3.45E+00 | 9.82E-02 | 9.04E-02 |
| 3:00 PM | 7 | 0.700 | 0.095 | 5.37E+00 | 1.53E-01 | 1.41E-01 |
| 4:00 PM | 5.5 | 0.550 | 0.074 | 4.22E+00 | 1.20E-01 | 1.10E-01 |
| 5:00 PM | 3 | 0.300 | 0.041 | 2.30E+00 | 6.55E-02 | 6.03E-02 |
| 6:00 PM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 7:00 PM | 0.5 | 0.050 | 0.007 | 3.83E-01 | 1.09E-02 | 1.00E-02 |
| 8:00 PM | 1 | 0.100 | 0.014 | 7.66E-01 | 2.18E-02 | 2.01E-02 |
| 9:00 PM | 0.5 | 0.050 | 0.007 | 3.83E-01 | 1.09E-02 | 1.00E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 7.403 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.308 | 0.042 | 2.36E+00 | 6.73E-02 | 6.19E-02 |
| Maximum Hourly | 8 | 0.800 | 0.108 | 6.13E+00 | 1.75E-01 | 1.61E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 19 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_03_WB_TrucksNOx</i> | <i>Ogden_03_WB_TrucksPM10</i> | <i>Ogden_03_WB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.46E-05 | 9.84E-07 | 9.05E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.96E-05 | 2.55E-06 | 2.35E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-04-EB-Cars

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - between Ogden East Entrance and Pulaski |
| Travel Direction | Eastbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|---------------------------------|----------------------------------|-----------------------------------|
| | <i>Ogden_04_EB_Cars NOx</i> | <i>Ogden_04_EB_Cars PM10</i> | <i>Ogden_04_EB_Cars PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.39E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.13E-07 | 2.73E-08 | 2.41E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-04-EB-Trucks

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - between Ogden East Entrance and Pulaski |
| Travel Direction | Eastbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 14 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_04_EB_TrucksNOx</i> | <i>Ogden_04_EB_TrucksPM10</i> | <i>Ogden_04_EB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.55E-05 | 1.01E-06 | 9.31E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 9.22E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-04-WB-Cars

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - between Ogden East Entrance and Pulaski |
| Travel Direction | Westbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|----------------------------|-----------------------------|------------------------------|
| | <i>Ogden_04_WB_CarsNOx</i> | <i>Ogden_04_WB_CarsPM10</i> | <i>Ogden_04_WB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.39E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.13E-07 | 2.73E-08 | 2.41E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-04-WB-Trucks

| | |
|-----------------------|---|
| Segment Description | Ogden Ave - between Ogden East Entrance and Pulaski |
| Travel Direction | Westbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 15 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Ogden_04_WB_TrucksNOx</i> | <i>Ogden_04_WB_TrucksPM10</i> | <i>Ogden_04_WB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.32E-05 | 9.45E-07 | 8.69E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 8.60E-05 | 2.45E-06 | 2.25E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-05-EB-Cars

| | |
|-----------------------|---------------------------------------|
| Segment Description | Ogden Ave - betwee Pulaski and Cermak |
| Travel Direction | Eastbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---------------------------------|----------------------------------|-----------------------------------|
| | | | | <i>Ogden_05_EB_Cars NOx</i> | <i>Ogden_05_EB_Cars PM10</i> | <i>Ogden_05_EB_Cars PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.39E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.13E-07 | 2.73E-08 | 2.41E-08 |

| | | |
|-----------------------|---|--|
| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-05-EB-Trucks

| | |
|-----------------------|---------------------------------------|
| Segment Description | Ogden Ave - betwee Pulaski and Cermak |
| Travel Direction | Eastbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 14 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_05_EB_TrucksNOx</i> | <i>Ogden_05_EB_TrucksPM10</i> | <i>Ogden_05_EB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.55E-05 | 1.01E-06 | 9.31E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 9.22E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-05-WB-Cars

| | |
|-----------------------|---------------------------------------|
| Segment Description | Ogden Ave - betwee Pulaski and Cermak |
| Travel Direction | Westbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 15 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|----------------------------|-----------------------------|------------------------------|
| | <i>Ogden_05_WB_CarsNOx</i> | <i>Ogden_05_WB_CarsPM10</i> | <i>Ogden_05_WB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.62E-07 | 1.21E-08 | 1.07E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.68E-07 | 2.91E-08 | 2.57E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Ogden-05-WB-Trucks

| | |
|-----------------------|---------------------------------------|
| Segment Description | Ogden Ave - betwee Pulaski and Cermak |
| Travel Direction | Westbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 14 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|------------------------------|-------------------------------|--------------------------------|
| | | | | <i>Ogden_05_WB_TrucksNOx</i> | <i>Ogden_05_WB_TrucksPM10</i> | <i>Ogden_05_WB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.55E-05 | 1.01E-06 | 9.31E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 9.22E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-01-NB-Cars

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between 24th Street and East Site Entrance |
| Travel Direction | Northbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Pulaski_01_NB_CarsNOx</i> | <i>Pulaski_01_NB_CarsPM10</i> | <i>Pulaski_01_NB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.39E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.13E-07 | 2.73E-08 | 2.41E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-01-NB-Trucks

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between 24th Street and East Site Entrance |
| Travel Direction | Northbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 14 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|--------------------------------|---------------------------------|----------------------------------|
| | <i>Pulaski_01_NB_TrucksNOx</i> | <i>Pulaski_01_NB_TrucksPM10</i> | <i>Pulaski_01_NB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.55E-05 | 1.01E-06 | 9.31E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 9.22E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-01-SB-Cars

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between 24th Street and East Site Entrance |
| Travel Direction | Southbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.038 | 0.004 | 1.67E-03 | 5.61E-05 | 4.96E-05 |
| 1:00 AM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| 5:00 AM | 3.5 | 0.265 | 0.025 | 1.17E-02 | 3.93E-04 | 3.47E-04 |
| 6:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 7:00 AM | 10 | 0.758 | 0.071 | 3.35E-02 | 1.12E-03 | 9.93E-04 |
| 8:00 AM | 9 | 0.682 | 0.064 | 3.01E-02 | 1.01E-03 | 8.93E-04 |
| 9:00 AM | 8.5 | 0.644 | 0.061 | 2.84E-02 | 9.54E-04 | 8.44E-04 |
| 10:00 AM | 6 | 0.455 | 0.043 | 2.01E-02 | 6.73E-04 | 5.96E-04 |
| 11:00 AM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 12:00 PM | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |
| 1:00 PM | 7.5 | 0.569 | 0.054 | 2.51E-02 | 8.41E-04 | 7.44E-04 |
| 2:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 3:00 PM | 12 | 0.910 | 0.086 | 4.02E-02 | 1.35E-03 | 1.19E-03 |
| 4:00 PM | 10.5 | 0.796 | 0.075 | 3.51E-02 | 1.18E-03 | 1.04E-03 |
| 5:00 PM | 11.5 | 0.872 | 0.082 | 3.85E-02 | 1.29E-03 | 1.14E-03 |
| 6:00 PM | 7 | 0.531 | 0.050 | 2.34E-02 | 7.85E-04 | 6.95E-04 |
| 7:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 8:00 PM | 1 | 0.076 | 0.007 | 3.35E-03 | 1.12E-04 | 9.93E-05 |
| 9:00 PM | 4 | 0.303 | 0.029 | 1.34E-02 | 4.49E-04 | 3.97E-04 |
| 10:00 PM | 2 | 0.152 | 0.014 | 6.69E-03 | 2.24E-04 | 1.99E-04 |
| 11:00 PM | 1.5 | 0.114 | 0.011 | 5.02E-03 | 1.68E-04 | 1.49E-04 |
| Daily Total | 140 | 10.613 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.442 | 0.042 | 1.95E-02 | 6.54E-04 | 5.79E-04 |
| Maximum Hourly | 14 | 1.061 | 0.100 | 4.69E-02 | 1.57E-03 | 1.39E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 16 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|----------------------------------|-----------------------------------|------------------------------------|
| | | | | <i>Pulaski_01_SB_Cars</i> NOx | <i>Pulaski_01_SB_Cars</i> PM10 | <i>Pulaski_01_SB_Cars</i> PM2.5 |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.39E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.13E-07 | 2.73E-08 | 2.41E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-01-SB-Trucks

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between 24th Street and East Site Entrance |
| Travel Direction | Southbound |
| Segment Length (feet) | 400 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 3:00 AM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 4:00 AM | 1.5 | 0.114 | 0.020 | 8.71E-01 | 2.48E-02 | 2.28E-02 |
| 5:00 AM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 AM | 3.5 | 0.265 | 0.047 | 2.03E+00 | 5.79E-02 | 5.33E-02 |
| 7:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 8:00 AM | 4 | 0.303 | 0.054 | 2.32E+00 | 6.62E-02 | 6.09E-02 |
| 9:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 10:00 AM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 11:00 AM | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |
| 12:00 PM | 5 | 0.379 | 0.068 | 2.90E+00 | 8.27E-02 | 7.61E-02 |
| 1:00 PM | 6 | 0.455 | 0.081 | 3.48E+00 | 9.93E-02 | 9.13E-02 |
| 2:00 PM | 4.5 | 0.341 | 0.061 | 2.61E+00 | 7.44E-02 | 6.85E-02 |
| 3:00 PM | 7 | 0.531 | 0.095 | 4.07E+00 | 1.16E-01 | 1.07E-01 |
| 4:00 PM | 5.5 | 0.417 | 0.074 | 3.19E+00 | 9.10E-02 | 8.37E-02 |
| 5:00 PM | 3 | 0.227 | 0.041 | 1.74E+00 | 4.96E-02 | 4.57E-02 |
| 6:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 7:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 8:00 PM | 1 | 0.076 | 0.014 | 5.81E-01 | 1.65E-02 | 1.52E-02 |
| 9:00 PM | 0.5 | 0.038 | 0.007 | 2.90E-01 | 8.27E-03 | 7.61E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 5.610 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.234 | 0.042 | 1.79E+00 | 5.10E-02 | 4.69E-02 |
| Maximum Hourly | 8 | 0.606 | 0.108 | 4.65E+00 | 1.32E-01 | 1.22E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 14 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|--------------------------------|---------------------------------|----------------------------------|
| | <i>Pulaski_01_SB_TrucksNOx</i> | <i>Pulaski_01_SB_TrucksPM10</i> | <i>Pulaski_01_SB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.55E-05 | 1.01E-06 | 9.31E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 9.22E-05 | 2.63E-06 | 2.42E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-02-NB-Cars

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between East Site Entrance and Ogden Ave |
| Travel Direction | Northbound |
| Segment Length (feet) | 653 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.062 | 0.004 | 2.73E-03 | 9.15E-05 | 8.09E-05 |
| 1:00 AM | 1 | 0.124 | 0.007 | 5.46E-03 | 1.83E-04 | 1.62E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.185 | 0.011 | 8.19E-03 | 2.75E-04 | 2.43E-04 |
| 5:00 AM | 3.5 | 0.433 | 0.025 | 1.91E-02 | 6.41E-04 | 5.67E-04 |
| 6:00 AM | 9 | 1.113 | 0.064 | 4.91E-02 | 1.65E-03 | 1.46E-03 |
| 7:00 AM | 10 | 1.237 | 0.071 | 5.46E-02 | 1.83E-03 | 1.62E-03 |
| 8:00 AM | 9 | 1.113 | 0.064 | 4.91E-02 | 1.65E-03 | 1.46E-03 |
| 9:00 AM | 8.5 | 1.051 | 0.061 | 4.64E-02 | 1.56E-03 | 1.38E-03 |
| 10:00 AM | 6 | 0.742 | 0.043 | 3.28E-02 | 1.10E-03 | 9.71E-04 |
| 11:00 AM | 7.5 | 0.927 | 0.054 | 4.09E-02 | 1.37E-03 | 1.21E-03 |
| 12:00 PM | 14 | 1.731 | 0.100 | 7.64E-02 | 2.56E-03 | 2.27E-03 |
| 1:00 PM | 7.5 | 0.927 | 0.054 | 4.09E-02 | 1.37E-03 | 1.21E-03 |
| 2:00 PM | 10.5 | 1.298 | 0.075 | 5.73E-02 | 1.92E-03 | 1.70E-03 |
| 3:00 PM | 12 | 1.484 | 0.086 | 6.55E-02 | 2.20E-03 | 1.94E-03 |
| 4:00 PM | 10.5 | 1.298 | 0.075 | 5.73E-02 | 1.92E-03 | 1.70E-03 |
| 5:00 PM | 11.5 | 1.422 | 0.082 | 6.28E-02 | 2.10E-03 | 1.86E-03 |
| 6:00 PM | 7 | 0.866 | 0.050 | 3.82E-02 | 1.28E-03 | 1.13E-03 |
| 7:00 PM | 2 | 0.247 | 0.014 | 1.09E-02 | 3.66E-04 | 3.24E-04 |
| 8:00 PM | 1 | 0.124 | 0.007 | 5.46E-03 | 1.83E-04 | 1.62E-04 |
| 9:00 PM | 4 | 0.495 | 0.029 | 2.18E-02 | 7.32E-04 | 6.48E-04 |
| 10:00 PM | 2 | 0.247 | 0.014 | 1.09E-02 | 3.66E-04 | 3.24E-04 |
| 11:00 PM | 1.5 | 0.185 | 0.011 | 8.19E-03 | 2.75E-04 | 2.43E-04 |
| Daily Total | 140 | 17.311 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.721 | 0.042 | 3.18E-02 | 1.07E-03 | 9.44E-04 |
| Maximum Hourly | 14 | 1.731 | 0.100 | 7.64E-02 | 2.56E-03 | 2.27E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 26 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|------------------------------|-------------------------------|--------------------------------|
| | <i>Pulaski_02_NB_CarsNOx</i> | <i>Pulaski_02_NB_CarsPM10</i> | <i>Pulaski_02_NB_CarsPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.40E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | 8.16E-07 | 2.74E-08 | 2.42E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-02-NB-Trucks

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between East Site Entrance and Ogden Ave |
| Travel Direction | Northbound |
| Segment Length (feet) | 653 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 3:00 AM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 4:00 AM | 1.5 | 0.185 | 0.020 | 1.42E+00 | 4.05E-02 | 3.72E-02 |
| 5:00 AM | 3 | 0.371 | 0.041 | 2.84E+00 | 8.10E-02 | 7.45E-02 |
| 6:00 AM | 3.5 | 0.433 | 0.047 | 3.32E+00 | 9.45E-02 | 8.69E-02 |
| 7:00 AM | 4 | 0.495 | 0.054 | 3.79E+00 | 1.08E-01 | 9.93E-02 |
| 8:00 AM | 4 | 0.495 | 0.054 | 3.79E+00 | 1.08E-01 | 9.93E-02 |
| 9:00 AM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 10:00 AM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 11:00 AM | 8 | 0.989 | 0.108 | 7.58E+00 | 2.16E-01 | 1.99E-01 |
| 12:00 PM | 5 | 0.618 | 0.068 | 4.74E+00 | 1.35E-01 | 1.24E-01 |
| 1:00 PM | 6 | 0.742 | 0.081 | 5.68E+00 | 1.62E-01 | 1.49E-01 |
| 2:00 PM | 4.5 | 0.556 | 0.061 | 4.26E+00 | 1.21E-01 | 1.12E-01 |
| 3:00 PM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 4:00 PM | 5.5 | 0.680 | 0.074 | 5.21E+00 | 1.48E-01 | 1.37E-01 |
| 5:00 PM | 3 | 0.371 | 0.041 | 2.84E+00 | 8.10E-02 | 7.45E-02 |
| 6:00 PM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 7:00 PM | 0.5 | 0.062 | 0.007 | 4.74E-01 | 1.35E-02 | 1.24E-02 |
| 8:00 PM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 9:00 PM | 0.5 | 0.062 | 0.007 | 4.74E-01 | 1.35E-02 | 1.24E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 9.150 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.381 | 0.042 | 2.92E+00 | 8.32E-02 | 7.65E-02 |
| Maximum Hourly | 8 | 0.989 | 0.108 | 7.58E+00 | 2.16E-01 | 1.99E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 24 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|--------------------------------|---------------------------------|----------------------------------|
| | <i>Pulaski_02_NB_TrucksNOx</i> | <i>Pulaski_02_NB_TrucksPM10</i> | <i>Pulaski_02_NB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.38E-05 | 9.63E-07 | 8.86E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 8.77E-05 | 2.50E-06 | 2.30E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-02-SB-Cars

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between East Site Entrance and Ogden Ave |
| Travel Direction | Southbound |
| Segment Length (feet) | 653 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.04414 | 0.00148 | 0.00131 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0.5 | 0.062 | 0.004 | 2.73E-03 | 9.15E-05 | 8.09E-05 |
| 1:00 AM | 1 | 0.124 | 0.007 | 5.46E-03 | 1.83E-04 | 1.62E-04 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 1.5 | 0.185 | 0.011 | 8.19E-03 | 2.75E-04 | 2.43E-04 |
| 5:00 AM | 3.5 | 0.433 | 0.025 | 1.91E-02 | 6.41E-04 | 5.67E-04 |
| 6:00 AM | 9 | 1.113 | 0.064 | 4.91E-02 | 1.65E-03 | 1.46E-03 |
| 7:00 AM | 10 | 1.237 | 0.071 | 5.46E-02 | 1.83E-03 | 1.62E-03 |
| 8:00 AM | 9 | 1.113 | 0.064 | 4.91E-02 | 1.65E-03 | 1.46E-03 |
| 9:00 AM | 8.5 | 1.051 | 0.061 | 4.64E-02 | 1.56E-03 | 1.38E-03 |
| 10:00 AM | 6 | 0.742 | 0.043 | 3.28E-02 | 1.10E-03 | 9.71E-04 |
| 11:00 AM | 7.5 | 0.927 | 0.054 | 4.09E-02 | 1.37E-03 | 1.21E-03 |
| 12:00 PM | 14 | 1.731 | 0.100 | 7.64E-02 | 2.56E-03 | 2.27E-03 |
| 1:00 PM | 7.5 | 0.927 | 0.054 | 4.09E-02 | 1.37E-03 | 1.21E-03 |
| 2:00 PM | 10.5 | 1.298 | 0.075 | 5.73E-02 | 1.92E-03 | 1.70E-03 |
| 3:00 PM | 12 | 1.484 | 0.086 | 6.55E-02 | 2.20E-03 | 1.94E-03 |
| 4:00 PM | 10.5 | 1.298 | 0.075 | 5.73E-02 | 1.92E-03 | 1.70E-03 |
| 5:00 PM | 11.5 | 1.422 | 0.082 | 6.28E-02 | 2.10E-03 | 1.86E-03 |
| 6:00 PM | 7 | 0.866 | 0.050 | 3.82E-02 | 1.28E-03 | 1.13E-03 |
| 7:00 PM | 2 | 0.247 | 0.014 | 1.09E-02 | 3.66E-04 | 3.24E-04 |
| 8:00 PM | 1 | 0.124 | 0.007 | 5.46E-03 | 1.83E-04 | 1.62E-04 |
| 9:00 PM | 4 | 0.495 | 0.029 | 2.18E-02 | 7.32E-04 | 6.48E-04 |
| 10:00 PM | 2 | 0.247 | 0.014 | 1.09E-02 | 3.66E-04 | 3.24E-04 |
| 11:00 PM | 1.5 | 0.185 | 0.011 | 8.19E-03 | 2.75E-04 | 2.43E-04 |
| Daily Total | 140 | 17.311 | 1.000 | -- | -- | -- |
| Hourly Average | 5.8 | 0.721 | 0.042 | 3.18E-02 | 1.07E-03 | 9.44E-04 |
| Maximum Hourly | 14 | 1.731 | 0.100 | 7.64E-02 | 2.56E-03 | 2.27E-03 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 26 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---|--|---|
| | | | | <i>Pulaski_02_SB_Cars</i> <i>NOx</i> | <i>Pulaski_02_SB_Cars</i> <i>PM10</i> | <i>Pulaski_02_SB_Cars</i> <i>PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 3.40E-07 | 1.14E-08 | 1.01E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 8.16E-07 | 2.74E-08 | 2.42E-08 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Pulaski-02-SB-Trucks

| | |
|-----------------------|---|
| Segment Description | Pulaski Rd - between East Site Entrance and Ogden Ave |
| Travel Direction | Southbound |
| Segment Length (feet) | 653 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 27.5 <= speed < 32.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 7.66145 | 0.21824 | 0.20078 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 3:00 AM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 4:00 AM | 1.5 | 0.185 | 0.020 | 1.42E+00 | 4.05E-02 | 3.72E-02 |
| 5:00 AM | 3 | 0.371 | 0.041 | 2.84E+00 | 8.10E-02 | 7.45E-02 |
| 6:00 AM | 3.5 | 0.433 | 0.047 | 3.32E+00 | 9.45E-02 | 8.69E-02 |
| 7:00 AM | 4 | 0.495 | 0.054 | 3.79E+00 | 1.08E-01 | 9.93E-02 |
| 8:00 AM | 4 | 0.495 | 0.054 | 3.79E+00 | 1.08E-01 | 9.93E-02 |
| 9:00 AM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 10:00 AM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 11:00 AM | 8 | 0.989 | 0.108 | 7.58E+00 | 2.16E-01 | 1.99E-01 |
| 12:00 PM | 5 | 0.618 | 0.068 | 4.74E+00 | 1.35E-01 | 1.24E-01 |
| 1:00 PM | 6 | 0.742 | 0.081 | 5.68E+00 | 1.62E-01 | 1.49E-01 |
| 2:00 PM | 4.5 | 0.556 | 0.061 | 4.26E+00 | 1.21E-01 | 1.12E-01 |
| 3:00 PM | 7 | 0.866 | 0.095 | 6.63E+00 | 1.89E-01 | 1.74E-01 |
| 4:00 PM | 5.5 | 0.680 | 0.074 | 5.21E+00 | 1.48E-01 | 1.37E-01 |
| 5:00 PM | 3 | 0.371 | 0.041 | 2.84E+00 | 8.10E-02 | 7.45E-02 |
| 6:00 PM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 7:00 PM | 0.5 | 0.062 | 0.007 | 4.74E-01 | 1.35E-02 | 1.24E-02 |
| 8:00 PM | 1 | 0.124 | 0.014 | 9.47E-01 | 2.70E-02 | 2.48E-02 |
| 9:00 PM | 0.5 | 0.062 | 0.007 | 4.74E-01 | 1.35E-02 | 1.24E-02 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 9.150 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.381 | 0.042 | 2.92E+00 | 8.32E-02 | 7.65E-02 |
| Maximum Hourly | 8 | 0.989 | 0.108 | 7.58E+00 | 2.16E-01 | 1.99E-01 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 24 |
|---------------------|----|

| AERMOD Input Emission Rates | NOx | PM10 | PM2.5 |
|--|--------------------------------|---------------------------------|----------------------------------|
| | <i>Pulaski_02_SB_TrucksNOx</i> | <i>Pulaski_02_SB_TrucksPM10</i> | <i>Pulaski_02_SB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | 3.38E-05 | 9.63E-07 | 8.86E-07 |
| Max Hourly Emission Rate (g/s/Volume) | 8.77E-05 | 2.50E-06 | 2.30E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|--------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Keeler-01-NB-Trucks

| | |
|-----------------------|---|
| Segment Description | Keeler Ave between Ogden and West Site Entrance |
| Travel Direction | Northbound |
| Segment Length (feet) | 240 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 17.5 <= speed < 22.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 9.49944 | 0.24827 | 0.22841 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 3:00 AM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 4:00 AM | 1.5 | 0.068 | 0.020 | 6.46E-01 | 1.69E-02 | 1.55E-02 |
| 5:00 AM | 3 | 0.136 | 0.041 | 1.29E+00 | 3.38E-02 | 3.11E-02 |
| 6:00 AM | 3.5 | 0.159 | 0.047 | 1.51E+00 | 3.94E-02 | 3.63E-02 |
| 7:00 AM | 4 | 0.181 | 0.054 | 1.72E+00 | 4.50E-02 | 4.14E-02 |
| 8:00 AM | 4 | 0.181 | 0.054 | 1.72E+00 | 4.50E-02 | 4.14E-02 |
| 9:00 AM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 10:00 AM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 11:00 AM | 8 | 0.363 | 0.108 | 3.45E+00 | 9.01E-02 | 8.29E-02 |
| 12:00 PM | 5 | 0.227 | 0.068 | 2.15E+00 | 5.63E-02 | 5.18E-02 |
| 1:00 PM | 6 | 0.272 | 0.081 | 2.59E+00 | 6.76E-02 | 6.22E-02 |
| 2:00 PM | 4.5 | 0.204 | 0.061 | 1.94E+00 | 5.07E-02 | 4.66E-02 |
| 3:00 PM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 4:00 PM | 5.5 | 0.249 | 0.074 | 2.37E+00 | 6.19E-02 | 5.70E-02 |
| 5:00 PM | 3 | 0.136 | 0.041 | 1.29E+00 | 3.38E-02 | 3.11E-02 |
| 6:00 PM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 7:00 PM | 0.5 | 0.023 | 0.007 | 2.15E-01 | 5.63E-03 | 5.18E-03 |
| 8:00 PM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 9:00 PM | 0.5 | 0.023 | 0.007 | 2.15E-01 | 5.63E-03 | 5.18E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 3.357 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.140 | 0.042 | 1.33E+00 | 3.47E-02 | 3.19E-02 |
| Maximum Hourly | 8 | 0.363 | 0.108 | 3.45E+00 | 9.01E-02 | 8.29E-02 |

| | |
|---------------------|---|
| Qty. AERMOD Volumes | 9 |
|---------------------|---|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|-------------------------------|--------------------------------|---------------------------------|
| | | | | <i>Keeler_01_NB_TrucksNOx</i> | <i>Keeler_01_NB_TrucksPM10</i> | <i>Keeler_01_NB_TrucksPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 4.10E-05 | 1.07E-06 | 9.86E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 1.06E-04 | 2.78E-06 | 2.56E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Keeler-01-SB-Trucks

| | |
|-----------------------|---|
| Segment Description | Keeler Ave between Ogden and West Site Entrance |
| Travel Direction | Southbound |
| Segment Length (feet) | 240 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 17.5 <= speed < 22.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 9.49944 | 0.24827 | 0.22841 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|-------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 3:00 AM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 4:00 AM | 1.5 | 0.068 | 0.020 | 6.46E-01 | 1.69E-02 | 1.55E-02 |
| 5:00 AM | 3 | 0.136 | 0.041 | 1.29E+00 | 3.38E-02 | 3.11E-02 |
| 6:00 AM | 3.5 | 0.159 | 0.047 | 1.51E+00 | 3.94E-02 | 3.63E-02 |
| 7:00 AM | 4 | 0.181 | 0.054 | 1.72E+00 | 4.50E-02 | 4.14E-02 |
| 8:00 AM | 4 | 0.181 | 0.054 | 1.72E+00 | 4.50E-02 | 4.14E-02 |
| 9:00 AM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 10:00 AM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 11:00 AM | 8 | 0.363 | 0.108 | 3.45E+00 | 9.01E-02 | 8.29E-02 |
| 12:00 PM | 5 | 0.227 | 0.068 | 2.15E+00 | 5.63E-02 | 5.18E-02 |
| 1:00 PM | 6 | 0.272 | 0.081 | 2.59E+00 | 6.76E-02 | 6.22E-02 |
| 2:00 PM | 4.5 | 0.204 | 0.061 | 1.94E+00 | 5.07E-02 | 4.66E-02 |
| 3:00 PM | 7 | 0.318 | 0.095 | 3.02E+00 | 7.88E-02 | 7.25E-02 |
| 4:00 PM | 5.5 | 0.249 | 0.074 | 2.37E+00 | 6.19E-02 | 5.70E-02 |
| 5:00 PM | 3 | 0.136 | 0.041 | 1.29E+00 | 3.38E-02 | 3.11E-02 |
| 6:00 PM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 7:00 PM | 0.5 | 0.023 | 0.007 | 2.15E-01 | 5.63E-03 | 5.18E-03 |
| 8:00 PM | 1 | 0.045 | 0.014 | 4.31E-01 | 1.13E-02 | 1.04E-02 |
| 9:00 PM | 0.5 | 0.023 | 0.007 | 2.15E-01 | 5.63E-03 | 5.18E-03 |
| 10:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 74 | 3.357 | 1.000 | -- | -- | -- |
| Hourly Average | 3.1 | 0.140 | 0.042 | 1.33E+00 | 3.47E-02 | 3.19E-02 |
| Maximum Hourly | 8 | 0.363 | 0.108 | 3.45E+00 | 9.01E-02 | 8.29E-02 |

| | |
|---------------------|---|
| Qty. AERMOD Volumes | 9 |
|---------------------|---|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|--|---|--|
| | | | | <i>Keeler_01_SB_Truck</i> <i>sNOx</i> | <i>Keeler_01_SB_Truck</i> <i>sPM10</i> | <i>Keeler_01_SB_Truck</i> <i>sPM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 4.10E-05 | 1.07E-06 | 9.86E-07 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 1.06E-04 | 2.78E-06 | 2.56E-06 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Cars-01

| | |
|-----------------------|-----------------------------|
| Segment Description | On-Site Cars in Parking Lot |
| Travel Direction | Eastbound & Westbound |
| Segment Length (feet) | 2001 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Passenger Car |
| Fuel Type | Gasoline |
| Vehicle Speed Range | 2.5 <= speed < 7.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 0.06131 | 0.00423 | 0.00374 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|---------|-----------------|------------|-------------|--------------|
| 12:00 AM | 1 | 0.379 | 0.004 | 2.32E-02 | 1.60E-03 | 1.42E-03 |
| 1:00 AM | 2 | 0.758 | 0.007 | 4.65E-02 | 3.21E-03 | 2.84E-03 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 3 | 1.137 | 0.011 | 6.97E-02 | 4.81E-03 | 4.26E-03 |
| 5:00 AM | 7 | 2.653 | 0.025 | 1.63E-01 | 1.12E-02 | 9.93E-03 |
| 6:00 AM | 18 | 6.823 | 0.064 | 4.18E-01 | 2.89E-02 | 2.55E-02 |
| 7:00 AM | 20 | 7.581 | 0.071 | 4.65E-01 | 3.21E-02 | 2.84E-02 |
| 8:00 AM | 18 | 6.823 | 0.064 | 4.18E-01 | 2.89E-02 | 2.55E-02 |
| 9:00 AM | 17 | 6.444 | 0.061 | 3.95E-01 | 2.73E-02 | 2.41E-02 |
| 10:00 AM | 12 | 4.548 | 0.043 | 2.79E-01 | 1.92E-02 | 1.70E-02 |
| 11:00 AM | 15 | 5.686 | 0.054 | 3.49E-01 | 2.41E-02 | 2.13E-02 |
| 12:00 PM | 28 | 10.613 | 0.100 | 6.51E-01 | 4.49E-02 | 3.97E-02 |
| 1:00 PM | 15 | 5.686 | 0.054 | 3.49E-01 | 2.41E-02 | 2.13E-02 |
| 2:00 PM | 21 | 7.960 | 0.075 | 4.88E-01 | 3.37E-02 | 2.98E-02 |
| 3:00 PM | 24 | 9.097 | 0.086 | 5.58E-01 | 3.85E-02 | 3.41E-02 |
| 4:00 PM | 21 | 7.960 | 0.075 | 4.88E-01 | 3.37E-02 | 2.98E-02 |
| 5:00 PM | 23 | 8.718 | 0.082 | 5.35E-01 | 3.69E-02 | 3.26E-02 |
| 6:00 PM | 14 | 5.307 | 0.050 | 3.25E-01 | 2.25E-02 | 1.99E-02 |
| 7:00 PM | 4 | 1.516 | 0.014 | 9.30E-02 | 6.42E-03 | 5.68E-03 |
| 8:00 PM | 2 | 0.758 | 0.007 | 4.65E-02 | 3.21E-03 | 2.84E-03 |
| 9:00 PM | 8 | 3.032 | 0.029 | 1.86E-01 | 1.28E-02 | 1.14E-02 |
| 10:00 PM | 4 | 1.516 | 0.014 | 9.30E-02 | 6.42E-03 | 5.68E-03 |
| 11:00 PM | 3 | 1.137 | 0.011 | 6.97E-02 | 4.81E-03 | 4.26E-03 |
| Daily Total | 280 | 106.130 | 1.000 | -- | -- | -- |
| Hourly Average | 11.7 | 4.422 | 0.042 | 2.71E-01 | 1.87E-02 | 1.66E-02 |
| Maximum Hourly | 28 | 10.613 | 0.100 | 6.51E-01 | 4.49E-02 | 3.97E-02 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 78 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|-------------------|--------------------|---------------------|
| | | | | <i>Cars_01NOx</i> | <i>Cars_01PM10</i> | <i>Cars_01PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 9.66E-07 | 6.66E-08 | 5.90E-08 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 2.32E-06 | 1.60E-07 | 1.42E-07 |

| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
|-----------------------|---|--|
| 1.42 | 3.64 | 1.33 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-2

Moving-Vehicle Emission Calculation

Trucks-01

| | |
|-----------------------|-----------------------------------|
| Segment Description | On-Site Trucks through Truck Dock |
| Travel Direction | Eastbound & Westbound |
| Segment Length (feet) | 1417 |
| Road Type | Urban Unrestricted |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | 2.5 <= speed < 7.5 mph |

CDPH MOVES Table Emission Factors

| NOx EF (g/VMT) | PM10 EF (g/VMT) | PM2.5 EF (g/VMT) |
|-------------------|--------------------|---------------------|
| 24.33970 | 0.49831 | 0.45844 |

| Hour of Day | Trips | VMT | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|-------|--------|-----------------|------------|-------------|--------------|
| 12:00 AM | 1 | 0.268 | 0.004 | 6.53E+00 | 1.34E-01 | 1.23E-01 |
| 1:00 AM | 2 | 0.537 | 0.007 | 1.31E+01 | 2.68E-01 | 2.46E-01 |
| 2:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3:00 AM | 0 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4:00 AM | 3 | 0.805 | 0.011 | 1.96E+01 | 4.01E-01 | 3.69E-01 |
| 5:00 AM | 7 | 1.879 | 0.025 | 4.57E+01 | 9.36E-01 | 8.61E-01 |
| 6:00 AM | 18 | 4.832 | 0.064 | 1.18E+02 | 2.41E+00 | 2.22E+00 |
| 7:00 AM | 20 | 5.369 | 0.071 | 1.31E+02 | 2.68E+00 | 2.46E+00 |
| 8:00 AM | 18 | 4.832 | 0.064 | 1.18E+02 | 2.41E+00 | 2.22E+00 |
| 9:00 AM | 17 | 4.563 | 0.061 | 1.11E+02 | 2.27E+00 | 2.09E+00 |
| 10:00 AM | 12 | 3.221 | 0.043 | 7.84E+01 | 1.61E+00 | 1.48E+00 |
| 11:00 AM | 15 | 4.026 | 0.054 | 9.80E+01 | 2.01E+00 | 1.85E+00 |
| 12:00 PM | 28 | 7.516 | 0.100 | 1.83E+02 | 3.75E+00 | 3.45E+00 |
| 1:00 PM | 15 | 4.026 | 0.054 | 9.80E+01 | 2.01E+00 | 1.85E+00 |
| 2:00 PM | 21 | 5.637 | 0.075 | 1.37E+02 | 2.81E+00 | 2.58E+00 |
| 3:00 PM | 24 | 6.442 | 0.086 | 1.57E+02 | 3.21E+00 | 2.95E+00 |
| 4:00 PM | 21 | 5.637 | 0.075 | 1.37E+02 | 2.81E+00 | 2.58E+00 |
| 5:00 PM | 23 | 6.174 | 0.082 | 1.50E+02 | 3.08E+00 | 2.83E+00 |
| 6:00 PM | 14 | 3.758 | 0.050 | 9.15E+01 | 1.87E+00 | 1.72E+00 |
| 7:00 PM | 4 | 1.074 | 0.014 | 2.61E+01 | 5.35E-01 | 4.92E-01 |
| 8:00 PM | 2 | 0.537 | 0.007 | 1.31E+01 | 2.68E-01 | 2.46E-01 |
| 9:00 PM | 8 | 2.147 | 0.029 | 5.23E+01 | 1.07E+00 | 9.84E-01 |
| 10:00 PM | 4 | 1.074 | 0.014 | 2.61E+01 | 5.35E-01 | 4.92E-01 |
| 11:00 PM | 3 | 0.805 | 0.011 | 1.96E+01 | 4.01E-01 | 3.69E-01 |
| Daily Total | 280 | 75.161 | 1.000 | -- | -- | -- |
| Hourly Average | 11.7 | 3.132 | 0.042 | 7.62E+01 | 1.56E+00 | 1.44E+00 |
| Maximum Hourly | 28 | 7.516 | 0.100 | 1.83E+02 | 3.75E+00 | 3.45E+00 |

| | |
|---------------------|----|
| Qty. AERMOD Volumes | 50 |
|---------------------|----|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|--|--|--|--|---------------------|----------------------|-----------------------|
| | | | | <i>Trucks_01NOx</i> | <i>Trucks_01PM10</i> | <i>Trucks_01PM2.5</i> |
| Daily Average Emission Rate (g/s/Volume) | | | | 4.23E-04 | 8.67E-06 | 7.98E-06 |
| Max Hourly Emission Rate (g/s/Volume) | | | | 1.02E-03 | 2.08E-05 | 1.91E-05 |

| | | |
|--------------------|---|--|
| Release Height (m) | Initial Lateral Dimension σ_{y0} (m) | Initial Vertical Dimension σ_{z0} (m) |
| 3.50 | 4.00 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-3
Idle-Vehicle Emission Calculation

| | |
|-------------------------|------------------------------|
| Segment Description | Cargo Loadout Zone |
| Idle Time (min/vehicle) | 10 |
| Road Type | Off-Network Idle |
| Vehicle Type | Combination Short-haul Truck |
| Fuel Type | Diesel Fuel |
| Vehicle Speed Range | speed = 0 (idle) (g/hr) |

CDPH MOVES Table Emission Factors

| NOx EF (g/hr/vehicle) | PM10 EF (g/hr/vehicle) | PM2.5 EF (g/hr/vehicle) |
|--------------------------|---------------------------|----------------------------|
| 55.13010 | 1.56115 | 1.43626 |

| Hour of Day | Vehicles | Idle Time (vehicle-hrs) | Hourly Distrib. | NOx (g/hr) | PM10 (g/hr) | PM2.5 (g/hr) |
|----------------|----------|----------------------------|-----------------|------------|-------------|--------------|
| 12:00 AM | 0 | 0.00 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1:00 AM | 0 | 0.00 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2:00 AM | 2 | 0.33 | 0.014 | 1.84E+01 | 5.20E-01 | 4.79E-01 |
| 3:00 AM | 2 | 0.33 | 0.014 | 1.84E+01 | 5.20E-01 | 4.79E-01 |
| 4:00 AM | 3 | 0.50 | 0.020 | 2.76E+01 | 7.81E-01 | 7.18E-01 |
| 5:00 AM | 6 | 1.00 | 0.041 | 5.51E+01 | 1.56E+00 | 1.44E+00 |
| 6:00 AM | 7 | 1.17 | 0.047 | 6.43E+01 | 1.82E+00 | 1.68E+00 |
| 7:00 AM | 8 | 1.33 | 0.054 | 7.35E+01 | 2.08E+00 | 1.92E+00 |
| 8:00 AM | 8 | 1.33 | 0.054 | 7.35E+01 | 2.08E+00 | 1.92E+00 |
| 9:00 AM | 14 | 2.33 | 0.095 | 1.29E+02 | 3.64E+00 | 3.35E+00 |
| 10:00 AM | 14 | 2.33 | 0.095 | 1.29E+02 | 3.64E+00 | 3.35E+00 |
| 11:00 AM | 16 | 2.67 | 0.108 | 1.47E+02 | 4.16E+00 | 3.83E+00 |
| 12:00 PM | 10 | 1.67 | 0.068 | 9.19E+01 | 2.60E+00 | 2.39E+00 |
| 1:00 PM | 12 | 2.00 | 0.081 | 1.10E+02 | 3.12E+00 | 2.87E+00 |
| 2:00 PM | 9 | 1.50 | 0.061 | 8.27E+01 | 2.34E+00 | 2.15E+00 |
| 3:00 PM | 14 | 2.33 | 0.095 | 1.29E+02 | 3.64E+00 | 3.35E+00 |
| 4:00 PM | 11 | 1.83 | 0.074 | 1.01E+02 | 2.86E+00 | 2.63E+00 |
| 5:00 PM | 6 | 1.00 | 0.041 | 5.51E+01 | 1.56E+00 | 1.44E+00 |
| 6:00 PM | 2 | 0.33 | 0.014 | 1.84E+01 | 5.20E-01 | 4.79E-01 |
| 7:00 PM | 1 | 0.17 | 0.007 | 9.19E+00 | 2.60E-01 | 2.39E-01 |
| 8:00 PM | 2 | 0.33 | 0.014 | 1.84E+01 | 5.20E-01 | 4.79E-01 |
| 9:00 PM | 1 | 0.17 | 0.007 | 9.19E+00 | 2.60E-01 | 2.39E-01 |
| 10:00 PM | 0 | 0.00 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 11:00 PM | 0 | 0.00 | 0.000 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Daily Total | 148 | 24.67 | 1.000 | -- | -- | -- |
| Hourly Average | 6.2 | 1.03 | 0.042 | 5.67E+01 | 1.60E+00 | 1.48E+00 |
| Maximum Hourly | 16 | 2.67 | 0.108 | 1.47E+02 | 4.16E+00 | 3.83E+00 |

| | |
|-------------------|---|
| Qty. AERMOD Areas | 1 |
|-------------------|---|

| AERMOD Input Emission Rates | | | | NOx | PM10 | PM2.5 |
|---|--|--|--|----------|----------|----------|
| | | | | NOx | PM10 | PM2.5 |
| Daily Average Emission Rate (g/s/m ²) | | | | 8.16E-06 | 2.31E-07 | 2.12E-07 |
| Max Hourly Emission Rate (g/s/m ²) | | | | 2.12E-05 | 5.99E-07 | 5.51E-07 |

| Area Length (ft) | Area Length (m) | Area Source Area (m ²) | Plume/Area Width (m) | Release Height (m) | Initial Vertical Dimension σ _{z0} (m) |
|---------------------|-----------------|---------------------------------------|-------------------------|-----------------------|--|
| 737 | 224.6376 | 1930 | 8.59 | 3.50 | 3.25 |

Emission Rate Calculations for Project Air Emission Sources

TABLE A-4

Building Heat: Direct-Fired Makeup Air Units

| ID | MAU-1 | MAU-2 | TOTAL |
|---------------------------------|--------|--------|--------|
| Heat Output (MMBtu/hr) | 1.5 | 1.5 | 3 |
| Heat Input (MMBtu/hr) | 1.63 | 1.63 | 3.26 |
| NG Input (scfh) | 1,598 | 1,598 | 3,197 |
| NG Input (10 ⁶ scfh) | 0.0016 | 0.0016 | 0.0032 |

NG Heat Content (Btu/scf) 1,020

Emission Estimate Calculation

| Air Pollutant | NOx | PM10 | PM2.5 |
|--|------|-------|-------|
| Emission Factor (lb/10 ⁶ scf) | 100 | 7.6 | 7.6 |
| Max Hourly Rate (lb/hr) | 0.32 | 0.024 | 0.024 |
| Annual PTE (tons/year) | 1.4 | 0.11 | 0.11 |

Annual Operating Hours 8,760

Emission factors are from Table 1.4-1 and Table 1.4-2 of AP-42.

AERMOD Source Parameters

| | |
|---|-------|
| Building Height (feet) | 36 |
| Building Height (meters) | 10.97 |
| Plume Height (feet) | 36 |
| Plume Height (meters) | 10.97 |
| Release Height (feet) | 18.00 |
| Release Height (meters) | 5.49 |
| Initial Vertical Dimension, σ_{z0} (m) | 5.10 |
| Area (m ²) | 22527 |

Emission Rate (g/s/m²)

| Air Pollutant | NOx | PM10 | PM2.5 |
|-----------------|----------|----------|----------|
| Max Hourly Rate | 1.79E-06 | 1.36E-07 | 1.36E-07 |
| Annual Rate | 1.79E-06 | 1.36E-07 | 1.36E-07 |

APPENDIX B

AERMOD Files