



AGENDA REPORT

TO: Sabrina B. Landreth
City Administrator

FROM: Darin Ranelletti
Interim Director, DPB

SUBJECT: 285 and 301 12th Street Appeal

DATE: November 18, 2016

City Administrator Approval

Date:

RECOMMENDATION

Staff Recommends That The City Council Conduct A Public Hearing And Upon Conclusion Consider Adopting A Resolution Denying Appeals By Both Oakland Residents For Responsible Development And The W12 Benefits Coalitions, And Thus Upholding The Planning Commission's Approval Of A Proposal To Construct Two 7-Story Mixed Use Buildings Containing A Total Of 416 Dwelling Units And Approximately 26,200 Square Feet Of Commercial Located At 285 And 301 12th Street, Oakland CA (Project Case No. PLN16133), Including Adopting CEQA Exemptions (15183 & 15183.3) And Addendum (Relying On The Previously Certified 2014 Lake Merritt Station Area Plan EIR).

REASON FOR SUPPLEMENTAL

On November 18, 2016, following finalization of the Agenda Report for the November 29, 2016 City Council meeting, the Project applicant submitted documents that provide additional and clarifying information regarding the Project's reduction of construction emissions.

As stated in the Project's CEQA Analysis, the November 7, 2016 and August 12, 2016 ESA CEQA Response Memoranda, and other City responses to similar comments raised by Adams Broadwell for other projects within the Lake Merritt Station Plan (LMSAP) area, the LMSAP Environmental Impact Report (EIR) analyzed construction-related health risks (see Impact AIR-3) and determined impacts to be less than significant with implementation of Standard Condition of Approval (SCA) A (referred to as SCA AIR-1 in the CEQA Analysis). As stated on page 3.3-39 of the LMSAP EIR, "...SCA A would implement construction-related Best Management Practices to substantially reduce construction-related impacts to a less-than-significant level." Nothing in the LMSAP EIR indicated that a stand-alone Health Risk Assessment (HRA) for construction-related impacts is required on a project-by-project basis. Nevertheless, the Project sponsor voluntarily acted in good faith to retain a consultant (FirstCarbon Solutions) to prepare a project-level construction HRA for the Project (see **Attachment A**).

The HRA determined that the Project's construction emissions would not exceed the City of Oakland's project-level health risk thresholds of significance after application of standard conditions of acceptance and mitigation measures. The Project's construction emissions in

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November 29, 2016

combination with TAC emissions from sources of TAC emissions within 1,000 feet of the project would not expose nearby sensitive receptors to cancer risks or hazard levels that exceed the City of Oakland's cumulative health risk thresholds of significance. Therefore, as previously concluded, the construction of the Project would not result in a project-level or cumulative significant health risk impact and would not result in a more severe impact than what was disclosed in the LMSAP EIR.

In addition, staff received a letter from the Project applicant confirming the availability of the Tier 4 off-road equipment that will be used during construction (**Attachment B**). The availability of Tier 4 off-road construction equipment has been a primary point in the appellant's argument that the Project would create construction period health risk impacts that were not identified in the LMSAP EIR, and have argued that the City's SCA requiring the use of Tier 4 equipment is not adequate mitigation due to the lack of availability of such equipment. Staff is also including into the record two letters on behalf of Oakland Residents for Responsible Development, the same appellant on a project at 4th & Madison Streets and 226 13th Streets in Oakland where the appellant states that, in fact, the City's SCA requiring Tier 4 equipment is sufficient mitigation to address construction period health risks (**Attachment C**), which is contrary to the claims that they are making on this appeal.

ACTION REQUESTED OF THE CITY COUNCIL

Staff recommends that the City Council adopt a resolution denying the appeals from Oakland Residents for Responsible Development and the W12 Benefits Coalition, and upholding the Planning Commission's approval of a proposal to construct 416 dwelling units over approximately 26,000 square feet of retail located at 285 and 301 12th Street, Oakland CA (Project Case No. PLN16-133), including adopting CEQA Exemptions (15183 & 15183.3) and Addendum (Relying on the previously certified 2014 Lake Merritt Station Area Plan EIR)

For questions regarding this report, please contact Christina Ferracane, Planner III, at (510) 238-3903.

Respectfully submitted,

Darin Ranelletti
Interim Director, Department of Planning &
Building

Reviewed by:
Robert Merkamp, Development Manager

Prepared by:
Christina Ferracane, Planner III
Bureau of Planning

Attachments:

- A. Construction Health Risk Assessment for the W12 Mixed Use Project
- B. Confirmation Regarding Availability of Tier 4 Construction Equipment for the W12 Mixed Use Project
- C. March 16, 2016 and November 14, 2016 Letters from Adams and Broadwell on the 4th and Madison and 226 13th Street Projects



Memo

Date: November 14, 2016

To: Ms. Jennifer Renk, Partner
Sheppard Mullin
Four Embarcadero Center
San Francisco, CA, 94111

From: Jason Brandman, Vice President

Subject: Construction Health Risk Assessment for the W12 Mixed Use Project, Oakland, CA

Purpose

The purpose of this report is to provide a health risk assessment to determine whether toxic air contaminant (TAC) emissions from the construction of the W12 Mixed Use Project (project) would exceed health risk thresholds of significance established by the City of Oakland.¹ This report relied upon the guidance and tools developed by the Bay Area Air Quality Management District (BAAQMD) to assist in performing such health risk assessments. In accordance with BAAQMD guidance and tools, the project's construction TAC emissions were quantified and potential associated health risks analyzed at the nearest sensitive receptors to the project. In addition, all sources of TAC emissions located within 1,000 feet of the project were also identified and their potential cumulative health impacts along with those from the project construction were quantified.

This assessment also relied on the project's CEQA Analysis² prepared for this project. The CEQA checklist contained within the CEQA Analysis and its supporting information provided data on the project's construction emissions, project-level and cumulative impacts, and requisite standard conditions of approval and mitigation measures to minimize the project's air quality and health risk impacts. The information contained within the CEQA Analysis is incorporated by reference.

Project Location

The project applicant, Emerge Development, LLC, is proposing to develop two 7-story, approximately 87-foot-tall buildings containing up to 416 residential units; approximately 25,050 square feet of commercial space; and up to 317 on-site parking spaces. The project site consists of two parcels located on the 301 12th Street (Assessor's Parcel Number 002-006300600) and 285 12th Street (Assessor's Parcel Number 002-00960301). On the block bound by 11th, 12th, Webster, and Harrison Streets (referred to as

¹ City of Oakland, CEQA Thresholds of Significance Guidelines. 2013. Website: <http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak051200.pdf>. October 28,

² City of Oakland. 2016. W12 Mixed Use Project CEQA Analysis. July. Website: <http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak059795.pdf>.

the “Full Block”), the project would construct one 7-story structure, “Building A.” This building would include 339 residential units and approximately 23,400 square feet of ground-floor commercial use. The portion of the project site across Harrison Street (referred to as the “Quarter Block”) would be developed with a 7-story structure, “Building B.” This building would include 77 residential units and approximately 1,650 square feet of ground-floor commercial use. The Full Block is currently occupied by a single structure being used for a school (Downtown Oakland Charter School) and public parking. The Quarter Block is vacant and serves as a paved recreation area for the Downtown Oakland Charter School. The up to 317 vehicular parking spaces provided on-site would include regular (single stall) and tandem parking spaces. A residential loading area also would be located on the first floor of each building. Exhibit 1 provides the location of the project, while Exhibit 2 provides a site plan for the project.

The project construction period is expected to last between 18 and 24 months. Construction activities on the project site would consist of excavation and shoring, foundation and below-grade construction, and construction of the project building and finishing interiors. However, the information contained within the air quality assessment of the CEQA Analysis assumed that the construction would commence in January 2017 and would be completed in December 2017. This represents a conservative assumption in that the emissions are concentrated in a single year (2017) rather than being spread in lower amounts over 2 years. This is particularly important because of the way the BAAQMD guidance on estimating cancer risks is employed, which weights a project’s TAC emissions in its earliest years of construction far greater than the emissions in later years. The project was assumed to be occupied beginning in January 2020.

Sensitive receptors in the form of existing residences and schools are located in various directions from the project. The closest residential receptors are located at:

- 1238 Harrison Street at 12th Street, 82 feet north of the project
- Hotel Oakland, north of the project, 335 feet north of the project
- 370 11th Street at Webster Street, 60 feet west of the project

Lincoln Elementary School is located approximately 500 feet southeast of the project. Exhibit 3 provides the locations of nearby sensitive receptors.

Project Summary

This health risk assessment consisted of four principal components:

1. Quantify the TAC emissions from the construction of the project.
2. Identify the sources of TAC emissions and their emission levels located within a 1,000-foot radius from the project.
3. Estimate the health impacts to surrounding sensitive receptors such as residences and schools from the project-level construction emissions using a refined air dispersion modeling assessment and as part of the cumulative assessment of health risks from the identified sources of TAC emissions within 1,000 feet of the project.

4. Compare the resulting project-level and cumulative health impacts with health risk thresholds of significance adopted by the City of Oakland.

On the basis of the assessment provided herein,

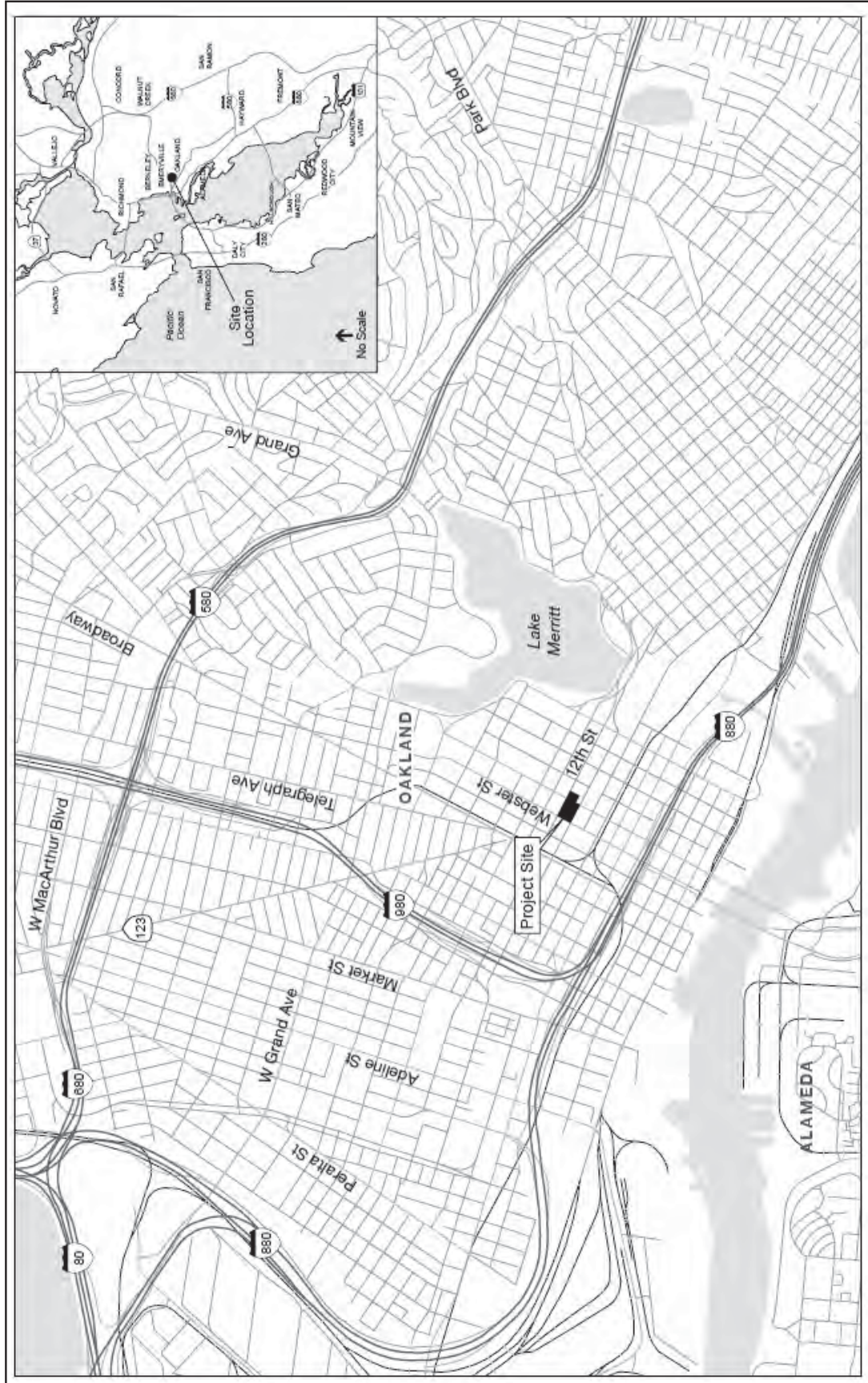
- The project's construction emissions would not exceed the City of Oakland's project-level health risk thresholds of significance after application of standard conditions of acceptance and mitigation measures.
- The project's construction emissions in combination with TAC emissions from sources of TAC emissions within 1,000 feet of the project would not expose nearby sensitive receptors to cancer risks or hazard levels that exceed the City of Oakland's cumulative health risk thresholds of significance.
- Therefore, the construction of the project would not result in a project-level or cumulative significant health risk impact and would not result in a more severe impact than what was disclosed in the Lake Merritt Station Area Plan Environmental Impact Report.

Toxics Air Contaminants of Concern

TACs are air pollutants present in miniscule amounts in the air that, if a person is exposed to them for a period of time, could increase the chances of experiencing health problems. Exposures to TAC emissions can have both chronic long-term (over a year or longer) and acute short-term (over a period of hours) health impacts. The TACs of greatest concern are those that cause serious health problems or affect many people. Health problems can include cancer, respiratory irritation, nervous system problems, and birth defects. Some health problems occur very soon after a person inhales a TAC. These immediate effects may be minor, such as watery eyes; or they may be serious, such as life-threatening lung damage. Other health problems may not appear until many months or years after a person's first exposure to the TAC. Cancer is one example of a delayed health problem.

This assessment focuses on particulate pollution, which is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores).

Fine particle pollution or PM_{2.5} describes particulate matter that is 2.5 micrometers in diameter and smaller—one-thirtieth the diameter of a human hair. Fine particle pollution can be emitted directly or formed secondarily in the atmosphere. PM_{2.5} health impacts are important because their size can be deposited deeply in the lungs causing respiratory effects.



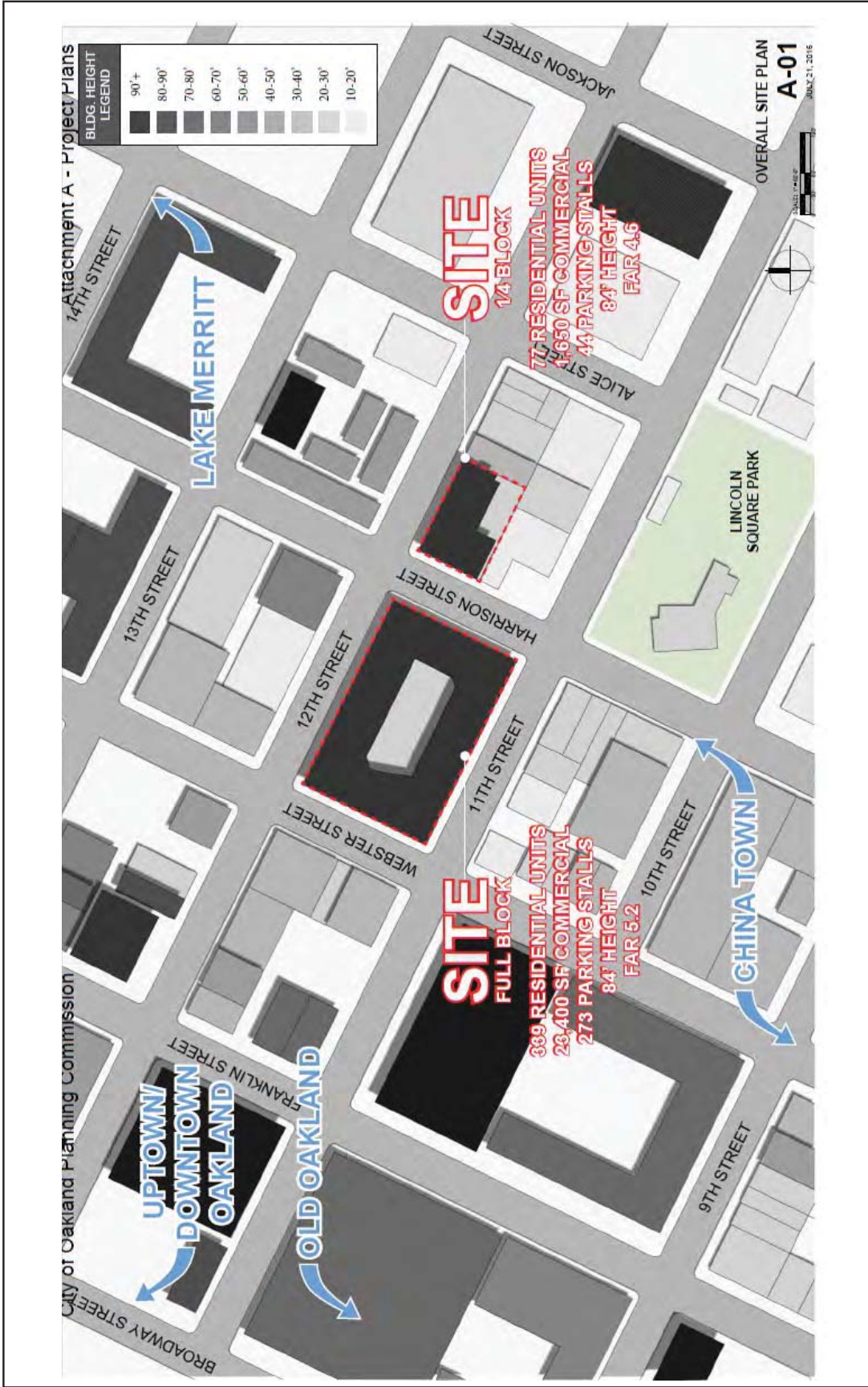
Source: W12 Mixed Use Project CEQA Analysis July 2016



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Exhibit 1 Regional Location Map

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CONSTRUCTION HEALTH RISK ASSESSMENT



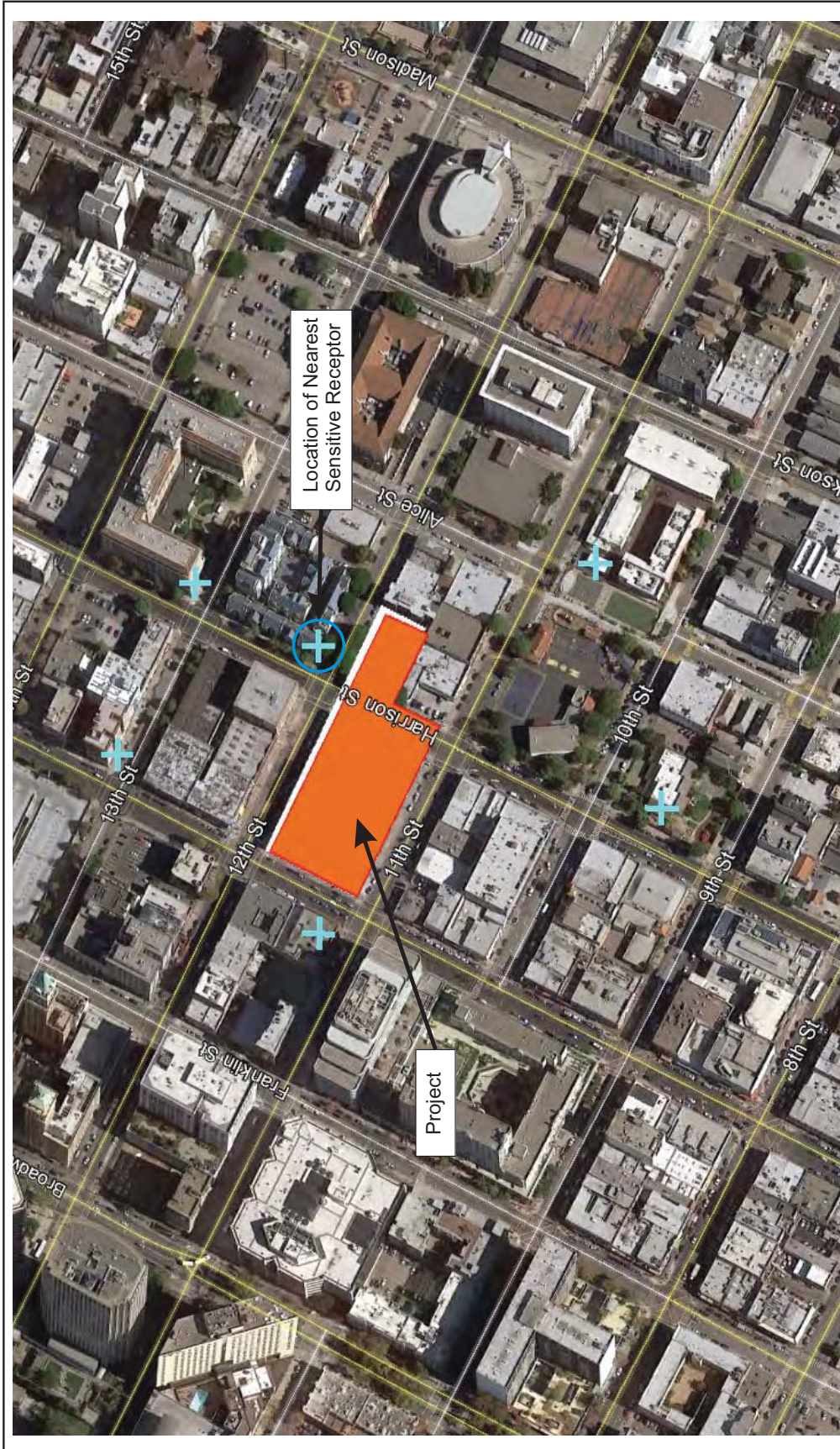
Source: W12 Mixed Use Project CEQA Analysis July 2016



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Exhibit 2 Site Plan

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CONSTRUCTION HEALTH RISK ASSESSMENT



Source: Google Earth, 2016



32660012 • 11/2016 | 3_receptors.cdr

Exhibit 3 Locations of Sensitive Receptors

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CONSTRUCTION HEALTH RISK ASSESSMENT

For purposes of this study, exhaust emissions of PM_{2.5} are represented as diesel particulate matter (DPM), a major component of PM_{2.5}. Studies indicate that DPM poses the greatest health risk among airborne TACs. A 10-year research program (ARB 1998)³ demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk. DPM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The California Air Resources Board (ARB) has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM₁₀ database, ambient PM_{2.5} monitoring data, and the results from several studies to estimate concentrations of DPM.

Standard Conditions of Approval and Mitigation Measure Applicable to the Project

The CEQA Analysis and accompanying Checklist provides a summary of the potential environmental impacts that may result from adoption and implementation of the Lake Merritt Station Area Plan (LMSAP)⁴ as evaluated in the project CEQA Analysis. Potential environmental impacts of development under the LMSAP were analyzed and covered by the LMSAP EIR, and the EIR identified mitigation measures and Standard Conditions of Approval (SCAs) to address these potential environmental impacts. The CEQA Checklist incorporates by reference the LMSAP EIR discussion and analysis of all potential environmental impact topics; only those environmental topics that could have a potential project-level environmental impact are included. The proposed project is required to comply with applicable mitigation measures identified in the LMSAP EIR, and with City of Oakland SCAs. Because the SCAs are mandatory city requirements, the impact analysis for the proposed project assumes that they will be imposed and implemented, which the project sponsor has agreed to do or ensure as part of the proposed. This CEQA Checklist includes references to the applicable mitigation measures and SCAs and is shown in Table 1 and Table 2.

Table 1: Project Construction Standard Conditions of Approval/Mitigation Measures

SCA-AIR-1 (Standard Condition of Approval 19) Construction-Related Air Pollution Controls (Dust and Equipment Emissions)
The project applicant shall implement all of the following applicable air pollution control measures during construction of the project: a) Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible. b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

³ ARB. 1998. The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines. Website: www.arb.ca.gov/toxics/dieseltac/factsht1.pdf.

⁴ City of Oakland 2014. Lake Merritt Station Area Plan EIR. Website: <http://www2.oaklandnet.com/Government/o/PBN/OurServices/Plans/DOWD008198>.

Table 1 (cont.): Project Construction Standard Conditions of Approval/Mitigation Measures

SCA-AIR-1 (Standard Condition of Approval 19) Construction-Related Air Pollution Controls (Dust and Equipment Emissions)
c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d) Pave all roadways, driveways, sidewalks, etc. within one month of site grading or as soon as feasible. In addition, building pads should be laid within one month of grading or as soon as feasible unless seeding or soil binders are used. e) Enclose, cover, water twice daily, or apply (nontoxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.). f) Limit vehicle speeds on unpaved roads to 15 miles per hour. g) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points. h) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations"). i) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. j) Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. k) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. l) All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph. m) Install sandbags or other erosion control measures to prevent silt runoff to public roadways. n) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more). o) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off-site. Their duties shall include holidays and weekend periods when work may not be in progress. p) Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind-blown dust. Wind breaks must have a maximum 50 percent air porosity. q) Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. r) Activities such as excavation, grading, and other ground-disturbing construction activities shall be phased to minimize the amount of disturbed surface area at any one time. s) All trucks and equipment, including tires, shall be washed off prior to leaving the site. t) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel. u) All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") must meet emissions and performance requirements one year in advance of any fleet deadlines. Upon request by the

Table 1 (cont.): Project Construction Standard Conditions of Approval/Mitigation Measures

SCA-AIR-1 (Standard Condition of Approval 19) Construction-Related Air Pollution Controls (Dust and Equipment Emissions)	
	City, the project applicant shall provide written documentation that fleet requirements have been met.
v)	Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).
w)	All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO _x and PM.
x)	Off-road heavy diesel engines shall meet the California Air Resources Board's most recent certification standard.
y)	Post a publicly visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and the Bay Area Air Quality Management District. When contacted, the project complaint manager shall respond and take corrective action within 48 hours.

Table 2: Project Construction Standard Conditions of Approval/Mitigation Measures

SCA-AIR-2: Exposure to Air Pollution (Toxic Air Contaminants)	
a)	Health Risk Reduction Measures The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to TACs.
Source: City of Oakland 2016. W12 Mixed Use Project CEQA Analysis. Website: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak059795.pdf	

Specifically related to subsections SCA AIR-1 (w) and (x) above that require construction equipment and diesel trucks to be equipped with Best Available Control Technology and meet the ARB's most recent certification standard, the project must deploy construction equipment meeting Tier 4 emission standards.⁵ Therefore, this construction health risk assessment assumed the deployment of construction equipment that meets Tier 4 emission standards for project mitigation during construction.

Health Risk Significance Thresholds

The City of Oakland CEQA Thresholds of Significance Guidelines provides quantitative thresholds for both project-only impacts and cumulative impacts. The health risk significance thresholds adopted for this assessment are provided in Table 3 for project-level TAC emission source impact as well as the cumulative impacts of all TAC sources located within a 1,000-foot radius of the project.

⁵ City of Oakland. 2016. W12 Response to Comment Letters from Adams and Broadwell Joseph & Cardozo, pages 7 and 11. Website: <http://www2.oaklandnet.com/oakca1/groups/ceda/documents/agenda/oak060234.pdf>.

Table 3: City of Oakland Thresholds of Significance

Metric	Individual Source Impact	Cumulative Source Impact
Cancer Risk	10 in one million (sources within a 1,000-foot zone of influence)	100 in one million(sources within a 1,000-foot zone of influence)
Non-Cancer Hazard Index	1.0 (sources within a 1,000-foot zone of influence)	10.0 (sources within a 1,000-foot zone of influence)
Annual PM _{2.5}	0.3 µg/m ³ (sources within a 1,000-foot zone of influence)	0.8 µg/m ³ (sources within a 1,000-foot zone of influence)
Note: µg/m ³ = microgram per cubic meter Source: City of Oakland 2013. CEQA Thresholds of Significance Guidelines. Website: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak051200.pdf .		

Health Risk Assessment and Methodology

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- Identifying the TACs that may be present in the air;
- Estimating the amount of TACs released from all sources, or the source of particular concern, using air samples or emission models;
- Estimating concentrations of TACs in air in the geographic area of concern by using air dispersion models with information about emissions, source locations, weather, and other factors; and
- Estimating the concentrations of the TAC at different geographic locations and their potential health impacts.

Thus, an HRA identifies the TACs that could affect public health, identifies the sources of the TAC emissions and quantifies the emissions, estimates where the emissions are transported by prevailing meteorological conditions, and determines the potential exposures to individuals affected by the TACs.

Estimation of Project-Level Construction Emissions

The PM_{2.5} construction emissions were estimated using the CalEEMod Land Use Emission Model (Version 2.13.2.2). The CalEEMod model provides a consistent platform for estimating construction and operational emissions from a wide variety of land use projects and is the methodology recommended by the BAAQMD for estimating project emissions. The project's construction emissions were derived from the emission estimates obtained from ESA | Community Development⁶ that was used in quantifying construction emissions shown in the CEQA Analysis (Table AIR-1). Table 4 summarizes the project's

⁶ ESA emission estimates were supplied by Ms. Jennifer Renk on November 7, 2016.

unmitigated and mitigated annual construction emissions of PM_{2.5}. For purposes of the air dispersion modeling of the construction emissions, all construction emissions were assumed to be emitted in 2017.

Table 4: Project Annual DPM (as PM_{2.5} Exhaust) Construction Emissions

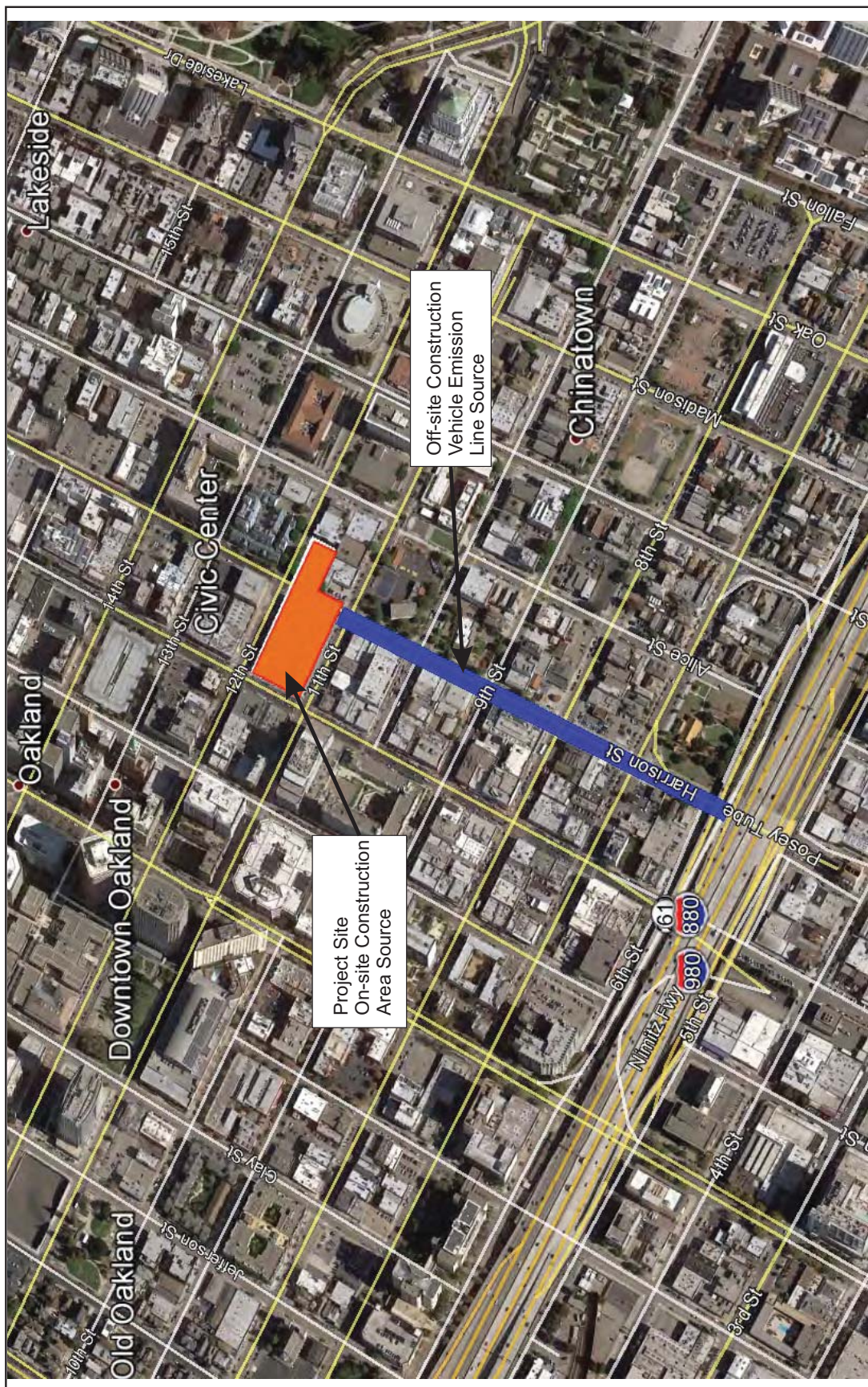
Year	On-site DPM (as PM _{2.5} Exhaust) (tons/year)	Off-site DPM ⁽¹⁾ (as PM _{2.5} Exhaust) (tons/year)	Total PM _{2.5} (tons/year)
2017	0.141	0.0005	0.142
Year	On-site DPM (as PM _{2.5} Exhaust) ⁽²⁾ (tons/year)	Off-site DPM (as PM _{2.5} Exhaust) ⁽¹⁾ (tons/year)	Total PM _{2.5} (tons/year)
2017	0.0036	0.0005	0.0041
Note: ⁽¹⁾ Off-site emissions are estimated from the project site along Harrison Street to Interstate 980/880. ⁽²⁾ Mitigated emissions reflect the Standard Conditions and Approvals/Mitigation Measures shown in Table 1 and deployment of off-road construction equipment meeting Tier 4 emission standards for all off-road construction equipment. Source: see Attachments A and B to this report.			

Air Dispersion Modeling

An air dispersion model is a mathematical formulation that is used to estimate the air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the United States Environmental Protection Agency (EPA) AERMOD air dispersion model that is approved by the BAAQMD for air dispersion assessments. Specifically, the AERMOD model was used to estimate levels of TACs at sensitive receptor locations from the project's construction PM_{2.5} exhaust emissions. The use of the AERMOD model provides a refined methodology for estimating construction impacts by utilizing long-term measured, representative meteorological data for the project site and a representative construction schedule.

Two emission sources were used to represent the project's PM_{2.5} construction exhaust emissions. One source represented the generation of on-site construction DPM emissions (as PM_{2.5} exhaust) from the off-road construction equipment. The on-site construction emission source was assumed to be an area source that covered the entire construction area of approximately 1.9 acres. The DPM emissions were assumed to be emitted at a height of 5 meters above ground to account for the height of the equipment exhaust stack where the emissions are released to the atmosphere and the increase in the height of the emissions due to its heated exhaust. Exhibit 4 shows the locations of the project construction emission sources.

A second source was used to represent the project's construction PM_{2.5} from the off-site travel of construction vehicles including haul trucks, vendor trucks, and worker vehicles. The off-site vehicle emissions were represented in the AERMOD model as line volume sources with a release height of 3.7 meters for the DPM vehicles. All off-site construction vehicles were assumed for purposes of this assessment to travel from the project site along Harrison Street to Interstate 980/880. Construction was assumed to take place 8 hours per day, 5 days per week during the year 2017.



Source: Google Earth, 2016



Exhibit 4 Locations of Project Construction TAC Emission Sources

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SHEPPARD MULLIN • W12 MIXED USE PROJECT
CONSTRUCTION HEALTH RISK ASSESSMENT

Estimation of Cancer Risks

The BAAQMD has developed a set of guidelines⁷ for estimating cancer risks that provide adjustment factors that emphasize the increased sensitivities and susceptibility of young children to exposures to TACs. These adjustment factors include age-sensitivity weighting factors, age-specific daily breathing rates, and age-specific time-at-home factors. The recommend method for the estimation of cancer risk is shown in the following equations with the various cancer risk adjustment factors provided in Table 5 for sensitive/residential receptors.

$$\text{Cancer Risk} = C_{\text{DPM}} \times \text{Inhalation Exposure Factor}$$

Where:

Cancer Risk = Total individual excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular source for specified exposure durations; this risk is defined as an excess risk because it is above and beyond the background cancer risk to the population; cancer risk is expressed in terms of risk per million exposed individuals.

C_{DPM} = Period average DPM air concentration calculated from the air dispersion model in $\mu\text{g}/\text{m}^3$

Inhalation is the most important exposure pathway to impact human health from DPM and the inhalation exposure factor is defined as follows:

$$\text{Inhalation Exposure Factor} = \text{CPF} \times \text{EF} \times \text{ED AAF/AT}$$

Where:

CPF = Inhalation cancer potency factor for the TAC: $1.1 (\text{mg}/\text{kg}\cdot\text{day})^{-1}$ for DPM

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

AAF = set of age-specific adjustment factors that include age sensitivity factors (ASF), daily breathing rates (DBR), and time at home factors (TAH)—see Table 5.

AT = Averaging time period over which exposure is averaged (days)

⁷ BAAQMD. 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. Website: http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en.

Table 5: Exposure Assumptions for Cancer Risk

Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors (ASF)	Time at Home Factor (TAH) (%)	Daily Breathing Rate (DBR) ⁽¹⁾ (L/kg-day)
	Hours/day	Days/year				
Sensitive/Residential—Infant						
3 rd Trimester	24	350	0.25	10	85	361
0-1 year	24	350	1	10	85	1,090
Sensitive Receptor—Child						
3 to 16 years	24	350	1	3	73	572
Sensitive Receptor—Adult						
> 16 years	24	350	1	1	72	261
Notes: ⁽¹⁾ The daily breathing rates recommended by the BAAQMD for sensitive/residential receptors assume the 95 th percentile breathing rates for all individuals less than 2 years of age and 80 th breathing rates for all older individuals. (L/kg-day) = liters per kilogram body weight per day Source: BAAQMD 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. Website: http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en						

Estimation of Non-Cancer Hazards

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

To quantify non-carcinogenic impacts, the hazard index approach was used.

$$HI = C_{ann}/REL$$

Where:

HI = chronic hazard index

C_{ann} = annual average concentration of TAC as derived from the air dispersion model ($\mu\text{g}/\text{m}^3$)

REL = reference exposure level above which a significant impact is assumed to occur ($\mu\text{g}/\text{m}^3$)

The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity reference exposure level. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds 1, a health hazard is presumed to exist. For purposes of this assessment, the TAC of concern is DPM for which the OEHHA has

defined a REL for DPM of $5 \mu\text{g}/\text{m}^3$. The principal toxicological endpoint assumed in this assessment was through inhalation.

Estimation of PM_{2.5} Hazards

The City of Oakland has included a significance threshold for PM_{2.5}, due to recent studies that show health impacts from exposure to this pollutant. The construction emissions of PM_{2.5} incorporated into this assessment included DPM (as PM_{2.5} exhaust).

Estimates of Health Risks and Hazards from Project Construction

The estimated health and hazard impacts at the maximum impacted sensitive receptor from the project's construction emissions are provided in Table 6 prior to the application of mitigation. The maximum impacted sensitive receptor (MIR) was found at an existing residences located approximately 25 meters (82 feet north of the project) at the intersection of 12th Street and Harrison Street. As noted from Table 6, prior to the application of mitigation, the project's construction DPM emissions would exceed the City of Oakland's cancer risk threshold of significance at the maximum impacted sensitive infant receptor and for the annual PM_{2.5} hazard and thus would result in a significant impact to nearby sensitive receptors.

Table 6: Estimated Health Risks and Hazards: Project Construction—No Mitigation

Source	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index ⁽²⁾	Annual PM _{2.5} Concentration ($\mu\text{g}/\text{m}^3$)
Risks and Hazards at the Maximum Impacted Sensitive Receptor (MIR): Infant ⁽¹⁾	60.5	0.08	0.40
Risks and Hazards at the Maximum Impacted Sensitive Receptor (MIR): Child ⁽¹⁾	7.6	0.08	0.40
Risks and Hazards at the Maximum Impacted Sensitive Receptor (MIR): Adult ⁽¹⁾	1.1	0.03	0.40
City of Oakland Thresholds of Significance	10	1	0.30
Exceeds Threshold?	Yes (for the Infant Sensitive Receptor)	No	Yes
Notes: ⁽¹⁾ Maximum impacted sensitive receptor is a residence located approximately 82 feet at the northeast corner of 12 th Street and Harrison Street. ⁽²⁾ Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM _{2.5} exhaust) by the REL of $5 \mu\text{g}/\text{m}^3$. Source: Attachment A.			

Table 7 summarizes the project's construction impacts after the application of the standard conditions of approval and mitigation identified above in Table 1 and the use of Tier 4 off-road construction equipment. As noted in Table 7, the project's construction emissions would not exceed any of the City of

Oakland's thresholds of significance after application of mitigation at the MIR and, therefore, would represent a less than significant impact on a project level during construction.

Table 7: Estimated Health Risks and Hazards: Project Construction—With Mitigation

Source	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index ⁽²⁾	Annual PM _{2.5} Concentration (µg/m ³)
Risks and Hazards at the Maximum Impacted Sensitive Receptor (MIR): Infant ⁽¹⁾	1.6	0.002	0.01
City of Oakland Thresholds of Significance	10	1	0.3
Exceeds Threshold?	No	No	No
Notes: ⁽¹⁾ Maximum impacted sensitive receptor is a residence located approximately 82 feet at the northeast corner of 12 th Street and Harrison Street. ⁽²⁾ Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM _{2.5} exhaust) by the REL for DPM of 5 µg/m ³ . Source: Attachment B.			

Estimates of Cumulative Health Risks and Hazards

As noted above, the community risk from the project's construction emissions would not exceed the health risk significance thresholds after application of mitigation and standard conditions of approval. The BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project. To assess the impacts of nearby sources of TACs in combination with the project's construction impacts on nearby sensitive receptors, a screening-level analysis was conducted as part of the CEQA Analysis for the project. This screening analysis is contained in Criterion 2b of the CEQA Analysis. The screening analysis applied a series of screening tools developed by the BAAQMD to provide conservative estimates of how much existing TAC sources would contribute to cancer risk, chronic hazard index (HI), and/or fine particulate matter (PM_{2.5}) concentrations in a community. The individual health risks associated with each source are summed to find the cumulative impact at the location of the MIR. Based on proximity to the project site, the MIR was assumed to be a resident located at the northeast corner of 12th Street and Harrison Street, approximately 82 feet north of the project site (see Exhibit 3)

The cumulative health risk assessment contained in the CEQA Analysis, identified 10 existing stationary sources of TAC emissions within 1,000 feet of the MIR (Table 8 and Exhibit 5). An additional five stationary sources on or adjacent to the 1,000-foot radius were added to the list of cumulative TAC emission sources for this assessment. Preliminary health risk screening values at the MIR from the stationary sources were determined using the BAAQMD's Stationary Source Screening Analysis Tool. The BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool was used to refine the screening values associated with five of the 15 stationary sources that operate diesel engines to represent the attenuated health risks that can be expected with increasing distance from the source of emissions.



Exhibit 5
Locations of Cumulative TAC Emission Sources

One source, Facility ID#378 is a dry cleaning business that no longer uses perchloroethylene (as verified in the latest BAAQMD air toxic inventory) and hence no longer represents a source of localized TAC contributions.

Note that the cancer risks estimated from the BAAQMD assessment tool (permitted stationary sources) are based on an older set of exposure parameters that do not reflect the current BAAQMD cancer risk parameters dealing with daily breathing rates, time at home factors, and exposure duration. The cancer risks estimated from the BAAQMD's assessment tools for these TAC emission sources, therefore, were increased by a value of 1.12 to incorporate the BAAQMD's newest cancer risk guidance. The scaling factor of 1.12 represents the ratio of the cancer risk estimated with the current BAAQMD cancer risk guidance to the previous BAAQMD cancer risk guidance (see Attachment C).

As noted from Table 8 the cumulative risks from the project construction and from other sources of TAC emissions within 1,000 feet of the project would not expose nearby sensitive receptors to cancer risks or hazard levels that exceed the BAAQMD cumulative health risk thresholds of significance. Therefore, the construction of the project would not result in project-level or cumulative significant health risk impacts.

Table 8: Summary of Cumulative Health Risks at the MIR

Source	Address	Cancer Risk (per million)	Chronic HI	PM _{2.5} Concentration (µg/m ³)
Project Construction ⁽¹⁾	Project Site	1.6	0.002	0.01
Existing Stationary TAC Emission Source⁽²⁾s				
Hotel Oakland (#19039)	270 13 th Street	8.4	0.003	0.002
Mark Bosuk Esq. (#13071)	1432 Harrison Street	0.0	0.0	0.0
Ideal Cleaners (#378)	322 14 th Street	0.0	0.0	0.0
Alameda County GSA (G7875)	165 13 th Street	0.1	<0.001	0.0
Aqua Science (#18100)	250 8 th Street	0.0	0.0	0.0
China Town 76 Unocal (#G11947)	800 Harrison Street	0.3	<0.001	0.0
Trans Pacific Centre (#14837)	1000 Broadway	8.6	0.003	0.002
East Bay Municipal District (#13728) ⁽³⁾	375 11 th Street	20.0	0.012	0.002
Paetec (#18912)	427 14 th Street	0.1	<0.001	<0.001
Alameda County GSA (#14742)	393 13 Street	1.4	<0.001	<0.001
Cushman & Wakefield (#17739)GGG	Jack London Square	1.3	0.011	0.007
FEMA (#16836)	1111 Broadway	26.5	0.008	0.042
AEI Consultants (#11789)	245 8 th Street	No Data	No Data	No Data
Rhino Gas (#584)	245 8 th Street	1.3	0.002	No Data
The Clorox Company (#13308)	1221 Broadway	0.1	0.0	0.01
Cumulative Impacts		69.7	0.045	0.077
City of Oakland Significance Criteria		100	10	0.8
Potentially Significant Impact?		No	No	No

Table 8 (cont.): Summary of Cumulative Health Risks at the MIR

Source	Address	Cancer Risk (per million)	Chronic HI	PM _{2.5} Concentration (µg/m ³)
Notes: ⁽¹⁾ Project construction health impacts after application of mitigation ⁽²⁾ Cancer risk impacts from the existing stationary TAC emission sources were multiplied by a factor of 1.12 to account for the differences in cancer risks between the current BAAQMD cancer risk estimation guidance and the previous cancer risk estimation guidance. ⁽³⁾ Health risks from this stationary source were estimated using the BAAQMD Risk and Hazards Calculator and TAC emission information from the BAAQMD (Alison Kirk, personal communication, November 9, 2016).				

**Attachment A:
Estimates of Construction Diesel PM_{2.5} Emissions
and Health Risk Impacts Without Mitigation**

**Attachment A: Estimates of Construction Diesel
PM_{2.5} Emissions and Health Risk Impacts
No Mitigation**

CalEEMod Model Output	1
Construction DPM and Health Risks (No Mitigation)	18
AERMOD Model Output for Construction	26

12th and Webster Mixed Use Project
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	391.00	Space	0.00	108,000.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.00	3,500.00	0
Apartments High Rise	510.00	Dwelling Unit	1.72	510,000.00	1051
Strip Mall	14.70	1000sqft	0.00	14,700.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2018

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MW/hr)	457	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjust CO2 factor to reflect PG&E 5-year rolling average published 1.1/2015

Land Use - Adjust acreage to match project site. Adjust population consistency with Oakland analysis 2.06 persons/du

Construction Phase -

Demolition -

Grading -

Architectural Coating - Per SCA 19v, applicant must use paint with VOC content less than current requirements. ADhsutt interior to SCAQMD Vehicle Trips - Adjust trip rates to match transportation analysis.

Woodstoves - Assume no woodstoves. Assume default number of fireplaces but all gas fired.

Area Coating -

Energy Use - Adjust T24 energy to reflect 2013 T24.

Water And Wastewater - Assume all wastewater treatment aerobic at EBMUD plant. No septic or lagoons.

Construction Off-road Equipment Mitigation - Tier IV assumed as mitigation consistent with SCA AIR-1(x and w)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblEnergyUse	T24E	312.05	234.04
tblEnergyUse	T24E	3.92	2.94
tblEnergyUse	T24E	3.26	2.45
tblEnergyUse	T24E	2.74	2.06
tblEnergyUse	T24NG	7,191.67	5,393.75
tblEnergyUse	T24NG	41.99	31.49
tblEnergyUse	T24NG	4.10	3.08
tblFireplaces	NumberGas	280.50	351.90
tblFireplaces	NumberWood	71.40	0.00
tblGrading	MaterialExported	0.00	55,500.00
tblLandUse	LandUseSquareFeet	156,400.00	108,000.00
tblLandUse	LotAcreage	3.52	0.00
tblLandUse	LotAcreage	0.08	0.00
tblLandUse	LotAcreage	8.23	1.72
tblLandUse	LotAcreage	0.34	0.00
tblLandUse	Population	1,459.00	1,051.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	457
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	7.16	3.56
tblVehicleTrips	ST_TR	158.37	65.79
tblVehicleTrips	ST_TR	42.04	19.99
tblVehicleTrips	SU_TR	6.07	3.02
tblVehicleTrips	SU_TR	131.84	50.31
tblVehicleTrips	SU_TR	20.43	9.71
tblVehicleTrips	WD_TR	6.59	3.28
tblVehicleTrips	WD_TR	127.15	62.72
tblVehicleTrips	WD_TR	44.32	21.07
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

tblWater	AnaerobicandFacultativeLagoonsPerc	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerc	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerc	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerc	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	2.55	0.00
tblWoodstoves	NumberNoncatalytic	2.55	0.00

2.0 Emissions Summary

2.1 Overall Construction
Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
2017	3.4748	4.1880	5.7014	0.0117	0.5536	0.1723	0.7258	0.1479	0.1643	0.3121	0.0000	964.3565	964.3565	0.0689	0.0000	965.8023
Total	3.4748	4.1880	5.7014	0.0117	0.5536	0.1723	0.7258	0.1479	0.1643	0.3121	0.0000	964.3565	964.3565	0.0689	0.0000	965.8023

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																

2017	3.1720	2.2655	5.5066	0.0117	0.5220	0.0292	0.5512	0.1400	0.0272	0.1672	0.0000	964.3563	964.3563	0.0689	0.0000	965.8020
Total	3.1720	2.2655	5.5066	0.0117	0.5220	0.0292	0.5512	0.1400	0.0272	0.1672	0.0000	964.3563	964.3563	0.0689	0.0000	965.8020

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	8.72	45.91	3.42	0.00	5.70	83.02	24.05	5.33	83.45	46.44	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	1/31/2017	5	2	
3	Grading	Grading	2/1/2017	2/6/2017	5	4	
4	Building Construction	Building Construction	2/7/2017	11/13/2017	5	200	
5	Paving	Paving	11/14/2017	11/27/2017	5	10	
6	Architectural Coating	Architectural Coating	11/28/2017	12/1/2017	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 1,032,750; Residential Outdoor: 344,250; Non-Residential Indoor: 189,300; Non-Residential Outdoor: 63,100

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41

Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	357.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	6,938.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	419.00	75.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	84.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment
Water Exposed Area
Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads
Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Fugitive Dust					0.0386	0.0000	0.0386	5.8500e-003	0.0000	5.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.2659	0.2087	2.4000e-004		0.0161	0.0161		0.0150	0.0150	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4126
Total	0.0272	0.2659	0.2087	2.4000e-004	0.0386	0.0161	0.0547	5.8500e-003	0.0150	0.0209	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4126

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	3.8200e-003	0.0480	0.0425	1.3000e-004	3.0100e-003	6.2000e-004	3.6300e-003	8.3000e-004	5.7000e-004	1.4000e-003	0.0000	12.1066	12.1066	9.0000e-005	0.0000	12.1084
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.6000e-004	6.3100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0324	1.0324	6.0000e-005	0.0000	1.0336
Total	4.2600e-003	0.0487	0.0488	1.4000e-004	4.1900e-003	6.3000e-004	4.8200e-003	1.1400e-003	5.8000e-004	1.7200e-003	0.0000	13.1390	13.1390	1.5000e-004	0.0000	13.1420

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0123	0.1484	2.4000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4125
Total	2.8400e-003	0.0123	0.1484	2.4000e-004	0.0174	3.8000e-004	0.0178	2.6300e-003	3.8000e-004	3.0100e-003	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4125

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8200e-003	0.0480	0.0425	1.3000e-004	3.0100e-003	6.2000e-004	3.6300e-003	8.3000e-004	5.7000e-004	1.4000e-003	0.0000	12.1066	12.1066	9.0000e-005	0.0000	12.1084
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.6000e-004	6.3100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0324	1.0324	6.0000e-005	0.0000	1.0336
Total	4.2600e-003	0.0487	0.0488	1.4000e-004	4.1900e-003	6.3000e-004	4.8200e-003	1.1400e-003	5.8000e-004	1.7200e-003	0.0000	13.1390	13.1390	1.5000e-004	0.0000	13.1420

3.3 Site Preparation - 2017 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.3100e-003	0.0242	0.0159	2.0000e-005	1.3100e-003	1.3100e-003	1.2000e-003	1.2000e-003	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997
Total	2.3100e-003	0.0242	0.0159	2.0000e-005	5.8000e-003	1.3100e-003	2.9500e-003	1.2000e-003	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	4.0000e-005	3.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0635	0.0635	0.0000	0.0000	0.0636
Total	3.0000e-005	4.0000e-005	3.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0635	0.0635	0.0000	0.0000	0.0636

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1000e-004	9.0000e-004	0.0105	2.0000e-005	3.0000e-005	3.0000e-005	3.0000e-005	3.0000e-005	3.0000e-005	3.0000e-005	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997
Total	2.1000e-004	9.0000e-004	0.0105	2.0000e-005	2.6100e-003	3.0000e-005	2.6400e-003	1.3300e-003	3.0000e-005	1.3600e-003	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	4.0000e-005	3.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0635	0.0635	0.0000	0.0000	0.0636
Total	3.0000e-005	4.0000e-005	3.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0635	0.0635	0.0000	0.0000	0.0636

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0130	0.0000	0.0130	5.5300e-003	0.0000	5.5300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7700e-003	0.0396	0.0264	3.0000e-005		2.1300e-003	2.1300e-003	1.9600e-003	1.9600e-003	1.9600e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280
Total	3.7700e-003	0.0396	0.0264	3.0000e-005	0.0130	2.1300e-003	0.0151	5.5300e-003	1.9600e-003	7.4900e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0741	0.9331	0.8264	2.6200e-003	0.0585	0.0120	0.0706	0.0161	0.0111	0.0271	0.0000	235.2814	235.2814	1.7200e-003	0.0000	235.3174

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5473	184.5473	0.0387	0.0000	185.3605
Total	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5473	184.5473	0.0387	0.0000	185.3605

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0843	0.6794	1.0305	1.8000e-003	0.0485	9.8800e-003	0.0584	0.0139	9.0800e-003	0.0230	0.0000	160.6980	160.6980	1.2500e-003	0.0000	160.7244
Worker	0.1419	0.2122	2.0343	4.5400e-003	0.3803	3.0900e-003	0.3834	0.1012	2.8500e-003	0.1040	0.0000	332.7644	332.7644	0.0179	0.0000	333.1398
Total	0.2262	0.8916	3.0648	6.3400e-003	0.4288	0.0130	0.4418	0.1151	0.0119	0.1270	0.0000	493.4624	493.4624	0.0191	0.0000	493.8642

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0292	0.3707	1.3082	2.2000e-003		3.0100e-003	3.0100e-003		3.0100e-003	3.0100e-003	0.0000	184.5471	184.5471	0.0387	0.0000	185.3603

Total	0.0292	0.3707	1.3082	2.2000e-003	3.0100e-003	3.0100e-003	3.0100e-003	0.0000	184.5471	184.5471	0.0387	0.0000	185.3603
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0843	0.6794	1.0305	1.8000e-003	0.0485	9.8800e-003	0.0584	0.0139	9.0800e-003	0.0230	0.0000	160.6980	160.6980	1.2500e-003	0.0000	160.7244
Worker	0.1419	0.2122	2.0343	4.5400e-003	0.3803	3.0900e-003	0.3834	0.1012	2.8500e-003	0.1040	0.0000	332.7644	332.7644	0.0179	0.0000	333.1398
Total	0.2262	0.8916	3.0648	6.3400e-003	0.4288	0.0130	0.4418	0.1151	0.0119	0.1270	0.0000	493.4624	493.4624	0.0191	0.0000	493.8642

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	3.3000e-004	3.1600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5162	0.5162	3.0000e-005	0.0000	0.5168
Total	2.2000e-004	3.3000e-004	3.1600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5162	0.5162	3.0000e-005	0.0000	0.5168

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road Paving	7.9000e-004	3.4100e-003	0.0485	7.0000e-005		1.0000e-004	1.0000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
	0.0000					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9000e-004	3.4100e-003	0.0485	7.0000e-005		1.0000e-004	1.0000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	3.3000e-004	3.1600e-004	1.0000e-005	5.9000e-004	0.0000	0.0000	0.0000	0.0000	1.6000e-004	0.0000	0.5162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5168
Total	2.2000e-004	3.3000e-004	3.1600e-004	1.0000e-005	5.9000e-004	0.0000	0.0000	0.0000	0.0000	1.6000e-004	0.0000	0.5162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5168

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating Off-Road	2.8321					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	2.8338	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	2.1300e-003	0.0204	5.0000e-005	3.8100e-003	3.0000e-005	3.8400e-003	1.0100e-003	3.0000e-005	1.0400e-003	0.0000	3.3356	3.3356	1.8000e-004	0.0000	3.3394
Total	1.4200e-003	2.1300e-003	0.0204	5.0000e-005	3.8100e-003	3.0000e-005	3.8400e-003	1.0100e-003	3.0000e-005	1.0400e-003	0.0000	3.3356	3.3356	1.8000e-004	0.0000	3.3394

Mitigated Construction On-Site

Attachment A
W12 Mixed Use Project

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8321					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-004	6.4000e-004	9.1600e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	2.8323	6.4000e-004	9.1600e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	2.1300e-003	0.0204	5.0000e-005	3.8100e-003	3.0000e-005	3.8400e-003	1.0100e-003	3.0000e-005	1.0400e-003	0.0000	3.3356	3.3356	1.8000e-004	0.0000	3.3394
Total	1.4200e-003	2.1300e-003	0.0204	5.0000e-005	3.8100e-003	3.0000e-005	3.8400e-003	1.0100e-003	3.0000e-005	1.0400e-003	0.0000	3.3356	3.3356	1.8000e-004	0.0000	3.3394

W12 Mixed Use Project: Oakland

Construction Annual DPM Emissions (as PM2.5 Exhaust)
Construction Duration: 1/1/2017 to 12/11/2017

CalEEMod construction data extracted from the W12 Mixed Use Project CEQA Analysis (ESA 2015)

ASSUMPTION: Assume all construction emissions occur in one year, 2017

Construction Scheduling

2017
8 hours/day
246 days/year
1968 hours/year

No Mitigation

Onsite Construction Area Source Size (m2):

7696

Onsite Construction PM2.5 Emissions

2017	Construction Activity	Onsite Average Annual DPM Exhaust Emissions (tons/year)	Onsite Average Annual DPM Exhaust Emissions (g/sec)	Onsite Average DPM Source Exhaust Emissions (g/m2-sec)
	Demolition	0.01500	0.0019	2.498E-07
	Site Preparation	0.00120	0.0002	1.998E-08
	Grading	0.00196	0.0003	3.264E-08
	Building Construction	0.11820	0.0151	1.968E-06
	Paving	0.00380	0.0005	6.328E-08
	Architectural Coating	0.00087	0.0001	1.449E-08
Total Onsite Construction Emissions		0.14103	0.0181	2.349E-06

Offsite Construction Vehicle PM2.5 Emissions

2017	Construction Activity	Offsite Haul Trucks Annual DPM Exhaust Emissions (tons/year)	Offsite Vendor Trucks Annual DPM Exhaust Emissions (tons/year)	Offsite Worker Vehicles Annual DPM Exhaust Emissions (tons/year)
	Demolition	0.00057	0.00000	0.00001
	Site Preparation	0.00000	0.00000	0.00000
	Grading	0.01110	0.00000	0.00000
	Building Construction	0.00000	0.00908	0.00285
	Paving	0.00000	0.00000	0.00000
	Architectural Coating	0.00000	0.00000	0.00003
Total (tons/year)		0.01167	0.00908	0.00289
	Trip Distance assumed in CalEEMod (mi)	20.0	7.3	12.4
	Offsite Project Trip Distance Project-Harrison St>1980 (mi)	0.280	0.280	0.280
	Offsite Project Emissions Project-Harrison St>1980 (tons/year)	0.000163	0.000348	0.000065
Total Offsite Project Exhaust Emissions (tons/year)		0.000576		
Total Offsite Project Exhaust Emissions (grams/sec)		7.3818E-05		
Total PM@2.5 Exhaust (tons/year)		0.14161		

W12 Mixed Use Project: Oakland

No Mitigation Sensitive Receptors

Estimates of Annual Construction DPM and Fugitive Dust Emissions (as PM2.5)

Annual Average Onsite DPM Exhaust Emission Rate:

2.34858E-06 grams/m2/sec

Annual Average Offsite DPM Exhaust Emission Rate:

7.38180E-05 grams/sec

X (m)	Y (m)	Onsite		Onsite		Offsite		Offsite		Total DPM (ug/m3)
		Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	
564422.5	4184053	1.70385	0.40016	0.00002	1.47636E-04	0.00001	7.38180E-05	0.00000	0.00000E+00	0.40031
564249.8	4184052	0.26812	0.06297	0.00001	0.03715	0.00000	0.00000E+00	0.00000	0.00000E+00	0.06304
564355.3	4184177	0.15817	0.03715	0.00000	0.03715	0.00001	7.38180E-05	0.00003	2.21454E-04	0.03715
564460.2	4184129	0.29593	0.06950	0.00001	0.03606	0.00003	1.47636E-03	0.00020	0.00020	0.06958
564471.8	4183890	0.15355	0.03606	0.00003	0.00818	0.00020	0.00020	0.00020	0.00020	0.03628
564328.9	4183851	0.03483	0.00818	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00966

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Infant

Cancer Potency Factor:							1.1 (mg/kg-day) ⁻¹	
Exposure Frequency							350 days/year	
Averaging Period							25550 days	
Year 3rd Trimester 1	DPM Concentration (ug/m3)		Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Unit Cancer Risk (/million)	
	1		10	361	0.85	0.25	11.6	
	1		10	1090	0.85	1	139.6	

W12 Mixed Use Project: Oakland No Mitigation

Estimated Cancer Risks from Construction DPM - Infant Receptors

Cancer Unit Risk Factor:		3rd Trimester (ug/m3) ⁻¹	Year 1 (2017) (ug/m3) ⁻¹	Total Cancer Risk (/million)
		11.6	139.6	
X (m)	Y (m)	3rd Trimester Cancer riskRisk (/million)	Year 1 (2017) Cancer risk (/million)	Total Cancer Risk (/million)
564422.54	4184053.48	4.62735	55.88709	
564249.79	4184051.74	0.72875	8.80153	9.53028
564355.29	4184176.96	0.42940	5.18614	5.61554
564460.22	4184129.42	0.80425	9.71337	10.51762
564471.81	4183890.01	0.41942	5.06557	5.48499
564328.93	4183850.83	0.11162	1.34813	1.45976

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Child

Cancer Potency Factor: 1.1 (mg/kg-day)⁻¹
Exposure Frequency 350 days/year
Averaging Period 25550 days

Year	DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At		Exposure Duration (years)	Unit Cancer Risk (/million)
				Home	Factor		
1	1	3	572	0.73		1	18.9

No Mitigation

Old Receptor

Cancer Unit Risk Factor:	Year 1 (2017)
	(ug/m3) ⁻¹
	18.9

X	Y	Cancer risk	Risk
(m)	(m)	(/million)	Year 1 (2017)
564422.54	4184053.48	7.55625	
564249.79	4184051.74	1.19002	
564355.29	4184176.96	0.70119	
564460.22	4184129.42	1.31330	
564471.81	4183890.01	0.68489	
564328.93	4183850.83	0.18228	

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Adult

Cancer Potency Factor: 1.1 (mg/kg-day)⁻¹
Exposure Frequency 350 days/year
Averaging Period 25550 days

Year	DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At		Exposure Duration (years)	Unit Cancer Risk (/million)
				Home	Factor		
1	1	1	261	0.72		1	2.8

No Mitigation

ult Receptors

Year 1 (2017)
(ug/m3)⁻¹
2.8

X (m)	Y (m)	Cancer risk Year 1 (2017) Risk (/million)
564422.54	4184053.48	1.13355
564249.79	4184051.74	0.17852
564355.29	4184176.96	0.10519
564460.22	4184129.42	0.19701
564471.81	4183890.01	0.10274
564328.93	4183850.83	0.02734

W12 Mixed Use Project: Oakland

No Mitigation

Estimated Chronic Non-Cancer Hazard Index from Construction DPM

Reference Exposure Level for DPM:

5 ug/m3

Year 1 (2017)		
X (m)	Y (m)	Chronic Non-Cancer Hazard Index
564422.54	4184053.48	0.08006
564249.79	4184051.74	0.01261
564355.29	4184176.96	0.00743
564460.22	4184129.42	0.01392
564471.81	4183890.01	0.00726
564328.93	4183850.83	0.00193

W12_Const

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*** AERMET - VERSION 14134 *** *** 13:50:35

PAGE 1

**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** MODEL SETUP OPTIONS SUMMARY ***

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

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses URBAN Dispersion Algorithm for the SBL for 26 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 406000.0 ; Urban Roughness Length = 1.000 m

**Model Allows User-Specified Options:

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

**Other Options Specified:

FASTALL - Use effective sigma-y to optimize meander for
POINT and VOLUME sources, and hybrid approach
to optimize AREA sources (formerly TOXICS option)
CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: UNITEMIS

**Model Calculates PERIOD Averages Only

**This Run Includes: 26 Source(s); 2 Source Group(s); and 384 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 25 VOLUME source(s)
and: 1 AREA type source(s)
and: 0 LINE source(s)
and: 0 OPENPIT source(s)

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

**The AERMET Input Meteorological Data Version Date: 14134

**Output Options Selected:

Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

W12_Const
**Approximate Storage Requirements of Model = 3.6 MB of RAM.
**Detailed Error/Message File: W12_Const.err
**File for Summary of Results: W12_Const.sum
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	PART. CATS.	NUMBER EMISSION RATE (GRAMS/SEC) (METERS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN EMISSION RATE (METERS)	SCALAR VARY BY
L0000001	0	0.40000E-06	564357.2	4183973.8	12.0	3.66	8.37	0.43	YES	HRDOW
L0000002	0	0.40000E-06	564349.5	4183957.5	12.0	3.66	8.37	0.43	YES	HRDOW
L0000003	0	0.40000E-06	564341.8	4183941.2	12.0	3.66	8.37	0.43	YES	HRDOW
L0000004	0	0.40000E-06	564334.2	4183924.9	12.0	3.66	8.37	0.43	YES	HRDOW
L0000005	0	0.40000E-06	564326.5	4183908.7	12.0	3.66	8.37	0.43	YES	HRDOW
L0000006	0	0.40000E-06	564318.8	4183892.4	12.0	3.66	8.37	0.43	YES	HRDOW
L0000007	0	0.40000E-06	564311.1	4183876.1	12.0	3.66	8.37	0.43	YES	HRDOW
L0000008	0	0.40000E-06	564303.5	4183859.8	11.6	3.66	8.37	0.43	YES	HRDOW
L0000009	0	0.40000E-06	564295.8	4183843.5	11.1	3.66	8.37	0.43	YES	HRDOW
L0000010	0	0.40000E-06	564288.1	4183827.3	11.0	3.66	8.37	0.43	YES	HRDOW
L0000011	0	0.40000E-06	564280.4	4183811.0	11.0	3.66	8.37	0.43	YES	HRDOW
L0000012	0	0.40000E-06	564272.8	4183794.7	11.0	3.66	8.37	0.43	YES	HRDOW
L0000013	0	0.40000E-06	564265.1	4183778.4	11.0	3.66	8.37	0.43	YES	HRDOW
L0000014	0	0.40000E-06	564257.4	4183762.1	11.0	3.66	8.37	0.43	YES	HRDOW
L0000015	0	0.40000E-06	564249.7	4183745.8	10.7	3.66	8.37	0.43	YES	HRDOW
L0000016	0	0.40000E-06	564242.0	4183729.6	10.1	3.66	8.37	0.43	YES	HRDOW
L0000017	0	0.40000E-06	564234.4	4183713.3	10.0	3.66	8.37	0.43	YES	HRDOW
L0000018	0	0.40000E-06	564226.7	4183697.0	10.0	3.66	8.37	0.43	YES	HRDOW
L0000019	0	0.40000E-06	564219.0	4183680.7	9.5	3.66	8.37	0.43	YES	HRDOW
L0000020	0	0.40000E-06	564211.3	4183664.4	9.0	3.66	8.37	0.43	YES	HRDOW
L0000021	0	0.40000E-06	564203.7	4183648.2	9.0	3.66	8.37	0.43	YES	HRDOW
L0000022	0	0.40000E-06	564196.0	4183631.9	8.9	3.66	8.37	0.43	YES	HRDOW
L0000023	0	0.40000E-06	564188.3	4183615.6	8.3	3.66	8.37	0.43	YES	HRDOW
L0000024	0	0.40000E-06	564180.6	4183599.3	8.4	3.66	8.37	0.43	YES	HRDOW
L0000025	0	0.40000E-06	564173.0	4183583.0	8.8	3.66	8.37	0.43	YES	HRDOW

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** AREAPOLY SOURCE DATA ***

SOURCE ID	PART. CATS.	NUMBER EMISSION RATE (GRAMS/SEC) (/METER**2)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT OF VERTS. (METERS)	NUMBER INIT. (METERS)	URBAN EMISSION RATE (METERS)	SCALAR VARY BY	
AREAEXH	0	0.10000E-04	564298.6	4184081.3	12.0	5.00	6	0.00	YES	HRDOW

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
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AREAEXH AREAEXH ,

W12_Const
OFFEXH L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 ,
L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 ,
L0000025 ,
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***
URBAN ID URBAN POP SOURCE IDs

406000. AREAEXH , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 ,
L0000007 ,
L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,
L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 ,
L0000024 , L0000025 ,
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *
SOURCE ID = AREAEXH ; SOURCE TYPE = AREAPOLY :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *
SOURCE ID = L0000001 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

W12_Const
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000002 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000003 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000004 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

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W12_Const
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000005 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000006 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000007 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

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W12_Const
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000008 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000009 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000010 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

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W12_Const
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000011 ; SOURCE TYPE = VOLUME ;
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000012 ; SOURCE TYPE = VOLUME ;
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000013 ; SOURCE TYPE = VOLUME ;
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

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

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16

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*** AERMET - VERSION 14134 *** *** W12_Const *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000014 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000015 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000016 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
HOUR SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000017 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** ** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** ** 13:50:35
  
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000018 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** ** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** ** 13:50:35
  
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000019 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .1000E+01
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01 14 .1000E+01 15 .1000E+01 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** ** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** ** 13:50:35
  
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W12_Const

**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000020 ; SOURCE TYPE = VOLUME :

HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR

DAY OF WEEK = WEEKDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.1000E+01	9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01
15	.1000E+01	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SATURDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SUNDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16													
*** AERMET - VERSION 14134 *** *** 13:50:35													

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000021 ; SOURCE TYPE = VOLUME :

HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR

DAY OF WEEK = WEEKDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.1000E+01	9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01
15	.1000E+01	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SATURDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SUNDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16													
*** AERMET - VERSION 14134 *** *** 13:50:35													

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000022 ; SOURCE TYPE = VOLUME :

HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR	HRDOW	SCALAR

DAY OF WEEK = WEEKDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.1000E+01	9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01
15	.1000E+01	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SATURDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
DAY OF WEEK = SUNDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00	9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00
15	.0000E+00	16	.0000E+00	17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00								
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16													
*** AERMET - VERSION 14134 *** *** 13:50:35													

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

W12_Const

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

SOURCE ID = L0000023 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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

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

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35
  
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000024 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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

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

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35
  
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

SOURCE ID = L0000025 ; SOURCE TYPE = VOLUME :
 HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
 HOUR SCALAR

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

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

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00 6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00 14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00 22 .0000E+00 23 .0000E+00 24 .0000E+00
*** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35
  
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

W12_Const
*** GRIDDED RECEPTOR NETWORK SUMMARY ***

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

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

563784.6, 563834.6, 563884.6, 563934.6, 563984.6, 564034.6, 564084.6, 564134.6, 564184.6, 564234.6,
564284.6, 564334.6, 564384.6, 564434.6, 564484.6, 564534.6, 564584.6, 564634.6, 564684.6, 564734.6,
564784.6,

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

4183431.3, 4183481.3, 4183531.3, 4183581.3, 4183631.3, 4183681.3, 4183731.3, 4183781.3, 4183831.3, 4183881.3,
4183931.3, 4183981.3, 4184031.3, 4184081.3, 4184131.3, 4184181.3, 4184231.3, 4184281.3,

♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	563784.57	563834.57	563884.57	563934.57	563984.57	564034.57	564084.57	564134.57	564184.57
4184281.33	12.00	12.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
4184231.33	12.00	12.00	12.30	13.00	13.00	13.00	13.00	13.00	12.70
4184181.33	12.00	12.00	12.00	12.20	13.00	13.00	13.00	13.00	13.00
4184131.33	11.50	12.00	12.00	12.00	12.70	13.00	13.00	13.00	13.00
4184081.33	11.00	11.60	12.00	12.00	12.60	13.00	13.00	13.00	13.00
4184031.33	11.00	11.00	11.50	12.00	12.00	12.20	12.20	13.00	13.00
4183981.33	10.50	11.00	11.00	11.50	12.00	12.00	12.00	12.00	12.50
4183931.33	10.00	10.00	10.90	11.00	11.00	11.90	12.00	12.00	12.00
4183881.33	9.20	9.80	10.10	11.00	11.00	11.10	11.20	11.80	12.00
4183831.33	8.50	9.00	9.50	10.00	10.40	10.70	11.00	11.00	11.00
4183781.33	7.80	8.00	8.30	9.00	9.70	10.00	10.00	10.80	11.00
4183731.33	7.00	7.20	8.00	8.20	8.90	9.50	10.00	10.00	10.20
4183681.33	6.50	7.00	7.20	8.00	8.40	8.70	9.00	9.50	9.80
4183631.33	6.00	6.60	6.90	7.00	7.80	8.00	8.00	8.80	8.80
4183581.33	6.00	6.00	6.10	7.00	7.00	7.20	7.20	8.00	9.50
4183531.33	5.00	5.10	5.20	6.00	6.00	6.70	7.50	6.30	8.90
4183481.33	4.00	4.60	5.00	5.00	5.00	6.00	5.00	5.70	5.90
4183431.33	4.00	4.00	4.50	5.00	5.00	5.20	5.00	3.00	4.30

♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	564234.57	564284.57	564334.57	564384.57	564434.57	564484.57	564534.57	564584.57	564634.57
4184281.33	12.00	12.00	12.00	12.00	11.30	11.00	11.00	11.00	10.60
4184231.33	12.00	12.00	12.00	12.00	11.30	11.00	11.00	11.00	11.00
4184181.33	12.80	12.00	12.00	12.00	11.90	11.00	11.00	11.00	11.00
4184131.33	13.00	12.30	12.00	12.00	12.00	11.80	11.00	11.00	11.00
4184081.33	13.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4184031.33	13.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183981.33	12.50	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183931.33	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183881.33	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183831.33	11.00	11.00	11.50	11.50	11.10	11.00	11.00	11.00	11.00

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	W12_Const								
4183781.33	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	10.90
4183731.33	10.20	10.20	11.00	11.00	11.00	11.00	11.00	10.80	10.90
4183681.33	9.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.50
4183631.33	8.80	9.00	9.30	9.80	9.80	10.00	10.00	10.00	10.00
4183581.33	8.80	8.20	8.50	9.00	9.00	9.20	10.00	10.00	9.20
4183531.33	12.50	13.10	11.10	7.50	7.90	8.30	8.50	8.50	8.50
4183481.33	7.00	14.80	15.70	6.80	6.60	6.90	7.00	7.80	7.80
4183431.33	1.80	5.40	7.20	6.00	6.00	3.40	6.20	6.80	7.00

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
 *** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	564684.57	564734.57	X-COORD (METERS) 564784.57
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4184281.33	10.00	10.00	9.30
4184231.33	10.00	10.00	9.60
4184181.33	10.00	10.00	9.60
4184131.33	10.00	10.00	9.60
4184081.33	10.00	10.00	9.60
4184031.33	10.00	10.00	9.10
4183981.33	10.00	10.00	9.60
4183931.33	10.00	10.00	9.00
4183881.33	10.00	10.00	9.00
4183831.33	10.00	10.00	9.30
4183781.33	10.20	10.00	9.70
4183731.33	11.00	10.00	9.70
4183681.33	10.00	10.10	9.10
4183631.33	10.00	9.90	8.60
4183581.33	10.00	9.30	7.80
4183531.33	9.00	8.30	7.30
4183481.33	8.00	7.90	6.80
4183431.33	7.20	5.90	4.80

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
 *** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	563784.57	563834.57	563884.57	563934.57	563984.57	564034.57	564084.57	564134.57	564184.57
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4184281.33	12.00	12.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
4184231.33	12.00	12.00	12.30	13.00	13.00	13.00	13.00	13.00	12.70
4184181.33	12.00	12.00	12.00	12.20	13.00	13.00	13.00	13.00	13.00
4184131.33	11.50	12.00	12.00	12.00	12.70	13.00	13.00	13.00	13.00
4184081.33	11.00	11.60	12.00	12.00	12.60	13.00	13.00	13.00	13.00
4184031.33	11.00	11.00	11.50	12.00	12.00	12.20	12.20	13.00	13.00
4183981.33	10.50	11.00	11.00	11.50	12.00	12.00	12.00	12.00	12.50
4183931.33	10.00	10.00	10.90	11.00	11.00	11.90	12.00	12.00	12.00
4183881.33	9.20	9.80	10.10	11.00	11.00	11.10	11.20	11.80	12.00
4183831.33	8.50	9.00	9.50	10.00	10.40	10.70	11.00	11.00	11.00
4183781.33	7.80	8.00	8.30	9.00	9.70	10.00	10.00	10.80	11.00
4183731.33	7.00	7.20	8.00	8.20	8.90	9.50	10.00	10.00	10.20
4183681.33	6.50	7.00	7.20	8.00	8.40	8.70	9.00	9.50	9.80
4183631.33	6.00	6.60	6.90	7.00	7.80	8.00	8.00	8.80	8.80
4183581.33	6.00	6.00	6.10	7.00	7.00	7.20	7.20	8.00	9.50
4183531.33	5.00	5.10	5.20	6.00	6.00	6.70	7.50	6.30	13.00
4183481.33	4.00	4.60	5.00	5.00	5.00	6.00	5.00	5.70	17.00
4183431.33	4.00	4.00	4.50	5.00	5.00	5.20	5.00	6.00	17.00

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W12_Const
♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* HILL HEIGHT SCALES IN METERS *

Y-COORD	X-COORD (METERS)								
(METERS)	564234.57	564284.57	564334.57	564384.57	564434.57	564484.57	564534.57	564584.57	564634.57
4184281.33	12.00	12.00	12.00	12.00	11.30	11.00	11.00	11.00	10.60
4184231.33	12.00	12.00	12.00	12.00	11.30	11.00	11.00	11.00	11.00
4184181.33	12.80	12.00	12.00	12.00	11.90	11.00	11.00	11.00	11.00
4184131.33	13.00	12.30	12.00	12.00	12.00	11.80	11.00	11.00	11.00
4184081.33	13.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4184031.33	13.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183981.33	12.50	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183931.33	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183881.33	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
4183831.33	11.00	11.00	11.50	11.50	11.10	11.00	11.00	11.00	11.00
4183781.33	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	10.90
4183731.33	10.20	10.20	11.00	11.00	11.00	11.00	11.00	10.80	10.90
4183681.33	9.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.50
4183631.33	8.80	9.00	9.30	9.80	9.80	10.00	10.00	10.00	10.00
4183581.33	8.80	16.00	8.50	9.00	9.00	9.20	10.00	10.00	9.20
4183531.33	12.50	16.00	18.00	18.00	7.90	8.30	8.50	8.50	8.50
4183481.33	18.00	17.00	18.00	18.00	18.00	6.90	7.00	7.80	7.80
4183431.33	18.00	18.00	18.00	18.00	18.00	7.00	6.20	6.80	7.00

♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
*** AERMET - VERSION 14134 *** *** 13:50:35

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

* HILL HEIGHT SCALES IN METERS *

Y-COORD	X-COORD (METERS)		
(METERS)	564684.57	564734.57	564784.57
4184281.33	10.00	10.00	9.30
4184231.33	10.00	10.00	9.60
4184181.33	10.00	10.00	9.60
4184131.33	10.00	10.00	9.60
4184081.33	10.00	10.00	9.60
4184031.33	10.00	10.00	9.10
4183981.33	10.00	10.00	9.60
4183931.33	10.00	10.00	9.00
4183881.33	10.00	10.00	9.00
4183831.33	10.00	10.00	9.30
4183781.33	10.20	10.00	9.70
4183731.33	11.00	10.00	9.70
4183681.33	10.00	10.10	9.10
4183631.33	10.00	9.90	8.60
4183581.33	10.00	9.30	7.80
4183531.33	9.00	8.30	7.30
4183481.33	8.00	7.90	6.80
4183431.33	7.20	5.90	4.80

♀ *** AERMOD - VERSION 15181 *** *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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

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First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT
09	01	01	1	01	-17.2	0.303	-9.000	-9.000	-999.	401.	147.2	0.63	0.86	1.00	2.36	81.	10.0	282.5	2.0			
09	01	01	1	02	-21.8	0.383	-9.000	-9.000	-999.	569.	234.6	0.63	0.86	1.00	2.86	68.	10.0	282.0	2.0			
09	01	01	1	03	-26.3	0.460	-9.000	-9.000	-999.	749.	337.1	0.63	0.86	1.00	3.36	84.	10.0	280.9	2.0			
09	01	01	1	04	-15.4	0.270	-9.000	-9.000	-999.	368.	116.1	0.47	0.86	1.00	2.36	53.	10.0	280.9	2.0			
09	01	01	1	05	-26.3	0.460	-9.000	-9.000	-999.	749.	336.3	0.63	0.86	1.00	3.36	73.	10.0	280.4	2.0			
09	01	01	1	06	-21.9	0.383	-9.000	-9.000	-999.	573.	232.9	0.63	0.86	1.00	2.86	82.	10.0	280.4	2.0			
09	01	01	1	07	-22.0	0.383	-9.000	-9.000	-999.	569.	232.5	0.63	0.86	1.00	2.86	95.	10.0	279.9	2.0			
09	01	01	1	08	-11.2	0.196	-9.000	-9.000	-999.	238.	60.6	0.63	0.86	0.76	1.76	73.	10.0	279.9	2.0			
09	01	01	1	09	-2.2	-9.000	-9.000	-9.000	-999.	-99999.0	0.45	0.86	0.39	0.00	0.	10.0	280.4	2.0				
09	01	01	1	10	6.8	0.266	0.264	0.016	98.	329.	-250.8	0.63	0.86	0.27	1.76	91.	10.0	280.9	2.0			
09	01	01	1	11	15.5	-9.000	-9.000	-9.000	177.	-999.	-99999.0	0.45	0.86	0.22	0.00	0.	10.0	282.0	2.0			
09	01	01	1	12	96.1	0.393	1.019	0.014	401.	591.	-57.4	0.22	0.86	0.21	3.36	266.	10.0	281.4	2.0			
09	01	01	1	13	102.5	0.395	1.092	0.014	462.	595.	-54.4	0.22	0.86	0.20	3.36	283.	10.0	282.0	2.0			
09	01	01	1	14	89.9	0.297	1.066	0.015	489.	394.	-26.5	0.22	0.86	0.21	2.36	249.	10.0	282.0	2.0			
09	01	01	1	15	62.1	0.383	0.954	0.014	507.	569.	-82.1	0.22	0.86	0.24	3.36	242.	10.0	282.5	2.0			
09	01	01	1	16	23.1	0.665	0.690	0.006	513.	1300.	-1150.4	0.52	0.86	0.33	4.86	304.	10.0	282.5	2.0			
09	01	01	1	17	-37.0	0.486	-9.000	-9.000	-999.	846.	280.6	0.22	0.86	0.56	4.86	291.	10.0	281.4	2.0			
09	01	01	1	18	-52.2	0.480	-9.000	-9.000	-999.	799.	191.9	0.52	0.86	1.00	3.86	307.	10.0	280.9	2.0			
09	01	01	1	19	-25.6	0.224	-9.000	-9.000	-999.	327.	39.8	0.52	0.86	1.00	2.36	334.	10.0	280.4	2.0			
09	01	01	1	20	-11.1	0.119	-9.000	-9.000	-999.	115.	13.8	0.52	0.86	1.00	1.76	317.	10.0	280.4	2.0			
09	01	01	1	21	-10.3	0.119	-9.000	-9.000	-999.	98.	14.7	0.52	0.86	1.00	1.76	320.	10.0	280.4	2.0			
09	01	01	1	22	-999.0	-9.000	-9.000	-9.000	-999.	-99999.0	0.45	0.86	1.00	0.00	0.	10.0	280.9	2.0				
09	01	01	1	23	-999.0	-9.000	-9.000	-9.000	-999.	-99999.0	0.45	0.86	1.00	0.00	0.	10.0	281.4	2.0				
09	01	01	1	24	-999.0	-9.000	-9.000	-9.000	-999.	-99999.0	0.45	0.86	1.00	0.00	0.	10.0	281.4	2.0				

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
09	01	01	01	10.0	1	81.	2.36	282.6	99.0	-99.00	-99.00	

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

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREAEXH ***
 INCLUDING SOURCE(S): AREAEXH ,

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

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

Y-COORD	X-COORD (METERS)								
(METERS)	563784.57	563834.57	563884.57	563934.57	563984.57	564034.57	564084.57	564134.57	564184.57

4184281.33	0.00682	0.00809	0.00971	0.01183	0.01461	0.01821	0.02277	0.02825	0.03423
4184231.33	0.00678	0.00810	0.00983	0.01212	0.01531	0.01976	0.02597	0.03446	0.04531
4184181.33	0.00667	0.00798	0.00974	0.01216	0.01554	0.02059	0.02831	0.04042	0.05931
4184131.33	0.00651	0.00779	0.00951	0.01190	0.01532	0.02050	0.02898	0.04389	0.07257
4184081.33	0.00634	0.00756	0.00920	0.01147	0.01474	0.01968	0.02793	0.04310	0.07606
4184031.33	0.00617	0.00733	0.00888	0.01101	0.01405	0.01866	0.02618	0.03951	0.06879
4183981.33	0.00603	0.00714	0.00859	0.01058	0.01340	0.01757	0.02417	0.03559	0.05782
4183931.33	0.00590	0.00695	0.00834	0.01019	0.01275	0.01647	0.02203	0.03064	0.04404
4183881.33	0.00577	0.00677	0.00805	0.00975	0.01201	0.01509	0.01930	0.02492	0.03170
4183831.33	0.00561	0.00653	0.00769	0.00916	0.01104	0.01339	0.01624	0.01936	0.02222
4183781.33	0.00540	0.00622	0.00722	0.00843	0.00987	0.01150	0.01318	0.01471	0.01565
4183731.33	0.00514	0.00584	0.00666	0.00759	0.00860	0.00963	0.01052	0.01108	0.01118
4183681.33	0.00483	0.00541	0.00604	0.00671	0.00736	0.00792	0.00830	0.00839	0.00820
4183631.33	0.00448	0.00493	0.00539	0.00583	0.00621	0.00647	0.00655	0.00644	0.00616
4183581.33	0.00411	0.00443	0.00474	0.00501	0.00520	0.00527	0.00520	0.00502	0.00478
4183531.33	0.00372	0.00394	0.00413	0.00428	0.00434	0.00431	0.00419	0.00398	0.00378
4183481.33	0.00333	0.00348	0.00359	0.00364	0.00362	0.00354	0.00339	0.00322	0.00305
4183431.33	0.00298	0.00306	0.00310	0.00310	0.00305	0.00294	0.00280	0.00263	0.00251

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREAEXH ***
INCLUDING SOURCE(S): AREAEXH ,

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

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

Y-COORD (METERS)	X-COORD (METERS)								
	564234.57	564284.57	564334.57	564384.57	564434.57	564484.57	564534.57	564584.57	564634.57
4184281.33	0.04003	0.04500	0.04880	0.05106	0.05131	0.04967	0.04681	0.04337	0.03974
4184231.33	0.05761	0.06912	0.07786	0.08270	0.08257	0.07815	0.07142	0.06389	0.05638
4184181.33	0.08659	0.11843	0.14216	0.15370	0.15021	0.13494	0.11593	0.09738	0.08097
4184131.33	0.13140	0.24641	0.34254	0.36253	0.32105	0.25544	0.19588	0.14899	0.11415
4184081.33	0.17088	0.65757	1.65956	1.14745	0.78032	0.51714	0.32945	0.21683	0.15046
4184031.33	0.16132	0.54216	3.12093	3.68439	2.42630	1.00461	0.46802	0.26925	0.17517
4183981.33	0.10500	0.20473	0.59006	1.54055	1.37626	0.81584	0.42852	0.25939	0.17252
4183931.33	0.06293	0.08720	0.13438	0.24144	0.32730	0.32208	0.25785	0.19201	0.14242
4183881.33	0.03837	0.04403	0.05455	0.08080	0.11502	0.13597	0.13574	0.12164	0.10286
4183831.33	0.02406	0.02502	0.02821	0.03774	0.05247	0.06585	0.07308	0.07361	0.06924
4183781.33	0.01583	0.01574	0.01694	0.02117	0.02830	0.03601	0.04197	0.04521	0.04575
4183731.33	0.01089	0.01065	0.01125	0.01339	0.01713	0.02161	0.02573	0.02880	0.03055
4183681.33	0.00784	0.00765	0.00800	0.00920	0.01129	0.01396	0.01671	0.01909	0.02087
4183631.33	0.00587	0.00574	0.00599	0.00673	0.00797	0.00961	0.01142	0.01316	0.01464
4183581.33	0.00455	0.00447	0.00466	0.00514	0.00592	0.00696	0.00817	0.00940	0.01055
4183531.33	0.00364	0.00359	0.00375	0.00407	0.00459	0.00527	0.00607	0.00694	0.00781
4183481.33	0.00295	0.00290	0.00300	0.00331	0.00367	0.00413	0.00468	0.00530	0.00593
4183431.33	0.00242	0.00245	0.00257	0.00275	0.00301	0.00332	0.00372	0.00416	0.00462

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREAEXH ***
INCLUDING SOURCE(S): AREAEXH ,

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

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

Y-COORD (METERS)	X-COORD (METERS)		
	564684.57	564734.57	564784.57
4184281.33	0.03611	0.03259	0.02930
4184231.33	0.04935	0.04297	0.03738
4184181.33	0.06719	0.05588	0.04677
4184131.33	0.08872	0.07015	0.05646
4184081.33	0.10959	0.08294	0.06472
4184031.33	0.12288	0.09080	0.06969
4183981.33	0.12235	0.09095	0.07004
4183931.33	0.10752	0.08304	0.06554
4183881.33	0.08488	0.06965	0.05733
4183831.33	0.06232	0.05469	0.04736
4183781.33	0.04414	0.04116	0.03751
4183731.33	0.03099	0.03036	0.02894
4183681.33	0.02193	0.02229	0.02204
4183631.33	0.01576	0.01645	0.01674
4183581.33	0.01153	0.01228	0.01277
4183531.33	0.00861	0.00929	0.00982
4183481.33	0.00656	0.00714	0.00763
4183431.33	0.00511	0.00557	0.00599

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

W12_Const

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREAEXH ***
INCLUDING SOURCE(S): AREAEXH ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564422.54	4184053.48	1.70385	564249.79	4184051.74	0.26812
564355.29	4184176.96	0.15817	564460.22	4184129.42	0.29593
564471.81	4183890.01	0.15355	564328.93	4183850.83	0.03483

♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFEXH ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 ,

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

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

Y-COORD (METERS)	X-COORD (METERS)	563784.57	563834.57	563884.57	563934.57	563984.57	564034.57	564084.57	564134.57	564184.57
4184281.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184231.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184181.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184131.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184081.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184031.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
4183981.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001
4183931.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001
4183881.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00001	0.00001
4183831.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00001	0.00002
4183781.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00001	0.00002
4183731.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00001	0.00003
4183681.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00002	0.00005
4183631.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00002	0.00005
4183581.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00001	0.00002
4183531.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00002
4183481.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
4183431.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFEXH ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 ,

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

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

Y-COORD (METERS)	X-COORD (METERS)	564234.57	564284.57	564334.57	564384.57	564434.57	564484.57	564534.57	564584.57	564634.57
4184281.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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	W12_Const								
4184231.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184181.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4184131.33	0.00000	0.00000	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
4184081.33	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
4184031.33	0.00001	0.00001	0.00002	0.00003	0.00002	0.00002	0.00001	0.00001	0.00001
4183981.33	0.00001	0.00002	0.00006	0.00012	0.00004	0.00002	0.00002	0.00001	0.00001
4183931.33	0.00002	0.00004	0.00009	0.00013	0.00005	0.00003	0.00002	0.00001	0.00001
4183881.33	0.00002	0.00007	0.00024	0.00009	0.00005	0.00003	0.00002	0.00001	0.00001
4183831.33	0.00004	0.00009	0.00015	0.00007	0.00004	0.00003	0.00002	0.00001	0.00001
4183781.33	0.00006	0.00020	0.00010	0.00005	0.00003	0.00002	0.00002	0.00001	0.00001
4183731.33	0.00006	0.00015	0.00007	0.00004	0.00003	0.00002	0.00002	0.00001	0.00001
4183681.33	0.00012	0.00010	0.00005	0.00003	0.00002	0.00002	0.00001	0.00001	0.00001
4183631.33	0.00015	0.00006	0.00004	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001
4183581.33	0.00007	0.00004	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001
4183531.33	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
4183481.33	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
4183431.33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFEXH ***

INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 ,

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

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

Y-COORD	X-COORD (METERS)	
(METERS)	564684.57	564784.57

4184281.33	0.00000	0.00000	0.00000
4184231.33	0.00000	0.00000	0.00000
4184181.33	0.00000	0.00000	0.00000
4184131.33	0.00000	0.00000	0.00000
4184081.33	0.00000	0.00000	0.00000
4184031.33	0.00001	0.00000	0.00000
4183981.33	0.00001	0.00001	0.00000
4183931.33	0.00001	0.00001	0.00001
4183881.33	0.00001	0.00001	0.00001
4183831.33	0.00001	0.00001	0.00001
4183781.33	0.00001	0.00001	0.00001
4183731.33	0.00001	0.00001	0.00001
4183681.33	0.00001	0.00001	0.00001
4183631.33	0.00001	0.00001	0.00000
4183581.33	0.00001	0.00000	0.00000
4183531.33	0.00000	0.00000	0.00000
4183481.33	0.00000	0.00000	0.00000
4183431.33	0.00000	0.00000	0.00000

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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFEXH ***

INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
-------------	-------------	------	-------------	-------------	------

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----- W12_Const -----
564422.54 4184053.48 0.00002 564249.79 4184051.74 0.00001
564355.29 4184176.96 0.00000 564460.22 4184129.42 0.00001
564471.81 4183890.01 0.00003 564328.93 4183850.83 0.00020
♀ *** AERMOD - VERSION 15181 *** C:\MBA\W12\AERMOD\W12_Const\W12_Const.isc *** 11/10/16
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** THE SUMMARY OF MAXIMUM PERIOD (43872 HRS) RESULTS ***

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

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

AREAEXH 1ST HIGHEST VALUE IS 3.68439 AT (564384.57, 4184031.33, 12.00, 12.00, 0.00) GC UCART1
2ND HIGHEST VALUE IS 3.12093 AT (564334.57, 4184031.33, 12.00, 12.00, 0.00) GC UCART1
3RD HIGHEST VALUE IS 2.42630 AT (564434.57, 4184031.33, 12.00, 12.00, 0.00) GC UCART1
4TH HIGHEST VALUE IS 1.70385 AT (564422.54, 4184053.48, 12.00, 12.00, 0.00) DC
5TH HIGHEST VALUE IS 1.65956 AT (564334.57, 4184081.33, 12.00, 12.00, 0.00) GC UCART1
6TH HIGHEST VALUE IS 1.54055 AT (564384.57, 4183981.33, 12.00, 12.00, 0.00) GC UCART1
7TH HIGHEST VALUE IS 1.37626 AT (564434.57, 4183981.33, 12.00, 12.00, 0.00) GC UCART1
8TH HIGHEST VALUE IS 1.14745 AT (564384.57, 4184081.33, 12.00, 12.00, 0.00) GC UCART1
9TH HIGHEST VALUE IS 1.00461 AT (564484.57, 4184031.33, 12.00, 12.00, 0.00) GC UCART1
10TH HIGHEST VALUE IS 0.81584 AT (564484.57, 4183981.33, 12.00, 12.00, 0.00) GC UCART1

OFFEXH 1ST HIGHEST VALUE IS 0.00024 AT (564334.57, 4183881.33, 12.00, 12.00, 0.00) GC UCART1
2ND HIGHEST VALUE IS 0.00020 AT (564328.93, 4183850.83, 12.00, 12.00, 0.00) DC
3RD HIGHEST VALUE IS 0.00020 AT (564284.57, 4183781.33, 11.00, 11.00, 0.00) GC UCART1
4TH HIGHEST VALUE IS 0.00015 AT (564284.57, 4183731.33, 10.20, 10.20, 0.00) GC UCART1
5TH HIGHEST VALUE IS 0.00015 AT (564234.57, 4183631.33, 8.80, 8.80, 0.00) GC UCART1
6TH HIGHEST VALUE IS 0.00015 AT (564334.57, 4183831.33, 11.50, 11.50, 0.00) GC UCART1
7TH HIGHEST VALUE IS 0.00013 AT (564384.57, 4183931.33, 12.00, 12.00, 0.00) GC UCART1
8TH HIGHEST VALUE IS 0.00012 AT (564384.57, 4183981.33, 12.00, 12.00, 0.00) GC UCART1
9TH HIGHEST VALUE IS 0.00012 AT (564234.57, 4183681.33, 9.50, 9.50, 0.00) GC UCART1
10TH HIGHEST VALUE IS 0.00010 AT (564284.57, 4183681.33, 10.00, 10.00, 0.00) GC UCART1

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

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*** AERMET - VERSION 14134 *** *** 13:50:35
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**MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 7953 Informational Message(s)

A Total of 43872 Hours Were Processed

A Total of 7152 Calm Hours Identified

A Total of 801 Missing Hours Identified (1.83 Percent)

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

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

*** NONE ***

W12_Const

*** AERMOD Finishes Successfully ***

**Attachment B:
Estimates of Construction Diesel PM_{2.5} Emissions
and Health Risk Impacts With Mitigation**

W12 Mixed Use Project: Oakland

Tier IV Mitigation

Construction Annual DPM Emissions (as PM2.5 Exhaust)
Construction Duration: 1/1/2017 to 12/11/2017

CalEEMod construction data extracted from the W12 Mixed Use Project CEQA Analysis (ESA 2015)

ASSUMPTION: Assume all construction emissions occur in one year, 2017

Construction Scheduling

2017
8 hours/day
246 days/year
1968 hours/year

Onsite Construction Area Source Size (m2):

7696

Onsite Construction PM2.5 Emissions

2017	Construction Activity	Onsite Annual DPM Exhaust Emissions (tons/year)	Onsite Annual DPM Exhaust Emissions (g/sec)	Onsite DPM Source Exhaust Emissions (g/m2-sec)
	Demolition	0.00038	0.0000	6.328E-09
	Site Preparation	0.00003	0.0000	4.996E-10
	Grading	0.00005	0.0000	8.327E-10
	Building Construction	0.00301	0.0004	5.013E-08
	Paving	0.00010	0.0000	1.665E-09
	Architectural Coating	0.00002	0.0000	3.331E-10
	Total Onsite Construction Emissions	0.00359	0.0005	5.978E-08

Offsite Construction Vehicle PM2.5 Emissions

2017	Construction Activity	Offsite Haul Trucks Annual DPM Exhaust Emissions (tons/year)	Offsite Vendor Trucks Annual DPM Exhaust Emissions (tons/year)	Offsite Worker Vehicles Annual DPM Exhaust Emissions (tons/year)
	Demolition	0.00057	0.00000	0.00001
	Site Preparation	0.00000	0.00000	0.00000
	Grading	0.01110	0.00000	0.00000
	Building Construction	0.00000	0.00908	0.00285
	Paving	0.00000	0.00000	0.00000
	Architectural Coating	0.00000	0.00000	0.00003
	Total (tons/year)	0.01167	0.00908	0.00289

Trip Distance assumed in CalEEMod (mi)

12.4

Offsite Project Trip Distance
Project>Harrison St>1980 (mi)

0.280

Offsite Project Emissions
Project>Harrison St>1980 (tons/year)

0.000163

0.000348

0.000065

Total Offsite Project Exhaust Emissions (tons/year)	0.000576
Total Offsite Project Exhaust Emissions (grams/sec)	7.3818E-05

Total PM@2.5 Exhaust (tons/year)	0.00417
---	----------------

W12 Mixed Use Project: Oakland

Estimates of Annual Construction DPM and Fugitive Dust Emissions (as PM2.5)

Annual Average Onsite DPM Exhaust Emission Rate:

Annual Average Offsite DPM Exhaust Emission Rate:

Sensitive Receptors

Tier IV Mitigation

5.97844E-08 grams/m2/sec

7.38180E-05 grams/sec

X (m)	Y (m)	Onsite		Onsite		Offsite		Offsite		Total DPM (ug/m3)
		Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	Annual DPM Exhaust w/Unit Emissions (ug/m3)	Annual DPM Exhaust w/Actual Emissions (ug/m3)	
564422.5	418405.3	1.70385	0.01019	0.00002	1.47636E-04	0.00001	7.38180E-05	0.00000E+00	0.00000E+00	0.01033
564249.8	418405.2	0.26812	0.00160	0.00001	0.00001	0.00000	0.00000E+00	0.00000E+00	0.00000E+00	0.00168
564355.3	418417.7	0.15817	0.00095	0.00000	0.00000	0.00001	7.38180E-05	0.00001	0.00001	0.00095
564460.2	418412.9	0.29593	0.00177	0.00001	0.00001	0.00003	2.21454E-04	0.00003	0.00003	0.00184
564471.8	418389.0	0.15355	0.00092	0.00002	0.00002	0.00003	1.47636E-03	0.00003	0.00003	0.00114
564328.9	418385.1	0.03483	0.00021	0.00001	0.00001	0.00002	1.47636E-03	0.00002	0.00002	0.00168

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Infant

Cancer Potency Factor:	1.1 (mg/kg-day) ⁻¹				
Exposure Frequency	350 days/year				
Averaging Period	25550 days				
Year 3rd Trimester 1	DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)
					Unit
					Cancer Risk (/million)
	1	10	361	0.85	0.25
	1	10	1090	0.85	1
					11.6
					139.6

W12 Mixed Use Project: Oakland Tier IV Mitigation

Estimated Cancer Risks from Construction DPM - Infant Receptors

Cancer Unit Risk Factor:		3rd Trimester (ug/m3) ⁻¹	Year 1 (2017) (ug/m3) ⁻¹	Total Cancer Risk (/million)
		11.6	139.6	
X (m)	Y (m)	3rd Trimester Cancer riskRisk (/million)	Year 1 (2017) Cancer risk (/million)	Total Cancer Risk (/million)
564422.54	4184053.48	0.11945	1.44272	
564249.79	4184051.74	0.01938	0.23409	1.56218
564355.29	4184176.96	0.01093	0.13202	0.25347
564460.22	4184129.42	0.02130	0.25730	0.14295
564471.81	4183890.01	0.01317	0.15908	0.27861
564328.93	4183850.83	0.01947	0.23518	0.17225
				0.25466

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Child

Cancer Potency Factor: 1.1 (mg/kg-day)⁻¹
Exposure Frequency 350 days/year
Averaging Period 25550 days

Year	DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At		Exposure Duration (years)	Unit Cancer Risk (/million)
				Home	Factor		
1	1	3	572	0.73		1	18.9

Tier IV Mitigation

Id Receptors

Year 1 (2017)
(ug/m3)⁻¹
18.9

Year 1 (2017)	
Cancer risk	(/million)
	0.19506
	0.03165
	0.01785
	0.03479
	0.02151
	0.03180

W12 Mixed Use Project: Oakland

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Adult

Cancer Potency Factor: 1.1 (mg/kg-day)⁻¹
Exposure Frequency 350 days/year
Averaging Period 25550 days

Year	DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At		Exposure Duration (years)	Unit Cancer Risk (/million)
				Home	Factor		
1	1	1	261	0.72		1	2.8

Tier IV Mitigation

Estimated Cancer Risks from Construction DPM - Adult Receptors

Cancer Unit Risk Factor: Year 1 (2017)
($\mu\text{g}/\text{m}^3$)⁻¹
2.8

X (m)	Y (m)	Year 1 (2017) Cancer riskRisk (/million)
564422.54	4184053.48	0.02926
564249.79	4184051.74	0.00475
564355.29	4184176.96	0.00268
564460.22	4184129.42	0.00522
564471.81	4183890.01	0.00323
564328.93	4183850.83	0.00477

W12 Mixed Use Project: Oakland

Tier IV Mitigation

Estimated Chronic Non-Cancer Hazard Index from Construction DPM

Reference Exposure Level for DPM:

5 ug/m3

Year 1 (2017)		
X (m)	Y (m)	Chronic Non-Cancer Hazard Index
564422.54	4184053.48	0.00207
564249.79	4184051.74	0.00034
564355.29	4184176.96	0.00019
564460.22	4184129.42	0.00037
564471.81	4183890.01	0.00023
564328.93	4183850.83	0.00034

**Attachment C:
Comparison of Cancer Risks from BAAQMD Guidance**

Cancer Risk Calculation for 1 ug/m3 DPM concentration (assuming constant DPM concentration)

**70-year Exposure Duration
Original BAAQMD Guidance**

http://www.baaqmd.gov/~media/Files/Engineering/Air%20Toxics%20Programs/hrsa_guidelines.ashx

Year	Year	DPM (ug/m3)	CPF (mg/kg-day)^-1	DBR (l/kg-day)	ED (years)	EF (days)	AT (years)	TAH (%)	ASF	Risk (risk/million)
1	Year 1	1.000	1.1	302	1	350	25550	1	10	45.51
2	Year 2	1.000	1.1	302	1	350	25550	1	10	45.51
3	Year 3	1.000	1.1	302	1	350	25550	1	3	13.65
4	Year 4	1.000	1.1	302	1	350	25550	1	3	13.65
5	Year 5	1.000	1.1	302	1	350	25550	1	3	13.65
6	Year 6	1.000	1.1	302	1	350	25550	1	3	13.65
7	Year 7	1.000	1.1	302	1	350	25550	1	3	13.65
8	Year 8	1.000	1.1	302	1	350	25550	1	3	13.65
9	Year 9	1.000	1.1	302	1	350	25550	1	3	13.65
10	Year 10	1.000	1.1	302	1	350	25550	1	3	13.65
11	Year 11	1.000	1.1	302	1	350	25550	1	3	13.65
12	Year 12	1.000	1.1	302	1	350	25550	1	3	13.65
13	Year 13	1.000	1.1	302	1	350	25550	1	3	13.65
14	Year 14	1.000	1.1	302	1	350	25550	1	3	13.65
15	Year 15	1.000	1.1	302	1	350	25550	1	3	13.65
16	Year 16	1.000	1.1	302	1	350	25550	1	3	13.65
17	Year 17	1.000	1.1	302	1	350	25550	1	1	4.55
18	Year 18	1.000	1.1	302	1	350	25550	1	1	4.55
19	Year 19	1.000	1.1	302	1	350	25550	1	1	4.55
20	Year 20	1.000	1.1	302	1	350	25550	1	1	4.55
21	Year 21	1.000	1.1	302	1	350	25550	1	1	4.55
22	Year 22	1.000	1.1	302	1	350	25550	1	1	4.55
23	Year 23	1.000	1.1	302	1	350	25550	1	1	4.55
24	Year 24	1.000	1.1	302	1	350	25550	1	1	4.55
25	Year 25	1.000	1.1	302	1	350	25550	1	1	4.55
26	Year 26	1.000	1.1	302	1	350	25550	1	1	4.55
27	Year 27	1.000	1.1	302	1	350	25550	1	1	4.55
28	Year 28	1.000	1.1	302	1	350	25550	1	1	4.55
29	Year 29	1.000	1.1	302	1	350	25550	1	1	4.55
30	Year 30	1.000	1.1	302	1	350	25550	1	1	4.55
30 to 70										182.03
Total										527.88

Cancer Risk Calculation for 1 ug/m3 DPM concentration (assuming constant DPM concentration)

30-year Exposure Duration 95th/80th % DBR		30-year New BAAQMD Guidance 95th % DBR 2 years and less, 80th % for all older										BAAQMD New Guidance Cancer Risk @30 years	BAAQMD Old Guidance Cancer Risk @70 years	Ratio NEW to Old BAAQMD
Year	Year	DPM (ug/m3)	CPF (mg/kg-day) ⁻¹	DBR (l/kg-day)	ED (years)	EF (days)	AT (years)	TAH (%)	ASF	Risk (risk/million)				
3rd Trimester	Year 1	1.000	1.1	361	0.25	350	25550	0.85	10	11.56		589.97	527.88	1.12
1	Year 1	1.000	1.1	1090	1	350	25550	0.85	10	139.61				
2	Year 2	1.000	1.1	1090	1	350	25550	0.84	10	137.97				
3	Year 3	1.000	1.1	572	1	350	25550	0.72	3	18.62				
4	Year 4	1.000	1.1	572	1	350	25550	0.72	3	18.62				
5	Year 5	1.000	1.1	572	1	350	25550	0.72	3	18.62				
6	Year 6	1.000	1.1	572	1	350	25550	0.72	3	18.62				
7	Year 7	1.000	1.1	572	1	350	25550	0.72	3	18.62				
8	Year 8	1.000	1.1	572	1	350	25550	0.72	3	18.62				
9	Year 9	1.000	1.1	572	1	350	25550	0.72	3	18.62				
10	Year 10	1.000	1.1	572	1	350	25550	0.72	3	18.62				
11	Year 11	1.000	1.1	572	1	350	25550	0.72	3	18.62				
12	Year 12	1.000	1.1	572	1	350	25550	0.72	3	18.62				
13	Year 13	1.000	1.1	572	1	350	25550	0.72	3	18.62				
14	Year 14	1.000	1.1	572	1	350	25550	0.72	3	18.62				
15	Year 15	1.000	1.1	572	1	350	25550	0.72	3	18.62				
16	Year 16	1.000	1.1	572	1	350	25550	0.72	3	18.62				
17	Year 17	1.000	1.1	261	1	350	25550	0.73	1	2.87				
18	Year 18	1.000	1.1	261	1	350	25550	0.73	1	2.87				
19	Year 19	1.000	1.1	261	1	350	25550	0.73	1	2.87				
20	Year 20	1.000	1.1	261	1	350	25550	0.73	1	2.87				
21	Year 21	1.000	1.1	261	1	350	25550	0.73	1	2.87				
22	Year 22	1.000	1.1	261	1	350	25550	0.73	1	2.87				
23	Year 23	1.000	1.1	261	1	350	25550	0.73	1	2.87				
24	Year 24	1.000	1.1	261	1	350	25550	0.73	1	2.87				
25	Year 25	1.000	1.1	261	1	350	25550	0.73	1	2.87				
26	Year 26	1.000	1.1	261	1	350	25550	0.73	1	2.87				
27	Year 27	1.000	1.1	261	1	350	25550	0.73	1	2.87				
28	Year 28	1.000	1.1	261	1	350	25550	0.73	1	2.87				
29	Year 29	1.000	1.1	261	1	350	25550	0.73	1	2.87				
30	Year 30	1.000	1.1	261	1	350	25550	0.73	1	2.87				
Total										589.97				

http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en



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Justin Osler
The Martin Group
44 Montgomery St,
Suite 4050
San Francisco, CA 94104

RE: Use of Tier 4 Rated Emissions Certifications for Equipment at the W12 Project located at Webster and 12th Street
Oakland, CA

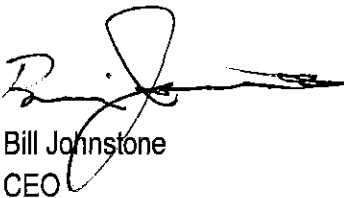
Dear Mr. Osler,

I'm writing in response to your request for information on the equipment that will be utilized for the upcoming W12 Project located at 12th and Webster Street in Oakland, CA. As requested, all of the equipment used in the demolition, excavation, utilities and concrete operations will meet the current Tier 4 emission standards as required under the Standard Conditions of Approval (SCA) AIR-1.

We understand the requirement to use Tier 4 construction equipment and will comply with this requirement. If you have any questions please feel free to contact me.

Very truly yours,

JOHNSTONE MOYER, INC.



Bill Johnstone
CEO

ATTACHMENT B

Pacific States

ENVIRONMENTAL CONTRACTORS, INC.

Mr. Gary Woolford
Johnstone Moyer Inc.
555 Old County Road
San Carlos, CA 94070

November 16, 2016

Re: Use of Tier 4 Rated Emissions Certifications for Equipment at Webster @ 12th Street Project in Oakland

Gary,

I write in response to your request for information on the equipment scheduled for use at the Webster @12th Street project in Oakland, California. As requested, below is a list of emission generating equipment that were used on our recent project at 3093 Broadway in Oakland and will be very similar to that used on the Webster Street project:

List of equipment requiring Tier 4 Certification we will be using onsite:

- Caterpillar 321D excavator
- Caterpillar 336E excavator
- Caterpillar 415 skip loader
- Caterpillar D6K2 dozer
- Caterpillar 14H blade
- Caterpillar 950H loader
- Caterpillar CS56B roller
- Caterpillar CP563E roller
- Caterpillar CS76 roller
- John Deere 210L skip loader

It is our understanding that all of the equipment listed above must meet Tier 4 emission standards as required under Standard Condition of Approval (SCA) AIR-1. The Tier 4 emissions compliant equipment listed above will come from our existing fleet and local rental vendors.

We understand the requirement to use Tier 4 compliant construction equipment and will comply with this requirement. If you have any questions, please let me know.

Respectfully Submitted,
Pacific States Environmental Contractors, Inc.



Pete Timmerman
Chief Estimator

ATTACHMENT B

ADAMS BROADWELL JOSEPH & CARDOZO

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ADAM J. REGELE
ELLEN L. WEHR

March 16, 2016

VIA EMAIL AND U.S. MAIL

Planning Commission
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Peterson Vollman
Planner II
City of Oakland
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Oakland, CA 94612
Email: pvollmann@oaklandnet.com

Re: Responses to Comments on the Jack London Square 4th & Madison Project (ER 15-005)

Dear Honorable Members of the Oakland Planning Commission and Mr. Vollman:

We are writing on behalf of Oakland Residents for Responsible Development regarding the Jack London Square 4th & Madison Project ("Project"), proposed by the Carmel Partners ("Applicant"). Based on our review of the Final Environmental Impact Report ("FEIR") prepared by the City of Oakland ("City"), as well as the Project's Staff Report for the March 16, 2016 hearing, we believe the City has adequately addressed the issues raised in our September 25, 2015 comments on the

3387-006rc

March 16, 2016

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Draft Environmental Impact Report ("DEIR"). We describe below the most important issues raised in our comments and the City's responses.

First, we previously commented that the DEIR failed to sufficiently describe the Project by failing to adequately describe aspects of the Project's design features and failing to describe dewatering requirements for the Project, which could lead to potentially significant impacts. In response, the City made several changes to the FEIR, which now provides: more specific details on the construction schedule; further explanation that the retail space analysis is not dependent on the retail space location; further details on transportation design features including driveway locations, as well as further detail on the City process for reviewing the final design to ensure adequate site distance is provided and all safety issues are addressed; and further analysis on the potential for dewatering and exposure to contaminated soil and water, including the process and schedule for dewatering as well as the requirements of the Construction General Permit and the City's Standard Conditions of Approval as applied to discharges of contaminated water from the Project site.

Second, we commented that the DEIR underestimated construction emissions by failing to use the correct modeling inputs for architectural coating, demolition of existing buildings, percent reductions for daily trip rates, construction duration, and assumption of Tier 4 engine use. In response, the City prepared revised air modeling using corrected inputs. Specifically, the City changed the concentration of VOCs in architectural coatings, which we noted was inconsistent between the DEIR and modeling files. In addition, the City provided further explanation of construction activities associated with site preparation and building demolition, as reflected in the modeling files. The City also removed the 16.2 percent reduction we noted was incorrectly applied in the modeling files because it had already applied a reduction elsewhere in the modeling. Finally, the revised air modeling used the appropriate default construction durations. The Project will also implement all basic and enhanced best management practices for construction and the City has ensured the use of Tier 4 engines by including it as enforceable mitigation, which would further reduce construction emissions. The revised model concluded that the Project's emissions will not result in a significant air quality impact.

Third, we previously commented that the DEIR underestimated Greenhouse Gas Emissions ("GHGs") because it incorrectly calculated the service population and used incorrect parameters and an inflated percent reduction in daily trips in its

March 16, 2016

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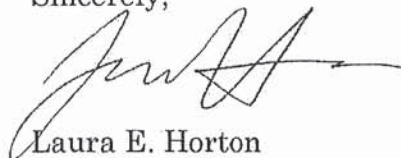
modeling files, as explained above. The FEIR clarified the City's approach to determining the Project's service population. Specifically, the City explained that the 2013 United States Census for the City of Oakland, which it used in its estimation, relies on population per room, and not only bedrooms. The City then revised its estimate, taking into account our modeling file input comments as explained above. In addition, the Project will implement several mitigation measures, such as compliance with CALGreen mandatory measures and the applicable requirements of the Green Building Ordinance, which would further reduce the Project's GHG emissions. The City's revised model falls below the significance threshold.

Fourth, we commented that because of the Project site's long history of industrial uses, potential soil and groundwater contamination had not been adequately evaluated. Specifically, we found that the DEIR had not adequately evaluated the dewatering potential and associated impacts, and had not completed a Phase II Environmental Site Assessment ("ESA"). In response, as stated above, the City provided further details on potential dewatering impacts and clarified the City's plan to handle stormwater contaminants related to industrial uses. In addition, the City conducted a Phase II ESA for the Project site, which found that no further studies or remedial action are recommended for the projects site at this time.

We thank the City for taking seriously the legal and technical issues identified in our submittal, and for its thorough and good faith responses and additional analysis and mitigation added in the FEIR. In light of the City's response to our comments, we have no further comments and withdraw our objections to the EIR and the Project.

Thank you for your attention to this matter.

Sincerely,



Laura E. Horton

LEH:ric

3387-006rc

ADAMS BROADWELL JOSEPH & CARDOZO

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LINDA T. SOBCZYNSKI

November 14, 2016

VIA EMAIL AND MAIL

Mayor Libby Schaaf and honorable City Council Members Dan Kalb, Abel J. Guillén, Lynette Gibson McElhaney, Annie Campbell Washington, Noel Gallo, Desley Brooks, Larry Reid, Rebecca Kaplan
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Peterson Vollmann, Planner III
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Planning and Zoning Division
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Re: 14th & Alice Appeal (Project Case No. PLN15-320)

Dear Mayor Libby Schaaf, Honorable City Council Members, Mr. Vollman:

Appellant Oakland Residents for Responsible Development ("Residents") submits this response to the October 24, 2016 Agenda Report regarding Project Case No. PLN15-320, 14th & Alice Appeal ("Project"), and the CEQA Analysis prepared by the City of Oakland ("City") for the Project pursuant to the California Environmental Quality Act ("CEQA").¹

Residents and its expert consultants from Soil / Water / Air Protection Enterprise ("SWAPE") reviewed the October 24, 2016 Agenda Report for the November 14, 2016 Special City Council Meeting along with its attachments, including the October 21, 2016 Memorandum from ICF International (Attachment

¹ Pub. Resources Code ("PRC") §§ 21000 et seq.; 14 Cal. Code Regs. ("CCR") §§15000 et seq. 3506-013acp

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B to the Agenda Report) ("ICF Memorandum"). Based on our legal and technical review, Residents has concluded that the City has adequately addressed the issues raised in our prior comments and our July 1, 2016 appeal.

In response to our comments and appeal, the City:

- Clarified the amount of architectural coating and mitigation that would be used for the Project and revised its air quality analysis to demonstrate that volatile organic compounds would not exceed construction air emissions thresholds.
- Prepared a health risk assessment ("HRA") in response to our specific comments concerning diesel particulate matter and other construction-related emissions.
- Corrected an error in the HRA analysis, which had indicated that the Project would cause significant health risks. Once corrected, the HRA demonstrated that the Project did not pose a significant health risk assuming compliance with mitigation measure, SCA-AIR-1.
- Conducted additional research and investigation with regard to the feasibility of obtaining Tier 4 construction equipment. The City provided letters from subcontractors submitted by the Applicant indicating the availability of some (but not all) Tier 4 construction equipment for Project construction.

With respect to the Tier 4 equipment issue, Residents urges the City to ensure that all construction equipment utilized for Project construction will be Tier 4. The subcontractor letters provided by the Applicant do not list all equipment needed for the Project. Although Residents remains concerned that the City has not incorporated adequate enforcement mechanisms into the proposed Project approvals and Project mitigation measures to ensure that the Applicant will comply with the SCA-AIR-1 requirement to use Tier 4 equipment, in this case, Residents is relying in good faith on the City's obligation to monitor Project construction activities. We continue to encourage the City to implement enforceable construction monitoring plans and equipment tracking to ensure that all construction equipment is Tier 4.

With respect to other projects, Residents thanks the City for its substantive responses to concerns Residents has raised. For example, for the 2400 Valdez

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project, the City clarified the amount of excavation and revised its analysis of greenhouse gas emissions. For the Jack London Square 4th and Madison project, the City, in response to Residents' comments, prepared an updated construction emissions model, which corrected numerous errors in the City's original analysis. These factors included correcting the concentration of volatile organic compounds in architectural coatings, clarifying construction activities associated with site preparation and building demolition, removing a duplicative reduction in traffic emissions and using the appropriate default construction durations. The revised air modeling showed that the project's construction emissions would be less than significant. Due to our involvement and the City's positive responses during the review processes, greater protections for worker safety, public health, and the environment have been implemented.

We thank the City for taking seriously the legal and technical issues identified in our comments and appeal, and for its thorough and good faith responses and additional investigations. In light of the City's response to our comments and appeal, we hereby withdraw our appeal of the 14th and Alice Project and encourage the City to actively monitor the construction activity at the project site to ensure SCA-AIR-1 compliance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Sobczynski", with a stylized flourish at the end.

Linda T. Sobczynski

LTS:acp