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May 4, 2018

BY EMAIL AND U.S. MAIL

David Sanchez
Senior Planner
City of Pasadena
175 N. Garfield Ave
Pasadena, CA 91101

dasanchez@cityofpasadena.net

Re: 3200 E. Foothill Boulevard

Dear David:

As you know, we represent Pasadena Gateway, LLC, which is seeking to develop the approximately 8.32-acre site (the "Site") at the above address with a transit-oriented development consisting of 550 apartment units (including 69 affordable units) and 9,800 square feet of retail/restaurant space (the "Project"). On behalf of its client, CREED LA, a coalition of labor unions ("CREED"), the law firm of Adams Broadwell Joseph & Cardozo submitted a letter dated March 26, 2018, asserting various flaws with the Sustainable Communities Environmental Assessment ("SCEA") that the City of Pasadena ("City") prepared for the Project in compliance with the California Environmental Quality Act ("CEQA"). We are writing as, demonstrated below, CREED's arguments are without merit.

1. The Project is not Detrimental to Public Health and Qualifies for the Planned Development Zoning.

In order to approve the proposed zone change to Planned Development ("PD"), the City Council must find that the proposed amendment would not be detrimental to the public interest, health, safety, convenience, or general welfare of the City. Pasadena Municipal Code ("PMC") Section 17.74.070.B.2. CREED maintains that this finding cannot be made because the Site contains contaminants from its prior use by the U.S. Navy that require remedial action. In fact, there are numerous grounds to support this finding, including the fact that the Project will provide needed housing, including affordable housing, near transit, preserve and enhance the key

character-defining features of the historic naval use, include ample publicly accessible, privately maintained open space, and safely clean up the Site.

2. The Project is Consistent with the East Pasadena Specific Plan and General Plan.

CREED asserts that the Project fails to comply with the East Pasadena Specific Plan ("EPSP"). In doing so, CREED cherry picks general policies that indicate that the Specific Plan vision of the area is primarily commercial and industrial uses. However, CREED ignores those provisions of the EPSP for which the Project is consistent. As CREED concedes, the EPSP calls for mixed use in appropriate areas. It also encourages transit-oriented development in areas near and around the Sierra Madre Villa Metro station and the I-210 freeway. As the Project is transit-oriented and located less than 900 feet from the Sierra Madre Villa station, it is located in an appropriate area.

The Site is designated as Medium- Mixed Use under the Land Use Element of the General Plan. This designation allows for a maximum of 2.25 FAR, up to 87 dwellings per acre, and is intended to support the development of multi-story buildings with a variety of compatible commercial (retail and office) and residential uses. The Project's FAR of 1.53 and residential density of approximately 66 dwellings per acre are well below the maximums allowed.

For the EPSP Area, the Land Use Element stipulates a development capacity of 750 residential units and 1,095,000 SF of commercial development. As the Project involves development of 550 residential units and 9,800 SF of supporting commercial use, it is well within these limits.

The proposed PD zone will enable the City to establish Project-specific development standards that replace the currently applicable standards of the EPSP Zoning District. PMC Section 17.26.020.C provides: "The PD zoning district is consistent with all land use classifications of the General Plan." Therefore, with approval of the requested zone change to PD, the Project will be consistent with the EPSP and General Plan.

3. The Project Does Not Incorporate Mitigation Measures into the Project Description.

CREED alleges that the SCEA violates CEQA by incorporating the cleanup of the existing Site contaminants, which CREED maintains is mitigation, into the Project description. The cleanup is not a mitigation measure, but is a necessary first phase of the Project. The

Department of Toxic Substance Control ("DTSC"), which enforces the applicable state laws that require the cleanup, will not allow the construction of residential uses on the Site unless, and until, the pre-existing contaminants are remediated. Moreover, these contaminates are part of the environmental baseline and not a consequence of the Project, so their remediation is not a Project mitigation measure.

Furthermore, the case cited by CREED, *Lotus v. Department of Transportation*, is clearly distinguishable. In that case, the EIR failed to identify any standard of significance to assess impacts to root systems in old growth redwood trees. It also failed to identify which or even how many trees would be impacted. Therefore, the court held that the impacts would be mitigated by the proposed measures. In this case, the SCEA clearly set forth applicable significance criteria, analyzed potential impacts, and identified mitigation measures, including those from relevant prior EIRs. Therefore, the *Lotus* case is inapposite.

4. Substantial Evidence in the Record Supports the Conclusion that Hazardous Materials Impacts are Less Than Significant.

CREED maintains that Volatile Organic Compounds ("VOCs") in the Site's soil pose a potentially significant impact that is not mitigated in the SCEA. CREED claims, without support, that the magnitude of risks from the VOCs are unknown. This claim ignores the extensive testing of the Site over many years under the supervision of the DTSC. These studies, which are listed at pages 10-11 of the SCEA and incorporated by reference therein, fully disclose the extent of existing onsite contaminants, including VOCs (SCEA, pages 11-13).

CREED alleges that the SCEA does not address potential health impacts to the public, workers, or future residents, and lacks evidence showing that the risks posed by the VOCs will be reduced to less than significant. Based on this extensive analysis discussed above and in response to DTSC requirements, environmental experts Ninyo & Moore developed a Removal Action Workplan ("RAW") to remediate all the existing contaminants (SCEA, pages 13-15). Implementation of the RAW will ensure that the Site is fully cleaned up to meet residential standards, including protection of the public. The RAW provides for stepped measures, including removal of the impacts to soils, installation of impermeable vapor barriers and a passive venting system, and, if necessary, installation of an active system. The Site will be tested under DTSC supervision after each measure. If the testing shows that the level of contaminants still exceeds regulatory standards or poses an unacceptable health risk to future site occupants, the next step will be implemented. The measures in the RAW represent best industry practices

that are commonly approved by the DTSC and have been demonstrated to be successful on other contaminated sites of this nature.

The cleanup activities under the RAW will be conducted under the auspices of a Health and Safety Plan (HASP) by trained workers in accordance with all regulatory requirements and under the direction of the DTSC. This will ensure that there will be no significant impacts to the public or workers on the Site during the cleanup activities.

CREED asserts that the SCEA relies on execution of a Land Use Covenant and Operation and Maintenance Plan to mitigate the impacts. This mischaracterizes the intent of the covenant and plan, which is simply to ensure that any long-term passive or active systems installed pursuant to the RAW will be maintained over time by all future owners and will continue to be effective.

As set forth above, the SCEA correctly concludes, based on substantial evidence, that the removal of the existing onsite contaminants will be effective and that there will be no significant impacts to the public, workers, or future residents. CREED has not provided any substantial evidence to the contrary. Therefore, no further analysis or mitigation is required.

5. There Will Not Be Significant Impacts Due to Water in the Anechoic Tank.

CREED speculates that there will be significant impacts associated with the transportation of contaminated water from the anechoic tank. The study referenced in the SCEA that disclosed the potential for such water was conducted in 1999. On April 6, 2018, Ninyo & Moore inspected the tank and found no standing water, liquids, or moisture in the tank. They concluded "that there is no water contained within the tank, and therefore, no special disposal methods for liquids are required when the tank is dismantled and removed during future redevelopment." See Exhibit 1. CREED has provided no evidence to the contrary.

6. Substantial Evidence Supports the Conclusion that the Project's Air Quality Impacts will be Less than Significant.

CREED (a) asserts that construction and operation of the Project will result in significant impacts to Kaiser Permanente and other sensitive receptors due to diesel particulate matter ("DPM") in exhaust and other toxic air contaminants ("TACs"), (b) requests that the City prepare a health risk assessment ("HRA") assessing the effects of such TACs, and (c) submits its own HRA that purports to show significant impacts at nearby residential receptors.

As set forth in the attached responses from air quality experts Eyestone Environmental (see Exhibit 2), an HRA is not warranted for construction emissions. This is because the South Coast Air Quality Management District ("SCAQMD") analyzes the health effects of TACs based on continuous exposure over a 70-year lifetime. Given the short-term construction schedule of approximately 30 months, the Project would not result in a long-term (i.e., 70-year) source of TAC emissions. No substantial sources of residual emissions and corresponding individual cancer risk are anticipated after construction. Therefore, further evaluation of construction TAC emissions is not warranted.

Regarding operations, the SCAQMD does not recommend that HRAs be conducted for projects unless they would generate substantial sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units). The SCEA conservatively estimates that the Project, a mostly residential mixed use, transit-oriented development, would generate approximately 14 trucks per day, without taking any credit for the reduction in trucks associated with the removal of existing public storage buildings. No HRA is warranted as the Project is consistent with the recommendations regarding the siting of new sensitive land uses near potential sources of TAC emissions provided in the SCAQMD Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. Specifically, the Project is not considered to be a substantial source of diesel particulate matter warranting an HRA, since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units.

Notwithstanding the foregoing, Eyestone Environmental prepared an HRA for informational purposes (see Attachment A to Exhibit 2). This HRA used very conservative assumptions methodologies, including the 2015 Guidance from OEHHA that has not been adopted by SCAQMD. The HRA found that Project TAC emissions during construction and operation would not result in health risks in excess of the SCAQMD's significance criteria with the use of cleaner Tier 4 construction equipment consistent with Mitigation Measure MM-AIR-2(b) from the EIR for SCAGs SCS/RTP. While this is not required mitigation as Project TAC impacts are less than significant, Eyestone's conservative HRA demonstrates the even under CREED's incorrect approach, impacts would be less than significant.

Eyestone Environmental prepared detailed point-by-point responses to CREED's arguments, including CREED's HRA (see Exhibit 2). These responses show that CREED's arguments are entirely without merit, and that CREED's HRA is deeply flawed and clearly erroneous, and does not constitute substantial evidence of a significant Project impact.

Please feel free to contact me if you need any further information.

Sincerely,

Dale J. Goldsmith

cc: Pasadena Gateway, LLC

Exhibit 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

April 12, 2018
Project No. 207220003

Mr. Neal Holdridge
Principal/Environmental Manager
Pasadena Gateway, LLC
3501 Jamboree Road, Suite 230
Newport Beach, California 92660

Subject: Building 5 Anechoic Tank Evaluation
Former Naval Information Research Foundation (NIRF) Undersea Center
Current Space Bank Mini Storage Facility
3202 East Foothill Boulevard
Pasadena, California

Dear Mr. Holdridge:

In accordance with your request, we have prepared this letter report to document our observations during the evaluation of the anechoic foam-lined tank conducted on April 6, 2018 at the current Space Bank Mini Storage Facility Center in Pasadena, California. The following sections provide a summary of background information, observations of the tank, and our conclusions and recommendations.

BACKGROUND

The former NIRF Undersea Center, current Space Bank Mini Storage facility, contains an out of service anechoic foam-lined tank in the south side of Building 5, which was historically used by the United States Navy for torpedo testing from approximately 1945 to 1977. The tank has long been out of commission, but in a 1999 report by the United States Army Corps of Engineers, an observation was reported of residual standing water. The water was sampled at that time and reported to contain detectable chromium and petroleum hydrocarbon concentrations. This observation was cited in the California Environmental Quality Act document for the site, and concerns were made regarding proper disposal methods of residual water, if any. The purpose of the April 6, 2018 tank evaluation was to determine if standing water was currently present within the tank, and if so, collect a water sample for waste characterization purposes.

TANK OBSERVATIONS

Mr. Dennis Fee, Senior Staff Engineer with Ninyo & Moore, conducted the tank evaluation on April 6, 2018 with Mr. Neal Holdridge representing Pasadena Gateway, LLC (Pasadena Gateway). The

opening to the top tank was located on the second floor of the southern portion of Building 5. The tank was measured to have a cross-sectional area of approximately 12 by 12 feet and a height of approximately 20 feet (approximate total volume of 2,880 cubic feet). With the aid of flashlights, the interior of the tank was observed. No standing water, liquids, or moisture were observed in the tank by representatives of Ninyo & Moore and Pasadena Gateway. Photographs of the tank opening and interior are included as an attachment to this report.

CONCLUSIONS AND RECOMMENDATIONS

Based on our April 6, 2018 observations of the anechoic foam-lined tank in Building 5, Ninyo & Moore concludes that there is no water contained within the tank, and therefore, no special disposal methods for liquids are required when the tank is dismantled and removed during future redevelopment.

Ninyo & Moore appreciates the opportunity to provide services on this project.

Respectfully submitted,
NINYO & MOORE

Dennis W. Fee, EIT
Senior Staff Engineer

Travis M. Coburn, PE, QSD
Senior Project Engineer

Nancy Anglin
Principal Engineer

DWF/TMC/NA/sc

Attachment: Attachment A – Photographs

Distribution: (1) Addressee (via e-mail)

ATTACHMENT A

Photographs

Photograph 1: **View of the opening to the anechoic tank in Building 5.**

Photograph 2: **View of the opening to the anechoic tank in Building 5.**

Photograph 3: **View of the inside of the anechoic tank. Water or other indications of liquid were not observed.**

Photograph 4: **View of the inside of the anechoic tank. Water or other indications of liquid were not observed.**

Exhibit 2

EXHIBIT 2

eyestone ENVIRONMENTAL

MEMORANDUM

TO: **David Sanchez, Senior Planner, City of Pasadena**

FROM: Everest Yan, Mark Hagmann. P.E.

SUBJECT: **3200 East Foothill Boulevard – Construction and Operational Health Risk Assessment**

DATE: April 27, 2018

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1. Introduction

Adams Broadwell Joseph & Cardozo Attorneys at Law provided a comment letter, dated March 26, 2018, on behalf of Coalition for Responsible Equitable Economic Development (CREED LA) regarding the City of Pasadena's (City) Sustainable Communities Environmental Assessment (SCEA) for the proposed 3200 East Foothill Boulevard Mixed Use Project (Project). This memorandum provides responses to air quality comments beginning on Page 16 of the comment letter and Exhibit A (SWAPE's evaluation of the SCEA).

2. Responses to CREED AQ Comments

Comment No. CREED-AQ-1

VI. THE CITY LACKS SUBSTANTIAL EVIDENCE TO SUPPORT THE CONCLUSION THAT IMPACTS ON AIR QUALITY ARE LESS THAN SIGNIFICANT.

In the "Air Quality" section of the "environmental checklist," the City analyzes the Project's potentially significant impacts on air quality. Question (d) in this section asks "would the project [e]xpose sensitive receptors to substantial pollutant concentrations?" This requires the City to analyze certain pollutants, including Toxic Air Contaminants ("TACs"). As explained in the SCEA:

> "Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as land uses that are more likely to be used by these population

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> groups and include health care facilities, retirement homes, school and playground facilities, and residential areas."[43]

The City acknowledges that the Kaiser Permanente medical office building is a sensitive receptor located approximately 50 feet to the east. However, it goes on to conclude that the Project would have a "less than significant" impact on sensitive receptors from TACs.[44] As explained below, this conclusion is not supported by substantial evidence.

[43] SCEA, p. 62.

[44] SCEA, p. 62.

Response to Comment No. CREED-AQ-1

This comment correctly identifies that the SCEA on page 52 identified the Kaiser Permanete medical office building as a sensitive receptor for air quality. The SCEA analyzed short-term air quality impacts at this sensitive receptor consistent with SCAQMD's LST guidelines for criteria pollutants. As shown in Table 7 of the SCEA, estimated construction emissions would be less than SCAQMD's LST thresholds and would result in a less than significant air quality impact.

From a TAC standpoint, carcinogenic risk from diesel particulate exhaust emissions during construction activities is the primary source of TAC emissions. Carcinogenic risk is evaluated for senstive populations that would be located near the Project site over an extended duration (e.g., months or years), unlike criteria pollutants (e.g., 1-hr CO, 1-hr NO_2, 24-hr PM_{10}). Kaiser Permanete medical office building would therefore not qualify as a sensitive receptor for purposes of calculating carcinogenic risk. It should be of note that CREED's consultant who prepared a screening level HRA for the Project, included as Exhibit A of this comment letter, did not include Kaiser Permanete medical office building in their screening level HRA and instead evaluated potential impacts to residential uses approximately 200 feet north of the Project site as the nearest sensitive receptor that could be potentially impacted by TAC emissions.

Comment No. CREED-AQ-2

Regarding impacts from Project construction, the City claims emissions are "temporary" and would not exceed significance thresholds:

> "Construction activities associated with the proposed project, such as haul truck trips and operation of heavy construction equipment, would generate diesel exhaust particulates and other TACs. The SCAQMD currently does not currently provide TAC emission thresholds for construction activities. However, as discussed under impacts band c and shown in Table 6, construction activities would be temporary and emissions from construction activities, including those produced from diesel exhaust, would not exceed SCAQMD thresholds. Therefore, it is not likely that construction activities would generate long-term levels of TACs that would impact nearby sensitive receptors."[45]

Relying on the argument that emissions are temporary and would not exceed thresholds, the City concludes that "it is not likely" that sensitive receptors would be impacted. The City never actually conducted any kind of health risk assessment or other assessment of impacts to sensitive receptors. As explained by SW APE, the City's justification for failing to evaluate the health risk posed to sensitive receptors is incorrect and inconsistent with SCAQMD's recommendations. Without performing a health risk assessment, the City lacks substantial evidence to support the City's conclusion that impacts from TACs during construction would be less than significant:

> "[S]imply stating that 'it is not likely that construction activities would generate long-term levels of TACs' does not justify the omission of a construction HRA. The [SCAQMD] recommends that health risk impacts from short-term projects also be assessed. SCAQMD's Guidance document states,
>
> > "Since these short-term calculations are only meant for projects with limits on the operating duration, these short-term cancer risk assessments can be thought of as being the equivalent to a 30-year cancer risk estimate and the appropriate thresholds would still apply (i.e. for a 5-year project, the maximum emissions during the 5-year

> period would be assessed on the more sensitive population, from the third trimester to age 5, after which the project's emissions would drop to 0 for the remaining 25 years to get the 30-year equivalent cancer risk estimate)".[46]

Thus, the City must prepare a health risk assessment to determine whether or not the Project would expose sensitive receptors to substantial air pollutants during construction activities. The Draft SCEA should include a quantitative analysis and comparison of the results to applicable thresholds. The SCAQMD provides a specific numerical threshold of 10 in one million for determining a project's health risk impact.[47] Therefore, the City's analysis must compare the Project's construction health risk to this threshold in order to determine the Project's potentially significant health risk impact. "By failing to prepare a health risk assessment, the Draft SCEA fails to provide a comprehensive analysis of the Project's impacts to sensitive receptors that may occur when construction exposes people to substantial air pollutants."[48]

[45] SCEA, p. 63.

[46] http://www.aqmd.gov/docs/default-source/planning/risk-assessment/riskassprocjune15.pdf?sfvrsn=2, p. IX-2

[47] http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

[48] Exhibit A: SWAPE Comments, p. 2-3.

Response to Comment No. CREED-AQ-2

Regarding potential health risk impacts related to construction activities, the SCEA correctly identified that proposed construction activities would be limited in duration to approximately 30 months and considered a short-term source of TAC emissions. The SCAQMD CEQA Air Quality Handbook does not recommend analysis of TACs from short-term construction activities associated with land use development projects. The rationale for not requiring a health risk assessment for construction activities is the limited duration of exposure. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Specifically, "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology.

Given the short-term construction schedule of approximately 30 months, the Project would not result in a long-term (i.e., 70-year) source of TAC emissions. No substantial sources of residual emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period (30 out of 840 months of a 70-year lifetime), it was concluded that further evaluation of construction TAC emissions within the SCEA was not warranted.

This comment incorrectly suggests that the SCAQMD CEQA Air Quality Handbook provides guidance requiring an HRA for potential construction impacts related to land use development projects. This comment also misrepresents SCAQMD's guidance regarding use of age sensitivity factors (e.g., third trimester to age 5) in OEHHA's new Guidance Manual for HRAs. The referenced SCAQMD guidance applies to HRAs subject to SCAQMD's AB 2588 and Rule 1402. These rules apply to large stationary sources subject to the Air Toxics "Hot Spots" Program that routinely release air toxics into the air (e.g., industrial facilities) and not short-term construction activities or projects with no substantial sources of TAC emissions during operation.

Although there is no requirement or guidance for preparing a construction HRA by the SCAQMD or the City, an HRA has been prepared in response to this comment to demonstrate that no significant health risk impacts would occur from combined construction and operation of the Project. Please refer to Response to Comment No. SWAPE-7 regarding the methodology (e.g., guidance and significance thresholds) used in the HRA. The HRA demonstrates that health risks from the Project would be a maximum of 7.5 in one million for residences north of the Project site across Culver Alley, which is below the applicable significance threshold of 10 in one million. It is noted that this risk assumes an outdoor exposure for the entire length of construction and does not account for any reductions from the time spent indoors where air quality tends to be better. Thus, the analysis is conservative. In addition, the HRA includes the following clarification to Mitigation Measure AQ-1 regarding the use of Tier 4 equipment:

> **AQ-1 Construction Equipment Controls**
>
> During construction, all off-road construction equipment greater than 50 horsepower shall minimally meet U.S. EPA Tier 3 emission standards to minimize emissions of NO_X associated with diesel construction equipment.

> Use of construction equipment that meets U.S. EPA Tier 4 emission standards ~~is preferred~~ shall be required for all bull dozers, backhoes, excavators, cranes, pavers, paving equipment, and rollers.

Comment No. CREED-AQ-3

Regarding the Project's operational impacts on sensitive receptors, the SCEA merely states:

> "Operation of the proposed project would generally not involve use of heavy-duty trucks with the exception of occasional trash trucks or delivery trucks. Other traffic generated by the proposed project would primarily include resident vehicle trips. However, as discussed in impacts band c and shown in Table 8, mobile vehicle emissions would be substantially below SCAQMD thresholds, therefore long-term TAC emissions would be nominal. Overall, TAC emissions from construction and operational activities would be less than significant."[49]

As SWAPE explains, "[s]imply because the Project proposes residential and retail land uses does not mean that the Project will inherently have a less than significant impact on the health of nearby neighbors, nor does it mean that a health risk assessment for the proposed Project is not needed"[50]

The omission of a quantified health risk assessment not only results in the lack of any substantial evidence to back the City's conclusion, but it is inconsistent with the most recent guidance published by Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations and guidance on how to conduct health risk assessments in California. The organization's most recent Risk Assessment Guidelines were formally adopted in March of 2015.[51] As explained by SWAPE:

> "According to the Project's CalEEMod output files, the Project will generate 4,423 vehicle trips per day during operation, which will emit substantial amounts of diesel particulate matter (DPM), potentially exposing nearby sensitive receptors to substantial air pollutants. (Appendix C, pp. 148,

> pp. 191, pp. 234). The OEHHA document recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR). Even though the SCEA does not state the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, per OEHHA guidelines, health risk impacts from Project construction and operation should have been evaluated in the Draft SCEA."[52]

[49] SCEA, p. 63

[50] Exhibit A: SWAPE Comments, p. 3.

[51] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[52] Exhibit A: SWAPE Comments, p. 3-4, FN omitted.

Response to Comment No. CREED-AQ-3

From an operational standpoint, the SCEA correctly identified that the proposed land uses would not generally involve the use of heavy-duty diesel trucks, with the exception of occasional moving trucks, trash trucks or delivery trucks. The commenter is referred to the following SCAQMD guidance that provides clarification as to when an HRA may be warranted:

> *The SCAQMD published and adopted the* Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*, which provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities).*[1] *The SCAQMD recommends that HRAs be conducted for substantial sources of DPM (e.g., truck stops and*

[1] *SCAQMD, Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning, May 6, 2005.*

warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units).

The Project proposes to construct a total of 550 residential apartment units and 9,800 square feet of retail/restaurant space. A conservative estimate of the number of daily/ annual truck trips is provided below.

- It is conservatively assumed that each residential unit would require one move in/move out per year and would require a heavy-duty diesel truck (1,100 trucks per year). (It is anticipated that move in/move outs would be less per year and many would not require heavy-duty diesel trucks.) In addition, it is conservatively assumed that each residential unit would receive on average one package per week from a heavy-duty diesel truck. This would be equivalent to approximately five deliveries (e.g., UPS or FedEx) per day, since a single truck would deliver multiple packages at the Project Site during each visit (1,825 trucks per year). Approximately four trash trucks would be required per week (208 trucks per year). Using these conservative assumptions, the total trucks related to the proposed residential uses would equal 3,113 per year or nine per day. Please note that this conservatively assumes that all trucks would be diesel.

- It is conservatively estimated that the 9,800 square feet of retail/restaurant space would generate a maximum of five deliveries per day and require two trash trucks per week. This is equivalent to 1,929 trucks per year or just over five trucks per day. Once again, this assumes that all trucks would be diesel.

As shown above, the Project is conservatively estimated to generate approximately 14 trucks per day. In addition, this estimate assumes no credit for the reduction in trucks associated with the removal of existing land uses (i.e., storage buildings). Based on the SCAQMD guidance, there was no quantitative analysis required for future cancer risk within the Project Area as the Project is consistent with the recommendations regarding the siting of new sensitive land uses near potential sources of TAC emissions provided in the SCAQMD *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*. Specifically, the Project is not considered to be a substantial source of diesel particulate matter warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units.

The SCAQMD as a Responsible Commenting Agency, provided the following comment on January 4, 2017, regarding the proposed Green Line Mixed Use Specific Plan (www.aqmd.gov/docs/default-source/ceqa/comment-letters/2017/deirgreenline010417.pdf?sfvrsn=5), which further supports that only substantial operational diesel truck activity warrants further evaluation in an HRA:

> *If the proposed project will expose future sensitive receptors to potential adverse health impacts from carcinogenic emissions generated by the SCAQMD permitted stationary sources and from the nearby rail and truck operations, SCAQMD staff recommends that a health risk assessment (HRA) be conducted. The HRA should include the SCAQMD permitted sources (i.e., the gasoline storage and dispensing equipment, the auto-body shop spray booths) emitting toxic air contaminants (TACs) within one quarter mile of the project site. The HRA should also include all warehouse sites within 1,000 feet that include truck activity that exceeds 100 trucks per day, or where more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU units exceed 300 hours per week.*

Based on the above information, the SCEA correctly concluded that an operational HRA was not warranted.

Comment No. CREED-4

SWAPE prepared a simple health risk screening assessment ("HRSA"), consistent with EPA's recommendations and with the OEHHA and SCAQMD Guidelines, to model the Project's potential health risks impacts on sensitive receptors. SWAPE's conclusion is that "[t]he excess cancer risk posed to adults, children, and infants at the MEIR located approximately 50 meters away, over the course of Project construction and operation are 29, 190, and 91 in one million, respectively" and that "[t]he infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million."[53] As SWAPE notes, such screening level assessment is conservative and tends to err on the side of health protection. The meaning of this, however, is that the City must prepare a more refined health risk assessment using site-specific meteorology and equipment data. Only after performing such a health risk assessment can the City reach a conclusion, supported by substantial evidence, regarding the Project's impact on sensitive receptors.

[53] Exhibit A: SWAPE Comments, p. 7.

Response to Comment No. CREED-4

As discussed in Response to Comment No. SWAPE-10, the SWAPE assessment substantially overestimated potential diesel exhaust emissions from construction and operation of the proposed Project by misrepresenting regional emissions for localized emissions, used unmitigated emissions instead of mitigated emissions, and most importantly used construction emissions to represent operational emissions. Any findings from the SWAPE analysis are completely inaccurate. Furthermore, in the specific comments regarding the problems with the SWAPE analysis discussed in Response to Comments Nos. SWAPE-7 through SWAPE-11, the screening level analysis was not performed in accordance with requirements included in SCAQMD's LST methodology, which makes it substantially less accurate than the refined dispersion modeling completed in the HRA prepared in response to these comments and included as Attachment A of this memorandum. The analysis also did not account for the following: (1) site-specific conditions; (2) use of a refined dispersion model; (3) use of SCAQMD-mandated meteorological data from the closest/most representative meteorological monitoring site within the Project area; and (4) source-to-receptor distance consistent with SCAQMD LST Guidelines. If the SWAPE analysis accounted for the guidance and data discussed above, then the results would have been much less and below the significance threshold.

The HRA provided in response to these comments demonstrates that health risks from the Project would be a maximum of 7.5 in one million for residences north of the Project site, which is below the applicable significance threshold of 10 in one million. It is noted that this risk assumes an outdoor exposure for the entire length of construction and does not account for any reductions from the time spent indoors, where air quality tends to be better.

Comment No. CREED-5

SWAPE also lists feasible mitigation measures available to reduce operational emissions from the Project. Only after performing a health impact assessment, and implementing mitigation measures as required to reduce those impacts below levels of significance, can the City conclude, based on substantial evidence, that Project would result in "no significant impact."

Response to Comment No. CREED-5

The commenter incorrectly assumes that the Project will result in significant health risk impacts. As discussed in Response to Comment No. CREED-4, an HRA was prepared for the project and is provided as Attachment A of this memorandum. As shown in Attachment A of this memorandum, Project-related health risk impacts would remain below SCAQMD significance thresholds, and no additional mitigation measures would be required. Therefore, consideration for the mitigation measures provided in Comment No. SWAPE-15 are not warranted.

3. Responses to Exhibit A (SWAPE Comment Letter)

Comment No. SWAPE-1

We reviewed the February 2018 Draft Sustainable Communities Environmental Assessment (Draft SCEA) for the 3200 East Foothill Boulevard Mixed-Use Project ("Project") located in the City of Pasadena. The proposed Project seeks to demolish 29 existing structures totaling 212,397 square feet and to construct eight separate mixed-use buildings, subterranean and above-ground parking structures, and landscaping. Within these mixed-use buildings, the Project proposes to construct a total of 550 residential apartment units, 9,800 square feet of retail/restaurant space, and 839 parking stalls. The Project also proposes to develop a 0.21-acre accessory site for recreational use..

Response to Comment No. SWAPE-1

This comment providing a summary of the Project is noted for the administrative record and will be forwarded to the decision-makers for review and consideration

Comment No. SWAPE-2

Our review concludes that although the Draft SCEA determines that emissions from the I-210 would not significantly impact nearby receptors, it fails to adequately evaluate the Project's construction and operational health risk impacts posed to nearby sensitive receptors. As a result, the health impacts associated with construction and operation of the proposed Project have not been fully evaluated. As such, we find the Draft SCEA's

conclusion that the project's impact on exposure of sensitive receptors to substantial pollutant concentrations is less than significant is not supported by substantial evidence. In addition, we prepared a screening level health risk assessment and found that the excess cancer risk posed to adults, children, and infants over the course of Project construction and operation exceed the SCAQMD threshold of 10 in one million. A revised Draft SCEA must be prepared and recirculated to adequately assess the Project's significant impacts on public health during construction and operation.

Response to Comment No. SWAPE-2

This comment maintains that the SCEA fails to adequately evaluate the Project's construction and operational health risk impacts posed to nearby sensitive receptors. As demonstrated by the responses to comments below, including responses to the SWAPE prepared screening HRA, the SCEA has been prepared in accordance with CEQA, and the Project will not result in any significant impacts from TAC emissions. As discussed in Response to Comment No. SWAPE-5, potential Project-related health risk impacts from combined construction and operational activities are below the SCAQMD significance threshold. Therefore, the SCEA's conclusions are correct. .

Comment No. SWAPE-3

Air Quality

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The SCEA conducts a health risk assessment (HRA) to evaluate the health risk posed to nearby sensitive receptors from exposure to toxic air contaminant (TAC) emissions from Interstate I-210 near the Project site. The HRA concludes that impacts to nearby sensitive receptors would be significant, but that implementation of filtration systems and several other measures "would reduce the overall cancer risk for all receptors below the ten in one million level for the 40-year scenario" (Appendix D, p. 17).

Response to Comment No. SWAPE-3

As a point of clarification, the HRA provided in Appendix D of the SCEA addressed potential health risk impacts to proposed residential uses on the Project site and did not

make any health risk conclusions to nearby sensitive receptors as suggested by this SWAPE comment.

Comment No. SWAPE-4

Although the Draft SCEA determines that emissions from the I-210 would not significantly impact nearby receptors, the Draft SCEA fails to evaluate, whatsoever, the health risk posed to nearby residents as a result of exposure to emissions generated by construction and operation of the proposed Project. As a result, the Project's potential health-related impacts have not been fully evaluated, and its conclusion that the project's impact on exposure of sensitive receptors to substantial pollutant concentrations is less than significant is not supported by substantial evidence. The Draft SCEA attempts to justify the omission of a construction health risk assessment by stating that,

> "Construction activities associated with the proposed project, such as haul truck trips and operation of heavy construction equipment, would generate diesel exhaust particulates and other TACs. The SCAQMD currently does not currently provide TAC emission thresholds for construction activities. However, as discussed under impacts b and c and shown in Table 6, construction activities would be temporary and emissions from construction activities, including those produced from diesel exhaust, would not exceed SCAQMD thresholds. Therefore, it is not likely that construction activities would generate long-term levels of TACs that would impact nearby sensitive receptors" (p. 63).

Additionally, the Draft SCEA determines that the Project would not expose nearby sensitive receptors to significant TAC emissions during operation, again without conducting an adequate HRA (p. 63). In order to support this finding of a less than significant impact, the Draft SCEA states,

> "Operation of the proposed project would generally not involve use of heavy-duty trucks with the exception of occasional trash trucks or delivery trucks. Other traffic generated by the proposed project would primarily include resident vehicle trips. However, as discussed in impacts b and c and shown in Table 8, mobile vehicle emissions would be substantially below SCAQMD

thresholds, therefore long-term TAC emissions would be nominal. Overall, TAC emissions from construction and operational activities would be less than significant" (p. 63).

Response to Comment No. SWAPE-4

Regarding potential health risk impacts related to construction activities, the SCEA correctly identified that proposed construction activities would be limited in duration to approximately 30 months and considered a short-term source of TAC emissions. The SCAQMD CEQA Air Quality Handbook does not recommend analysis of TACs from short-term construction activities associated with land use development projects. The rationale for not requiring a health risk assessment for construction activities is the limited duration of exposure. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Specifically, "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology.

Given the short-term construction schedule of approximately 30 months, the Project would not result in a long-term (i.e., 70-year) source of TAC emissions. No substantial sources of residual emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period (30 out of 840 months of a 70-year lifetime), it was concluded that further evaluation of construction TAC emissions within the SCEA was not warranted.

From an operational standpoint, the SCEA correctly identified that the proposed land uses would not generally involve the use of heavy-duty diesel trucks with the exception of occasional moving trucks, trash trucks or delivery trucks. The commenter is referred to the following SCAQMD guidance that provides clarification as to when an HRA may be warranted:

The SCAQMD published and adopted the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*, which provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities,

dry cleaners, and gasoline dispensing facilities).[2] The SCAQMD recommends that HRAs be conducted for substantial sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units).

As discussed above in Response to Comment No. SWAPE-1, the Project proposes to construct a total of 550 residential apartment units and 9,800 square feet of retail/restaurant space. A conservative estimate of the number of daily/annual truck trips is provided below.

- It is conservatively assumed that each residential unit would require one move in/move out per year and would require a heavy-duty diesel truck (1,100 trucks per year). (It is anticipated that move in/move outs would be less per year and many would not require heavy-duty diesel trucks.) In addition, it is conservatively assumed that each residential unit would receive on average one package per week from a heavy-duty diesel truck. This would be equivalent to approximately five deliveries (e.g., UPS or FedEx) per day since a single truck would delivery multiple packages at the Project Site during each visit (1,825 trucks per year). Approximately four trash trucks would be required per week (208 trucks per year). Using these conservative assumptions, the total trucks related to the proposed residential uses would equal 3,113 per year or nine per day. Please note that this assumes that all trucks would be diesel.

- It is conservatively estimated that the 9,800 square feet of retail/restaurant space would generate a maximum of five deliveries per day and require two trash trucks per week. This is equivalent to 1,929 trucks per year or just over five trucks per day. Once again, this assumes that all trucks would be diesel.

As shown above, the Project is conservatively estimated to generate approximately 14 trucks per day. In addition, this estimate assumes no credit for the reduction in trucks associated with the removal of existing land uses (i.e., storage buildings). Based on the SCAQMD guidance, there was no quantitative analysis required for future cancer risk within the Project Area as the Project is consistent with the recommendations regarding the

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[2] *SCAQMD, Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning, May 6, 2005.*

siting of new sensitive land uses near potential sources of TAC emissions provided in the SCAQMD *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*. Specifically, the Project is not considered to be a substantial source of diesel particulate matter warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units.

The SCAQMD as a Responsible Commenting Agency, provided the following comment on January 4, 2017, regarding the proposed Green Line Mixed Use Specific Plan (www.aqmd.gov/docs/default-source/ceqa/comment-letters/2017/deirgreenline010417.pdf?sfvrsn=5), which further supports that only substantial operational diesel truck activity warrants further evaluation in an HRA:

> *If the proposed project will expose future sensitive receptors to potential adverse health impacts from carcinogenic emissions generated by the SCAQMD permitted stationary sources and from the nearby rail and truck operations, SCAQMD staff recommends that a health risk assessment (HRA) be conducted. The HRA should include the SCAQMD permitted sources (i.e., the gasoline storage and dispensing equipment, the auto-body shop spray booths) emitting toxic air contaminants (TACs) within one quarter mile of the project site. The HRA should also include all warehouse sites within 1,000 feet that include truck activity that exceeds 100 trucks per day, or where more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU units exceed 300 hours per week.*

Based on the above information, the SCEA correctly concluded that an operational HRA was not warranted.

Comment No. SWAPE-5

However, this justification for failing to evaluate the health risk posed to the sensitive receptors near the Project site is incorrect for several reasons.

First, simply stating that “it is not likely that construction activities would generate long-term levels of TACs” does not justify the omission of a construction HRA. The South Coast Air

Quality Management District (SCAQMD) recommends that health risk impacts from short-term projects also be assessed. SCAQMD's Guidance document states,

> "Since these short-term calculations are only meant for projects with limits on the operating duration, these short-term cancer risk assessments can be thought of as being the equivalent to a 30-year cancer risk estimate and the appropriate thresholds would still apply (i.e. for a 5--year project, the maximum emissions during the 5-year period would be assessed on the more sensitive population, from the third trimester to age 5, after which the project's emissions would drop to 0 for the remaining 25 years to get the 30-year equivalent cancer risk estimate)".[1]

Thus, the City must prepare a health risk assessment to determine whether or not a Project would expose sensitive receptors to substantial air pollutants during construction activities. The Draft SCEA should include a quantitative analysis and comparison of the results to applicable thresholds. The SCAQMD provides a specific numerical threshold of 10 in one million for determining a project's health risk impact.[2] Therefore, the analysis must compare the Project's construction health risk to this threshold in order to determine the Project's health risk impact. By failing to prepare a health risk assessment, the Draft SCEA fails to provide a comprehensive analysis of the Project's impacts to sensitive receptors that may occur when construction exposes people to substantial air pollutants.

[1] http://www.aqmd.gov/docs/default-source/planning/risk-assessment/riskassprocjune15.pdf?sfvrsn=2, p. IX-2

[2] http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance thresholds.pdf?sfvrsn=2

Response to Comment No. SWAPE-5

As discussed above in Response to Comment No. SWAPE-4, the SCAQMD Air Quality Handbook does not require an HRA for potential construction impacts related to land use development projects. This comment also misrepresents SCAQMD's guidance regarding use of age sensitivity factors (e.g., third trimester to age 5) in OEHHA's new Guidance Manual for HRAs. The referenced SCAQMD guidance applies to HRAs subject to SCAQMD's AB 2588 and Rule 1402. These rules apply to large stationary sources subject

to the Air Toxics "Hot Spots" Program that routinely release air toxics into the air (e.g., industrial facilities) and not short-term construction activities or projects with no substantial sources of TAC emissions during operation.

Although there is no requirement or guidance for preparing a construction HRA by the SCAQMD or the City, an HRA has been prepared in response to this comment to demonstrate that no significant health risk impacts would occur from combined construction and operation of the Project. Please refer to Response to Comment No. SWAPE-7 regarding the methodology (e.g., guidance and significance thresholds) used in the HRA The HRA demonstrates that health risks from the Project would be a maximum of 7.5 in one million for residences north of the Project site across Culver Alley, which is below the applicable significance threshold of 10 in one million. It is noted that this risk assumes an outdoor exposure for the entire length of construction and does not account for any reductions from the time spent indoors where air quality tends to be better. Thus, the analysis is conservative. In addition, the HRA includes the following clarification to Mitigation Measure AQ-1 regarding the use of Tier 4 equipment:

AQ-1 Construction Equipment Controls

During construction, all off-road construction equipment greater than 50 horsepower shall minimally meet U.S. EPA Tier 3 emission standards to minimize emissions of NO_X associated with diesel construction equipment. Use of construction equipment that meets U.S. EPA Tier 4 emission standards ~~is preferred~~ shall be required for all bull dozers, backhoes, excavators, cranes, pavers, paving equipment, and rollers.

Comment No. SWAPE-6

Second, the Project Applicant cannot simply state that "operation of the proposed project would generally not involve use of heavy-duty trucks with the exception of occasional trash trucks or delivery trucks" in order to justify the omission of an operational HRA. Simply because the Project proposes residential and retail land uses does not mean that the Project will inherently have a less than significant impact on the health of nearby neighbors, nor does it mean that a health risk assessment for the proposed Project is not needed.

Response to Comment No. SWAPE-6

As discussed in Response to Comment No. SWAPE-4, the Project is conservatively estimated to generate approximately 14 trucks per day without accounting for the reduction in trucks associated with the removal of existing land uses (i.e., storage buildings). Based on the SCAQMD guidance, no quantitative analysis is required for future cancer risk within the Project Area as the Project is consistent with the recommendations regarding the siting of new sensitive land uses near potential sources of TAC emissions provided in the SCAQMD Guidance Document. Specifically, the Project is not considered to be a substantial source of diesel particulate matter warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. Although there is no requirement or guidance requiring an HRA for the operation of the proposed land uses, the HRA prepared in response to these comments includes these operational sources to further substantiate health risk impacts would remain less than significant.

Comment No. SWAPE-7

The omission of a quantified health risk assessment is inconsistent with the most recent guidance published by Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations and guidance on how to conduct health risk assessments in California. In February of 2015, OEHHA released its most recent Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments, which was formally adopted in March of 2015.[3] This guidance document describes the types of projects that warrant the preparation of a health risk assessment. As previously stated, grading and construction activities for the proposed Project will produce emissions of DPM through the exhaust stacks of construction equipment over an approximate 34- to 35-month period (p. 10). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[4]

[3] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[4] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18

Response to Comment No. SWAPE-7

The comment correctly identifies that the Office of Environmental Health Hazard Assessment (OEHHA) adopted a new version of the Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual) in March of 2015.[3] The Guidance Manual was developed by OEHHA, in conjunction with CARB, for use in implementing the Air Toxics "Hot Spots" Program (Health and Safety Code Section 44360 et. seq.). The Air Toxics "Hot Spots" Program requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The new Guidance Manual provides recommendations related to cancer risk evaluation of certain short-term projects, but does not provide specific recommendations for evaluation of short-term use of mobile sources (e.g., heavy-duty diesel construction equipment). Eyestone Environmental, LLC (Eyestone) has coordinated with the SCAQMD to determine whether the SCAQMD had any available guidance on use of the new Guidance Manual. According to Jillian Wong, Ph.D., SCAQMD CEQA Program Supervisor, SCAQMD is currently evaluating the new Guidance Manual, and they have not developed any recommendations on its use for CEQA analyses for potential construction impacts.[4] SCAQMD also provided a presentation for AEP on September 14, 2017, in which the SCAQMD acknowledged staff's commitment to undergoing a public process to develop recommendations on how to conduct an HRA related to the new Guidance Manual for construction and that Working Group meetings are planned to begin in Spring 2018.[5]

As discussed above, a construction HRA is not required by the SCAQMD or the City, and no guidance for health risk assessments for construction has been adopted by SCAQMD or

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[3] *See www.oehha.ca.gov/air/hot_spots/hotspots2015.html.*

[4] *Jillian Wong, Ph.D., SCAQMD CEQA Program Supervisor, Personal Communication via email, June 17, 2015 and March 16, 2016 (included in Appendix FEIR-D-1).*

[5] *SCAQMD, SCAQMD Updates for Rule 1401, Dispersion Modeling, & CEQA (AEP Presentation), September 14, 2017 (Included as Attachment 1).*

the City. However, an HRA has been prepared in response to these comments and conducted consistent with the new Guidance Manual by OEHHA to demonstrate that no significant health risk impacts would occur from construction and operation of the Project.

Comment No. SWAPE-8

Once construction is complete, Project operation will generate truck trips, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to DPM emissions. According to the Project's CalEEMod output files, the Project will generate 4,423 vehicle trips per day during operation, which will emit substantial amounts of diesel particulate matter (DPM), potentially exposing nearby sensitive receptors to substantial air pollutants. (Appendix C, pp. 148, pp. 191, pp. 234). The OEHHA document recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR).[5] Even though the Draft SCEA does not state the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, per OEHHA guidelines, health risk impacts from Project construction and operation should have been evaluated in the Draft SCEA. These recommendations reflect OEHHA's most recent health risk assessment policy, and as such, an assessment of health risks to nearby sensitive receptors from construction and operation should be included in a revised CEQA evaluation for the Project.

[5] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-6, 8-15

Response to Comment No. SWAPE-8

As discussed in Response to Comment No. SWAPE-4, the Project is conservatively estimated to generate approximately 14 trucks per day without accounting for the reduction in trucks associated with the removal of existing land uses (i.e., storage buildings). Based on the SCAQMD guidance, there was no quantitative analysis required for future cancer risk within the Project Area as the Project is consistent with the recommendations regarding the siting of new sensitive land uses near potential sources of TAC emissions provided in the SCAQMD *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*. Specifically, the Project is not considered to be a substantial

source of diesel particulate matter warranting a refined HRA, since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. Although there is no requirement or guidance requiring an HRA for the operation of the proposed land uses, the HRA prepared in response to these comments includes these operational sources to further substantiate health risk impacts would remain less than significant.

Comment No. SWAPE-9

Updated Health Risk Assessment Indicates Significant Health Impact

In an effort to demonstrate the potential risk posed by Project construction and operation to nearby sensitive receptors, we prepared a simple screening-level health risk assessment. The results of our assessment, as described below, provide substantial evidence that the Project's construction and operational DPM emissions may result in a potentially significant health risk impact that was not previously identified.

As of 2011, the Environmental Protection Agency (EPA) recommends AERSCREEN as the leading air dispersion model, due to improvements in simulating local meteorological conditions based on simple input parameters.[6] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[7] and the California Air Pollution Control Officers Association's (CAPCOA)[8] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

6 "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at:* http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

7 "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf

8 "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at:* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

Response to Comment No. SWAPE-9

This comment summarizes the findings of a screening level analysis prepared by SWAPE. Specific comments regarding this screening level analysis are provided below. The SWAPE analysis and related technical appendices were carefully reviewed for purposes of considering the potential of the Project to result in health risk impacts. Based on this evaluation, multiple methodological flaws were identified that substantially undermine the accuracy of the SWAPE results as compared with the much more refined, site-specific HRA prepared in response to these comments. The most important of these issues are detailed here and then discussed as needed in other specific responses to comments.

A key limitation with the SWAPE analysis is that it relied on a "screening level" model to evaluate health risks. A screening level analysis can be appropriate to assess whether more detailed, refined modeling assessment is needed. Screening models typically rely on rough, very conservative assumptions to check if a project *could* cause a significant health impact. If, based on the screening, there is no potential for a significant impact, then no additional analysis is required. In this way, screening models can help save time and money by eliminating the need for some projects to complete more expensive, time-consuming dispersion modeling.

This use of screening models is consistent with industry standard and agency guidance. As recommended by OEHHA at page 4-25 of *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* states "Screening models are normally used when no representative meteorological data are available and may be used as a preliminary estimate to determine if a more detailed assessment is warranted."[6]

As noted above, screening level results that show a potential significant impact are only relevant to the extent that to demonstrate that SWAPE should have then conducted additional analysis using a refined model, which, notably, is exactly what is provided in the HRA prepared in response to these comments. As discussed therein, health risks were

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[6] *California Environmental Protection Agency. Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Available at www.oehha.ca.gov/air/hot_spots/pdf/HRAfinalnoapp.pdf, accessed August 2014.*

analyzed consistent with SCAQMD methodology and used AERMOD to complete refined dispersion modeling. AERMOD accounts for a variety of refined, site-specific conditions that facilitate a more accurate assessment of Project impacts compared to the less refined AERSCREEN screening model used in the SWAPE analysis. The most important differences between AERSCREEN and AERMOD are the following:

- Meteorological Data—The AERSCREEN model uses user-defined conditions, which assume worst-case meteorological conditions occurring 24 hours per day, 365 days per for the entire construction and operation duration along with the maximum daily emissions occurring each of those days. The HRA prepared in response to these comments instead used AERMOD which allows for SCAQMD representative meteorological data (Central Los Angeles) to be used in calculation of annual concentrations. This SCAQMD meteorological data provides hourly conditions (e.g., wind speed, wind direction, and stability class) over a five-year period (43,800 hours). With these conditions, the AERMOD model is more representative of likely Project impacts compared to the AERSCREEN model.

- Site-Specific Conditions—AERMOD allows for analysis of multiple volume sources and to account for complex terrain in the area (elevation) which is required to adequately represent Project construction and operation. The use of a single rectangular source with a release height of 3 meters to represent construction and operational activities provided in the SWAPE analysis does not adequately represent the Project site, does not account for complex terrain conditions, and likely overstates emissions because of the plume interaction with terrain. In addition, a volume source and not an area source is the type of source recommended by the SCAQMD for modeling construction equipment and diesel truck exhaust emissions (SCAQMD LST Guidelines). In addition, the SCAQMD LST Guidelines recommend a 5-meter release height instead of 3 meters, which would also overestimate potential concentrations. By accounting for the complex terrain around the Project site, the AERMOD model is more representative of likely Project impacts compared to the AERSCREEN model.

- Source-to-Receptor Distance—The SWAPE analysis used a 50-meter source-to-receptor distance, which is overly conservative given that the closest point to sensitive uses from this area would be 200 feet or 60 meters. As a result, any findings from the SWAPE analyses based on a 50-meter source-to-receptor distance are overstated.

Consequently, the coarser AERSCREEN evaluation provides a much less accurate assessment of Project health risks compared to the refined AERMOD evaluation. Moreover, as discussed in the specific comments below, the SWAPE screening level analysis was not performed in accordance with requirements included in SCAQMD's LST methodology and OEHHA's guidance. The analysis also did not account for the following: (1) site-specific conditions; (2) use of a refined dispersion model; (3) use of SCAQMD mandated meteorological data from the closest/most representative meteorological monitoring site within the Project area; and (4) incorrect source-to-receptor distance. If the SWAPE analysis accounted for the guidance and data discussed above, then the results would have been substantially less.

Accordingly, potential health risk impacts from the Project to nearby sensitive uses (e.g., nearby residences) as the result of proposed construction activities are more accurately identified by the AERMOD evaluation included the HRA prepared in response to these comments. As demonstrated by the analysis therein, the Project would not result in a significant health risk impact during combined construction and operation. The HRA prepared in response to these comments demonstrates that health risks from the Project would be a maximum of 7.5 in one million for residences north of the Project Site, which is below the applicable significance threshold of 10 in one million.

Comment No. SWAPE-10

We prepared a preliminary health risk screening assessment of the Project's health-related impact to sensitive receptors using the annual PM_{10} exhaust estimates from the Draft SCEA's annual CalEEMod output files (Appendix A, pp. 118). According to the Draft SCEA, the closest residential receptor to the Project site is located approximately 200 feet, or 61 meters, from the Project site (p. 155). Consistent with recommendations set forth by OEHHA, we used a residential exposure duration of 30 years, starting from the infantile stage of life. We also assumed that construction and operation of the Project would occur in quick succession, with no gaps between each Project phase. The Project's CalEEMod output files indicate that construction activities will generate approximately 525 pounds of DPM over the 932-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment

usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{525\ lbs}{932\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.002955\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.002955 grams per second (g/s). The Project's CalEEMod output files also indicate that operational activities will generate approximately 389 pounds of DPM per year over the 27.4-years of operation. Applying the same equation used to estimate the construction DPM emission rate, we estimated the following emission rate for Project operation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{389\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.005589\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.005589 g/s.

Response to Comment No. SWAPE-10

The SWAPE assessment substantially overestimated potential diesel exhaust emissions from construction and operation of the proposed Project. SWAPE states that the HRA used "the annual PM_{10} exhaust estimates form the SCEA's annual CalEEMod output files (Appendix A, pp. 118)." However, the construction emission rate of 525 lbs over 932 days cited in this comment reflects unmitigated regional emissions. SWAPE also incorrectly used the combination of both on-site and off-site emissions (regional emissions) to represent on-site emissions (localized emissions). This assumption is the equivalent of having all diesel delivery and haul trucks that would actually travel regionally to and from the Project site (up to 20 miles) exclusively on the Project site. In addition, the analysis does not account for diesel exhaust emission reductions related to cleaner Tier III and Tier IV equipment (MM AQ-1). This assumption grossly overestimates the annual average construction emissions that would occur over the duration of construction.

Even more egregious, the **operational** emission rate of 389 lbs/year of diesel exhaust emissions is based on the **mitigated regional construction results** (0.1935 tons of

exhaust PM_{10} times 2,000 pounds per ton equals 389 lbs per year) and assumes that these emissions occur each year for 27.4 years. Not only does this assumption suffer from the problems identified above for construction (combination of both on-site and off-site emissions), but also isn't even based on operational emissions. Please note that regional operational emissions for all vehicular trips (including gasoline and diesel) is only 55 pounds per year. On-site diesel truck operational emissions would reflect a small fraction of these emissions and is accounted for in the HRA prepared in response to these comments. Furthermore, the SWAPE analysis assumed 27.4 years of operation, but held the emission factors constant to the buildout year. Thus, potential impacts would be overstated because it does not represent an average of emissions over the 27.4 years by excluding improvements in the vehicle fleet mix as a result of state mandates over time. As an example, the On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

Comment No. SWAPE-11

Construction and operational activity was simulated as an 8.32-acre rectangle area source in AERSCREEN, with dimensions of 215 meters by 157 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

Response to Comment No. SWAPE-11

As discussed above, the SWAPE analysis use of AERSCREEN provides a much less accurate assessment of Project health risks compared to the refined AERMOD evaluation prepared in response to these comments. AERMOD allows for analysis of multiple volume sources and to account for complex terrain in the area (elevation) which is required to adequately represent Project construction and operation. The use of a single rectangular

source with a release height of 3 meters to represent construction and operational activities provided in the SWAPE analysis does not adequately represent the Project site, does not account for complex terrain conditions, and likely overstates emissions because of the plume interaction with terrain. In addition, a volume source and not an area source is the type of source recommended by the SCAQMD for modeling construction equipment and diesel truck exhaust emissions (SCAQMD LST Guidelines). In addition, the SCAQMD LST Guidelines recommend a 5-meter release height instead of 3 meters, which would also overestimate potential concentrations. By accounting for the actual terrain around the Project site, the AERMOD model is more representative of likely Project impacts compared to the AERSCREEN model.

Comment No. SWAPE-12

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[9] For example, for the MEIR the single-hour concentration estimated by AERSCREEN for Project construction is approximately 2.774 µg/m^3 DPM at approximately 50 meters downwind. Multiplying this single-hour concentration by 10%, we can get annualized average concentration of 0.2774 µg/m^3 for Project construction at the MEIR. For Project operation, the single-hour concentration at the MEIR estimated by AERSCREEN is approximately 5.248 µg/m^3 DPM at approximately 50 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.5248 µg/m^3 for Project operation at the MEIR.

[9] http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf

Response to Comment No. SWAPE-12

As discussed above, the SWAPE analysis use of AERSCREEN provides a much less accurate assessment of Project health risks compared to the refined AERMOD evaluation included in the HRA prepared in response to these comments. The SWAPE analysis assumes worst-case conditions occur 24 hours per day, 365 days for 2.5 years (worst-case hourly wind speed, same direction, and stability condition) along with the maximum daily emissions occurring each of those days, assumptions that substantially overestimate actual Project emissions. SWAPE applied a correction factor in the SWAPE analysis to convert

the maximum 1-hour concentration average to an annual concentration. However, even then the SWAPE screening analysis applied the maximum factor of 0.1 instead of an average of 0.08 recommended in OEHHA guidance (Table 4.3, Recommended Factors to Convert Maximum 1-Hour Concentration to Other Averaging Periods, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*). Consequently, the already conservative screening analysis was made inaccurate (higher concentration) because SWAPE did not follow the OEHHA guidance. The annualized average construction concentration predicted by SWAPE was 0.2774 µg/m^3.

The HRA prepared in response to these comments instead used AERMOD, which allows representative meteorological data to be used in calculation of annual concentrations. The meteorological monitoring station most representative of the Project Site is the Central Los Angeles Station. This SCAQMD meteorological data provides hourly conditions (e.g., wind speed, wind direction, and stability class) over a five-year period (43,800 hours). The use of AERMOD, which is consistent with SCAQMD recommended methodology for a detailed analysis, provides a concentration of 0.0305 µg/m^3 or a 89-percent reduction in comparison to AERSCREEN, which was used in the SWAPE analysis. In summary, use of AERSCREEN in the SWAPE analysis does not adequately characterize potential impacts from the Project, and any conclusions made based on these screening results are flawed and inferior to the more refined dispersion modeling prepared in response to these comments.

Comment No. SWAPE-13

We calculated the excess cancer risk to the residential receptors located closest to the Project site using applicable health risk assessment methodologies prescribed by OEHHA and the SCAQMD. Consistent with the construction schedule proposed by the Draft SCEA, the annualized average concentration for construction was used for the entirety of the infantile stage of life (0-2 years) and for the first 0.6 years of the child stage of life (2 to 16 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the child stages of life (2 to 16 years) and adult stages of life (16 to 30 years). Consistent with OEHHA guidance, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[10] According to the updated guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life

(infant) and should be multiplied by a factor of three during the child stage of life (2 to 16 years). Furthermore, in accordance with guidance set forth by OEHHA, we used 95th percentile breathing rates for infants.[11] We used a cancer potency factor of 1.1 (mg/kg-day) $^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

[10] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[11] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6, p. 19

Response to Comment No. SWAPE-13

As discussed above in Response to Comment No. SWAPE-7, a construction HRA is not required by the SCAQMD or the City and no guidance for health risk assessments for construction has been adopted by AQMD or the City. However, an HRA has been prepared in response to this comment and conducted consistent with the new Guidance Manual by OEHHA to demonstrate that no significant health risk impacts would occur from construction and operation of the Project.

Comment No. SWAPE-14

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)					
Activity	Duration (years)	Concentration ($\mu g/m^3$)	Breathing Rate (L/kg-day)	ASF	Cancer Risk
Construction	2.00	0.2774	1090	10	9.1E-05
Infant Exposure Duration	**2.00**			***Infant Exposure***	***9.1E-05***
Construction	0.60	0.2774	572	*3*	4.3E-06
Operation	13.40	0.5248	572	3	1.8E-04
Child Exposure Duration	**14.00**			***Child Exposure***	***1.9E-04***
Operation	14.00	0.5248	261	1	2.9E-05
Adult Exposure Duration	**14.00**			***Adult Exposure***	***2.9E-05***
Lifetime Exposure Duration	**30.00**			***Lifetime Exposure***	***3.1E-04***

The excess cancer risk posed to adults, children, and infants at the MEIR located approximately 50 meters away, over the course of Project construction and operation are 29, 190, and 91 in one million, respectively. Furthermore, the excess cancer risk over the course of a residential lifetime (30 years) at the MEIR is approximately 310 in one million. Consistent with OEHHA guidance, exposure was assumed to begin in the infantile stage of life to provide the most conservative estimates of air quality hazards. The infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million.

It should be noted that our analysis represents a screening-level health risk assessment, which is known to be more conservative, and tends to err on the side of health protection.[12] The purpose of a screening-level health risk assessment, however, is to determine if a more refined health risk assessment needs to be conducted. If the results of a screening-level health risk are above applicable thresholds, then the Project needs to conduct a more refined health risk assessment that is more representative of site specific concentrations. Our screening-level health risk assessment demonstrates that construction and operation of the Project could result in a significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. As a result, a refined health risk assessment must be prepared to examine air quality impacts generated by Project construction and operation using site-specific meteorology and specific equipment usage schedules. An updated Draft SCEA must be prepared to adequately evaluate the Project's health risk impact, and should include additional mitigation measures to reduce these impacts to a less-than-significant level.

[12] http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf p. 1-5

Response to Comment No. SWAPE-14

As discussed above in Response to Comment No. SWAPE-10, the SWAPE assessment substantially overestimated potential diesel exhaust emissions from construction and operation of the proposed Project by misrepresenting regional emissions for localized emissions, used unmitigated emissions instead of mitigated emissions, and most importantly used construction emissions to represent operational emissions. The SWAPE analysis is completely inaccurate. Furthermore, in the specific comments above, the screening level analysis was not performed in accordance with requirements included in SCAQMD's LST methodology, which makes it substantially less accurate than the refined

dispersion modeling completed in the HRA prepared in response to these comments. Moreover, the SWAPE analysis also did not account for the following: (1) site-specific conditions; (2) use of a refined dispersion model; (3) use of SCAQMD-mandated meteorological data from the closest/most representative meteorological monitoring site within the Project area; and (4) source-to-receptor distance consistent with SCAQMD LST Guidelines. If the SWAPE analysis properly accounted for the guidance and data discussed above, then the results would have been much less and below the significance threshold.

The HRA prepared in response to these comments demonstrates that health risks from the Project would be a maximum of 7.5 in one million for residences north of the Project site, which is below the applicable significance threshold of 10 in one million. It is noted that this risk assumes an outdoor exposure for the entire length of construction and does not account for any reductions from the time spent indoors, where air quality tends to be better.

Comment No. SWAPE-15

Feasible Mitigation Measures Available to Reduce Operational Emissions

Our health risk analysis demonstrates that the Project's operational DPM emissions may present a potentially significant impact. In an effort to reduce the Project's emissions, we identified several additional mitigation measures that are applicable to the Project. Additional, feasible mitigation measures can be found in CAPCOA's Quantifying Greenhouse Gas Mitigation Measures, which reduce GHG emissions, as well as Criteria Air Pollutants such as particulate matter.[13] Therefore, to reduce the Project's mobile-source DPM emissions, consideration of the following measures should be made.

- Incorporate Bike Lane Street Design (On-Site)
    - Incorporating bicycle lanes, routes, and shared-use paths into street systems, new subdivisions, and large developments can reduce VMTs. These improvements can help reduce peak-hour vehicle trips by making commuting by bike easier and more convenient for more people. In addition, improved bicycle facilities can increase access to and from transit hubs, thereby expanding the "catchment area" of the transit stop or station and increasing ridership. Bicycle access can also reduce parking pressure on heavily-used

and/or heavily-subsidized feeder bus lines and auto-oriented park-and-ride facilities.

- Limit Parking Supply
  - This mitigation measure will change parking requirements and types of supply within the Project site to encourage "smart growth" development and alternative transportation choices by project residents and employees. This can be accomplished in a multi-faceted strategy:
    - Elimination (or reduction) of minimum parking requirements
    - Creation of maximum parking requirements
    - Provision of shared parking
- Implement Commute Trip Reduction Program- Voluntary or Required
  - Implementation of a Commute Trip Reduction (CTR) program with employers will discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The main difference between a voluntary and a required program is:
    - Monitoring and reporting is not required
    - No established performance standards (i.e. no trip reduction requirements)
  - The CTR program should provide employees with assistance in using alternative modes of travel, and provide both "carrots" and "sticks" to encourage employees. The CTR program should include all of the following to apply the effectiveness reported by the literature:
    - Carpooling encouragement
    - Ride-matching assistance
    - Preferential carpool parking
    - Flexible work schedules for carpools

- Half time transportation coordinator
- Vanpool assistance
- Bicycle end-trip facilities (parking, showers and lockers)

- Provide Ride-Sharing Programs
  - Increasing the vehicle occupancy by ride sharing will result in fewer cars driving the same trip, and thus a decrease in VMT. The project should include a ride-sharing program as well as a permanent transportation management association membership and funding requirement. The project can promote ride-sharing programs through a multi-faceted approach such as:
    - Designating a certain percentage of parking spaces for ride sharing vehicles
    - Designating adequate passenger loading and unloading and waiting areas for ride□sharing vehicles
    - Providing a web site or message board for coordinating rides

- Implement Subsidized or Discounted Transit Program
  - This project can provide subsidized/discounted daily or monthly public transit passes to incentivize the use of public transport. The project may also provide free transfers between all shuttles and transit to participants. These passes can be partially or wholly subsidized by the employer, school, or development. Many entities use revenue from parking to offset the cost of such a project.

- Implement Commute Trip Reduction Marketing
  - The project can implement marketing strategies to reduce commute trips. Information sharing and marketing are important components to successful commute trip reduction strategies. Implementing commute trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include:
    - New employee orientation of trip reduction and alternative mode options

- Event promotions
- Publications

- Implement Preferential Parking Permit Program
  - The project can provide preferential parking in convenient locations (such as near public transportation or building front doors) in terms of free or reduced parking fees, priority parking, or reserved parking for commuters who carpool, vanpool, ride-share or use alternatively fueled vehicles. The project should provide wide parking spaces to accommodate vanpool vehicles.

- Implement Car-Sharing Program
  - This project should implement a car-sharing project to allow people to have on-demand access to a shared fleet of vehicles on an as-needed basis. User costs are typically determined through mileage or hourly rates, with deposits and/or annual membership fees. The car-sharing program could be created through a local partnership or through one of many existing car-share companies. Car-sharing programs may be grouped into three general categories: residential- or citywide-based, employer-based, and transit station-based. Transit station-based programs focus on providing the "last-mile" solution and link transit with commuters' final destinations. Residential-based programs work to substitute entire household based trips. Employer-based programs provide a means for business/day trips for alternative mode commuters and provide a guaranteed ride home option.

- Implement Employee Parking "Cash-Out"
  - The project can require employers to offer employee parking "cash-out." The term "cash-out" is used to describe the employer providing employees with a choice of forgoing their current subsidized/free parking for a cash payment equivalent to the cost of the parking space to the employer.

When combined together, these measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduces emissions released during Project operation.

[13] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

Response to Comment No. SWAPE-15

The commenter incorrectly assumes that the Project will result in significant health risk impacts. As discussed in Response to Comment No. SWAPE-14, an HRA was prepared in response to these comments that Project-related health risk impacts would remain below SCAQMD significance thresholds, and no additional mitigation measures would be required.

Comment No. SWAPE-16

An updated Draft SCEA must be prepared to include additional mitigation measures, as well as include a health risk analysis to ensure that the necessary mitigation measures are implemented to reduce the health risk to below thresholds. The Project Applicant also needs to demonstrate commitment to the implementation of these measures prior to Project approval, to ensure that the Project's DPM emissions are reduced to the maximum extent possible.

Response to Comment No. SWAPE-16

As discussed in Response to Comment No. SWAPE-15 above, the SCEA correctly concluded that the Project would result in less-than-significant health risk impacts. Therefore, consideration for the mitigation measures provided in Comment No. SWAPE-15 are not warranted.

Comment No. SWAPE-17

Attachments: SWAPE résumés and AERSCREEN worksheets

Response to Comment No. SWAPE-17

The attachments noted in this comment are referenced in several of the response to comments above. No specific response to these attachments is necessary.

Attachment A
Construction and Operational Health Risk Assessment

eyestone ENVIRONMENTAL

INTRODUCTION

The 3200 East Foothill Boulevard Mixed Use Project (Project) is located in the City of Pasadena in an area which currently consists of a variety of residential, commercial and light industrial uses. Project construction and operational activities would emit diesel particulate matter (DPM) from heavy duty trucks and heavy equipment. The California Air Resources Board (CARB) and the Office of Environmental Health and Hazard Assessment (OEHHA) have classified DPM as a carcinogen. Existing adjacent uses consist of light industrial and commercial uses with residential uses located approximately 200 feet north of the site across Culver Alley. A Kaiser Permanente medical office building is located adjacent to the Project site. However, this medical office is primarily for outpatient and does not offer long-term patient care. As health risk impacts are evaluated based on long-term exposure, the medical office building was not considered a sensitive receptor as individuals would not be present at this location for an extended amount of time.

The Office of Environmental Health and Hazard Assessment (OEHHA) is responsible for developing guidelines for performing health risk assessments (HRAs). In March 2015, OEHHA adopted new guidelines that take into account early life exposure. As a conservative assumption, OEHHA applies early life exposure factors to all known carcinogens. A review of relevant guidance was conducted to determine applicability of the use of early life exposure adjustments to identified carcinogens. The U.S. Environmental Protection Agency provides guidance relating to the use of early life exposure adjustment factors (Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-003F) whereby adjustment factors are only considered when carcinogens act "through the mutagenic mode of action." In 2006, the U.S. Environmental Protection published a memorandum which provided guidance regarding the preparation of health risk assessments should carcinogenic compounds elicit a mutagenic mode of action. As presented in the technical memorandum, numerous compounds were identified has having a mutagenic mode of action. Based upon this review, none of the gaseous compounds considered in the HRA were identified and, therefore, early-life exposure adjustments typically would not be considered. For diesel particulates (pollutant of concern from construction activities), polycyclic aromatic hydrocarbons (PAHs) and their derivatives, which are known to exhibit a mutagenic mode of action, comprise less than one percent of the exhaust particulate mass. To date, the U.S. Environmental Agency reports that whole diesel engine exhaust has not been shown to elicit a mutagenic mode of action. In addition, the SCAQMD has not formally adopted the 2015 OEHHA guidance as part of their CEQA guidance. Nonetheless, this HRA conservatively includes, early life exposure adjustments consistent with OEHHA's 2015 guidance.

This memo summarizes the methodology used to evaluate the health risks from Project related DPM emissions and presents the results of the health risk assessment.

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ASSESSMENT METHODOLOGY

Health risk analyses consist of several components comprised of an emissions inventory, dispersion modeling, and health risk calculations. Construction-related DPM emissions were calculated for heavy-duty diesel equipment and trucks operating on-site. Project operational DPM emissions were calculated for heavy-duty diesel trucks on-site during deliveries, moving in and out of residences, and trash pick-up. Dispersion modeling for DPM emissions was performed to determine pollutant concentrations at nearby sensitive receptors. Health impacts were calculated using risk factors obtained from OEHHA.

EMISSIONS

The Project is anticipated to be constructed in one primary phases with subphases for demolition, site preparation, grading activities, building construction, paving and finishes. Construction would begin late 2018 and end in mid 2021 for a total duration of 2.5 years (30 months). Project occupancy is expected in 2022.

Health risk impacts take into account increased sensitivity at early life stages (ages) consistent with OEHHA Guidelines. The analysis assumed that sensitive receptor exposure to DPM would start during Project construction, which emits DPM at an increased rate compared to long-term operations. As a conservative assumption, it was assumed that construction would be completed within 2.5 years (30 months). For long-term operations, an exposure duration of 27.5-years was assumed, which is consistent with OEHHA guidelines.

Diesel particulate matter emissions from heavy-duty diesel equipment and trucks used during Project construction activities site were estimated using the CalEEMod (Version 2016.3.2) software. Equipment emissions were calculated based on the number of equipment and hours of operation. Construction truck emissions were calculated based on distance travelled on the Project site. The construction emissions inventory also took into account the use of USEPA Tier 4 Final emissions compliant construction equipment which would reduce DPM emissions.

The following mitigation measure is clarified to confirm use of Tier 4 construction equipment:

> **AQ-1 Construction Equipment Controls**
>
> During construction, all off-road construction equipment greater than 50 horsepower shall minimally meet U.S. EPA Tier 3 emission standards to minimize emissions of NO_X associated with diesel construction equipment. Use of construction equipment that meets U.S. EPA Tier 4 emission standards ~~is preferred~~ shall be required for all bull dozers, backhoes, excavators, cranes, pavers, paving equipment, and rollers.

CalEEMod calculates annual emissions based on worst-case conditions occurring on a daily basis. This scenario would not represent real world conditions as construction activities and equipment would not be expected to operate at 100 percent on an average daily basis. Construction surveys prepared for CARB have documented that on a typical construction site, daily average equipment hours range from 2 to 7.5 hours depending on the type of equipment.[1] Therefore, an adjustment was taken into account which assumes that annual average emissions would conservatively represent 80 percent of a worst-case day. Long-term operational DPM emissions were calculated based on the CARB EMFAC2017 model. The Project would consist of residential apartment uses and a small amount of retail/restaurant space that would not generate a large number of truck trips. Truck trips generated by residential uses would mainly consist of moving trucks, trash pick up, and delivery trucks. Overall, it is estimated that the Project would generate approximately 14 daily truck trips. However, as a conservative assumption, diesel truck trips were conservatively based on CalEEMod default vehicle fleet mix for the Project buildout year of 2022, which estimates approximately 200 heavy and medium duty trucks would be visiting the site on a daily basis. Emissions were calculated for heavy and medium duty diesel trucks expected to visit the site during long-term operations and modeling details are provided as an attachment.

[1] California Air Resources Board. Characterization of the Off-Road Equipment Population. December 2008

DISPERSION MODELING

Dispersion modeling was performed using the AMS/EPA Regulatory Model (AERMOD), version 16216. Meteorological data from the SCAQMD's Central Los Angeles monitoring station was used to represent local weather conditions and prevailing winds data. Terrain data from U.S. Geological Survey (USGS) was used to assign elevation to sources and receptors.

Sensitive receptors were placed at proposed off-site residential uses located approximately 200 feet north of the Project site. Elevation data for sensitive receptors and sources were obtained from the USGS National Elevation Data Set (NED). Consistent with the CalEEMod model output file, it was assumed that construction and operational activities and associated emissions would be occurring 8-hours per day, representing normal business hours.

HEALTH RISK CALCULATIONS

Cancer risk was calculated using the most recent (March 2015) Office of Environmental Health Hazard Assessment (OEHHA) guidelines for health risk assessments. OEHHA guidelines recommend a 30-year exposure duration which represents the 90th percentile of residence times within California.[2] Based on OEHHA guidelines, the exposure duration was assumed to be 2.5 years during construction activities and 27.5 years for operational activities for a total exposure duration of 30-years. Age sensitivity factors (ASFs) and fraction of time at residence was based on default values provided by OEHHA. Age sensitivity factors take into account potential increased sensitivity to toxics during early life stages including prenatal, postnatal and juvenile life stages. As a conservative estimate, cancer risk calculations assume the youngest life stage (Prenatal, 3rd trimester) would be exposed to pollutants. The analysis also assumes an outdoor exposure for the entire length of construction and does not account for any reductions from the time spent indoors where air quality tends to be better.

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[2] Air Toxics Hot Spots Program Guidance Manual. Office of Environmental Health and Hazard Assessment. 2015.

As discussed above, the Kaiser Permanente medical office located east of the site is an outpatient clinic, where patients would not be staying for extended periods of time. Therefore, patients at the medical office were not considered a sensitive receptor for carcinogenic risk. With regard to employees of the medical office use, health risk impacts due to Project construction and operation would be substantially less than those evaluated for residential uses. The age of workers at the medical office is assumed to be at least 16 years old, which is the point where ASFs are no longer factored into cancer risk calculations. As cancer risk for residential uses account for early life exposure and ASFs (e.g., the risk is multiplied by 10 for children less than two years of age), cancer risk impacts at residential uses are substantially higher than those for employees at the medical office. As a result, cancer risk values presented for residential uses would represent worst-case conditions.

RESULTS

The maximum cancer risk impact for off-site residences is 7.5 in one million, which is less than the SCAQMD significance threshold of ten in one million. The point of maximum impact (PMI) would occur at off-site residential uses located approximately 200 feet north of the Project site.

REFERENCES

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California Air Resources Board and Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, 1998. *Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant*.

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South Coast Air Quality Management District (SCAQMD), 2017. *SCAQMD Modeling Guidance for AERMOD*. Available at: http://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/modeling-guidance, accessed on April 2018.

California Air Resources Board. Characterization of the Off-Road Equipment Population. Eastern Research Group. December 2008.

3200 East Foothill Boulevard

Health Risk Assessment
Worksheets and Modeling Output Files

- Project Construction
    - Emissions Summary
    - Health Risk Calculations
- Project Long-term Operations
    - Truck Trip Calculations
    - Emissions Summary
    - Health Risk Calculations
- AERMOD Source-Receptor Diagram
- CalEEMod Output Files (Construction and Operations)

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Construction Emissions Calculations

CalEEMod Output Summary[a]

Construction Schedule

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Demolition	Demolition	10/1/2018	2/26/2019	5	107
2	Site Preparation	Site Preparation	2/27/2019	3/7/2019	5	7
3	Grading	Grading	3/8/2019	5/9/2019	5	45
4	Building Construction	Building Construction	5/10/2019	12/30/2019	5	167
5	Paving	Paving	12/31/2019	9/29/2020	5	196
6	Architectural	Architectural Coating	9/30/2020	3/30/2021	5	130
		Start and End Dates	**10/1/2018**	**3/30/2021**		
		Duration (days)		**899**		
		Duration (years)		**2.5**		

Construction Emissions - Mitigated (tons/year)

	Exhaust PM10[b]
Year	
2018	0.0112
2019	0.0766
2020	0.0388
2021	0.00303
Maximum	**0.0766**
DPM Emissions (lbs/year)	**103.7**

[a] Please see CalEEMod output files

[b] Exhaust PM10 includes on-site equipment and truck travel

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Health Risk Calculations - Project Construction

Diesel Particulate Matter Emission Rate Calculation / Scaler

Emission Rate (lbs/year)	103.7
Hours per Day	8
Seconds per Year	10,512,000
Average Annual Emission Rate (g/s)	0.0045
Scaler Concentration (ug/m3)a	6.82
Diesel Particulate Concentration (ug/m3)	3.05E-02

Cancer Risk Calculations - DPM

	Age					
Parameter	**3rd Trimester**	**0 < 2**	**2<16**	**16-30**	**31-70**	**Total**
Breathing Rate	361	1090	745	335	290	
Exposure Frequency (EF)	350	350	350	350	350	
Exposure Duration (ED) (years)	0.25	2	0.25	0	0	**2.5**
AT	25550	25550	25550	25550	25550	
Age Sensitvity Factor (ASF)	10	10	3	1	1	
Fraction of Time at Home (FAH)	1	0.85	0.72	0.73	0.73	
70-Year (Lifetime) Concentration (ug/m3)	3.05E-02	3.05E-02	3.05E-02	3.05E-02	3.05E-02	
70-Year (Lifetime) Dose (mg/kg-d)	1.06E-05	3.19E-05	2.18E-05	9.81E-06	8.49E-06	
Carcinogen Potency (CPF) $(mg/kg\text{-}d)^{-1}$						
- Diesel Particulate Matter	1.1	1.1	1.1	1.1	1.1	
Cancer Risk[a]	3.32E-07	6.82E-06	1.48E-07	0.00E+00	0.00E+00	7.30E-06
Risk per Million (DPM)	**7.30**					

[a] Assumes an 80% averaging time factor to represent annual construction activities.

Average Daily Trip Rate			Unmitigated	Mitigated
Weekday	Saturday	Sunday	Annual VMT	Annual VMT
3,657.50	3,514.50	3223.00	12,216,318	6,438,496
0.00	0.00	0.00		
0.00	0.00	0.00		
0.00	0.00	0.00		
508.60	633.48	527.36	721,101	380,050
257.06	243.83	118.49	447,818	236,018
4,423.16	4,391.81	3,868.85	13,385,237	7,054,564

Miles			Trip %			Trip Purpose %		
H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896
0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.0048	0.000708	0.000896

Operational Truck Trip Calculations

Vehicle Class	MHD	HHD
Weekday	95	138
Sat	94	137
Sun	83	121
Weekly Total	473	691
Average Daily[a]	**93**	**136**

od default values. As the Project consists mainly of residential uses, this value is considered overly conservative.

s

Year 2022, Los Angeles County (g/mi)

Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX
2022	HHDT	Aggregated	5	DSL	0.0476
2022	MHDT	Aggregated	5	DSL	0.056

tions

HHDT	MHDT
136	**93**
15	15
34	23
0.004	0.003
1.30	1.04
1.17	

sed on CalEEMod default values. As the Project consists mainly of residential uses, this value is considered overly conservative.
nutes at the entrance, 5 minutes on-site, and 5 minutes at the exit (15 minutes total)

3200 East Foothill

Health Risk Calculations - Project Operations

Diesel Particulate Matter Emission Rate Calculation / Scaler

	Source 1[a]	Source 2[a]
Emission Rate (lbs/year)	1.2	1.2
Hours per Day	8	8
Seconds per Year	10,512,000	10,512,000
Average Annual Emission Rate (g/s)	5.0459E-05	5.046E-05
Scaler Concentration (ug/m3)	6.72	5.45
Diesel Particulate Concentration (ug/m3)	3.39E-04	2.75E-04

Cancer Risk Calculations - DPM

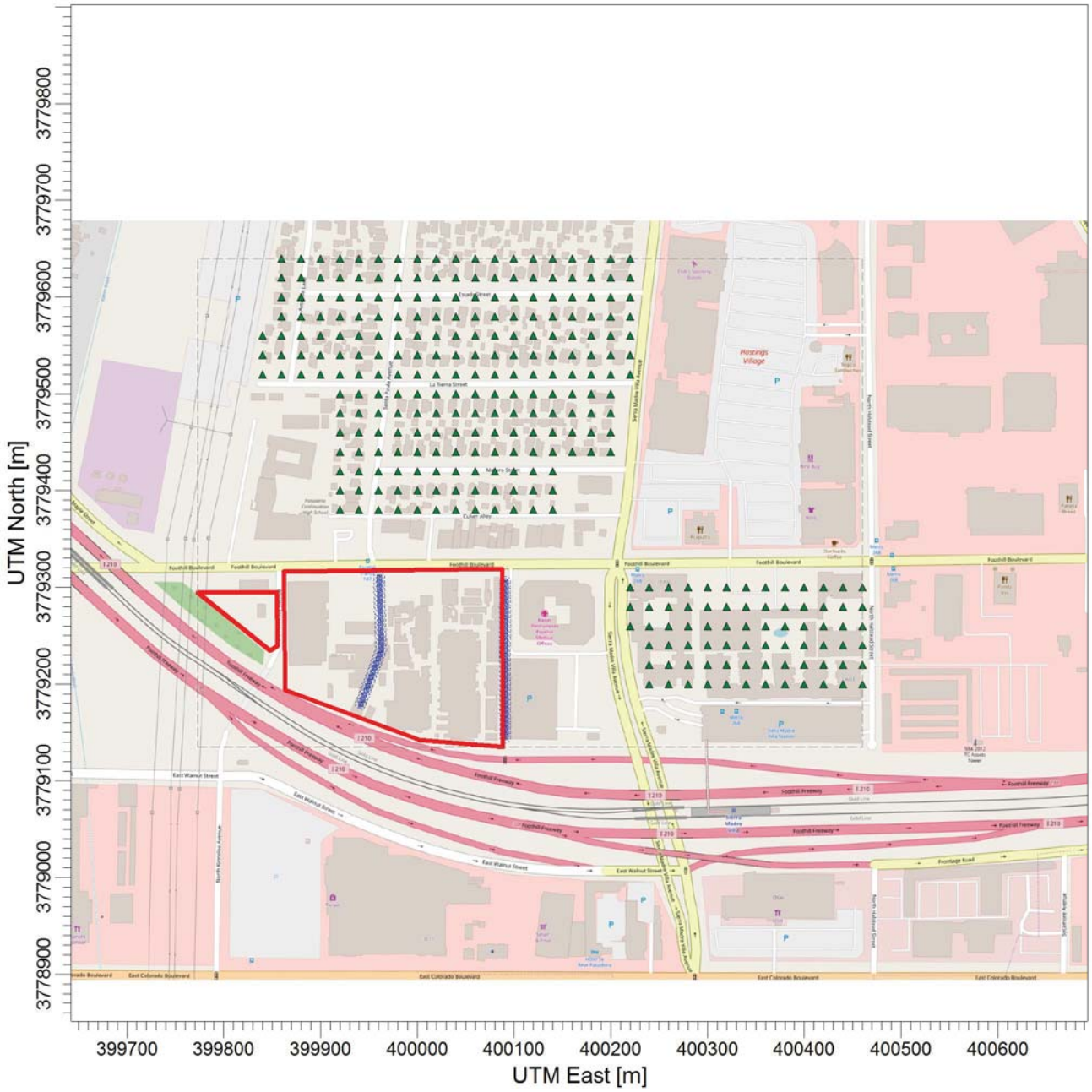
	Age					
Parameter	**3rd Trimester**	**0 < 2**	**2<16**	**16-30**	**31-70**	**Total**
Breathing Rate	361	1090	745	335	290	
Exposure Frequency (EF)	350	350	350	350	350	
Exposure Duration (ED) (years)[b]	0	0	13.75	13.75	0	**27.5**
AT	25550	25550	25550	25550	25550	
Age Sensitvity Factor (ASF)	10	10	3	1	1	
Fraction of Time at Home (FAH)	1	0.85	0.72	0.73	0.73	
70-Year (Lifetime) Concentration (ug/m3)	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	
70-Year (Lifetime) Dose (mg/kg-d)	2.13E-07	6.42E-07	4.39E-07	1.97E-07	1.71E-07	
Carcinogen Potency (CPF) $(mg/kg\text{-}d)^{-1}$						
- Diesel Particulate Matter	1.1	1.1	1.1	1.1	1.1	
Cancer Risk	0.00E+00	0.00E+00	2.05E-07	3.11E-08	0.00E+00	2.36E-07
Risk per Million (DPM)	**0.24**					

[a] Two separate sources representing possible truck travel locations were modeled in AERMOD.

[b] Assumes the first 2.5 years of exposure would take place during the Project construction phase.

PROJECT TITLE:

3200 E. Foothill Boulevard Mixed-Use Project
Health Risk Assessment 3.30.18



COMMENTS:	SOURCES: **4**	COMPANY NAME:	
	RECEPTORS: **307**	MODELER:	
		SCALE: 1:6,610 0 0.2 km	
		DATE: **4/25/2018**	PROJECT NO.:

othill Boulevard (Space Bank) - Proposed Mitigation = 1-3-2018 - South Coast Air Basin, Annual

0 E. Foothill Boulevard (Space Bank) - Proposed Mitigation = 1-3-2018

South Coast Air Basin, Annual

Size	Metric	Lot Acreage	Floor Surface Area	Population
436.00	Space	0.00	199,941.00	0
403.00	Space	1.00	219,891.00	0
3.20	Acre	3.20	140,479.00	0
4.00	1000sqft	0.00	4,000.00	0
550.00	Dwelling Unit	4.12	572,182.00	1573
5.80	1000sqft	0.00	5,800.00	0

ics

Wind Speed (m/s)	2.2	**Precipitation Freq (Days)**	31
		Operational Year	2022

ower

CH4 Intensity (lb/MWhr)	0.029	**N2O Intensity (lb/MWhr)**	0.006

Non-Default Data

on date estimated per project application process.

pproximated using site plan. Remaining acreage alloted to residential use.

licant-provided information. Total duration approx. 30 mo.Paving phase represents building framing and finishing.

info.
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y per applicant information.
D Rule 1113, use of low VOC.
staurant use match TIA.
es or woodstoves.
1113.
tion
itigation - Per SCAQMD Rule 403, watering onsite. Engine Tier changed per recommended mitigation.
oject plans.

ce of 0.15 miles x 2 (roundtrip)

Column Name	Default Value	New Value
EF_Nonresidential_Exterior	100.00	50.00
EF_Nonresidential_Interior	100.00	50.00
EF_Parking	100.00	50.00
Area_EF_Nonresidential_Exterior	100	50
Area_EF_Nonresidential_Interior	100	50
Area_EF_Parking	100	50
UseLowVOCPaintParkingCheck	False	True

NumberOfEquipmentMitigated	0.00	1.00
NumberOfEquipmentMitigated	0.00	1.00
NumberOfEquipmentMitigated	0.00	5.00
NumberOfEquipmentMitigated	0.00	6.00
NumberOfEquipmentMitigated	0.00	1.00
NumberOfEquipmentMitigated	0.00	1.00
NumberOfEquipmentMitigated	0.00	2.00
NumberOfEquipmentMitigated	0.00	2.00
NumberOfEquipmentMitigated	0.00	2.00
NumberOfEquipmentMitigated	0.00	2.00
NumberOfEquipmentMitigated	0.00	6.00
NumberOfEquipmentMitigated	0.00	3.00
NumberOfEquipmentMitigated	0.00	2.00
NumberOfEquipmentMitigated	0.00	13.00
Tier	No Change	Tier 3
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 3
Tier	No Change	Tier 3
Tier	No Change	Tier 3
Tier	No Change	Tier 3
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 4 Final
Tier	No Change	Tier 3
Tier	No Change	Tier 3
Tier	No Change	Tier 4 Final

NumDays	20.00	130.00
NumDays	230.00	167.00
NumDays	20.00	107.00
NumDays	20.00	45.00
NumDays	20.00	196.00
NumDays	10.00	7.00
LightingElect	1.75	2.63
LightingElect	7.87	8.13
LightingElect	6.26	6.43
NT24E	3,054.10	3,277.06
T24E	252.63	297.91
T24E	8.11	8.50
T24E	4.01	4.20
T24NG	7,012.17	10,118.57
T24NG	42.98	43.19
T24NG	1.15	1.16
FireplaceDayYear	25.00	0.00
FireplaceHourDay	3.00	0.00
FireplaceWoodMass	1,019.20	0.00
NumberGas	467.50	0.00
NumberNoFireplace	55.00	0.00
NumberWood	27.50	0.00
AcresOfGrading	157.50	135.00
MaterialExported	0.00	95,000.00
LandUseSquareFeet	161,200.00	219,891.00
LandUseSquareFeet	174,400.00	199,941.00
LandUseSquareFeet	139,392.00	140,479.00
LandUseSquareFeet	550,000.00	572,182.00

LotAcreage	3.63	1.00
LotAcreage	3.92	0.00
LotAcreage	0.09	0.00
LotAcreage	14.47	4.12
LotAcreage	0.13	0.00
HorsePower	402.00	84.00
LoadFactor	0.38	0.74
OffRoadEquipmentUnitAmount	3.00	4.00
OffRoadEquipmentUnitAmount	3.00	2.00
OffRoadEquipmentUnitAmount	3.00	4.00
OffRoadEquipmentUnitAmount	3.00	2.00
HaulingTripLength	20.00	0.30
HaulingTripLength	20.00	0.30
HaulingTripLength	20.00	0.30
HaulingTripLength	20.00	0.30
HaulingTripLength	20.00	0.30
HaulingTripLength	20.00	0.30
VendorTripLength	6.90	0.30
VendorTripLength	6.90	0.30
VendorTripLength	6.90	0.30
VendorTripLength	6.90	0.30
VendorTripLength	6.90	0.30
VendorTripLength	6.90	0.30
WorkerTripLength	14.70	0.30
WorkerTripLength	14.70	0.30
WorkerTripLength	14.70	0.30
WorkerTripLength	14.70	0.30
WorkerTripLength	14.70	0.30

WorkerTripLength	14.70	0.30
WorkerTripNumber	23.00	15.00
WorkerTripNumber	23.00	18.00
WorkerTripNumber	30.00	15.00
CC_TL	8.40	0.00
CC_TTP	48.00	0.00
CNW_TL	6.90	0.00
CNW_TTP	19.00	0.00
CW_TL	16.60	0.00
CW_TTP	33.00	0.00
DV_TP	28.00	0.00
PB_TP	6.00	0.00
PR_TP	66.00	0.00
ST_TR	22.75	0.00
SU_TR	16.74	0.00
WD_TR	1.89	0.00
NumberCatalytic	27.50	0.00
NumberNoncatalytic	27.50	0.00
WoodstoveDayYear	25.00	0.00
WoodstoveWoodMass	999.60	0.00

D	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							MT/yr					
064	1.6900e-003	0.0647	0.0813	0.1460	9.8300e-003	0.0755	0.0853	0.0000	153.5899	153.5899	0.0432	0.0000	154.6703
011	6.9500e-003	0.3282	0.2346	0.5627	0.1280	0.2184	0.3464	0.0000	628.6979	628.6979	0.1584	0.0000	632.6572
378	3.4500e-003	1.3400e-003	0.1323	0.1337	3.6000e-004	0.1220	0.1224	0.0000	302.8140	302.8140	0.0952	0.0000	305.1950
761	1.1000e-004	9.3000e-004	3.0000e-003	3.9300e-003	2.5000e-004	2.9900e-003	3.2500e-003	0.0000	9.6037	9.6037	6.5000e-004	0.0000	9.6199
011	**6.9500e-003**	**0.3282**	**0.2346**	**0.5627**	**0.1280**	**0.2184**	**0.3464**	**0.0000**	**628.6979**	**628.6979**	**0.1584**	**0.0000**	**632.6572**

D	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							MT/yr					
557	1.6900e-003	0.0293	0.0112	0.0405	4.4600e-003	0.0112	0.0157	0.0000	153.5897	153.5897	0.0432	0.0000	154.6701
585	6.9500e-003	0.1575	0.0766	0.2341	0.0603	0.0765	0.1368	0.0000	628.6973	628.6973	0.1584	0.0000	632.6566
719	3.4500e-003	1.3400e-003	0.0388	0.0402	3.6000e-004	0.0388	0.0392	0.0000	302.8136	302.8136	0.0952	0.0000	305.1946
765	1.1000e-004	9.3000e-004	3.0300e-003	3.9600e-003	2.5000e-004	3.0200e-003	3.2800e-003	0.0000	9.6037	9.6037	6.5000e-004	0.0000	9.6199
585	**6.9500e-003**	**0.1575**	**0.0766**	**0.2341**	**0.0603**	**0.0765**	**0.1368**	**0.0000**	**628.6973**	**628.6973**	**0.1584**	**0.0000**	**632.6566**

O	**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**
0	**0.00**	**52.18**	**71.26**	**62.35**	**52.77**	**69.07**	**65.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

End Date	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**

12-31-2018	1.7145	0.2718
3-31-2019	1.9430	0.5960
6-30-2019	1.9861	1.0839
9-30-2019	1.1982	0.6686
12-31-2019	1.1850	0.6539
3-31-2020	0.8017	0.2121
6-30-2020	0.8017	0.2121
9-30-2020	0.8126	0.2228
12-31-2020	1.0006	0.9838
3-31-2021	0.9617	0.9512
Highest	1.9861	1.0839

O	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							MT/yr					
390	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111
64	2.9400e-003		0.0373	0.0373		0.0373	0.0373	0.0000	4,658.0440	4,658.0440	0.0821	0.0247	4,667.4457
423	0.0602	5.0838	0.0482	5.1320	1.3621	0.0450	1.4071	0.0000	5,559.8066	5,559.8066	0.2674	0.0000	5,566.4912
			0.0000	0.0000		0.0000	0.0000	62.3121	0.0000	62.3121	3.6825	0.0000	154.3757
			0.0000	0.0000		0.0000	0.0000	11.8902	592.6592	604.5494	1.2316	0.0310	644.5684
477	**0.0634**	**5.0838**	**0.1169**	**5.2007**	**1.3621**	**0.1137**	**1.4758**	**74.2023**	**10,819.7959**	**10,893.9983**	**5.2726**	**0.0556**	**11,042.3920**

D	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							MT/yr					
390	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111
338	2.4700e-003		0.0313	0.0313		0.0313	0.0313	0.0000	4,177.4055	4,177.4055	0.0736	0.0217	4,185.7009
027	0.0334	2.6793	0.0276	2.7070	0.7179	0.0257	0.7436	0.0000	3,088.9781	3,088.9781	0.1658	0.0000	3,093.1230
			0.0000	0.0000		0.0000	0.0000	62.3121	0.0000	62.3121	3.6825	0.0000	154.3757
			0.0000	0.0000		0.0000	0.0000	11.8902	592.6592	604.5494	1.2316	0.0310	644.5684
655	**0.0362**	**2.6793**	**0.0903**	**2.7697**	**0.7179**	**0.0885**	**0.8064**	**74.2023**	**7,868.3289**	**7,942.5312**	**5.1625**	**0.0526**	**8,087.2789**

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
28.17	**42.97**	**47.30**	**22.76**	**46.74**	**47.30**	**22.20**	**45.36**	**0.00**	**27.28**	**27.09**	**2.09**	**5.39**	**26.76**

	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
	Demolition	10/1/2018	2/26/2019	5	107	
	Site Preparation	2/27/2019	3/7/2019	5	7	
	Grading	3/8/2019	5/9/2019	5	45	
	Building Construction	5/10/2019	12/30/2019	5	167	
	Paving	12/31/2019	9/29/2020	5	196	

Architectural Coating	9/30/2020	3/30/2021	5	130	

on Phase): 0

): 135

sidential Outdoor: 386,223; Non-Residential Indoor: 14,700; Non-Residential Outdoor: 4,900; Striped

Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
ncrete/Industrial Saws	1	8.00	81	0.73
avators	4	8.00	158	0.38
ober Tired Dozers	2	8.00	247	0.40
ctors/Loaders/Backhoes	2	8.00	97	0.37
ober Tired Dozers	3	8.00	247	0.40
ctors/Loaders/Backhoes	4	8.00	97	0.37
avators	1	8.00	158	0.38
ders	1	8.00	187	0.41
Highway Trucks	1	2.00	402	0.38
ober Tired Dozers	1	8.00	247	0.40
apers	3	8.00	367	0.48
ctors/Loaders/Backhoes	2	8.00	97	0.37
nes	1	7.00	231	0.29
klifts	2	8.00	89	0.20
nerator Sets	1	8.00	84	0.74
Highway Trucks	1	2.00	84	0.74
d Steer Loaders	1	8.00	65	0.37
ctors/Loaders/Backhoes	4	7.00	97	0.37
ders	1	8.00	46	0.45

klifts	4	8.00	89	0.20
ers	2	8.00	130	0.42
ing Equipment	2	8.00	132	0.36
ers	2	8.00	80	0.38
d Steer Loaders	1	8.00	65	0.37
ctors/Loaders/Backhoes	1	8.00	97	0.37
Compressors	1	6.00	78	0.48

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
15.00	0.00	966.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
18.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
18.00	0.00	9,393.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
635.00	152.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
15.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
127.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT

ruction

on Equipment

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O	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						MT/yr					
		0.0645	0.0000	0.0645	9.7600e-003	0.0000	9.7600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	1.6600e-003		0.0812	0.0812		0.0754	0.0754	0.0000	150.1915	150.1915	0.0426	0.0000	151.2567
84	**1.6600e-003**	**0.0645**	**0.0812**	**0.1457**	**9.7600e-003**	**0.0754**	**0.0852**	**0.0000**	**150.1915**	**150.1915**	**0.0426**	**0.0000**	**151.2567**

e

O	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							MT/yr					
0e-3	3.0000e-005	1.2000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	3.1865	3.1865	5.9000e-004	0.0000	3.2013
00	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
0e-3	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.2119	0.2119	2.0000e-005	0.0000	0.2123
0e-3	**3.0000e-005**	**2.4000e-004**	**3.0000e-005**	**2.7000e-004**	**6.0000e-005**	**3.0000e-005**	**1.0000e-004**	**0.0000**	**3.3984**	**3.3984**	**6.1000e-004**	**0.0000**	**3.4136**

O	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							MT/yr					
		0.0290	0.0000	0.0290	4.3900e-003	0.0000	4.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

77	1.6600e-003		0.0112	0.0112		0.0112	0.0112	0.0000	150.1913	150.1913	0.0426	0.0000	151.2565
77	**1.6600e-003**	**0.0290**	**0.0112**	**0.0402**	**4.3900e-003**	**0.0112**	**0.0156**	**0.0000**	**150.1913**	**150.1913**	**0.0426**	**0.0000**	**151.2565**

D	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							MT/yr					
0e-3	3.0000e-005	1.2000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	3.1865	3.1865	5.9000e-004	0.0000	3.2013
00	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
0e-3	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.2119	0.2119	2.0000e-005	0.0000	0.2123
0e-3	**3.0000e-005**	**2.4000e-004**	**3.0000e-005**	**2.7000e-004**	**6.0000e-005**	**3.0000e-005**	**1.0000e-004**	**0.0000**	**3.3984**	**3.3984**	**6.1000e-004**	**0.0000**	**3.4136**

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D	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							MT/yr					
		0.0401	0.0000	0.0401	6.0600e-003	0.0000	6.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	1.0300e-003		0.0458	0.0458		0.0426	0.0426	0.0000	91.9284	91.9284	0.0264	0.0000	92.5878
35	**1.0300e-003**	**0.0401**	**0.0458**	**0.0859**	**6.0600e-003**	**0.0426**	**0.0486**	**0.0000**	**91.9284**	**91.9284**	**0.0264**	**0.0000**	**92.5878**

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O	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							MT/yr					
0e-3	2.0000e-005	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	4.0000e-005	0.0000	1.9714	1.9714	3.5000e-004	0.0000	1.9802
00	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
0e-3	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
0e-3	**2.0000e-005**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**5.0000e-005**	**2.0000e-005**	**6.0000e-005**	**0.0000**	**2.0991**	**2.0991**	**3.6000e-004**	**0.0000**	**2.1081**

O	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							MT/yr					
		0.0180	0.0000	0.0180	2.7300e-003	0.0000	2.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
04	1.0300e-003		6.1800e-003	6.1800e-003		6.1800e-003	6.1800e-003	0.0000	91.9283	91.9283	0.0264	0.0000	92.5876
04	**1.0300e-003**	**0.0180**	**6.1800e-003**	**0.0242**	**2.7300e-003**	**6.1800e-003**	**8.9100e-003**	**0.0000**	**91.9283**	**91.9283**	**0.0264**	**0.0000**	**92.5876**

O	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							MT/yr					
0e-3	2.0000e-005	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	4.0000e-005	0.0000	1.9714	1.9714	3.5000e-004	0.0000	1.9802
00	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
0e-3	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
0e-3	**2.0000e-005**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**5.0000e-005**	**2.0000e-005**	**6.0000e-005**	**0.0000**	**2.0991**	**2.0991**	**3.6000e-004**	**0.0000**	**2.1081**

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O	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							MT/yr					
		0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
72	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
72	**1.3000e-004**	**0.0632**	**8.3700e-003**	**0.0716**	**0.0348**	**7.7000e-003**	**0.0425**	**0.0000**	**11.9590**	**11.9590**	**3.7800e-003**	**0.0000**	**12.0536**

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O	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							MT/yr					
00	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
00	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
0e-4	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0262	0.0262	0.0000	0.0000	0.0262
0e-4	**0.0000**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0262**	**0.0262**	**0.0000**	**0.0000**	**0.0262**

O	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							MT/yr					
		0.0285	0.0000	0.0285	0.0156	0.0000	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	1.3000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
30	**1.3000e-004**	**0.0285**	**2.2000e-004**	**0.0287**	**0.0156**	**2.2000e-004**	**0.0159**	**0.0000**	**11.9590**	**11.9590**	**3.7800e-003**	**0.0000**	**12.0536**

O	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							MT/yr					

00	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
00	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
0e-4	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0262	0.0262	0.0000	0.0000	0.0262
0e-4	**0.0000**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0262**	**0.0262**	**0.0000**	**0.0000**	**0.0262**

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O	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							MT/yr					
		0.2071	0.0000	0.2071	0.0822	0.0000	0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	1.6900e-003		0.0636	0.0636		0.0585	0.0585	0.0000	152.1820	152.1820	0.0482	0.0000	153.3857
14	**1.6900e-003**	**0.2071**	**0.0636**	**0.2706**	**0.0822**	**0.0585**	**0.1407**	**0.0000**	**152.1820**	**152.1820**	**0.0482**	**0.0000**	**153.3857**

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O	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							MT/yr					
05	5.1000e-004	1.3100e-003	4.1000e-004	1.7200e-003	3.7000e-004	3.9000e-004	7.6000e-004	0.0000	50.0261	50.0261	8.9100e-003	0.0000	50.2489
00	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

0e-3	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1682	0.1682	1.0000e-005	0.0000	0.1685
28	**5.1000e-004**	**1.4000e-003**	**4.1000e-004**	**1.8200e-003**	**4.0000e-004**	**3.9000e-004**	**7.9000e-004**	**0.0000**	**50.1943**	**50.1943**	**8.9200e-003**	**0.0000**	**50.4174**

O	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							MT/yr					
		0.0932	0.0000	0.0932	0.0370	0.0000	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	1.6900e-003		0.0232	0.0232		0.0232	0.0232	0.0000	152.1818	152.1818	0.0482	0.0000	153.3855
36	**1.6900e-003**	**0.0932**	**0.0232**	**0.1164**	**0.0370**	**0.0232**	**0.0602**	**0.0000**	**152.1818**	**152.1818**	**0.0482**	**0.0000**	**153.3855**

O	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							MT/yr					
05	5.1000e-004	1.3100e-003	4.1000e-004	1.7200e-003	3.7000e-004	3.9000e-004	7.6000e-004	0.0000	50.0261	50.0261	8.9100e-003	0.0000	50.2489
00	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
0e-3	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1682	0.1682	1.0000e-005	0.0000	0.1685
28	**5.1000e-004**	**1.4000e-003**	**4.1000e-004**	**1.8200e-003**	**4.0000e-004**	**3.9000e-004**	**7.9000e-004**	**0.0000**	**50.1943**	**50.1943**	**8.9200e-003**	**0.0000**	**50.4174**

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e

O	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							MT/yr					
78	2.5200e-003		0.1142	0.1142		0.1072	0.1072	0.0000	220.7331	220.7331	0.0556	0.0000	222.1219
78	**2.5200e-003**		**0.1142**	**0.1142**		**0.1072**	**0.1072**	**0.0000**	**220.7331**	**220.7331**	**0.0556**	**0.0000**	**222.1219**

e

O	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							MT/yr					
00	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
33	7.8000e-004	3.8000e-003	1.0200e-003	4.8200e-003	1.1300e-003	9.8000e-004	2.1100e-003	0.0000	76.0229	76.0229	0.0131	0.0000	76.3508
85	2.5000e-004	0.0124	4.4000e-004	0.0128	3.3600e-003	4.0000e-004	3.7600e-003	0.0000	22.0192	22.0192	1.6300e-003	0.0000	22.0599
17	**1.0300e-003**	**0.0162**	**1.4600e-003**	**0.0176**	**4.4900e-003**	**1.3800e-003**	**5.8700e-003**	**0.0000**	**98.0421**	**98.0421**	**0.0148**	**0.0000**	**98.4107**

O	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							MT/yr					
90	2.5200e-003		0.0449	0.0449		0.0449	0.0449	0.0000	220.7329	220.7329	0.0556	0.0000	222.1216
90	**2.5200e-003**		**0.0449**	**0.0449**		**0.0449**	**0.0449**	**0.0000**	**220.7329**	**220.7329**	**0.0556**	**0.0000**	**222.1216**

O	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							MT/yr					
00	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
33	7.8000e-004	3.8000e-003	1.0200e-003	4.8200e-003	1.1300e-003	9.8000e-004	2.1100e-003	0.0000	76.0229	76.0229	0.0131	0.0000	76.3508
85	2.5000e-004	0.0124	4.4000e-004	0.0128	3.3600e-003	4.0000e-004	3.7600e-003	0.0000	22.0192	22.0192	1.6300e-003	0.0000	22.0599
17	**1.0300e-003**	**0.0162**	**1.4600e-003**	**0.0176**	**4.4900e-003**	**1.3800e-003**	**5.8700e-003**	**0.0000**	**98.0421**	**98.0421**	**0.0148**	**0.0000**	**98.4107**

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O	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							MT/yr					
16	2.0000e-005		7.4000e-004	7.4000e-004		6.8000e-004	6.8000e-004	0.0000	1.5306	1.5306	4.8000e-004	0.0000	1.5427
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	**2.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**1.5306**	**1.5306**	**4.8000e-004**	**0.0000**	**1.5427**

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O	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							MT/yr					
00	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
00	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
0e-5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.1100e-003	3.1100e-003	0.0000	0.0000	3.1200e-003
0e-5	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.1100e-003**	**3.1100e-003**	**0.0000**	**0.0000**	**3.1200e-003**

O	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							MT/yr					

29	2.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	1.5306	1.5306	4.8000e-004	0.0000	1.5427
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	**2.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**1.5306**	**1.5306**	**4.8000e-004**	**0.0000**	**1.5427**

	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							MT/yr					
00	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
00	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
0e-5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.1100e-003	3.1100e-003	0.0000	0.0000	3.1200e-003
0e-5	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.1100e-003**	**3.1100e-003**	**0.0000**	**0.0000**	**3.1200e-003**

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	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							MT/yr					
67	3.3200e-003		0.1286	0.1286		0.1183	0.1183	0.0000	291.9569	291.9569	0.0944	0.0000	294.3175
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

67	**3.3200e-003**		**0.1286**	**0.1286**		**0.1183**	**0.1183**	**0.0000**	**291.9569**	**291.9569**	**0.0944**	**0.0000**	**294.3175**

e

O	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							MT/yr					
00	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
00	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
0e-3	1.0000e-005	3.4000e-004	1.0000e-005	3.5000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.5893	0.5893	4.0000e-005	0.0000	0.5903
0e-3	**1.0000e-005**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5893**	**0.5893**	**4.0000e-005**	**0.0000**	**0.5903**

O	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							MT/yr					
07	3.3200e-003		0.0356	0.0356		0.0356	0.0356	0.0000	291.9566	291.9566	0.0944	0.0000	294.3172
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
07	**3.3200e-003**		**0.0356**	**0.0356**		**0.0356**	**0.0356**	**0.0000**	**291.9566**	**291.9566**	**0.0944**	**0.0000**	**294.3172**

O	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							MT/yr					
00	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
00	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
0e-3	1.0000e-005	3.4000e-004	1.0000e-005	3.5000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.5893	0.5893	4.0000e-005	0.0000	0.5903
0e-3	**1.0000e-005**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5893**	**0.5893**	**4.0000e-005**	**0.0000**	**0.5903**

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O	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							MT/yr					
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	1.0000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	8.5534	8.5534	6.6000e-004	0.0000	8.5700
14	**1.0000e-004**		**3.7200e-003**	**3.7200e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**8.5534**	**8.5534**	**6.6000e-004**	**0.0000**	**8.5700**

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O	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							MT/yr					
00	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
00	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
22	2.0000e-005	9.9000e-004	3.0000e-005	1.0300e-003	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	1.7143	1.7143	1.1000e-004	0.0000	1.7172
22	**2.0000e-005**	**9.9000e-004**	**3.0000e-005**	**1.0300e-003**	**2.7000e-004**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.7143**	**1.7143**	**1.1000e-004**	**0.0000**	**1.7172**

O	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							MT/yr					
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	1.0000e-004		3.1900e-003	3.1900e-003		3.1900e-003	3.1900e-003	0.0000	8.5534	8.5534	6.6000e-004	0.0000	8.5700
14	**1.0000e-004**		**3.1900e-003**	**3.1900e-003**		**3.1900e-003**	**3.1900e-003**	**0.0000**	**8.5534**	**8.5534**	**6.6000e-004**	**0.0000**	**8.5700**

O	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							MT/yr					

00	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
00	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
22	2.0000e-005	9.9000e-004	3.0000e-005	1.0300e-003	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	1.7143	1.7143	1.1000e-004	0.0000	1.7172
22	**2.0000e-005**	**9.9000e-004**	**3.0000e-005**	**1.0300e-003**	**2.7000e-004**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.7143**	**1.7143**	**1.1000e-004**	**0.0000**	**1.7172**

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O	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							MT/yr					
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
73	9.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	8.0428	8.0428	5.5000e-004	0.0000	8.0566
73	**9.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**8.0428**	**8.0428**	**5.5000e-004**	**0.0000**	**8.0566**

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O	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							MT/yr					
00	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
00	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

88	2.0000e-005	9.3000e-004	3.0000e-005	9.7000e-004	2.5000e-004	3.0000e-005	2.8000e-004	0.0000	1.5610	1.5610	1.0000e-004	0.0000	1.5634
88	**2.0000e-005**	**9.3000e-004**	**3.0000e-005**	**9.7000e-004**	**2.5000e-004**	**3.0000e-005**	**2.8000e-004**	**0.0000**	**1.5610**	**1.5610**	**1.0000e-004**	**0.0000**	**1.5634**

O	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							MT/yr					
			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
77	9.0000e-005		3.0000e-003	3.0000e-003		3.0000e-003	3.0000e-003	0.0000	8.0427	8.0427	5.5000e-004	0.0000	8.0565
77	**9.0000e-005**		**3.0000e-003**	**3.0000e-003**		**3.0000e-003**	**3.0000e-003**	**0.0000**	**8.0427**	**8.0427**	**5.5000e-004**	**0.0000**	**8.0565**

O	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							MT/yr					
00	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
00	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
88	2.0000e-005	9.3000e-004	3.0000e-005	9.7000e-004	2.5000e-004	3.0000e-005	2.8000e-004	0.0000	1.5610	1.5610	1.0000e-004	0.0000	1.5634
88	**2.0000e-005**	**9.3000e-004**	**3.0000e-005**	**9.7000e-004**	**2.5000e-004**	**3.0000e-005**	**2.8000e-004**	**0.0000**	**1.5610**	**1.5610**	**1.0000e-004**	**0.0000**	**1.5634**

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O	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							MT/yr					
27	0.0334	2.6793	0.0276	2.7070	0.7179	0.0257	0.7436	0.0000	3,088.9781	3,088.9781	0.1658	0.0000	3,093.1230
423	0.0602	5.0838	0.0482	5.1320	1.3621	0.0450	1.4071	0.0000	5,559.8066	5,559.8066	0.2674	0.0000	5,566.4912

	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
	3,657.50	3,514.50	3223.00	12,216,318	6,438,496
	0.00	0.00	0.00		
	0.00	0.00	0.00		
	0.00	0.00	0.00		
	508.60	633.48	527.36	721,101	380,050
	257.06	243.83	118.49	447,818	236,018
	4,423.16	4,391.81	3,868.85	13,385,237	7,054,564

Miles			Trip %			Trip Purpose %		
W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
	5.90	8.70	40.20	19.20	40.60	86	11	3
	0.00	0.00	0.00	0.00	0.00	0	0	0
	8.40	6.90	0.00	0.00	0.00	0	0	0
	8.40	6.90	0.00	0.00	0.00	0	0	0
	8.40	6.90	8.50	72.50	19.00	37	20	43
	8.40	6.90	16.60	64.40	19.00	45	40	15

LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896

y

O	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							MT/yr					
			0.0000	0.0000		0.0000	0.0000	0.0000	3,729.0776	3,729.0776	0.0650	0.0135	3,734.7088
			0.0000	0.0000		0.0000	0.0000	0.0000	4,123.8796	4,123.8796	0.0719	0.0149	4,130.1070
38	2.4700e-003		0.0313	0.0313		0.0313	0.0313	0.0000	448.3279	448.3279	8.5900e-003	8.2200e-003	450.9921
64	2.9400e-003		0.0373	0.0373		0.0373	0.0373	0.0000	534.1644	534.1644	0.0102	9.7900e-003	537.3387

ralGas

x	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								MT/yr					
82	0.1780	2.6700e-003		0.0338	0.0338		0.0338	0.0338	0.0000	484.3520	484.3520	9.2800e-003	8.8800e-003	487.2303
00	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
00	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	0.0380	2.7000e-004		3.4400e-003	3.4400e-003		3.4400e-003	3.4400e-003	0.0000	49.3018	49.3018	9.4000e-004	9.0000e-004	49.5947
0e-4	3.9000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5107	0.5107	1.0000e-005	1.0000e-005	0.5137
40	**0.2164**	**2.9400e-003**		**0.0373**	**0.0373**		**0.0373**	**0.0373**	**0.0000**	**534.1644**	**534.1644**	**0.0102**	**9.7900e-003**	**537.3387**

x	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									MT/yr					
64	0.1474	2.2100e-003		0.0280	0.0280		0.0280	0.0280	0.0000	401.1973	401.1973	7.6900e-003	7.3600e-003	403.5814
00	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
00	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0361	2.6000e-004		3.2600e-003	3.2600e-003		3.2600e-003	3.2600e-003	0.0000	46.7204	46.7204	9.0000e-004	8.6000e-004	46.9980
0e-4	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4102	0.4102	1.0000e-005	1.0000e-005	0.4126
97	**0.1838**	**2.4700e-003**		**0.0313**	**0.0313**		**0.0313**	**0.0313**	**0.0000**	**448.3279**	**448.3279**	**8.6000e-003**	**8.2300e-003**	**450.9921**

tricity

4	N2O	CO2e
MT/yr		
12	6.4600e-003	1,794.7184
00	0.0000	0.0000
77	3.6700e-003	1,018.7619
95	4.0300e-003	1,120.4134
0e-3	4.9000e-004	135.4416

0e-3	2.2000e-004	60.7718
19	**0.0149**	**4,130.1070**

4	N2O	CO2e
	MT/yr	
06	6.3400e-003	1,760.0354
00	0.0000	0.0000
48	3.0700e-003	852.8579
63	3.3800e-003	937.9555
0e-3	4.6000e-004	128.2446
0e-4	2.0000e-004	55.6154
50	**0.0135**	**3,734.7088**

terior
xterior
tial Interior
tial Exterior

D	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							MT/yr					
390	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111
390	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111

D	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							MT/yr					
			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	0.0000
000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
390	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111
390	**3.0000e-004**		**0.0314**	**0.0314**		**0.0314**	**0.0314**	**0.0000**	**9.2862**	**9.2862**	**8.9900e-003**	**0.0000**	**9.5111**

O	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							MT/yr					
			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	0.0000
00	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
90	3.0000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	9.2862	9.2862	8.9900e-003	0.0000	9.5111
90	**3.0000e-004**		**0.0314**	**0.0314**		**0.0314**	**0.0314**	**0.0000**	**9.2862**	**9.2862**	**8.9900e-003**	**0.0000**	**9.5111**

O	CO2e
10	644.5684
10	644.5684

4	N2O	CO2e
	MT/yr	
71	0.0295	591.2649
0e-4	1.2000e-004	32.0230
00	0.0000	0.0000
98	9.8000e-004	14.2550
41	3.5000e-004	7.0254
16	**0.0310**	**644.5684**

4	N2O	CO2e
	MT/yr	
71	0.0295	591.2649
0e-4	1.2000e-004	32.0230
00	0.0000	0.0000
98	9.8000e-004	14.2550

41	3.5000e-004	7.0254
16	**0.0310**	**644.5684**

e

O	CO2e
00	154.3757
00	154.3757

4	N2O	CO2e
	MT/yr	
51	0.0000	127.2341
0e-3	0.0000	0.1408

00	0.0000	0.0000
10	0.0000	23.9381
31	0.0000	3.0627
25	**0.0000**	**154.3757**

4	N2O	CO2e
	MT/yr	
51	0.0000	127.2341
0e-3	0.0000	0.1408
00	0.0000	0.0000
10	0.0000	23.9381
31	0.0000	3.0627
25	**0.0000**	**154.3757**

Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Number