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VIA EMAIL

May 11, 2021

Alex Fisch, Mayor
Göran Eriksson, Council Member
Daniel Lee, Council Member
Yasmine-Imani McMorrin, Council Member
Albert Vera, Council Member
City Council
City of Culver City
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Jeremy Green, Department Head
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Re: Application for Appeal of Planning Commission Adoption of Mitigated Negative Declaration and Approval of Conditional Use Permit P2019-0194-CUP, Site Plan Review P2019-0194-SPR, and Administrative Use Permit P2019-0194-AUP for the 11469 Jefferson Boulevard Hotel Project (Planning Commission Decision Date: April 28, 2021)

Dear Mayor Fisch and Honorable Members of the City Council of Culver City,

I am writing on behalf of the Supporters Alliance for Environmental Responsibility ("SAFER") to appeal the decisions of the Culver City Planning Commission on April 28, 2021 to adopt a mitigated negative declaration ("MND") and approve Conditional Use Permit P2019-0194-CUP, Site Plan Review P2019-0194-SPR, and Administrative Use Permit P2019-0194-AUP for the 11469 Jefferson Boulevard Hotel Project ("Project").

The basis for SAFER's appeal is that the MND adopted by the Planning Commission is improper under the California Environmental Quality Act ("CEQA") because there is a fair argument that the Project may result in significant environmental impacts. As such, an environmental impact report ("EIR") for the Project must be prepared, circulated, and certified prior to approval of the Project.

As described in greater detail in SAFER's comment letter submitted to the Planning Commission on February 19, 2021, attached hereto and incorporated by reference, the Project may have significant impacts related to indoor and outdoor air quality, health impacts from diesel particulate matter, and greenhouse gases.

Per Culver City Municipal Code 17.640.030(C)(3), this application is accompanied by the supporting evidence presented in the attached comment letter submitted on behalf of SAFER to the Planning Commission on February 19, 2021. Additionally, it is my understanding that the City will invoice SAFER for the appeal fee upon submission of this application. SAFER will pay the appeal fee in full upon receiving the invoice.

Thank you for your consideration of this matter.

Sincerely,

Brian B. Flynn

Brian B. Flynn
Lozeau Drury LLP

ATTACHMENT

Comment Letter from SAFER to Planning Commission
February 19, 2021

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February 19, 2021

Via E-Mail

Lisa Edwards, Contract Planner
City of Culver City
Current Planning Division
9770 Culver Boulevard
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Lisa.Edwards@culvercity.org

Re: 11469 Jefferson Boulevard Project MND
P2019-0194-SPR; P2019-0194-CUP; P2019-0194-AUP

Dear Ms. Edwards and the Current Planning Division of Culver City:

I am writing on behalf of the Supporters Alliance for Environmental Responsibility ("SAFER") regarding the Mitigated Negative Declaration ("MND") prepared for the 11469 Jefferson Boulevard Project ("Project") (P2019-0194-SPR; P2019-0194-CUP; P2019-0194-AUP) in the City of Culver City ("City"). SAFER is a California nonprofit public benefit corporation whose purposes include contributing to the preservation and enhancement of the environment and advocating for programs, policies, and development projects that promote not only good jobs but also a healthy natural environment and working environment.

After reviewing the MND, it is clear that there is a "fair argument" that the Project may have unmitigated adverse environmental impacts. The written expert comments of Francis Offermann, Certified Industrial Hygienist, and SWAPE (attached hereto as Exhibit A and Exhibit B, respectively), as well as the comments below, identify substantial evidence of a fair argument that the Project may have significant environmental impacts. Accordingly, an environmental impact report ("EIR") is required to analyze these impacts and to propose all feasible mitigation measures to reduce those impacts. We urge the City to refrain from approving the MND, and instead to prepare an EIR for the Project prior to any Project approvals as required by CEQA.

I. PROJECT BACKGROUND

The Project would redevelop a 33,813 square foot (sf) (0.78-acre) property located in the northwest corner of the intersection at Jefferson Boulevard and Slauson Avenue. The existing single- story commercial (retail/restaurant) building and associated asphalt-paved surface parking lot would be removed as part of the Project.

The Project Site is currently improved with an approximately 13,000 sf main single-story, wood-framed commercial shopping center which includes both retail and restaurant uses. The remainder of the site consists of an asphalt-paved surface parking lot and ornamental landscaped areas. Ingress/egress to the Project Site is available via a driveway from Jefferson Boulevard and a driveway from Slauson Avenue.

The Project includes the development of a new, five-story, 175-room boutique hotel building with food and beverage amenities and a two level, below-grade parking garage. A pool and roof top bar would be located on the fifth floor. The 111,000 sf building would be up to 56 feet in height (with the elevator shaft reaching 69 feet and 6 inches in height) and surrounded by landscaped areas located on site and within the public right of way. Parking for the proposed uses would be provided on site within a subterranean parking structure that would accommodate a minimum of 138 parking spaces.

The Project Site is located at the south-end of the commercial corridor that runs along Jefferson Boulevard perpendicular to Interstate 405 (I-405) freeway within the Fox Hills area of Culver City. Downtown Los Angeles is approximately eight (8) miles east of the Project Site. The Project Site is bounded by the intersection at Jefferson Boulevard and Slauson Avenue with commercial uses directly north of the Project Site and a public alley adjacent to the western Project boundary with residential uses just beyond the alley. Commercial uses are also located east and south of the Project Site across Jefferson Boulevard and Slauson Avenue. Both the I-405 and State Route 90 (SR-90) freeways are located less than 400 feet west and south of the Project Site.

II. LEGAL STANDARD

As the California Supreme Court held, "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR." (*Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319-320 (*CBE v. SCAQMD*) [citing *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491, 504–505.].) "Significant environmental effect" is defined very broadly as "a substantial or potentially substantial adverse change in the environment." (Pub. Res. Code ["PRC"] § 21068; *see also* 14 CCR § 15382.) An effect on the environment need not be "momentous" to meet the CEQA test for significance; it is enough that the impacts are "not trivial*."* (*No Oil, Inc., supra*, 13 Cal.3d at 83.) "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Communities for a Better Env't v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 109 (*CBE v. CRA*).)

The EIR is the very heart of CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield (*2004) 124 Cal.App.4th 1184, 1214 (*Bakersfield Citizens*); *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927.) The EIR is an "environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return." (*Bakersfield Citizens, supra*, 124 Cal.App.4th at 1220.) The EIR also functions as a "document of accountability," intended to "demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action." (*Laurel Heights Improvements Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392.) The EIR process "protects not only the environment but also informed self-government." (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 927.)

An EIR is required if "there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment." (PRC § 21080(d); see also *Pocket Protectors*, *supra*, 124 Cal.App.4th at 927.) In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (14 Cal. Code Regs. § 15371), only if there is not even a "fair argument" that the project will have a significant environmental effect. (PRC, §§ 21100, 21064.) Since "[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process," by allowing the agency "to dispense with the duty [to prepare an EIR]," negative declarations are allowed only in cases where "the proposed project will not affect the environment at all." (*Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440.) A mitigated negative declaration is proper only if the project revisions would avoid or mitigate the potentially significant effects identified in the initial study "to a point where clearly no significant effect on the environment would occur, and…there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment." (PRC §§ 21064.5 and 21080(c)(2); *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 331.) In that context, "may" means a reasonable possibility of a significant effect on the environment. (PRC §§ 21082.2(a), 21100, 21151(a); *Pocket Protectors, supra*, 124 Cal.App.4th at 927; *League for Protection of Oakland's etc. Historic Res. v. City of Oakland* (1997) 52 Cal.App.4th 896, 904–905.)

Under the "fair argument" standard, an EIR is required if any substantial evidence in the record indicates that a project may have an adverse environmental effect—even if contrary evidence exists to support the agency's decision. (14 CCR § 15064(f)(1); *Pocket Protectors*, *supra*, 124 Cal.App.4th at 931; *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602.) The "fair argument" standard creates a "low threshold" favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 928.)

The "fair argument" standard is virtually the opposite of the typical deferential standard accorded to agencies. As a leading CEQA treatise explains:

> This 'fair argument' standard is very different from the standard normally followed by public agencies in making administrative determinations. Ordinarily, public agencies weigh the evidence in the record before them and reach a decision based on a preponderance of the evidence. [Citations]. The fair argument standard, by contrast, prevents the lead agency from weighing competing

> evidence to determine who has a better argument concerning the likelihood or extent of a potential environmental impact. The lead agency's decision is thus largely legal rather than factual; it does not resolve conflicts in the evidence but determines only whether substantial evidence exists in the record to support the prescribed fair argument.

(Kostka & Zishcke*, Practice Under CEQA*, §6.29, pp. 273-74.) The Courts have explained that "it is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency's determination. Review is de novo, with a preference for resolving doubts in favor of environmental review." (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 928.)

III. DISCUSSION

A. Substantial Expert Evidence Establishes a Fair Argument that the Project's Indoor Air Quality Will Have a Significant Impact on Human Health Due to Formaldehyde Emissions.

The MND fails to address the significant health risks posed by the Project from formaldehyde, a toxic air contaminant ("TAC"). Certified Industrial Hygienist, Francis Offermann, PE, CIH, has conducted a review of the Project, the MND, and relevant documents regarding the Project's indoor air emissions. Mr. Offermann is one of the world's leading experts on indoor air quality, in particular emissions of formaldehyde, and has published extensively on the topic. As discussed below and set forth in Mr. Offermann's comments, the Project's emissions of formaldehyde to air will result in very significant cancer risks to future residents at the Project's apartments. Mr. Offermann's expert opinion and calculation present a "fair argument" that the Project may have significant health risk impacts as a result of these indoor air pollution emissions, which were not discussed, disclosed, or analyzed in the MND. These impacts must be addressed in n EIR. Mr. Offermann's comment and curriculum vitae are attached as Exhibit A.

Formaldehyde is a known human carcinogen and listed by the State as a TAC. SCAQMD has established a significance threshold of health risks for carcinogenic TACs of 10 in a million and a cumulative health risk threshold of 100 in a million. The MND fails to acknowledge the significant indoor air emissions that will result from the Project. Specifically, there is no discussion of impacts or health risks, no analysis, and no identification of mitigations for significant emissions of formaldehyde to air from the Project.

Mr. Offermann explains that many composite wood products typically used in home and apartment building construction contain formaldehyde-based glues which off-gas formaldehyde over a very long time period. He states, "The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particle board. These materials are commonly used in residential, office, and retail building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims." (Ex. A, pp. 2-3.)

Mr. Offermann states that future employees of the hotel will be exposed to a cancer risk from formaldehyde of approximately 17.7 per million, ***even assuming that*** all materials are compliant with the California Air Resources Board's formaldehyde airborne toxics control measure. (Ex. A, p. 4.) This exceeds SCAQMD's CEQA significance thresholds for airborne cancer risk of 10 per million. (*Id*.)

Mr. Offermann concludes that these significant environmental impacts must be analyzed in an EIR and mitigation measures should be imposed to reduce the risk of formaldehyde exposure. (Ex. A, pp. 5, 10-12.) He prescribes a methodology for estimating the Project's formaldehyde emissions in order to do a more project-specific health risk assessment. (*Id*., pp. 5-9.). Mr. Offermann also suggests several feasible mitigation measures, such as requiring the use of no-added-formaldehyde composite wood products, which are readily available. (*Id*., pp. 11-13.) Mr. Offermann also suggests requiring air ventilation systems which would reduce formaldehyde levels. (*Id*.) Since the MND does not analyze this impact at all, none of these or other mitigation measures have been considered.

When a Project exceeds a duly adopted CEQA significance threshold, as here, this alone establishes substantial evidence that the project will have a significant adverse environmental impact. Indeed, in many instances, such air quality thresholds are the only criteria reviewed and treated as dispositive in evaluating the significance of a project's air quality impacts. (*See, e.g. Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 [County applies Air District's "published CEQA quantitative criteria" and "threshold level of cumulative significance"]; *see also Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 ["A 'threshold of significance' for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant"].) The California Supreme Court made clear the substantial importance that an air district significance threshold plays in providing substantial evidence of a significant adverse impact. (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 327 ["As the [South Coast Air Quality Management] District's established significance threshold for NOx is 55 pounds per day, these estimates [of NOx emissions of 201 to 456 pounds per day] constitute substantial evidence supporting a fair argument for a significant adverse impact."].) Since expert evidence demonstrates that the Project will exceed the SCAQMD's CEQA significance threshold, there is substantial evidence that an "unstudied, ***potentially significant environmental effect[]***" exists. (*See Friends of Coll. of San Mateo Gardens v. San Mateo Cty. Cmty. Coll. Dist.* (2016) 1 Cal.5th 937, 958 [emphasis added].) As a result, the City must prepare an EIR for the Project to address this impact and identify enforceable mitigation measures.

The failure of the MND to address the Project's formaldehyde emissions is contrary to the California Supreme Court's decision in *California Building Industry Ass'n v. Bay Area Air Quality Mgmt. Dist.* (2015) 62 Cal.4th 369, 386 ("*CBIA*"). In that case, the Supreme Court expressly holds that potential adverse impacts to future users and residents from pollution generated by a proposed project ***must be addressed*** under CEQA. At issue in *CBIA* was whether the Air District could enact CEQA guidelines that advised lead agencies that they must analyze the impacts of adjacent environmental conditions on a project. The Supreme Court held that CEQA does not generally require lead agencies to consider the environment's effects on a project. (*CBIA*, 62 Cal.4th at 800-01.) However, to the extent a project may exacerbate existing environmental conditions at or near a project site, those would still have to be considered pursuant to CEQA. (*Id*. at 801.) In so holding, the Court expressly held that CEQA's statutory language required lead agencies to disclose and analyze "impacts on ***a project's users or residents*** that arise ***from the project's effects*** on the environment." (*Id*. at 800 [emphasis added].)

The carcinogenic formaldehyde emissions identified by Mr. Offermann are not an existing environmental condition. Those emissions to the air will be from the Project. People will be residing in and using the Project once it is built and begins emitting formaldehyde. Once built, the Project will begin to emit formaldehyde at levels that pose significant direct and cumulative health risks. The Supreme Court in *CBIA* expressly finds that this type of air emission and health impact by the project on the environment and a "project's users and residents" must be addressed in the CEQA process. The existing TAC sources near the Project site would have to be considered in evaluating the cumulative effect on future residents of both the Project's TAC emissions as well as those existing off-site emissions.

The Supreme Court's reasoning is well-grounded in CEQA's statutory language. CEQA expressly includes a project's effects on human beings as an effect on the environment that must be addressed in an environmental review. "Section 21083(b)(3)'s express language, for example, requires a finding of a 'significant effect on the environment' (§ 21083(b)) whenever the 'environmental effects of a project will cause substantial adverse effects *on human beings,* either directly or indirectly.'" (*CBIA*, 62 Cal.4th at 800 [emphasis in original].) Likewise, "the Legislature has made clear—in declarations accompanying CEQA's enactment—that public health and safety are of great importance in the statutory scheme." (*Id*., citing e.g., §§ 21000, subds. (b), (c), (d), (g), 21001, subds. (b), (d).) It goes without saying that the thousands of future residents at the Project are human beings and the health and safety of those residents must be subjected to CEQA's safeguards.

The City has a duty to investigate issues relating to a project's potential environmental impacts. (*See County Sanitation Dist. No. 2 v. County of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98. ["[U]nder CEQA, the lead agency bears a burden to investigate potential environmental impacts."].) The proposed office buildings will have significant impacts on air quality and health risks by emitting cancer-causing levels of formaldehyde into the air that will expose future residents to cancer risks potentially in excess of SCAQMD's threshold of significance for cancer health risks of 10 in a million. Likewise, when combined with the risks posed by the nearby TAC sources, the health risks inside the project may exceed SCAQMD's cumulative health risk threshold of 100 cancers in a million. Currently, outside of Mr. Offermann's comments, the City does not have any idea what risks will be posed by formaldehyde emissions from the Project or the residences. As a result, the City must include an analysis and discussion in an EIR which discloses and analyzes the health risks that the Project's formaldehyde emissions may have on future residents and identifies appropriate mitigation measures.

B. The MND Relies on Unsubstantiated Input Parameters to Estimate Project Emissions and Thus Fails to Provide Substantial Evidence of the Project's Air Quality Impacts.

Matt Hagemann, P.G., C.Hg., and Paul E. Rosenfeld, Ph.D., of the Soil/Water/Air Protection Enterprise ("SWAPE") reviewed the air quality analysis in the MND. SWAPE's comment letter and CVs are attached as Exhibit B and their findings are summarized below.

The MND for the Project relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.2 ("CalEEMod"). This model relies on recommended default values based on site specific information related to a number of factors. The model is used to generate a project's construction and operational emissions. SWAPE reviewed the Project's CalEEMod output files and found that the values input into the model were inconsistent with information provided in the MND. This results in an underestimation of the Project's emissions. As a result, the MND's air quality analysis cannot be relied upon to determine the Project's air quality impacts. Instead, the City must prepare an EIR to adequately evaluate the impacts that construction and operation of the Project will have on local and regional air quality.

1. The MND's air quality model improperly reduced the default CO_2 intensity factor.

SWAPE's review of the Project's CalEEMod output files found that the CO2 intensity factor was manually reduced by approximately 28%, from the default value of 702.44 pounds per megawatt hour ("lbs/MWh") to 509.22 lbs/MWh. (Ex. B, p. 3.) The "User Entered Comments & Non-Default Data" section attempted to justify these changes by stating: "CO2e intensity factor was linearly projected for year 2022 anticipated RPS based on SB 100 target of 44% RPS by 12/31/2024 projected and from SCE contract with the CPUC to have 41.4% RPS by 2020" (MND, Appendix A, pp. 489, 539).

SWAPE found that the alteration to the CO2 intensity factor was unjustified for two reasons: "First, the IS/MND cannot simply interpolate its own CO2 intensity factor based on estimates of future increases in renewable energy use. Second, simply because the state has renewable energy goals for 2024 does not ensure that these goals will be achieved locally on the Project site or by the Project's specific utility company. As a result, we cannot verify the revised CO2 intensity factor." (Ex. B, p. 3.) SWAPE concluded that the unsubstantiated reduction to the default CO2 intensity factor may underestimate the Project's GHG emissions and, therefore, cannot be relied upon to determine Project's impacts. (Ex. B, p. 4.)

2. The MND's air quality model underestimated the Project's land use size for parking.

SWAPE's review of the Project's CalEEMod output files found that the air model underestimated the proposed parking space by 22,483 sf. (Ex. B, p. 4.) According to the MND, the Project proposes to provide 56,300 sf of subterranean parking but the air model includes only

33,817 sf of parking space. (*Id.*) SWAPE concluded that the model may therefore underestimate the Project's construction-related and operational emissions and cannot be relied upon to determine Project significance. (*Id.*)

3. <u>The MND's air quality model failed to model all proposed land uses.</u>

SWAPE's review of the Project's CalEEMod output files found that the air model failed to model the Project's 3,313 sf of restaurant space and 700 sf of fitness space. (Ex. B, pp. 4-5.) SWAPE found that the model failed to distinguish between the Project's hotel land use and restaurant/fitness land use (*Id*. at p. 5.) SWAPE explained that "CalEEMod includes 63 different land use types that are each assigned a distinctive set of energy usage emission factors" and that "each land use type includes a specific trip rate that CalEEMod uses to calculate mobile-source emissions." (*Id.*) SWAPE concluded that the model may therefore underestimate the Project's construction-related and operational emissions and cannot not be relied upon to determine Project impacts. (*Id*. at pp. 5-6.)

4. <u>The MND's air quality model made unsubstantiated changes to individual construction phase lengths</u>.

SWAPE's review of the Project's CalEEMod output files found that the air model made unsubstantiated changes to individual construction phase lengths. (Ex. B, p. 6.) The specific changes made were:

- the demolition phase was increased by approximately 430%, from the default of 10 to 53 days;
- the grading phase was increased by approximately 3,650%, from the default of 2 to 75 days;
- the building construction phases were collectively increased by approximately 84%, from the cumulative default value of 300 to 553 days;
- the paving phase was increased by approximately 120%, from the default value of 5 to 11 days; and
- the architectural coating phase was increased by 1,440%, from the default value of 5 to 77 days.

(*Id.*)

According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "see construction assumptions" (MND, Appendix A, pp. 82, 115). However, as noted by SWAPE, the MND and associated documents provide no "construction assumptions," as purported by the "User Entered Comments and Non-Default Data" table. (Ex. B, p. 7.)

Additionally, for the changes to construction-related inputs, the MND's Air Quality Technical Report ("AQ Technical Report") explained that "[t]he input values used in this analysis were adjusted to be Project-specific based on equipment types and the construction schedule" and that "[d]etailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix A." (AQ Technical Report, pp. 41-42.)

However, as noted by SWAPE, Appendix A of the AQ Technical Report does not include fail a detailed construction schedule, as purported by the AQ Technical Report. (Ex. B, p. 7.)

Lastly, regarding the construction schedule, the AQ Technical Report states, "This analysis assumes construction of the Project is estimated to require up to 26 months, starting as early as the second quarter of 2020." (AQ Technical Report, p. 42.) However, as noted by SWAPE, the AQ Technical Report only indicates that the total construction period is estimated as 26 months but says nothing about the individual construction phase lengths. (Ex. B, p. 7.)

SWAPE concluded that the MND may underestimate the Project's construction-related emissions because of unsubstantiated changes to the default individual construction phase lengths and, therefore, cannot be relied upon to determine Project impacts. (Ex. B, p. 8.)

5. The MND's air quality model improperly altered the number of construction days per week without justification.

SWAPE's review of the Project's CalEEMod output files found that the Project's number of construction days per week was manually changed from the CalEEMod default. (Ex. B, p. 8.) SWAPE found that the "User Entered Comments & Non-Default Data" table (located in Appendix A of the MND) states "see construction assumptions" (MND, Appendix A, pp. 82, 115). However, the MND and associated documents fail to provide any "construction assumptions" pertaining to the number of days a week for construction (*Id.*) As such, SWAPE concludes that the MND may underestimate the Project's construction-related emissions and should not be relied upon to determine Project's impacts. (Ex. B, p. 9.)

6. The MND's air quality model made unsubstantiated changes to off-road equipment unit amounts and usage hours.

SWAPE's review of the Project's CalEEMod output files found that the Project's off-road equipment unit amounts and usage hours were manually changed from the CalEEMod defaults. (Ex. B, p. 9.)

According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "see construction assumptions" (MND, Appendix A, pp. 82, 115). However, as noted by SWAPE, the MND and associated documents provide no "construction assumptions," as purported by the "User Entered Comments and Non-Default Data" table. (Ex. B, p. 10.)

Furthermore, for the changes to construction-related inputs, the MND's Air Quality Technical Report ("AQ Technical Report") explained that "[t]he input values used in this analysis were adjusted to be Project-specific based on equipment types and the construction schedule" and that "[d]etailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix A." (AQ Technical Report, pp. 41-42.)

However, as noted by SWAPE, Appendix A of the AQ Technical Report does not include fail a detailed construction schedule, as purported by the AQ Technical Report. (Ex. B, p. 10.)

SWAPE concluded that the MND may underestimate the Project's emissions because of unsubstantiated changes to the Project's off-road construction equipment unit amounts and usage hours and, therefore, cannot be relied upon to determine Project impacts. (Ex. B, p. 8.)

7. The MND's air quality model failed to model all required material export.

SWAPE's review of the Project's CalEEMod output files found that the MND's air model underestimated the amount of required material export by 12,524 cubic yards (cy). (Ex. B, p. 10. According to the AQ Technical Report, "[t]he Project would export approximately 43,836 cubic yards of soil during grading and excavation activities" (AQ Technical Report, p. 42.) However, as SWAPE notes, the model included only 31,312 cy of material export rather than 43,836 cy. (Ex. B, p. 10.) SWAPE concluded that the MND may underestimate the Project's emissions by failing to model all the required material export and, therefore, cannot be relied upon to determine Project impacts. (Ex. B, p. 10.)

8. The MND's air quality model made unsubstantiated reductions to hauling, worker, and vendor trip numbers.

SWAPE's review of the Project's CalEEMod output files found that the MND's air model made unsubstantiated reductions to hauling, worker, and vendor trip numbers. (Ex. B, p. 10.) Specifically, the hauling, worker, and vendor trip numbers were reduced to zero. (*Id*. at p. 11.)

SWAPE found that the MND and associated documents failed to provide a source or any calculations explaining how the trip numbers were derived. (Ex. B, p. 11-12.) By failing to provide this information, the MND fails to provide substantial evidence to justify the modifications to the CalEEMod defaults. (*Id*. at 12.) SWAPE also found that the MND and associated documents failed to provide the total on-road construction-related emissions for hauling, vendor, and worker trips, or demonstrate how the on-road construction-related emissions were summed with the construction-related emissions estimated in CalEEMod. (*Id.*)

SWAPE concluded that the MND may underestimate the Project's emissions by including unsubstantiated changes to the default hauling, vendor, and worker construction trips, and, therefore, cannot be relied upon to determine Project impacts. (Ex. B, p. 10.)

9. The MND's air quality model made unsubstantiated changes to the Project's operational vehicle fleet mix.

SWAPE's review of the Project's CalEEMod output files found that the MND's air model made several changes to the default operational vehicle fleet mix percentages. (Ex. B, 13.) However, no justification for the modifications was given and the MND and associated documents do not mention any revised operational vehicle fleet mix percentages. (*Id.* at 14.)

SWAPE concluded that the model may underestimate the Project's mobile-source operational emissions and cannot be relied upon to determine Project significance. (*Id*.)

10. The MND's air quality model made unsubstantiated changes to operational vehicle emission factors.

SWAPE's review of the Project's CalEEMod output files found that the MND's air model made several changes to the default operational vehicle emission factors. (Ex. B, 15.) According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "Updated to EMFAC2017 EFs" (MND, Appendix A, pp. 489, 539). As explained by SWAPE, EMFAC refers to an entire database, not a specific set of vehicle emission factors. (Ex. B, p. 15.) The MND did not specify which input parameters were used to obtain the vehicle emission factors nor provide the revised vehicle emission factors themselves. (*Id*.) Because the vehicle emission factors are used to calculate the Project's operational emissions associated with on-road vehicles, the model may underestimate the Project's mobile-source operational emissions by including several unsubstantiated changes to the default operational vehicle emission factors and, therefore, cannot be relied upon to determine Project significance. (*Id*.)

11. The MND's air quality model improperly included construction-related mitigation measures.

SWAPE's review of the Project's CalEEMod output files found that the MND assumed that the Project will implement construction-related mitigation measures, including a 15 miles per hour (mph) vehicle speed. (Ex. B, p. 15.) However, as explained by SWAPE, with the exception of Tier 4 Final engines, the "User Entered Comments & Non-Default Data" fails to justify the inclusion of the other construction- related mitigation measures. (*Id*. at p. 16.)

For the 15 mph speed limit, SWAPE noted that although the MND claimed that the Project would comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403, SCAQMD Rule 403 does not require a 15 mph speed limit. (Ex. B, p. 16.) Pursuant to SCAQMD Rule 403, the Project may either water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph, ***or*** apply a chemical stabilizer. (*Id.* at p. 17.) Therefore, SCAQMD Rule 403 does not explicitly require any of the measures included in the CalEEMod model. (*Id*.)

SWAPE concluded that the MND may underestimate the Project's emissions by including several construction-related mitigation measures without properly committing to their implementation and enforcement, and, therefore, cannot be relied upon to determine Project impacts. (Ex. B, p. 17.)

C. Substantial Expert Evidence Establishes a Fair Argument That the Project Will Have Significant Emissions of ROG/VOC and NOx.

In an effort to accurately determine the proposed Project's construction and operational emissions, SWAPE prepared an updated CalEEMod model that includes more site-specific information and correct input parameters, as provided by the MND. (Ex. B, p. 17.) SWAPE's model included all proposed land use types and sizes as described by the MND; corrected the amount of material export; omitted the unsubstantiated changes to the individual construction phase lengths, off-road construction equipment unit amounts and usage hours, construction trip numbers, operational vehicle emission factors, and operational vehicle fleet mix percentages; and excluded the unsubstantiated construction-related mitigation measures. (*Id.*)

SWAPE's updated model found that the ROG/VOC and NOx emissions associated with Project construction exceed the 75- and 100-pounds per day ("lbs/day") thresholds set by the SCAQMD, respectively. (Ex. B, p. 17.)

SWAPE's updated model demonstrates that when the Project's construction and operational emissions are estimated based on site-specific information provided in the MND, the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the MND. As such, the City must prepare an EIR to include an updated air pollution model to properly estimate the Project's construction and operational emissions and incorporate mitigation to reduce these emissions to a less than significant level.

D. The MND Fails to Adequately Evaluate Health Risks from Diesel Particulate Matter Emissions

Based on based on a quantified construction health risk assessment ("HRA") and a localized significance ("LST") analysis, the MND concluded that the Project would have a less-than-significant health risk impact. (Ex. B, p. 18.) However, SWAPE's review of the MND found that MND's evaluation of the Project's potential health risk impacts and the less-than-significant impact conclusion were improper. (*Id.*)

First, SWAPE notes that, as discussed above, the MND's HRA relied on a flawed air model and therefore underestimated PM_{10} emissions. (Ex. B, p. 18.) By using an inaccurate PM_{10} value, the HRA underestimated the diesel particulate matter ("DPM") concentration to calculate the cancer risk associated with Project construction. (*Id*. at p. 19.) Therefore, the MND underestimated the Project's construction-related cancer risk and cannot be relied upon to determine Project impacts. (*Id.*)

Second, SWAPE disputes the MND's conclusion that operational health risks would be less-than-significant because the Project would not "generate a substantial number of daily truck trips." (Ex. B, p. 19.) However, the MND stated that Project operation would generate 1,463 new daily vehicle trips, which, according to SWAPE, would result in additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions. (*Id.*) The MND makes no effort to connect the Project's operational TAC emissions to the potential health risks posed to nearby receptors, and, therefore, should not conclude that the Project's operational health risk impact would be less than significant. (*Id.*)

Third, SWAPE found that the MND's omission of a quantified operational HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"). (Ex. B, p. 19.) OEHHA recommends that exposure from projects lasting more than 6 months be evaluated for the duration of the project and recommends that an exposure duration of 30 years be used to estimate individual cancer risk. (*Id*.) SWAPE concluded that the MND should include an operational HRA to evaluate health risk impacts with a 30-year exposure duration. (*Id*.)

Fourth, SWAPE found that the MND failed to evaluate the cumulative lifetime cancer risk to nearby, existing receptors as a result of Project construction *and* operation together. (Ex. B, p. 19.) SWAPE concluded that, per OEHHA Guidance, the Project's combined construction and operational cancer risks must be quantified and compared to the SCAQMD threshold 10 in one million. (*Id*.)

Lastly, SWAPE found that the MND improperly concluded that the Project's $PM_{2.5}$ and PM_{10} emissions would not exceed LSTs. (Ex. B, p. 20.) SWAPE's review of the CalEEMod output files demonstrates that the PM_{10} and $PM_{2.5}$ emissions associated with Project construction exceed the 1- and 2-lbs/day LSTs set by the SCAQMD, respectively. (*Id*.) Therefore, the MND's claim that emissions associated with Project construction would not exceed the applicable SCAQMD LSTs is incorrect and cannot be relied upon.

E. Substantial Expert Evidence Establishes a Fair Argument that the Project May Have a Significant Impact on Human Health from Diesel Particulate Matter

SWAPE prepared a screening-level HRA to evaluate potential impacts from the construction and operation of the Project. (Ex. B, p. 21.) SWAPE used AERSCREEN, the leading screening-level air quality dispersion model. (*Id.*) SWAPE used a sensitive receptor distance of 25 meters and analyzed impacts to individuals at different stages of life based on OEHHA and SCAQMD guidance. (Ex. B, pp. 22-13.)

SWAPE found that the excess cancer risk for adults, children, and infants, at the closest sensitive receptor located approximately 25 meters away, over the course of Project construction and operation, are approximately 16, 150, and 17 in one million, respectively. (Ex. B, p. 23.) SWAPE found that the excess cancer risk over the course of a residential lifetime is approximately **180 in one million**. (*Id.*)

These values appreciably exceed the SCAQMD's threshold of 10 in one million. SWAPE's HRA constitutes a "fair argument" that the Project will have significant impacts on human health. As such, the City must prepare an EIR to properly evaluate the Project's health risk impact.

E. The MND Fails to Adequately Assess Greenhouse Gas Impacts

SWAPE concluded that the MND failed to adequately analyze the Project's greenhouse gas ("GHG") impacts. (Ex. B, p. 24.) Although the MND calculated the Project's annual GHG emissions as 1,537 metric tons of carbon dioxide equivalents per year ("MT CO2e/yr"), the MND failed to compare the Project's emissions to any objective threshold. (*Id*. at pp. 24, 27.) Furthermore, the MND's calculation for 1,537 MT CO2e/yr was based on an inaccurate air model, as discussed above, and likely underestimated. (*Id*. at p. 26.) However, assuming that the Project's 1,537 MT CO2e/yr is accurate, the Project exceeds the proper threshold of 2.6 MT CO2e/SP/year. (*Id*. at pp. 27-28.) SWAPE concluded that the exceedance of this threshold resuls in a significant GHG impact not previously identified or addressed by the MND. (*Id*. at p. 28.) Therefore, an EIR must be prepared and mitigation must be implemented where necessary. SWAPE provided several mitigation measures that could be implemented to mitigate the Project's significant GHG impact. (*Id*. at pp. 32-39.)

Additionally, the MND relied upon the Project's consistency with the CARB's Scoping Plan, SCAG's RTP/SCS, the City's energy efficiency policies, and the City's Green Building Code in order to conclude that the Project would have a less-than-significant GHG impact. (Ex. B, p. 25.)

However, these regulatory plans do not meet the criteria for an officially adopted GHG reduction program, commonly referred to as a Climate Action Plan ("CAP"), for use as a threshold of significance for GHG emissions. (Ex. B, p. 26.) As CEQA Guideline section 15064.4(b)(3) makes clear, a qualified CAP "must be adopted by the relevant public agency through a public review process," and, as explained by CEQA Guideline section 15183.5(b)(1), the CAP should include:

(1) **Inventory**: Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
(2) **Establish GHG Reduction Goal**: Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
(3) **Analyze Project Types**: Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
(4) **Craft Performance Based Mitigation Measures**: Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
(5) **Monitoring**: Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels; and

Here, the MND fails to demonstrate that the CARB's Scoping Plan, SCAG's RTP/SCS, the City's energy efficiency policies, and the City's Green Building Code include the above-listed requirements to be considered a qualified CAP for the City. Furthermore, the MND failed to consider performance-based standards under CARB's Scoping Plan (Ex. B, pp. 28-30) and SCAG's RTP/SCS (*id*. at pp. 30-32). As such, the MND leaves an analytical gap and fails to demonstrate that compliance with said plans can be used for project-level significance determination. (Ex. B, p. 27.)

F. The MND's Mitigation for Hazards and Hazardous Materials is Inadequate.

In order to mitigate the Project's significant impacts related to hazardous materials, the MND required MM-HAZ-1. MM-HAZ-1 requires a qualified environmental consultant to prepare a Soil Management and Remediation Plan and "[u]pon completion of the Soil Management and Remediation Plan, the Applicant shall contact the LARWQCB to obtain a closure letter that states no further soils testing or remediation is required on the Project Site." (MND, p. B-50.) However, the MND fails to disclose that MND the recent status of the site in Geotracker, which concludes there are two impediments to closure: (1) free product in groundwater; and (2) threat for vapor intrusion. (Ex. B, p. 2.) Without disclosing and accounting for these impediments to closure, the MND fails to provide substantial evidence that MM-HAZ-1 would reduce the Project's impacts to a less-than-significant level.

SWAPE also noted that MND failed to disclose contamination on the Project site because the extent of contamination is not known. (Ex. B, p. 2.) As a result, the MND failed to identify impacts of remediation because: "(1) an informed estimate of the amount of soil to be excavated has not been made, therefore construction impacts for excavation and truck trips for proper disposal have not been estimated; and (2) magnitude of groundwater plume and vapor intrusion impacts have not been determined – these will result in impacts including construction and operation emissions associated with groundwater investigations, well drilling, and groundwater pumping and treatment system installation and operation." (*Id.*) Without disclosing and accounting for the extent of contamination and the impacts of remediation, the MND fails to provide substantial evidence Project's impacts related to hazards and hazardous materials are less-than-significant.

IV. CONCLUSION

For the foregoing reasons, the MND for the Project should be withdrawn, an EIR should be prepared, and the draft EIR should be circulated for public review and comment in accordance with CEQA. Thank you for considering these comments.

Sincerely,

Brian B. Flynn

Brian Flynn
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EXHIBIT A

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From: Francis J. Offermann PE CIH

Subject: Indoor Air Quality: 11469 Jefferson Boulevard-Culver City, CA
(IEE File Reference: P-4424)

Pages: 19

Indoor Air Quality Impacts

Indoor air quality (IAQ) directly impacts the comfort and health of building occupants, and the achievement of acceptable IAQ in newly constructed and renovated buildings is a well-recognized design objective. For example, IAQ is addressed by major high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014). Indoor air quality in homes is particularly important because occupants, on average, spend approximately ninety percent of their time indoors with the majority of this time spent at home (EPA, 2011). Some segments of the population that are most susceptible to the effects of poor IAQ, such as the very young and the elderly, occupy their homes almost continuously. Additionally, an increasing number of adults are working from home at least some of the time during the workweek. Indoor air quality also is a serious concern for workers in hotels, offices and other business establishments.

The concentrations of many air pollutants often are elevated in homes and other buildings relative to outdoor air because many of the materials and products used indoors contain and release a variety of pollutants to air (Hodgson et al., 2002; Offermann and Hodgson, 2011). With respect to indoor air contaminants for which inhalation is the primary route of exposure, the critical design and construction parameters are the provision of adequate ventilation and the reduction of indoor sources of the contaminants.

Indoor Formaldehyde Concentrations Impact. In the California New Home Study (CNHS) of 108 new homes in California (Offermann, 2009), 25 air contaminants were measured, and formaldehyde was identified as the indoor air contaminant with the highest cancer risk as determined by the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), No Significant Risk Levels (NSRL) for carcinogens. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000 (i.e., ten in one million cancer risk) and for formaldehyde is 40 μg/day. The NSRL concentration of formaldehyde that represents a daily dose of 40 μg is 2 $\mu g/m^3$, assuming a continuous 24-hour exposure, a total daily inhaled air volume of 20 m^3, and 100% absorption by the respiratory system. All of the CNHS homes exceeded this NSRL concentration of 2 $\mu g/m^3$. The median indoor formaldehyde concentration was 36 $\mu g/m^3$, and ranged from 4.8 to 136 $\mu g/m^3$, which corresponds to a median exceedance of the 2 $\mu g/m^3$ NSRL concentration of 18 and a range of 2.3 to 68.

Therefore, the cancer risk of a resident living in a California home with the median indoor formaldehyde concentration of 36 $\mu g/m^3$, is 180 per million as a result of formaldehyde alone. The CEQA significance threshold for airborne cancer risk is 10 per million, as established by the South Coast Air Quality Management District (SCAQMD, 2015).

Besides being a human carcinogen, formaldehyde is also a potent eye and respiratory irritant. In the CNHS, many homes exceeded the non-cancer reference exposure levels (RELs) prescribed by California Office of Environmental Health Hazard Assessment (OEHHA, 2017b). The percentage of homes exceeding the RELs ranged from 98% for the Chronic REL of 9 $\mu g/m^3$ to 28% for the Acute REL of 55 $\mu g/m^3$.

The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.

In January 2009, the California Air Resources Board (CARB) adopted an airborne toxics control measure (ATCM) to reduce formaldehyde emissions from composite wood products, including hardwood plywood, particleboard, medium density fiberboard, and also furniture and other finished products made with these wood products (California Air Resources Board 2009). While this formaldehyde ATCM has resulted in reduced emissions from composite wood products sold in California, they do not preclude that homes built with composite wood products meeting the CARB ATCM will have indoor formaldehyde concentrations below cancer and non-cancer exposure guidelines.

A follow up study to the California New Home Study (CNHS) was conducted in 2016-2018 (Singer et. al., 2019), and found that the median indoor formaldehyde in new homes built after 2009 with CARB Phase 2 Formaldehyde ATCM materials had lower indoor formaldehyde concentrations, with a median indoor concentrations of 22.4 $\mu g/m^3$ (18.2 ppb) as compared to a median of 36 $\mu g/m^3$ found in the 2007 CNHS. Unlike in the CNHS study where formaldehyde concentrations were measured with pumped DNPH samplers, the formaldehyde concentrations in the HENGH study were measured with passive samplers, which were estimated to under-measure the true indoor formaldehyde concentrations by approximately 7.5%. Applying this correction to the HENGH indoor formaldehyde concentrations results in a median indoor concentration of 24.1 $\mu g/m^3$, which is 33% lower than the 36 $\mu g/m^3$ found in the 2007 CNHS.

Thus, while new homes built after the 2009 CARB formaldehyde ATCM have a 33% lower median indoor formaldehyde concentration and cancer risk, the median lifetime cancer risk is still 120 per million for homes built with CARB compliant composite wood products. This median lifetime cancer risk is more than 12 times the OEHHA 10 in a million cancer risk threshold (OEHHA, 2017a).

With respect to the 11469 Jefferson Boulevard Project, Culver City, CA, the building consists of a hotel.

The employees of the hotel are expected to experience significant indoor exposures (e.g., 40 hours per week, 50 weeks per year). These exposures for employees are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in offices, warehouses, residences and hotels.

Because the hotel spaces will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of 24.1 $\mu g/m^3$ (Singer et. al., 2020)

Assuming that the employees of hotel work 8 hours per day and inhale 20 m^3 of air per day, the formaldehyde dose per work-day at the offices is 161 µg/day.

Assuming that these employees work 5 days per week and 50 weeks per year for 45 years (start at age 20 and retire at age 65) the average 70-year lifetime formaldehyde daily dose is 70.9 µg/day.

This is 1.77 times the NSRL (OEHHA, 2017a) of 40 µg/day and represents a cancer risk of 17.7 per million, which exceeds the CEQA cancer risk of 10 per million. This impact should be analyzed in an environmental impact report ("EIR"), and the agency should impose all feasible mitigation measures to reduce this impact. Several feasible mitigation measures are discussed below and these and other measures should be analyzed in an EIR.

Appendix A, Indoor Formaldehyde Concentrations and the CARB Formaldehyde ATCM, provides analyses that show utilization of CARB Phase 2 Formaldehyde ATCM materials will not ensure acceptable cancer risks with respect to formaldehyde emissions from composite wood products.

Even composite wood products manufactured with CARB certified ultra low emitting formaldehyde (ULEF) resins do not insure that the indoor air will have concentrations of formaldehyde the meet the OEHHA cancer risks that substantially exceed 10 per million. The permissible emission rates for ULEF composite wood products are only 11-15% lower than the CARB Phase 2 emission rates. Only use of composite wood products made with no-added formaldehyde resins (NAF), such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

The following describes a method that should be used, prior to construction in the environmental review under CEQA, for determining whether the indoor concentrations resulting from the formaldehyde emissions of specific building materials/furnishings selected exceed cancer and non-cancer guidelines. Such a design analyses can be used to identify those materials/furnishings prior to the completion of the City's CEQA review and project approval, that have formaldehyde emission rates that contribute to indoor concentrations that exceed cancer and non-cancer guidelines, so that alternative lower emitting materials/furnishings may be selected and/or higher minimum outdoor air ventilation rates can be increased to achieve acceptable indoor concentrations and incorporated as mitigation measures for this project.

Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment

This formaldehyde emissions assessment should be used in the environmental review under CEQA to assess the indoor formaldehyde concentrations from the proposed loading of building materials/furnishings, the area-specific formaldehyde emission rate data for building materials/furnishings, and the design minimum outdoor air ventilation rates. This assessment allows the applicant (and the City) to determine, before the conclusion of the environmental review process and the building materials/furnishings are specified, purchased, and installed, if the total chemical emissions will exceed cancer and non-cancer guidelines, and if so, allow for changes in the selection of specific material/furnishings and/or the design minimum outdoor air ventilations rates such that cancer and non-cancer guidelines are not exceeded.

1.) Define Indoor Air Quality Zones. Divide the building into separate indoor air quality zones, (IAQ Zones). IAQ Zones are defined as areas of well-mixed air. Thus, each ventilation system with recirculating air is considered a single zone, and each room or group of rooms where air is not recirculated (e.g. 100% outdoor air) is considered a separate zone. For IAQ Zones with the same construction material/furnishings and design minimum outdoor air ventilation rates. (e.g. hotel rooms, apartments, condominiums, etc.) the formaldehyde emission rates need only be assessed for a single IAQ Zone of that type.

2.) Calculate Material/Furnishing Loading. For each IAQ Zone, determine the building material and furnishing loadings (e.g., m^2 of material/m^2 floor area, units of furnishings/m^2 floor area) from an inventory of all potential indoor formaldehyde sources, including flooring, ceiling tiles, furnishings, finishes, insulation, sealants, adhesives, and any products constructed with composite wood products containing urea-formaldehyde resins (e.g., plywood, medium density fiberboard, particleboard).

3.) Calculate the Formaldehyde Emission Rate. For each building material, calculate the formaldehyde emission rate (µg/h) from the product of the area-specific formaldehyde emission rate (µg/m^2-h) and the area (m^2) of material in the IAQ Zone, and from each furnishing (e.g. chairs, desks, etc.) from the unit-specific formaldehyde emission rate (µg/unit-h) and the number of units in the IAQ Zone.

NOTE: As a result of the high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014), most manufacturers of building materials furnishings sold in the United States conduct chemical emission rate tests using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers," (CDPH, 2017), or other equivalent chemical emission rate testing methods. Most manufacturers of building furnishings sold in the United States conduct chemical emission rate tests using ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions (BIFMA, 2018), or other equivalent chemical emission rate testing methods.

CDPH, BIFMA, and other chemical emission rate testing programs, typically certify that a material or furnishing does not create indoor chemical concentrations in excess of the maximum concentrations permitted by their certification. For instance, the CDPH emission rate testing requires that the measured emission rates when input into an office, school, or residential model do not exceed one-half of the OEHHA Chronic Exposure Guidelines (OEHHA, 2017b) for the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017). These certifications themselves do not provide the actual area-specific formaldehyde emission rate (i.e., $\mu g/m^2$-h) of the product, but rather provide data that the formaldehyde emission rates do not exceed the maximum rate allowed for the certification. Thus, for example, the data for a certification of a specific type of flooring may be used to calculate that the area-specific emission rate of formaldehyde is less than 31 $\mu g/m^2$-h, but not the actual measured specific emission rate, which may be 3, 18, or 30 $\mu g/m^2$-h. These area-specific emission rates determined from the product certifications of CDPH, BIFA, and other certification programs can be used as an initial estimate of the formaldehyde emission rate.

If the actual area-specific emission rates of a building material or furnishing is needed (i.e. the initial emission rates estimates from the product certifications are higher than desired), then that data can be acquired by requesting from the manufacturer the complete chemical emission rate test report. For instance if the complete CDPH emission test report is requested for a CDHP certified product, that report will provide the actual area-specific emission rates for not only the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017), but also all of the cancer and reproductive/developmental chemicals listed in the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), all of the toxic air contaminants (TACs) in the California Air Resources Board Toxic Air Contamination List (CARB, 2011), and the 10 chemicals with the greatest emission rates.

Alternatively, a sample of the building material or furnishing can be submitted to a chemical emission rate testing laboratory, such as Berkeley Analytical Laboratory (https://berkeleyanalytical.com), to measure the formaldehyde emission rate.

4.) Calculate the Total Formaldehyde Emission Rate. For each IAQ Zone, calculate the total formaldehyde emission rate (i.e. µg/h) from the individual formaldehyde emission rates from each of the building material/furnishings as determined in Step 3.

5.) Calculate the Indoor Formaldehyde Concentration. For each IAQ Zone, calculate the indoor formaldehyde concentration (µg/m^3) from Equation 1 by dividing the total formaldehyde emission rates (i.e. µg/h) as determined in Step 4, by the design minimum outdoor air ventilation rate (m^3/h) for the IAQ Zone.

$$C_{in} = \frac{E_{total}}{Q_{oa}} \quad \text{(Equation 1)}$$

where:

C_{in} = indoor formaldehyde concentration (µg/m^3)

E_{total} = total formaldehyde emission rate (µg/h) into the IAQ Zone.

Q_{oa} = design minimum outdoor air ventilation rate to the IAQ Zone (m^3/h)

The above Equation 1 is based upon mass balance theory, and is referenced in Section 3.10.2 "Calculation of Estimated Building Concentrations" of the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017).

6.) Calculate the Indoor Exposure Cancer and Non-Cancer Health Risks. For each IAQ Zone, calculate the cancer and non-cancer health risks from the indoor formaldehyde concentrations determined in Step 5 and as described in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

7.) Mitigate Indoor Formaldehyde Exposures of exceeding the CEQA Cancer and/or Non-Cancer Health Risks. In each IAQ Zone, provide mitigation for any formaldehyde exposure risk as determined in Step 6, that exceeds the CEQA cancer risk of 10 per million or the CEQA non-cancer Hazard Quotient of 1.0.

Provide the source and/or ventilation mitigation required in all IAQ Zones to reduce the health risks of the chemical exposures below the CEQA cancer and non-cancer health risks.

Source mitigation for formaldehyde may include:

1.) reducing the amount materials and/or furnishings that emit formaldehyde
2.) substituting a different material with a lower area-specific emission rate of formaldehyde

Ventilation mitigation for formaldehyde emitted from building materials and/or furnishings may include:

1.) increasing the design minimum outdoor air ventilation rate to the IAQ Zone.

NOTE: Mitigating the formaldehyde emissions through use of less material/furnishings, or use of lower emitting materials/furnishings, is the preferred mitigation option, as mitigation with increased outdoor air ventilation increases initial and operating costs associated with the heating/cooling systems.

Further, we are not asking that the builder "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers," (CDPH, 2017), and use the procedure described earlier above (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Impact. Another important finding of the CNHS, was that the outdoor air ventilation rates in the homes were very low. Outdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations. Many homeowners rarely open their windows or doors for ventilation as a result of their concerns for security/safety, noise, dust, and odor concerns (Price, 2007). In the CNHS field study, 32% of the homes did not use their windows during the 24-hour Test Day, and 15% of the homes did not use their windows during the entire preceding week. Most of the homes with no window usage were homes in the winter field session. Thus, a substantial percentage of homeowners never open their windows, especially in the winter season. The median 24-hour measurement was 0.26 air changes per hour (ach), with a range of 0.09 ach to 5.3 ach. A total of 67% of the homes had outdoor air exchange rates below the minimum California Building Code (2001) requirement of 0.35 ach. Thus, the relatively tight envelope construction, combined with the fact that many people never open their windows for ventilation, results in homes with low outdoor air exchange rates and higher indoor air contaminant concentrations.

The 11469 Jefferson Boulevard Project, Culver City, CA is close to roads with moderate to high traffic (e.g., Jefferson Boulevard, S. Lausen Avenue, San Diego Freeway, Sepulevada Boulevard, I-90 etc.. As a result of the outdoor vehicle traffic noise, the Project site is likely to be a sound impacted site.

According to the Proposed Mitigated Negative Declaration - 11469 Jefferson Boulevard Project, Culver City, CA. (City of Culver City, 2021) the future traffic noise levels with Project range from from 63.6 to 670.2 dBA CNEL.

As a result of the high outdoor noise levels, the current project will require a mechanical supply of outdoor air ventilation to allow for a habitable interior environment with closed windows and doors. Such a ventilation system would allow windows and doors to be kept closed at the occupant's discretion to control exterior noise within building interiors.

<u>$PM_{2.5}$ Outdoor Concentrations Impact</u>. An additional impact of the nearby motor vehicle traffic associated with this project, are the outdoor concentrations of $PM_{2.5}$. According to the Proposed Mitigated Negative Declaration - 11469 Jefferson Boulevard Project, Culver City, CA. (City of Culver City, 2021), the Project is located in South Coast Air Basin, which is a State and Federal non-attainment area for $PM_{2.5}$.

An air quality analyses should to be conducted to determine the concentrations of $PM_{2.5}$ in the outdoor and indoor air that people inhale each day. This air quality analyses needs to consider the cumulative impacts of the project related emissions, existing and projected future emissions from local $PM_{2.5}$ sources (e.g. stationary sources, motor vehicles, and airport traffic) upon the outdoor air concentrations at the Project site. If the outdoor concentrations are determined to exceed the California and National annual average $PM_{2.5}$ exceedence concentration of 12 $\mu g/m^3$, or the National 24-hour average exceedence concentration of 35 $\mu g/m^3$, then the buildings need to have a mechanical supply of outdoor air that has air filtration with sufficient removal efficiency, such that the indoor concentrations of outdoor $PM_{2.5}$ particles is less than the California and National $PM_{2.5}$ annual and 24-hour standards.

It is my experience that based on the projected high traffic noise levels, the annual average concentration of $PM_{2.5}$ will exceed the California and National $PM_{2.5}$ annual and 24-hour standards and warrant installation of high efficiency air filters (i.e. MERV 13 or higher) in all mechanically supplied outdoor air ventilation systems.

Indoor Air Quality Impact Mitigation Measures

The following are recommended mitigation measures to minimize the impacts upon indoor quality:

Indoor Formaldehyde Concentrations Mitigation. Use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins (CARB, 2009). CARB Phase 2 certified composite wood products, or ultra-low emitting formaldehyde (ULEF) resins, do not insure indoor formaldehyde concentrations that are below the CEQA cancer risk of 10 per million. Only composite wood products manufactured with CARB approved no-added formaldehyde (NAF) resins, such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

Alternatively, conduct the previously described Pre-Construction Building Material/Furnishing Chemical Emissions Assessment, to determine that the combination of formaldehyde emissions from building materials and furnishings do not create indoor formaldehyde concentrations that exceed the CEQA cancer and non-cancer health risks.

It is important to note that we are not asking that the builder "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017), and use the procedure described above (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Mitigation. Provide each habitable room with a continuous mechanical supply of outdoor air that meets or exceeds the California 2016 Building Energy Efficiency Standards (California Energy Commission, 2015) requirements of the greater of 15 cfm/occupant or 0.15 cfm/ft^2 of floor area. Following installation of the system conduct testing and balancing to insure that required amount of outdoor air is entering each habitable room and provide a written report documenting the outdoor airflow rates. Do not use exhaust only mechanical outdoor air systems, use only balanced outdoor air supply and exhaust systems or outdoor air supply only systems. Provide a manual for the occupants or maintenance personnel, that describes the purpose of the mechanical outdoor air system and the operation and maintenance requirements of the system.

$PM_{2.5}$ Outdoor Air Concentration Mitigation. Install air filtration with sufficient $PM_{2.5}$ removal efficiency (e.g. MERV 13 or higher) to filter the outdoor air entering the mechanical outdoor air supply systems, such that the indoor concentrations of outdoor $PM_{2.5}$ particles are less than the California and National $PM_{2.5}$ annual and 24-hour standards. Install the air filters in the system such that they are accessible for replacement by the occupants or maintenance personnel. Include in the mechanical outdoor air ventilation system manual instructions on how to replace the air filters and the estimated frequency of replacement.

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APPENDIX A

INDOOR FORMALDEHYDE CONCENTRATIONS
AND THE
CARB FORMALDEHYDE ATCM

With respect to formaldehyde emissions from composite wood products, the CARB ATCM regulations of formaldehyde emissions from composite wood products, do not assure healthful indoor air quality. The following is the stated purpose of the CARB ATCM regulation - *The purpose of this airborne toxic control measure is to "reduce formaldehyde emissions from composite wood products, and finished goods that contain composite wood products, that are sold, offered for sale, supplied, used, or manufactured for sale in California"*. In other words, the CARB ATCM regulations do not "assure healthful indoor air quality", but rather "reduce formaldehyde emissions from composite wood products".

Just how much protection do the CARB ATCM regulations provide building occupants from the formaldehyde emissions generated by composite wood products? Definitely some, but certainly the regulations do not "*assure healthful indoor air quality"* when CARB Phase 2 products are utilized. As shown in the Chan 2019 study of new California homes, the median indoor formaldehyde concentration was of 22.4 µg/m^3 (18.2 ppb), which corresponds to a cancer risk of 112 per million for occupants with continuous exposure, which is more than 11 times the CEQA cancer risk of 10 per million.

Another way of looking at how much protection the CARB ATCM regulations provide building occupants from the formaldehyde emissions generated by composite wood products is to calculate the maximum number of square feet of composite wood product that can be in a residence without exceeding the CEQA cancer risk of 10 per million for occupants with continuous occupancy.

For this calculation I utilized the floor area (2,272 ft^2), the ceiling height (8.5 ft), and the number of bedrooms (4) as defined in Appendix B (New Single-Family Residence Scenario) of the Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers, Version 1.1, 2017, California

Department of Public Health, Richmond, CA. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

For the outdoor air ventilation rate I used the 2019 Title 24 code required mechanical ventilation rate (ASHRAE 62.2) of 106 cfm (180 m^3/h) calculated for this model residence. For the composite wood formaldehyde emission rates I used the CARB ATCM Phase 2 rates.

The calculated maximum number of square feet of composite wood product that can be in a residence, without exceeding the CEQA cancer risk of 10 per million for occupants with continuous occupancy are as follows for the different types of regulated composite wood products.

Medium Density Fiberboard (MDF) – 15 ft^2 (0.7% of the floor area), or
Particle Board – 30 ft^2 (1.3% of the floor area), or
Hardwood Plywood – 54 ft^2 (2.4% of the floor area), or
Thin MDF – 46 ft^2 (2.0 % of the floor area).

For offices and hotels the calculated maximum amount of composite wood product (% of floor area) that can be used without exceeding the CEQA cancer risk of 10 per million for occupants, assuming 8 hours/day occupancy, and the California Mechanical Code minimum outdoor air ventilation rates are as follows for the different types of regulated composite wood products.

Medium Density Fiberboard (MDF) – 3.6 % (offices) and 4.6% (hotel rooms), or
Particle Board – 7.2 % (offices) and 9.4% (hotel rooms), or
Hardwood Plywood – 13 % (offices) and 17% (hotel rooms), or
Thin MDF – 11 % (offices) and 14 % (hotel rooms)

Clearly the CARB ATCM does not regulate the formaldehyde emissions from composite wood products such that the potentially large areas of these products, such as for flooring, baseboards, interior doors, window and door trims, and kitchen and bathroom cabinetry, could be used without causing indoor formaldehyde concentrations that result in CEQA cancer risks that substantially exceed 10 per million for occupants with continuous occupancy.

Even composite wood products manufactured with CARB certified ultra low emitting formaldehyde (ULEF) resins do not insure that the indoor air will have concentrations of formaldehyde the meet the OEHHA cancer risks that substantially exceed 10 per million. The permissible emission rates for ULEF composite wood products are only 11-15% lower than the CARB Phase 2 emission rates. Only use of composite wood products made with no-added formaldehyde resins (NAF), such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

If CARB Phase 2 compliant or ULEF composite wood products are utilized in construction, then the resulting indoor formaldehyde concentrations should be determined in the design phase using the specific amounts of each type of composite wood product, the specific formaldehyde emission rates, and the volume and outdoor air ventilation rates of the indoor spaces, and all feasible mitigation measures employed to reduce this impact (e.g. use less formaldehyde containing composite wood products and/or incorporate mechanical systems capable of higher outdoor air ventilation rates). See the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Alternatively, and perhaps a simpler approach, is to use only composite wood products (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins.

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View Curriculum Vitae (PDF)

Education

- M.S. Mechanical Engineering Stanford University, Stanford, CA.
- Graduate Studies in Air Pollution Monitoring and Control University of California, Berkeley, CA.
- B.S. in Mechanical Engineering Rensselaer Polytechnic Institute, Troy, N.Y.

Professional Affiliations

ACGIH, AIHA, ASHRAE, CSI, ASTM, ISIAQ, PARMA, and USGBC

Work Experience

Mr. Offermann PE, CIH, has 36 years experience as an IAQ researcher, technical author, and workshop instructor. He is president of Indoor Environmental Engineering, a San Francisco based IAQ R&D consulting firm. As president of Indoor Environmental Engineering, Mr. Offermann directs an interdisciplinary team of environmental scientists, chemists, and mechanical engineers in indoor air quality building investigations. Under Mr. Offermann's supervision, IEE has developed both pro-active and reactive IAQ measurement methods and diagnostic protocols. He has supervised over 2,000 IAQ investigations in commercial, residential, and institutional buildings and conducted numerous forensic investigations related to IAQ.

Litigation Experience

Mr. Offermann has been qualified numerous times in court as an expert in the field of indoor air quality and ventilation for both plaintiffs and defendants. He has been deposed over 150 times in cases involving indoor air quality/ventilation issues in commercial, residential, and institutional buildings involving construction defects, and/or operation and maintenance problems. Examples of indoor air quality cases he has worked on are alleged personal injury and/or property damages from mold and bacterial contamination/moisture intrusion, building renovation activities, insufficient outdoor air ventilation, off gassing of volatile organic compounds from building materials and coatings, malfunctioning gas heaters and carbon monoxide poisoning, and applications of pesticides. Mr. Offermann has testified with respect to the scientific admissability of expert testimony regarding indoor air quality issues via Daubert and Kelly-Frye motions.

EXHIBIT B

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February 17, 2021

Brian Flynn
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Subject: Comments on 11469 Jefferson Boulevard Project (SCH No. 2021010247)

Dear Mr. Flynn,

We have reviewed the January 2021 Initial Study/Mitigated Negative Declaration ("IS/MND") for the 11469 Jefferson Boulevard Project ("Project") located in the City of Culver City ("City"). The Project proposes to demolish the existing 13,000-SF shopping center and construct a 111,000-SF hotel, including 175-rooms, food and drink amenities, a rooftop bar, and pool, as well as 138 parking spaces in a 56,300-SF subterranean garage, on the 0.78-acre site.

Our review concludes that the IS/MND fails to adequately evaluate the Project's hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An EIR should be prepared to adequately assess and mitigate the potential hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment.

Hazards and Hazardous Materials

In MM HAZ-1, the IS/MND presumes closure will be granted, stating:

> "MM-HAZ-1: The Applicant shall retain a qualified environmental consultant to prepare a Soil Management and Remediation Plan for review and approval by the Culver City Building Safety Division and LARWQCB, as necessary, prior to the commencement of excavation and grading activities. The plan would include measures to remove and/or treat/remediate the impacted soils and groundwater to a level determined acceptable per applicable regulatory standards,

> under supervision of a certified environmental consultant licensed to oversee such remediation. Upon completion of the Soil Management and Remediation Plan, the Applicant shall contact the LARWQCB to obtain a closure letter that states no further soils testing or remediation is required on the Project Site."

The IS/MND does not disclose the recent status of the site in Geotracker, pasted below, which concludes there are two impediments to closure: (1) free product in groundwater; and (2) threat for vapor intrusion.

This IS/MND cites plans to remediate by development, stating:

> "[T]he Project would include subterranean parking, which by its nature would involve excavation of soils for the proposed 2-level parking structure. Therefore, with the Project, direct excavation and removal of contaminated soils and groundwater can occur in a manner that was not previously contemplated in the RAP."

The IS/MND fails to disclose contamination because the extent of contamination is not known.

Additionally, not knowing the extent of contamination, the IS/MND fails to identify impacts of remediation because: (1) an informed estimate of the amount of soil to be excavated has not been made, therefore construction impacts for excavation and truck trips for proper disposal have not been estimated; and (2) magnitude of groundwater plume and vapor intrusion impacts have not been determined – these will result in impacts including construction and operation emissions associated with groundwater investigations, well drilling, and groundwater pumping and treatment system installation and operation.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The IS/MND's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2 (p. B-36).[1] CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence. Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters are utilized in calculating the Project's air pollutant emissions and make known which default values are changed as well as provide justification for the values selected.

[1] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

When reviewing the Project's CalEEMod output files, provided in The Jeff Hotel Project Air Quality Emissions Worksheets ("AQ Emissions Worksheets") as Appendix A to the IS/MND, we found that several model inputs were not consistent with information disclosed in the IS/MND. As a result, the Project's construction and operational emissions are underestimated. As a result, a Project-specific EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Unsubstantiated Reduction to the Default CO_2 Intensity Factor

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Operations" includes a manual reduction to the default CO_2 intensity factor (see excerpt below) (Appendix A, pp. 491, 541).

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	702.44	509.22

As you can see in the excerpt below, the CO_2 intensity factor was manually reduced by approximately 28%, from the default value of 702.44 pounds per megawatt hour ("lbs/MWh") to 509.22 lbs/MWh. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[2] According to the "User Entered Comments and Non-Default Data" table, the justification provided for this change is:

> "CO2e intensity factor was linearly projected for year 2022 anticipated RPS based on SB 100 target of 44% RPS by 12/31/2024 projected and from SCE contract with the CPUC to have 41.4% RPS by 2020" (Appendix A, pp. 489, 539).

Furthermore, regarding the revised CO_2 intensity factor, the IS/MND states:

> "Since the Project's first operational year was conservatively modeled for Year 2022 (would be less energy used for future years), the default CO_2 intensity factor in CalEEMod for SCE was linearly adjusted from 2020 to account for 42.4 percent renewable energy for 2022 based on the required renewables from year 2024 under SB 100. For 2012, SCE had 20.6 percent renewables and this was used to back calculate a CO_2 intensity factor where SCE had zero percent renewable. This value was then adjusted to reflect a CO_2 intensity factor with 42.4 percent renewables" (p. B-37).

However, these justifications are insufficient for two reasons. First, the IS/MND cannot simply interpolate its own CO_2 intensity factor based on *estimates* of future increases in renewable energy use. Second, simply because the *state* has renewable energy *goals* for 2024 does not ensure that these goals will be achieved locally on the Project site or by the Project's specific utility company. As a result, we cannot verify the revised CO_2 intensity factor.

[2] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

This unsubstantiated reduction presents an issue, as CalEEMod uses the CO_2 intensity factor to calculate the Project's greenhouse gas ("GHG") emissions associated with electricity use.[3] Thus, by including an unsubstantiated reduction to the default CO_2 intensity factor, the model may underestimate the Project's GHG emissions and should not be relied upon to determine Project significance.

Use of an Underestimated Parking Land Use Size

According to the IS/MND, the Project proposes to provide "56,300 SF of subterranean parking" (p. A-4). However, review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" and "11469 Jefferson – Operations" models include only 33,817-SF of parking space (See excerpts below) (Appendix A, pp. 81, 114, 489, 539).

"11469 Jefferson – Construction"

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area
Enclosed Parking with Elevator	199.00	Space	0.28	33,817.00
Hotel	175.00	Room	0.50	122,000.00

"11469 Jefferson – Operation"

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area
Enclosed Parking with Elevator	199.00	Space	0.28	33,817.00
Hotel	175.00	Room	0.50	122,000.00

As you can see in the excerpt above, the proposed parking space is underestimated by 22,483-SF.[4] This underestimation presents an issue, as the land use size feature is used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations. The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts).[5] Thus, by underestimating the size of the proposed parking land use, the models underestimate the Project's construction-related and operational emissions and should not be relied upon to determine Project significance.

Failure to Model All Proposed Land Uses

According to the IS/MND, the Project proposes to construct 3,313-SF[6] of restaurant space and 700-SF of fitness space (see excerpt below) (p. A-9).

[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.caleemod.com/, p. 17.
[4] Calculated: 56,300-SF – 33,817-SF = 22,483-SF.
[5] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 28.
[6] Calculated: 2,900-SF "Restaurant" + 413-SF "Rooftop Bar" = 3,313-SF total restaurant space.

Table A-1
Proposed Project Land Use Summary

Hotel (175 rooms)	67,030 SF
Back-Of-House	8,536 SF
Hotel Amenities	
Restaurant	2,900 SF
Rooftop Bar	413 SF
Meeting Rooms	4,570 SF
Lounge (ground floor)	5,000 SF
Lobby	1,200 SF
Fitness Room	700 SF
Hotel Amenities subtotal	*14,783 SF*
Bicycle Parking	630 SF
Circulation (Stairs/Elevators)	18,842 SF
Loading Area	1,119 SF
Total Project SF	**111,000 SF**
Open Space Area	**15,450 SF**
Passenger Vehicle Parking SF	**56,300**[a]
Site Area	**33,800 SF**

SF = square feet

[a] *56,300 SF of parking assumes 2 subterranean parking levels for 138 spaces.*

Source: Nakada, 2020.

As such, the models should have included 3,313- and 700-SF of restaurant and fitness space, respectively. However, review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" and "11469 Jefferson – Operations" models fail to include the proposed restaurant and fitness land uses (see excerpt below) (Appendix A, pp. 81, 114, 489, 539).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area
Enclosed Parking with Elevator	199.00	Space	0.28	33,817.00
Hotel	175.00	Room	0.50	122,000.00

As you can see in the excerpt above, the models fail to distinguish between the hotel land use and the restaurant and fitness land uses. This inconsistency presents an issue, as CalEEMod includes 63 different land use types that are each assigned a distinctive set of energy usage emission factors.[7] Furthermore, each land use type includes a specific trip rate that CalEEMod uses to calculate mobile-source emissions.[8] Thus, by failing to include all proposed land use types, the models may underestimate the

[7] "CalEEMod User's Guide, Appendix D." CAPCOA, September 2016, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/05_appendix-d2016-3-1.pdf?sfvrsn=2.
[8] CalEEMod User's Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 14.

Project's construction-related and operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Individual Construction Phase Lengths

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes several changes to the default individual construction phase lengths (see excerpt below) (Appendix A, pp. 83, 116).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	77.00
tblConstructionPhase	NumDays	100.00	79.00
tblConstructionPhase	NumDays	100.00	6.00
tblConstructionPhase	NumDays	100.00	468.00
tblConstructionPhase	NumDays	10.00	53.00
tblConstructionPhase	NumDays	2.00	75.00
tblConstructionPhase	NumDays	5.00	11.00

As a result of these changes, the model includes a construction schedule as follows (see excerpt below) (Appendix A, pp. 89, 122):

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Demolition	Demolition	5/4/2020	7/3/2020	6	53
2	Excavation	Grading	7/6/2020	9/30/2020	6	75
3	Foundations	Building Construction	10/1/2020	12/31/2020	6	79
4	Continuous Concrete Pour	Building Construction	11/2/2020	11/7/2020	6	6
5	Building Construction	Building Construction	1/2/2021	7/1/2022	6	468
6	Paving	Paving	11/1/2021	11/12/2021	6	11
7	Architectural Coating	Architectural Coating	2/1/2022	4/30/2022	6	77

As you can see in the excerpts above, the demolition phase was increased by approximately 430%, from the default of 10 to 53 days; the grading phase was increased by approximately 3,650%, from the default of 2 to 75 days; the building construction phases were collectively increased by approximately 84%, from the cumulative default value of 300 to 553 days; the paving phase was increased by approximately 120%, from the default value of 5 to 11 days; and the architectural coating phase was increased by 1,440%, from the default value of 5 to 77 days.

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[9] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "see construction assumptions" (Appendix A, pp. 82, 115). Furthermore,

[9] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

regarding the Project's construction-related CalEEMod input values, the Air Quality Technical Report ("AQ Technical Report") states:

> "The input values used in this analysis were adjusted to be Project-specific based on equipment types and the construction schedule. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. *Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix A*" (see emphasis) (p. 41-42).

Furthermore, regarding the construction schedule, the AQ Technical Report states:

> "This analysis assumes construction of the Project is estimated to require up to 26 months, starting as early as the second quarter of 2020" (p. 42).

However, these justifications are insufficient for two reasons.

First, review of the IS/MND and associated documents demonstrates that no construction assumptions are provided, as purported by the "User Entered Comments and Non-Default Data" table. Furthermore, review of Appendix A demonstrates that the AQ Emissions Worksheets fail to include a detailed construction schedule, as purported by the AQ Technical Report. As such, the revised individual construction phase lengths are unsubstantiated.

Second, while the AQ Technical Report indicates that the *total* construction period is estimated to require 26 months, the AQ Technical Report fails to provide the *individual construction phase lengths* (p. 42). As such, we cannot verify the revised individual construction phase lengths.

These unsubstantiated changes present an issue, as they improperly spread out construction emissions over a longer period of time than is anticipated for the Project. According to the CalEEMod User's Guide, each construction phase is associated with different emissions activities (see excerpt below).[10]

[10] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 31.

> *Demolition* involves removing buildings or structures.
>
> *Site Preparation* involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.
>
> *Grading* involves the cut and fill of land to ensure that the proper base and slope is created for the foundation.
>
> *Building Construction* involves the construction of the foundation, structures and buildings.
>
> *Architectural Coating* involves the application of coatings to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.
>
> *Paving* involves the laying of concrete or asphalt such as in parking lots, roads, driveways, or sidewalks.

As such, by disproportionately altering individual construction phase lengths without proper justification, the model's calculations are altered and underestimate emissions. Thus, by including unsubstantiated changes to the default individual construction phase lengths, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Unsubstantiated Change to Number of Construction Days per Week

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes several changes to the default number of construction days per week (see excerpt below) (Appendix A, pp. 83, 116).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

As you can see in the excerpt above, the model assumes that construction activities would occur 6 days per week, rather than the default of 5 days per week. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[11] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "see construction assumptions" (Appendix A, pp. 82, 115). However, as discussed above, the IS/MND and associated documents fail to include any construction assumptions. Furthermore, the IS/MND and associated documents fail to mention or justify the revised number of construction days per week whatsoever.

This presents an issue, as increasing the number of construction days per week spreads out construction emissions over a longer period of time than is anticipated for the Project. Thus, by including an

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[11] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

unsubstantiated increase to the default number of construction days per week, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Off-Road Equipment Unit Amounts and Usage Hours

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes several changes to the default off-road equipment unit amounts and usage hours (see excerpt below) (Appendix A, pp. 84, 117).

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

As you can see in the excerpt above, the default off-road construction equipment unit amounts and usage hours were manually altered in the model. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[12] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "see construction assumptions" (Appendix A, pp. 82, 115). Furthermore, regarding the Project's construction-related CalEEMod input values, the AQ Technical Report states:

> "The input values used in this analysis were adjusted to be Project-specific based on equipment types and the construction schedule. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. *Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix A*" (see emphasis) (p. 41-42).

[12] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

However, as previously discussed, review of the IS/MND and associated documents demonstrates that no construction assumptions are provided, as purported by the "User Entered Comments and Non-Default Data" table. Furthermore, review of Appendix A demonstrates that the AQ Emissions Worksheets fail to include detailed construction equipment lists, as purported by the AQ Technical Report. As such, we cannot verify the revised off-road construction equipment unit amounts and usage hours. Thus, by including unsubstantiated changes to the Project's off-road construction equipment unit amounts and usage hours, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Failure to Model All Required Material Export

According to the AQ Technical Report, "[t]he Project would export approximately 43,836 cubic yards of soil during grading and excavation activities" (p. 42). As such, the model should have included 43,836 cubic yards ("cy") of material export. However, review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes only 31,312 cy of material export (see excerpt below) (Appendix A, pp. 83, 116).

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	31,312.00

As you can see in the excerpt above, the amount of required material export is underestimated by 12,524 cy.[13] Thus, the amount of material export included in the model is underestimated and inconsistent with the information provided in the AQ Technical Report. This underestimation presents an issue, as CalEEMod uses the total amount of material export to calculate emissions produced from material movement, including truck loading, unloading, and additional hauling truck trips.[14] Thus, by failing to model all the required material export, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

Unsubstantiated Reductions to Hauling, Worker, and Vendor Trip Numbers

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes several manual reductions to the default number of hauling, vendor, and worker trips required for construction (see excerpt below) (Appendix A, pp. 84-85, 117-118).

[13] Calculated: 43,836 cy – 31,312 cy = 12,524 cy.

[14] CalEEMod User's Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 3, 26.

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	HaulingTripNumber	155.00	0.00
tblTripsAndVMT	HaulingTripNumber	3,914.00	0.00
tblTripsAndVMT	VendorTripNumber	26.00	0.00
tblTripsAndVMT	VendorTripNumber	26.00	0.00
tblTripsAndVMT	VendorTripNumber	26.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	65.00	0.00
tblTripsAndVMT	WorkerTripNumber	65.00	0.00
tblTripsAndVMT	WorkerTripNumber	65.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00

As you can see in the excerpt above, the hauling, vendor, and worker trip numbers were manually reduced to zero. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[15] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "construction mobile emissions calculated outside CalEEMod" (Appendix A, pp. 82, 115). Furthermore, the AQ Emissions Worksheets provide the input values utilized for the Project's on-road construction-related emissions calculations (see excerpt below) (Appendix A, pp. 147).

Total On-Road Emissions

							Regional Emissions (pounds/day)									
Construction Phase	Source	Year	Daily One-Way Truck Trips	Haul Days per Phase (Days)	Work Hours per day (Hours per day)	One-Way Trip Distance per day (miles)	ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5
Demolition							0.07	1.94	0.62	0.01	0.29	0.03	0.31	0.08	0.03	0.10
Worker	LDA,LDT1,LDT2	2020	10	53	8	14.7	0.01	0.03	0.37	0.00	0.11	0.00	0.11	0.03	0.00	0.03
Hauling	HHDT	2020	10	53	8	20	0.06	1.91	0.24	0.01	0.17	0.03	0.20	0.05	0.03	0.07
Excavation							0.71	22.56	3.39	0.07	2.22	0.33	2.54	0.61	0.31	0.92
Worker	LDA,LDT1,LDT2	2020	14	75	8	14.7	0.01	0.04	0.52	0.00	0.16	0.00	0.16	0.04	0.00	0.04
Hauling	HHDT	2020	118	75	8	20	0.70	22.51	2.87	0.07	2.06	0.33	2.39	0.56	0.31	0.88
Foundations							0.07	1.51	0.74	0.01	0.32	0.03	0.35	0.09	0.03	0.12
Worker	LDA,LDT1,LDT2	2020	14	79	8	14.7	0.01	0.04	0.52	0.00	0.16	0.00	0.16	0.04	0.00	0.04
Vendor	MHDT,HHDT	2020	26	79	8	6.9	0.06	1.47	0.22	0.00	0.17	0.03	0.20	0.05	0.03	0.08
Concrete Pour							1.38	44.29	5.93	0.14	4.14	0.64	4.78	1.13	0.61	1.75
Worker	LDA,LDT1,LDT2	2020	8	6	8	14.7	0.01	0.02	0.30	0.00	0.09	0.00	0.09	0.02	0.00	0.02
Hauling	HHDT	2020	232	6	8	20	1.37	44.27	5.63	0.14	4.05	0.64	4.69	1.11	0.61	1.72
Building Construction							0.09	1.45	2.42	0.01	0.90	0.03	0.93	0.24	0.03	0.27
Worker	LDA,LDT1,LDT2	2021	66	468	8	14.7	0.04	0.17	2.23	0.01	0.74	0.00	0.74	0.20	0.00	0.20
Vendor	MHDT,HHDT	2021	26	468	8	6.9	0.05	1.29	0.19	0.00	0.17	0.02	0.19	0.05	0.02	0.07
Paving							0.01	0.05	0.67	0.00	0.22	0.00	0.22	0.06	0.00	0.06
Worker	LDA,LDT1,LDT2	2021	20	11	8	14.7	0.01	0.05	0.67	0.00	0.22	0.00	0.22	0.06	0.00	0.06
Architectural Coating							0.01	0.03	0.43	0.00	0.16	0.00	0.16	0.04	0.00	0.04
Worker	LDA,LDT1,LDT2	2022	14	77	8	14.7	0.01	0.03	0.43	0.00	0.16	0.00	0.16	0.04	0.00	0.04

However, the IS/MND's analysis of the Project's on-road construction-related emissions is incorrect for two reasons.

First, the AQ Emissions Worksheets fails to provide a source or calculations explaining *how* the worker and hauling trip numbers were derived. Specifically, while the IS/MND provides the *total* number of hauling and worker trips required for Project construction, the document fails to provide the *daily*

[15] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

hauling and vendor trip numbers (p. B-24). Furthermore, the IS/MND fails to provide the *total or daily* number of worker trips. This is incorrect, because the hauling, vendor, and worker trip numbers relied upon by the Project's on-road construction-related emissions calculations are different than the CalEEMod default values. According to the CalEEMod User's Guide:

> "CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, *provided that the information is supported by substantial evidence as required by CEQA*" (emphasis added).[16]

As you can see in the excerpt, the any changes to default values should be supported by substantial evidence. As the Project fails to provide substantial evidence to support the hauling, vendor, and worker trip numbers relied upon by the Project's on-road construction-related emissions calculations, we cannot verify the revised values. Thus, despite the fact that the AQ Emissions Worksheets include an analysis of the Project's on-road construction-related emissions outside of CalEEMod, the IS/MND should still justify the hauling, vendor, and worker trip numbers utilized.

Second, while the AQ Emissions Worksheets provides the analysis of the Project's on-road construction-related emissions, the IS/MND and associated documents fail to provide the *total* on-road construction-related emissions associated with hauling, vendor, and worker trips, or demonstrate how the on-road construction-related emissions were summed with the construction-related emissions estimated in CalEEMod (see excerpt below) (p. B-9, Table B-1).

Table B-1
Maximum Unmitigated Regional Construction Emissions (pounds per day)[a]

Regional Emissions	VOC	NO_x	CO	SO_2	PM_{10} [b]	$PM_{2.5}$ [b]
Demolition - 2020	<1	3	13	<1	1	<1
Excavation - 2020	1	24	20	<1	5	2
Foundations - 2020	<1	2	10	<1	<1	<1
Continuous Concrete Pour - 2020	2	45	18	<1	5	2
Building Construction - 2021	1	4	11	<1	1	<1
Building Construction - 2022	1	4	11	<1	1	<1
Paving - 2021	<1	2	13	<1	<1	<1
Architectural Coating - 2022	15	<1	3	<1	<1	<1
Overlapping Phases[c]						
2020						
Foundations + Continuous Concrete Pour	2	47	28	<1	5	2
2021						
Building Construction + Paving	1	6	24	<1	1	1
2022						
Building Construction + Architectural Coatings	15	4	14	<1	1	<1
Maximum Daily Construction Emissions	**15**	**47**	**28**	**<1**	**5**	**2**
SCAQMD Significance Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in the Air Quality Technical Report.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
[c] Analysis accounted for emissions from overlapping phases.

Source: ESA, 2020.

[16] CalEEMod Model 2013.2.2 User's Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/usersguideSept2016.pdf?sfvrsn=6, p. 12.

As you can see in the excerpt above, the IS/MND fails to indicate how the on-road construction-related emissions estimated outside of CalEEMod were included in the maximum daily construction emissions. Absent an explanation of how the on-road construction-related emissions were summed with the construction-related emissions estimated by CalEEMod, we cannot verify the analysis included in the AQ Emissions Worksheet.

These unsubstantiated changes present an issue, as CalEEMod uses hauling, vendor, and worker trips to calculate the Project's construction-related emissions associated with on-road vehicles.[17] Thus, by including unsubstantiated changes to the default hauling, vendor, and worker construction trips, the model may underestimate the Project's mobile-source construction-related emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Operational Vehicle Fleet Mix

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Operations" model includes several changes to the default operational vehicle fleet mix percentages (see excerpt below) (Appendix A, pp. 490, 540).

[17] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 34.

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.03	9.1619e-003
tblFleetMix	HHD	0.03	9.1619e-003
tblFleetMix	LDA	0.55	0.54
tblFleetMix	LDA	0.55	0.54
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.20	0.18
tblFleetMix	LDT2	0.20	0.18
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.8460e-003	6.2455e-003
tblFleetMix	LHD2	5.8460e-003	6.2455e-003
tblFleetMix	MCY	4.8550e-003	0.02
tblFleetMix	MCY	4.8550e-003	0.02
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	8.9600e-004	3.8643e-003
tblFleetMix	MH	8.9600e-004	3.8643e-003
tblFleetMix	MHD	0.02	0.01
tblFleetMix	MHD	0.02	0.01
tblFleetMix	OBUS	2.0990e-003	8.2637e-004
tblFleetMix	OBUS	2.0990e-003	8.2637e-004
tblFleetMix	SBUS	7.0900e-004	7.4790e-004
tblFleetMix	SBUS	7.0900e-004	7.4790e-004
tblFleetMix	UBUS	1.8280e-003	5.1497e-004
tblFleetMix	UBUS	1.8280e-003	5.1497e-004

As you can see in the excerpt above, the operational vehicle fleet mix percentages were altered in the model. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[18] However, no justification was provided in the "User Entered Comments and Non-Default Data" table. Furthermore, the IS/MND and associated documents fail to mention or justify the revised operational vehicle fleet mix percentages whatsoever. As a result, we cannot verify the revised percentages included in the model.

These unsubstantiated changes present an issue, as operational vehicle fleet mix percentages are used by CalEEMod to calculate the Project's operational emissions associated with on-road vehicles.[19] Thus, by including unsubstantiated changes to the default operational vehicle fleet mix percentages, the model may underestimate the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

[18] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[19] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

Unsubstantiated Changes to Operational Vehicle Emission Factors

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Operations" model includes several changes to the default operational vehicle emission factors (Appendix A, pp. 491-534, 541-584). As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[20] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "Updated to EMFAC2017 EFs" (Appendix A, pp. 489, 539). Furthermore, the IS/MND states:

> "CalEEMod was used to estimate mobile source emissions where emissions factors from CARB's updated version of the on-road vehicle emissions factor (EMFAC) model were input into CalEEMod to calculate mobile GHG emissions. The most recent version is EMFAC2017, which 'represents CARB's current understanding of motor vehicle travel activities and their associated emission levels'" (p. B-37).

However, this justification is insufficient, as EMFAC refers to an ***entire database***, not a specific set of vehicle emission factors.[21] Thus, the IS/MND and associated documents should have specified which input parameters were used to obtain the vehicle emission factors inputted in the model, or provided the revised vehicle emission factors themselves. Absent the specific input parameters, we cannot verify the altered vehicle emission factors, and the changes may be incorrect. These unsubstantiated changes present an issue, as CalEEMod uses vehicle emission factors to calculate the Project's operational emissions associated with on-road vehicles.[22] Thus, by including several unsubstantiated changes to the default operational vehicle emission factors, the model may underestimate the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

Incorrect Application of Construction-Related Mitigation Measures

Review of the CalEEMod output files demonstrates that the "11469 Jefferson – Construction" model includes the following construction-related mitigation measures (see excerpt below) (Appendix A, pp. 89, 124):

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment
Use Soil Stabilizer
Water Exposed Area
Reduce Vehicle Speed on Unpaved Roads

Furthermore, the model includes a 15 miles per hour ("MPH") vehicle speed (see excerpt below) (Appendix A, pp. 82, 115).

[20] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[21] "EMFAC2017 Web Database." CARB, *available at:* https://arb.ca.gov/emfac/2017/.
[22] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[23] According to the "User Entered Comments and Non-Default Data" table, the justification provided for the inclusion of construction-related mitigation measures is: "All Diesel equipment>50 HP would meet Tier 4 Final engine standards" (Appendix A, pp. 82, 115). Furthermore, the IS/MND states:

> "The Project would also comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403" (p. B-6).

However, these justifications are insufficient for four reasons.

First, the justification provided in the "User Entered Comments & Non-Default Data" table only applies to the inclusion of Tier 4 Final mitigation, thus failing to address the above-mentioned construction-related mitigation measures.

Second, this measure is not included in the Project's Mitigation Monitoring Program, provided as Attachment C to the IS/MND. As a result, we cannot verify that the measure would be implemented, monitored, and enforced on the Project site.

Third, simply because the IS/MND states that the Project would comply with SCAQMD Rule 403 does not justify the inclusion of the above-mentioned construction-related mitigation measures in the model. According to the Association of Environmental Professionals ("AEP") *CEQA Portal Topic Paper* on mitigation measures:

> "By definition, *mitigation measures are not part of the original project design*. Rather, mitigation measures are actions taken by the lead agency to reduce impacts to the environment resulting from the original project design. Mitigation measures are identified by the lead agency after the project has undergone environmental review and are *above-and-beyond existing laws, regulations, and requirements* that would reduce environmental impacts" (emphasis added).[24]

As you can see in the excerpt above, mitigation measures "are not part of the original project design" and are intended to go "above-and-beyond" existing regulatory requirements. As such, the inclusion of these measures, based on the Project's compliance with SCAQMD Rule 403, is unsubstantiated.

Fourth, according to SCAQMD Rule 403, Projects can *either* water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph *or* apply a chemical stabilizer (see excerpt below).[25]

[23] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[24] "CEQA Portal Topic Paper Mitigation Measures." AEP, February 2020, *available at:* https://ceqaportal.org/tp/CEQA%20Mitigation%202020.pdf, p. 5.
[25] "RULE 403. FUGITIVE DUST." SCAQMD, June 2005, *available at:* http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf, p. 403-21, Table 2.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

As you can see in the above excerpt, to simply comply with SCAQMD Rule 403, the Project may *either* water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph, *or* apply a chemical stabilizer. Thus, none of the measures included in the CalEEMod model are explicitly required by SCAQMD Rule 403, and we cannot verify their inclusion in the model. By including several construction-related mitigation measures without properly committing to their implementation, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Updated Analysis Indicates a Potentially Significant Air Quality Impact

In an effort to more accurately estimate the Project's construction-related and operational emissions, we prepared updated CalEEMod models, using the Project-specific information provided by the IS/MND. In our updated models, we included all proposed land use types and sizes as described by the IS/MND; corrected the amount of material export; omitted the unsubstantiated changes to the individual construction phase lengths, off-road construction equipment unit amounts and usage hours, construction trip numbers, operational vehicle emission factors, and operational vehicle fleet mix percentages; and excluded the unsubstantiated construction-related mitigation measures. Our updated analysis estimates that the ROG/VOC and NO_X emissions associated with Project construction exceed the 75- and 100-pounds per day ("lbs/day") thresholds set by the SCAQMD, respectively (see table below).[26]

Construction Model	**ROG/VOC**	**NO_X**
SWAPE	229.42	755.85
IS/MND	15.00	47.00
% Increase	1429%	1508%
SCAQMD Regional Threshold (lbs/day)	**75**	**100**
Threshold Exceeded?	***Yes***	***Yes***

As demonstrated above, when modeled correctly, the Project's construction-related ROG/VOC and NO_x emissions increase by approximately 1,429% and 1,508%, respectively, and exceed the applicable

[26] "South Coast AQMD Air Quality Significance Thresholds." SCAQMD, April 2019, *available at*: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

SCAQMD significance thresholds. Thus, our model demonstrates that the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the IS/MND. As a result, an EIR should be prepared to adequately assess and mitigate the potential air quality impacts that the Project may have on the surrounding environment.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The IS/MND concludes that the proposed Project would have a less-than-significant health risk impact based on a quantified construction health risk assessment ("HRA"), as well as a localized significance ("LST") analysis (p. B-14 – B-15). Specifically, the IS/MND estimates that the Project's construction-related cancer risk would be 9.2 in one million, which would not exceed the SCAQMD threshold of 10 in one million (see excerpt below) (p. B -14, Table B-5).

Table B-5
Maximum Unmitigated Health Impacts for Off-Site Sensitive Receptors

Sensitive Receptor	Maximum Cancer Risk (# in one million)	Hazard Index
Residential Land Use	9.2	0.01
Maximum Health Impact Thresholds	10	1.0
Exceeds Thresholds?	**No**	**No**

Source: ESA, 2019.

Regarding the potential health risk impacts associated with Project operation, the IS/MND states:

> "The Project is not anticipated to generate a substantial number of daily truck trips. Under existing conditions, trucks currently make deliveries from the service alley to the northwest of the Project Site. With implementation of the Project, delivery truck loading and unloading would be moved to the interior of the Project Site in dedicated loading areas, creating greater separation between trucks and off-site sensitive receptors. Furthermore, typical sources of hazardous TACs include industrial manufacturing processes and automotive repair facilities. The Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products (e.g., aerosol sprays). Based on this, the Project is not expected to release substantial amounts of TACs. Therefore, based on the limited activity of TAC sources and TAC concentrations at off-site sensitive receptors relative to existing conditions, the Project would not warrant the need for a health risk assessment associated with on-site activities, and potential TAC impacts would be less than significant" (p. B-15).

However, the IS/MND's evaluation of the Project's potential health risk impacts, as well as the subsequent less-than-significant impact conclusion, is incorrect for five reasons.

First, the IS/MND's construction HRA is incorrect, as it relies upon an exhaust PM_{10} estimate from a flawed air model (Appendix A, p. 44). As previously discussed, when we reviewed the Project's CalEEMod output files, provided in the AQ Emissions Worksheets as Appendix A to the IS/MND, we found that several of the values inputted into the model are not consistent with information disclosed in the IS/MND and associated documents. As a result, the construction HRA utilizes an underestimated diesel particulate matter ("DPM") concentration to calculate the cancer risk associated with Project construction. As such, the IS/MND underestimates the Project's construction-related cancer risk and should not be relied upon to determine Project significance.

Second, the IS/MND's claims that the Project's operational toxic air contaminant ("TAC") emissions would be less than significant impact, because the Project would result in "greater separation between trucks and off-site sensitive receptors and would not "generate a substantial number of daily truck trips" or include common sources of TACs any of these potential sources are unsupported. Rather, according to the IS/MND, Project operation would generate 1,463 new daily vehicle trips, which would result in additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions (p. B-92). Without making a reasonable effort to connect the Project's operational TAC emissions to the potential health risks posed to nearby receptors, the IS/MND should not conclude that the Project's operational health risk impact would be less than significant.

Third, the omission of a quantified operational HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"). The OEHHA document recommends that exposure from projects lasting more than 6 months 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").[27] Even though we were not provided with the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, we recommend that health risk impacts from Project operation also be evaluated, as a 30-year exposure duration vastly exceeds the 6-month requirement set forth by OEHHA. These recommendations reflect the most recent state health risk policies, and as such, we recommend that an updated assessment of health risk impacts posed to nearby sensitive receptors from Project operation be included in an EIR for the Project

Fourth, while the IS/MND includes a construction HRA, the IS/MND fails to evaluate the cumulative lifetime cancer risk to nearby, existing receptors as a result of Project construction ***and*** operation together. According to OEHHA guidance, as referenced by the AQ Technical Report, "the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk at the receptor location" (p. 16).[28] Here, however, the IS/MND fails to conduct a construction-related ***and*** operational HRA, as well as sum each age bin to evaluate the total cancer risk over the course of Project construction and operation. This is incorrect and, thus, an EIR should be prepared, quantifying the Project's construction and operational cancer risks and summing them to compare to the SCAQMD threshold 10 in one million.[29]

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[27] "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

[28] "Guidance Manual for preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf p. 8-4

[29] "South Coast AQMD Air Quality Significance Thresholds." SCAQMD, April 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

Fifth, the IS/MND concludes that the Project's construction-related criteria air pollutant emissions would not exceed the applicable SCAQMD Localized Significance Thresholds ("LSTs") (see excerpt below) (p. B-12).

Table B-3
Maximum Localized Construction Emissions (pounds per day)[a]

Regional Emissions	NO_x	CO	PM_{10} [b]	$PM_{2.5}$ [b]
Demolition - 2020	1	12	0.3	0.1
Excavation - 2020	1	16	2.4	1.3
Foundations - 2020	1	10	<0.1	<0.1
Continuous Concrete Pour - 2020	1	12	<0.1	<0.1
Building Construction - 2021	2	9	0.1	0.1
Building Construction - 2022	2	9	0.1	0.1
Paving - 2021	2	12	0.1	0.1
Architectural Coating - 2022	<1	2	0.0	<0.1
Overlapping Phases[c]				
2020				
Foundations + Continuous Concrete Pour	2	22	0.1	0.1
2021				
Building Construction + Paving	4	21	0.2	0.2
2022				
Building Construction + Architectural Coatings	2	11	0.1	0.1
Maximum Daily Construction Emissions	**4**	**22**	**2**	**1**
SCAQMD Localized Significance Thresholds [c]	**103**	**562**	**2**	**1**
Exceed Threshold?	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling. Detailed emissions calculations are provided in the Air Quality Technical Report.

[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.

[c] Analysis accounted for emissions *from overlapping phases.*

Source: ESA, 2020.

However, this is incorrect. Review of the CalEEMod output files demonstrates that the PM_{10} and $PM_{2.5}$ emissions associated with Project construction exceed the 1- and 2-lbs/day LSTs set by the SCAQMD, respectively (see excerpt below) (Appendix A, pp. 86, 119).

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Year	lb/day									
2020	0.3819	1.6547	21.7757	0.0348	2.3713	0.0509	2.4122	1.2942	0.0509	1.3351
2021	0.8588	4.3731	20.9816	0.0328	0.0000	0.1742	0.1742	0.0000	0.1742	0.1742
2022	15.2726	2.2696	11.4036	0.0185	0.0000	0.0887	0.0887	0.0000	0.0887	0.0887
Maximum	**15.2726**	**4.3731**	**21.7757**	**0.0348**	**2.3713**	**0.1742**	**2.4122**	**1.2942**	**0.1742**	**1.3351**

As you can see in the excerpt above, the Project's estimated construction-related PM_{10} and $PM_{2.5}$ emissions are 2.4122- and 1.3351-lbs/day, respectively. Thus, the Project's estimated construction-related PM_{10} and $PM_{2.5}$ emissions exceed the applicable LST thresholds set by the SCAQMD. As such, the IS/MND's claim that emissions associated with Project construction would not exceed the applicable SCAQMD LSTs is incorrect, and the subsequent less-than-significant health risk impact conclusion should not be relied upon.

Screening-Level Assessment Indicates a Potentially Significant Health Risk Impact

In an effort to demonstrate the potential health risk posed by the construction and operation of the Project to nearby, existing sensitive receptors, we prepared a simple screening-level operational HRA. The results of our assessment, as described below, demonstrate that the proposed Project would have a potentially significant impact.

In order to conduct our screening-level risk assessment we relied upon AERSCREEN, which is a screening level air quality dispersion model.[30] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[31] and the California Air Pollution Control Officers Associated (CAPCOA)[32] 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.

We prepared a preliminary HRA of the Project's health-related impact to sensitive receptors using the annual PM_{10} exhaust estimates from the IS/MND's annual CalEEMod output files. Consistent with recommendations set forth by OEHHA, we used a residential exposure duration of 30 years, starting from the 3rd trimester stage of life. Subtracting the 726-day construction period from the total residential duration of 30 years, we assumed that after Project construction, the sensitive receptor would be exposed to the Project's operational DPM for an additional 28 years, approximately.

The IS/MND's annual CalEEMod output file indicates that operational activities will generate approximately 45 pounds of DPM per year over approximately 28 years of operation. 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 operation, we calculated an average DPM emission rate by the following equation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{45.2\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00065\ g/s}$$

[30] U.S. EPA (April 2011) AERSCREEN Released as the EPA Recommended Screening Model, http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf
[31] Supra, fn 20.
[32] CAPCOA (July 2009) Health Risk Assessments for Proposed Land Use Projects, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf.

Using this equation, we estimated an operational emission rate of 0.00065 g/s. Operation was simulated as a 0.78-acre rectangular area source in AERSCREEN, with dimensions of 77 meters by 41 meters. A release height of three meters was selected to represent the height of stacks of 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.

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 to be estimated by multiplying the single-hour concentration by 10%.[33] According to the IS/MND, the closest residential receptors are located 25 meters north and west of the Project site (p. B-12). As such, we utilized the single-hour concentrations at 25 meters from the Project site. Thus, for Project operation, the single-hour concentration at the MEIR estimated by AERSCREEN is approximately 4.006 μg/m^3 DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.4006 μg/m^3 for Project operation at the MEIR.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA. Consistent with the construction period of 726 days inputted into the IS/MND's CalEEMod model, the annualized average concentration for Project operation was used for the remaining 0.26 years of the infantile stage of life (0 – 2 years), the entire the child stage of life (2 - 16 years), and adult stage of life (16 – 30 years).

Consistent with OEHHA, as recommended by SCAQMD, BAAQMD, and SJVAPCD guidance, and referenced by the AQ Technical Report, we used Age Sensitivity Factors ("ASFs") to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution (p. 16).[34, 35, 36, 37] According to this guidance, the quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) as well as multiplied by a factor of three during the child stage of life (2 – 16 years). Furthermore, in accordance with the guidance set

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[33] U.S. EPA (October 1992) Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised, http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf.

[34] "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.

[35] "Draft Environmental Impact Report (DEIR) for the Proposed The Exchange (SCH No. 2018071058)." SCAQMD, March 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2019/march/RVC190115-03.pdf?sfvrsn=8, p. 4.

[36] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 56; see also "Recommended Methods for Screening and Modeling Local Risks and Hazards." BAAQMD, May 2011, *available at:* http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx, p. 65, 86.

[37] "Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document." SJVAPCD, May 2015, *available at:* https://www.valleyair.org/busind/pto/staff-report-5-28-15.pdf, p. 8, 20, 24.

forth by OEHHA, we used the 95th percentile breathing rates for infants.[38] Finally, according to SCAQMD guidance, we used a Fraction of Time At Home ("FAH") Value of 1 for the 3rd trimester and infant receptors.[39] 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.

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	ASF	Cancer Risk with ASFs*
Construction	0.25	N/A	361	10	N/A
3rd Trimester Duration	***0.25***			***3rd Trimester Exposure***	***N/A***
Construction	1.74	N/A	1090	10	N/A
Operation	0.26	0.4006	1090	10	1.7E-05
Infant Exposure Duration	***2.00***			***Infant Exposure***	***1.7E-05***
Operation	14.00	0.4006	572	3	1.5E-04
Child Exposure Duration	***14.00***			***Child Exposure***	***1.5E-04***
Operation	14.00	0.4006	261	1	1.6E-05
Adult Exposure Duration	***14.00***			***Adult Exposure***	***1.6E-05***
Lifetime Exposure Duration	**30.00**			**Lifetime Exposure**	**1.8E-04**

As demonstrated in the table above, the excess cancer risk to adults, children, and infants at the MEIR located approximately 25 meters away, over the course of Project operation, are approximately 16, 150 and 17 in one million, respectively. The estimated excess cancer risk over the course of a residential lifetime (30 years), as a result of Project operation alone, is approximately 180 in one million. When summing the Project's estimated operational cancer risk, with the IS/MND's estimated construction-related cancer risk of 9.2 in one million, we calculated a lifetime construction and operational cancer risk of 189.2 in one million.[40] The infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold

[38] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," July 2018, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588supplementalguidelines.pdf, p. 16.
"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
[39] "Risk Assessment Procedures for Rules 1401, 1401.1, and 212." SCAQMD, August 2017, *available at:* http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf, p. 7.
[40] Calculated: 180 in one million + 9.2 in one million = 189.2 in one million.

of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the IS/MND.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to be conservative and tends to err on the side of health protection. The purpose of the screening-level construction and operational HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level construction HRA indicates a potentially significant impact, an EIR should include a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, an EIR should include a quantified air pollution model as well as an updated, quantified refined health risk assessment which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The IS/MND estimates that the Project would generate net annual greenhouse gas ("GHG") emissions of 1,537 metric tons of carbon dioxide equivalents per year ("MT CO_2e/year") (p. B-39, Table B-9).

Table B-9
Annual Greenhouse Gas Emissions

Emissions Sources	CO_2e (Metric Tons per Year) [a] Project
Existing Operational	
Area (Landscaping Equipment)	<1
Electricity and Natural Gas	50
Mobile Sources	253
Waste	6
Water	3
Existing Subtotal	**314**
Proposed Project Operational – Without GHG Reduction Characteristics	
Electricity[b]	359
Natural Gas	157
Mobile Sources	1,223
Solid Waste	48
Water	26
Area	<1
Proposed Subtotal	**1,813**
Net Operational	**1,499**
Construction (Amortized)	37
Total Annual Emissions	**1,537**

a Totals may not add up exactly due to rounding in the modeling calculations.
b For the purposes of estimating GHG emissions in the GHG Technical Report, the emissions analysis conservatively assumes Project would not switch electricity providers from SCE to the Clean Power Alliance (i.e., does not take any credit for 36%, 50%, or 100% renewable electricity, depending on the selected Clean Power Alliance plan). Should the Project switch electricity providers from SCE to the Clean Power Alliance, the Project's electricity-related emissions would be lower than disclosed in the GHG Technical Report.

Source: ESA, 2020.

However, the IS/MND fails to compare the Project's estimated GHG emissions to any quantitative threshold, stating:

> "In the absence of any adopted, quantitative threshold, the Project would not have a significant effect on the environment if the Project is found to be consistent with the applicable regulatory plans and policies to reduce GHG emissions, including the emissions reduction measures discussed within CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and City of Culver City polices established for the purpose of increasing energy efficiency and reducing GHG emissions for new developments and the City's Green Building Code" (p. B-35).

As demonstrated above, the IS/MND relies upon the Project's consistency with the CARB's *Scoping Plan*, SCAG's *RTP/SCS*, the City's energy efficiency policies, and the City's Green Building Code in order to conclude that the Project would have a less-than-significant GHG impact. However, the IS/MND's GHG analysis, as well as the subsequent less-than-significant impact conclusion, is incorrect for six reasons.

(1) The IS/MND's quantitative GHG analysis relies upon an incorrect and unsubstantiated air model;
(2) CARB's 2017 *Scoping Plan*, SCAG's 2020-2045 *RTP/SCS*, and the City's energy efficiency policies should not be relied upon to determine Project significance;
(3) The IS/MND fails to consider a quantitative GHG threshold;
(4) The IS/MND fails to identify a potentially significant GHG impact;
(5) The IS/MND fails to consider the performance-based standards under CARB's *Scoping Plan*; and
(6) The IS/MND fails to consider the performance-based standards under SCAG's *RTP/SCS.*

1) Incorrect and Unsubstantiated Quantitative Analysis of Emissions

As previously stated, the IS/MND estimates that the Project would generate net annual GHG emissions of 1,537 MT CO_2e/year (p. B-39, Table B-9). However, the IS/MND's quantitative GHG analysis is unsubstantiated, as it relies upon a flawed air model. As previously discussed, when we reviewed the Project's CalEEMod output files, provided in AQ Emissions Worksheets as Appendix A to the IS/MND, we found that several of the values inputted into the model are not consistent with information disclosed in the IS/MND. As a result, the model underestimates the Project's emissions, and the IS/MND's quantitative GHG analysis should not be relied upon to determine Project significance. A Project-specific EIR should be prepared that adequately assesses the potential GHG impacts that construction and operation of the proposed Project may have on the surrounding environment.

2) Incorrect Reliance on CARB's 2017 Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the Sustainable City pLAn/L.A.'s Green New Deal

As previously discussed, the IS/MND relies upon the Project's consistency with CARB's 2017 *Scoping Plan*, SCAG's 2020-2045 *RTP/SCS*, and the City's energy efficiency policies in order to conclude that the Project's GHG impact would be less than significant. However, these plans and policies do not qualify as adequate GHG reduction plans or CAPs under CEQA. CEQA Guidelines § 15064.4(b)(3) and § 15183(b) allow a lead agency to consider a project's consistency with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. When read in conjunction, CEQA Guidelines § 15064.4(b)(3) and § 15183.5(b)(1) make clear that qualified GHG reduction plans or CAPs should include the following features:

(1) **Inventory**: Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
(2) **Establish GHG Reduction Goal**: Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
(3) **Analyze Project Types**: Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
(4) **Craft Performance Based Mitigation Measures**: Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
(5) **Monitoring**: Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels.

Collectively, the above-listed features tie qualitative measures to quantitative results, which in turn become binding via proper monitoring and enforcement by the jurisdiction—all resulting in real GHG reductions for the jurisdiction as a whole, and substantial evidence demonstrating that a project's incremental contribution is not cumulatively considerable. Here, however, the IS/MND fails to demonstrate that these plans and policies include the above-listed requirements to be considered qualified GHG Reduction Plans or CAPs for the City. As such, the IS/MND leaves an analytical gap showing that compliance with said plans and policies can be used for a project-level significance determination. Thus, the IS/MND's GHG significance determination regarding CARB's 2017 *Scoping Plan*, SCAG's 2020-2045 *RTP/SCS*, and the City's energy efficiency policies should not be relied upon.

3) Failure to Apply a Quantitative GHG Threshold

As previously stated, the IS/MND estimates that the Project would generate net annual GHG emissions of 1,537 MT CO_2e/year (p. B-39, Table B-9). However, the IS/MND fails to apply a quantitative GHG threshold to evaluate the Project's emissions, instead incorrectly relying upon the Project's consistency with CARB's 2017 *Scoping Plan*, SCAG's 2020-2045 *RTP/SCS*, and the City's energy efficiency policies, as described above. Since the IS/MND should not rely upon the Project's consistency with these plans and policies to determine Project significance, we recommend that the Project apply the AEP's "2030 Land Use Efficiency Threshold" of 2.6 metric tons of CO_2 equivalents per service population per year ("MT CO_2e/SP/year").[41] In support of this threshold for projects with a horizon year beyond 2020, AEP's guidance *states*:

> "Once the state has a full plan for 2030 (which is expected in 2017), and then *<u>a project with a horizon between 2021 and 2030 should be evaluated based on a threshold using the 2030 target</u>*. A more conservative approach would be to apply a 2030 threshold *<u>based on SB 32</u>* for any project with a horizon between 2021 and 2030 regardless of the status of the Scoping Plan Update" (emphasis added).[42]

As the California Air Resources Board ("CARB") adopted *California's 2017 Climate Change Scoping Plan* in November of 2017, the proposed Project "should be evaluated based on a threshold using the 2030 target," according to the relevant guidance referenced above. We recommend that an updated EIR be prepared, including an updated air model and comparing the Project's estimated GHG emissions to the AEP's "2030 Land Use Efficiency Threshold" of 2.6 MT CO_2e/SP/year.

4) Incorrect and Unsubstantiated Quantitative Analysis of Emissions

The IS/MND's incorrect and unsubstantiated air model indicates a potentially significant GHG impact, when applying the "2030 Land Use Efficiency Threshold" of 2.6 MT CO_2e/SP/year. As previously stated, the IS/MND estimates that the Project would generate net annual GHG emissions of 1,537 MT

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[41] "Beyond Newhall and 2020: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California." Association of Environmental Professionals (AEP), October 2016, *available at:* https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf, p. 40.

[42] "Beyond Newhall and 2020: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California." Association of Environmental Professionals (AEP), October 2016, *available at:* https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf, p. 40.

CO_2e/year (p. B-39, Table B-9). Furthermore, according to CAPCOA's *CEQA & Climate Change* report, service population is defined as "the sum of the number of residents and the number of jobs supported by the project."[43] The IS/MND estimates that the Project would employ approximately 130 people upon buildout (p. B-76). As the Project does not include any residential land uses, we estimate a service population of 130 people.[44] Dividing the Project's GHG emissions, as estimated by the IS/MND, by a service population value of 130 people, we find that the Project would emit approximately 11.8 MT CO_2e/SP/year (see table below).[45]

IS/MND Service Population Efficiency	
Project Phase	**Proposed Project (MT CO_2e/year)**
Total	**1,537**
Service Population	130
Service Population Efficiency	**11.8**
Threshold	2.6
Exceed?	***Yes***

As demonstrated above, when we compare the Project's per service population GHG emissions to the AEP's "2030 Land Use Efficiency Threshold" of 2.6 MT CO_2e/SP/year, we find that the Project would result in a significant GHG impact not previously identified or addressed by the IS/MND. Therefore, an EIR should be prepared and recirculated for the Project, and mitigation should be implemented where necessary.

5) Failure to Consider Performance-based Standards Under CARB's 2017 Scoping Plan

As previously discussed, the IS/MND relies upon the Project's consistency with CARB's 2017 *Scoping Plan* to determine Project GHG significance. However, this is incorrect, as the IS/MND fails to consider performance-based measures proposed by CARB.

i. Passenger & Light Duty VMT Per Capita Benchmarks per SB 375

In reaching the State's long-term GHG emission reduction goals, CARB's 2017 *Scoping Plan* explicitly cites to SB 375 and the VMT reductions anticipated under the implementation of Sustainable Community Strategies.[46] CARB has identified the population and daily VMT from passenger autos and light-duty vehicles at the state and county level for each year between 2010 to 2050 under a "baseline scenario" that includes "current projections of VMT included in the existing Regional Transportation Plans/Sustainable Communities Strategies (RTP/SCSs) adopted by the State's 18 Metropolitan Planning

[43] CAPCOA (Jan. 2008) CEQA & Climate Change, p. 71-72, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.
[44] Calculated: 130 employees + 0 residents = 130 service population.
[45] Calculated: (1,537 MT CO_2e/year) / (130 service population) = (11.8 MT CO_2e/SP/year).
[46] "California's 2017 Climate Change Scoping Plan." CARB, November 2017, *available at*: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, p. 25, 98, 101-103.

Organizations (MPOs) pursuant to SB 375 as of 2015."[47] By dividing the projected daily VMT by the population, we calculated the daily VMT per capita for each year at the state and county level for 2010 (baseline year), 2022 (Project operational year), and 2030 (target years under SB 32) (see table below and Attachment B).

2017 Scoping Plan Daily VMT Per Capita						
	Los Angeles County			State		
Year	**Population**	**LDV VMT Baseline**	**VMT Per Capita**	**Population**	**LDV VMT Baseline**	**VMT Per Capita**
2010	9,838,771	216,979,221.64	22.05	37,335,085	836,463,980.46	22.40
2022	10,534,881	220,487,425.77	20.93	41,321,565	916,010,145.57	22.17
2030	10,868,614	215,539,586.12	19.83	43,939,250	957,178,153.19	21.78

The below table compares the 2017 *Scoping Plan* daily VMT per capita values against the daily VMT per capita values for the Project based on the IS/MND's modeling (see table below and Attachment B).

Daily VMT Per Capita from Passenger & Light-Duty Trucks, Exceedances under 2017 Scoping Plan Performance-Based SB 375 Benchmarks	
Sources	**Project**
	IS/MND Modeling
Annual VMT from Auto & Light-Duty Vehicles	3,207,802
Daily VMT from Auto & Light-Duty Vehicles	8,788
Service Population	130
Daily VMT Per Capita	67.60
2017 Scoping Plan Benchmarks, Statewide	
22.40 VMT (2010 Baseline) Exceed?	**Yes**
22.17 VMT (2022 Projected) Exceed?	**Yes**
21.78 VMT (2030 Projected) Exceed?	**Yes**
2017 Scoping Plan Benchmarks, Los Angeles County Specific	
22.05 VMT (2010 Baseline) Exceed?	**Yes**
20.93 VMT (2022 Projected) Exceed?	**Yes**
19.83 VMT (2030 Projected) Exceed?	**Yes**

As shown above, the IS/MND's modeling shows that the Project exceeds the CARB 2017 *Scoping Plan* projections for 2010, 2022, and 2030. Because the exceeds the CARB 2017 *Scoping Plan* performance-based daily VMT per capita projections, the Project conflicts with the CARB 2017 *Scoping Plan* and SB 375. As such, the IS/MND's claim that the proposed Project would not conflict with the CARB 2017

[47] "Supporting Calculations for 2017 Scoping Plan-Identified VMT Reductions," Excel Sheet "Readme." CARB, January 2019, *available at*: https://ww2.arb.ca.gov/sites/default/files/2019-01/sp_mss_vmt_calculations_jan19_0.xlsx.

Scoping Plan is incorrect and unsubstantiated. A Project-specific EIR should be prepared for the proposed Project to provide additional information and analysis to conclude less than significant GHG impacts.

6) *Failure to Consider Performance-based Standards under SCAG's RTP/SCS*

Here, as discussed above, the IS/MND concludes that the Project would be consistent with SCAG's *RTP/SCS*. However, the IS/MND fails to consider whether or not the Project meets any of the specific performance-based goals underlying SCAG's *RTP/SCS* and SB 375, such as: i) per capita GHG emission targets, or ii) daily vehicles miles traveled ("VMT") per capita benchmarks.

i. SB 375 Per Capita GHG Emission Goals

SB 375 was signed into law in September 2008 to enhance the state's ability to reach AB 32 goals by directing CARB to develop regional 2020 and 2035 GHG emission reduction targets for passenger vehicles (autos and light-duty trucks). In March 2018, CARB adopted updated regional targets requiring a 19 percent decrease in VMT for the SCAG region by 2035. This goal is reflected in SCAG's 2020 RTP/SCS Program Environmental Impact Report ("PEIR"),[48] in which the 2020 RTP/SCS PEIR updates the per capita emissions to 21.3 lbs/day in 2020 and 18.8 lbs/day in 2035 (*see* excerpt below). [49]

Table 3.8-10
SB 375 Analysis

	2005 (Baseline)	2020 (Plan)	2035 (Plan)
Resident population (per 1,000)	17,161	19,194	21,110
CO2 emissions (per 1,000 tons)	204.0/a/	204.5/b/	198.6/b/
Per capita emissions (pounds/day)	23.8	21.3	18.8
% difference from Plan (2020) to Baseline (2005)			–8%
% difference from Plan (2035) to Baseline (2005)			–19%/c/

Note:
/a/ Based on EMFAC2007
/b/Based on EMFAC2014 and SCAG modeling, 2019.
/c/ Includes off-model adjustments for 2035 and 2045
Source: SCAG modeling, 2019.
http://www.scag.ca.gov/committees/CommitteeDocLibrary/jointRCPC110515fullagn.pdf

In order to evaluate consistency with this SB 375 objective and SCAG's *RTP/SCS* performance-based goals, SWAPE calculated the Project's per-capita CO_2 emissions from passenger and light duty vehicles (calculations attached hereto as Attachment B). First, total annual GHG mobile emissions were multiplied by the percentage of auto and light-duty truck fleet mix, then converted into total pounds per

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[48] "Connect SoCal Certified Final Program Environmental Impact Report." SCAG, May 2020, *available at*: https://scag.ca.gov/sites/main/files/file-attachments/fpeir_connectsocal_complete.pdf?1607981618.
[49] "Connect SoCal Certified Final Program Environmental Impact Report." SCAG, May 2020, *available at*: https://scag.ca.gov/sites/main/files/file-attachments/fpeir_connectsocal_complete.pdf?1607981618, p. 3.8-74.

day, then divided by the estimated service population of 130. The below table shows the per capita emissions for the Project based on the IS/MND's modeling (see table below and Attachment B).

CO_2e Per Capita Emissions from Passenger & Light-Duty Trucks,	
Exceedances under RTP/SCS Performance-Based SB 375 Goals	
Sources	**Project**
	IS/MND Modeling
Annual Mobile Emissions (MT CO_2e/year)	1,222.85
Passenger & Light-Duty Fleet Mix (%)	91.89%
Daily CO_2e Emissions (lbs/day)	6,787.00
Service Population	130
Per Capita Emissions (lbs/day)	**52.21**
21.3 lbs/day/SP (2020 Goal) Exceeded?	**Yes**
18.8 lbs/day/SP (2035 Goal) Exceeded?	**Yes**

As shown in the above table, when utilizing the IS/MND's modeling, the Project would result in 52.21 pounds per day per service population ("lbs/day/SP") emissions. This exceeds both SCAG's 2020 and 2035 targets of 21.3- and 18.8-lbs/day/SP, respectively, indicating that the Project is inconsistent with SB 375 and SCAG's *RTP/SCS*.

i. SB 375 RTP/SCS Daily VMT Per Capita Target

Under the SCAG's 2020 *RTP/SCS*, daily VMT per capita in the SCAG region should decrease from 23.2 VMT in 2016 to 20.7 VMT by 2045.[50] Daily VMT per capita in Los Angeles County should decrease from 22.2 to 19.2 VMT during that same period.[51]

Here, however, the IS/MND fails to consider any of the abovementioned performance-based VMT targets. In order to evaluate consistency with the *RTP/SCS*'s performance-based VMT reduction targets, SWAPE calculated the Project's VMT from passenger and light duty vehicles (calculations attached hereto as Attachment B). First, annual VMTs from passenger automobile and light-duty vehicle were calculated based on the CalEEMod default fleet mix, converted into daily VMT, and divided by the estimated service population of 130. The below table shows the daily VMT per capita for the Project based on the IS/MND's modeling (see table below and Attachment B).

[50] "Connect SoCal." SCAG, September 2020, *available at*: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176, pp. 138.
[51] "Connect SoCal." SCAG, September 2020, *available at*: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176, pp. 138.

Daily VMT Per Capita from Passenger & Light-Duty Trucks, Exceedances under RTP/SCS Performance-Based SB 375 Target	
Sources	**Project IS/MND Modeling**
Annual VMT from Auto & Light-Duty Vehicles	3,207,802
Daily VMT from Auto & Light-Duty Vehicles	8,788
Service Population	130
Daily VMT Per Capita	67.60
2020 RTP/SCS Benchmarks, SCAG-Wide	
23.2 VMT (2016 Baseline) Exceed?	**Yes**
20.7 VMT (2045 Target) Exceed?	**Yes**
2020 RTP/SCS Benchmarks, Los Angeles County	
22.2 VMT (2016 Baseline) Exceed?	**Yes**
19.2 VMT (2045 Target) Exceed?	**Yes**

As shown in the above table, based on a service population of 130, the Project would result in 67.6 daily VMT per capita from passenger auto and light-duty truck vehicles. This exceeds all SCAG-wide and Los Angeles County specific benchmarks and targets under SCAG's 2020 *RTP/SCS*. Thus, based on the IS/MND's modeling, the Project would exceed the 2016 baseline and 2045 target VMT per capita values for both Los Angeles County and the SCAG region as a whole, indicating that the Project conflicts with the SCAG's *RTP/SCS* and SB 375.

Feasible Mitigation Measures Available to Reduce Emissions

Our analysis demonstrates that the Project's air quality, health risk, and GHG emissions may result in significant impacts and should be mitigated further. In an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project. Feasible mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*.[52] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[53]
Measures – Energy
Building Energy Use
Install Programmable Thermostat Timers
Install Energy Efficient Appliances

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

[53] "Quantifying Greenhouse Gas Mitigation Measures." California Air Pollution Control Officers Association (CAPCOA), August 2010, *available at:* http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, p.

Install Energy Efficient Boilers
Lighting
Install Higher Efficacy Public Street and Area Lighting
Limit Outdoor Lighting Requirements
Replace Traffic Lights with LED Traffic Lights
Alternative Energy Generation
Establish Onsite Renewable or Carbon-Neutral Energy Systems
Utilize a Combined Heat and Power System
Measures – Transportation
Land Use/Location
Increase Density
Increase Location Efficiency
Increase Diversity of Urban and Suburban Developments (Mixed Use)
Orient Project Toward Non-Auto Corridor
Neighborhood/Site Enhancements
Provide Traffic Calming Measures, such as: • Marked crosswalks • Count-down signal timers • Curb extensions • Speed tables • Raised crosswalks • Raised intersections • Median islands • Tight corner radii • Roundabouts or mini-circles • On-street parking • Planter strips with trees • Chicanes/chokers
Implement a Neighborhood Electric Vehicle (NEV) Network.
Create Urban Non-Motorized Zones
Provide Electric Vehicle Parking
Dedicate Land for Bike Trails
Parking Policy/Pricing
Limit Parking Supply through: • Elimination (or reduction) of minimum parking requirements • Creation of maximum parking requirements • Provision of shared parking
Unbundle Parking Costs from Property Cost
Implement Market Price Public Parking (On-Street)

Require Residential Area Parking Permits
Commute Trip Reduction Programs
Implement Commute Trip Reduction (CTR) Program – Voluntary • 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) • New employee orientation of trip reduction and alternative mode options • Event promotions and publications • Flexible work schedule for employees • Transit subsidies • Parking cash-out or priced parking • Shuttles • Emergency ride home
Implement Commute Trip Reduction (CTR) Program – Required Implementation/Monitoring • Established performance standards (e.g. trip reduction requirements) • Required implementation • Regular monitoring and reporting
Provide Ride-Sharing Programs • Designate 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 messaging board for coordinating rides • Permanent transportation management association membership and funding requirement.
Implement Subsidized or Discounted Transit Program
Provide Ent of Trip Facilities, including: • Showers • Secure bicycle lockers • Changing spaces
Encourage Telecommuting and Alternative Work Schedules, such as: • Staggered starting times • Flexible schedules • Compressed work weeks
Implement Commute Trip Reduction Marketing, such as: • New employee orientation of trip reduction and alternative mode options • Event promotions • Publications
Implement Preferential Parking Permit Program
Implement Car-Sharing Program
Implement School Pool Program

Provide Employer-Sponsored Vanpool/Shuttle
Implement Bike-Sharing Programs
Implement School Bus Program
Price Workplace Parking, such as: • Explicitly charging for parking for its employees; • Implementing above market rate pricing; • Validating parking only for invited guests; • Not providing employee parking and transportation allowances; and • Educating employees about available alternatives.
Implement Employee Parking "Cash-Out"
Transit System Improvements
Transit System Improvements, including: • Grade-separated right-of-way, including bus only lanes (for buses, emergency vehicles, and sometimes taxis), and other Transit Priority measures. Some systems use guideways which automatically steer the bus on portions of the route. • Frequent, high-capacity service • High-quality vehicles that are easy to board, quiet, clean, and comfortable to ride. • Pre-paid fare collection to minimize boarding delays. • Integrated fare systems, allowing free or discounted transfers between routes and modes. • Convenient user information and marketing programs. • High quality bus stations with Transit Oriented Development in nearby areas. • Modal integration, with BRT service coordinated with walking and cycling facilities, taxi services, intercity bus, rail transit, and other transportation services.
Implement Transit Access Improvements, such as: • Sidewalk/crosswalk safety enhancements • Bus shelter improvements
Increase Transit Service Frequency/Speed
Provide Bike Parking Near Transit
Provide Local Shuttles
Road Pricing/Management
Implement Area or Cordon Pricing
Improve Traffic Flow, such as: • Signalization improvements to reduce delay; • Incident management to increase response time to breakdowns and collisions; • Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions; and • Speed management to reduce high free-flow speeds.
Required Project Contributions to Transportation Infrastructure Improvement Projects
Install Park-and-Ride Lots
Vehicles
Utilize Alternative Fueled Vehicles, such as:

• Biodiesel (B20) • Liquefied Natural Gas (LNG) • Compressed Natural Gas (CNG)
Utilize Electric or Hybrid Vehicles
Measures – Water
Water Supply
Use Reclaimed Water
Use Gray Water
Use Locally Sourced Water Supply
Water Use
Adopt a Water Conservation strategy
Design Water-Efficient Landscapes (see California Department of Water Resources Model Water Efficient Landscape Ordinance), such as: • Reducing lawn sizes; • Planting vegetation with minimal water needs, such as native species; • Choosing vegetation appropriate for the climate of the project site; • Choosing complimentary plants with similar water needs or which can provide each other with shade and/or water.
Use Water-Efficient Landscape Irrigation Systems (“Smart” irrigation control systems)
Reduce Turf in Landscapes and Lawns
Plant Native or Drought-Resistant Trees and Vegetation
Measures – Area Landscaping
Landscaping Equipment
Prohibit Gas Powered Landscape Equipment
Implement Lawnmower Exchange Program
Electric Yard Equipment Compatibility
Measures – Vegetation
Vegetation
Urban Tree Planting
Create New Vegetated Open Space
Measures – Construction
Construction
Use Alternative Fuels for Construction Equipment
Urban Tree Planting
Use Electric and Hybrid Construction Equipment
Limit Construction Equipment Idling Beyond Regulation Requirements
Institute a Heavy-Duty Off-Road Vehicle Plan, including: • Construction vehicle inventory tracking system;

• Requiring hour meters on equipment; • Document the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment; and • Daily logging of the operating hours of the equipment.
Implement a Construction Vehicle Inventory Tracking System
Measures – Miscellaneous
Miscellaneous
Establish a Carbon Sequestration Project, such as: • Geologic sequestration or carbon capture and storage techniques, in which CO_2 from point sources is captured and injected underground; • Terrestrial sequestration in which ecosystems are established or preserved to serve as CO_2 sinks; • Novel techniques involving advanced chemical or biological pathways; or • Technologies yet to be discovered.
Establish Off-Site Mitigation
Use Local and Sustainable Building Materials
Require best Management Practices in Agriculture and Animal Operations
Require Environmentally Responsible Purchasing, such as: • Purchasing products with sustainable packaging; • Purchasing post-consumer recycled copier paper, paper towels, and stationary; • Purchasing and stocking communal kitchens with reusable dishes and utensils; • Choosing sustainable cleaning supplies; • Leasing equipment from manufacturers who will recycle the components at their end of life; • Choosing ENERGY STAR appliances and Water Sense-certified water fixtures; • Choosing electronic appliances with built in sleep-mode timers; • Purchasing 'green power' (e.g. electricity generated from renewable or hydropower) from the utility; and • Choosing locally-made and distributed products.

Furthermore, in an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project from NEDC's *Diesel Emission Controls in Construction Projects.*[54] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

NEDC's *Diesel Emission Controls in Construction Projects*[55]
Measures – Diesel Emission Control Technology

[54] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

[55] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

a. Diesel Onroad Vehicles All diesel nonroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA onroad emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
b. Diesel Generators All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
c. Upon confirming that the diesel vehicle, construction equipment, or generator has either an engine meeting Tier 4 non road emission standards or emission control technology, as specified above, installed and functioning, the developer will issue a compliance sticker. All diesel vehicles, construction equipment, and generators on site shall display the compliance sticker in a visible, external location as designated by the developer.
d. Emission control technology shall be operated, maintained, and serviced as recommended by the emission control technology manufacturer.
Measures – Additional Diesel Requirements
a. Construction shall not proceed until the contractor submits a certified list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following: i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment. ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation. iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.
b. If the contractor subsequently needs to bring on site equipment not on the list, the contractor shall submit written notification within 24 hours that attests the equipment complies with all contract conditions and provide information.
c. All diesel equipment shall comply with all pertinent local, state, and federal regulations relative to exhaust emission controls and safety.
d. The contractor shall establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities.
Reporting
a. For each onroad diesel vehicle, nonroad construction equipment, or generator, the contractor shall submit to the developer's representative a report prior to bringing said equipment on site that includes: i. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number. ii. The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level. iii. The Certification Statement signed and printed on the contractor's letterhead.
b. The contractor shall submit to the developer's representative a monthly report that, for each onroad diesel vehicle, nonroad construction equipment, or generator onsite, includes: i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date. ii. Any problems with the equipment or emission controls. iii. Certified copies of fuel deliveries for the time period that identify:

1. Source of supply
2. Quantity of fuel
3. Quality of fuel, including sulfur content (percent by weight)

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce emissions released during Project construction and operation. An EIR should be prepared to include all feasible mitigation measures, as well as include an updated health risk and GHG analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

Disclaimer

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

Attachment A:	SWAPE HRA Calculations
Attachment B:	SWAPE GHG and VMT Calculations
Attachment C:	SWAPE Project CalEEMod Modeling
Attachment D:	SWAPE Project AERSCREEN Modeling
Attachment E:	Paul Rosenfeld CV
Attachment F:	Matt Hagemann CV

Operation		
Emission Rate		
Annual Emissions (tons/year)		0.0226
Daily Emissions (lbs/day)		0.123835616
Emission Rate (g/s)		0.000650137
Release Height (meters)		3
Initial Vertical Dimension (meters)		1.5
Max Horizontal (meters)		77.0
Min Horizontal (meters)		41.0
Total Acreage		0.780111
Setting	Urban	
Population		39,169
Total Pounds of DPM		
Total DPM (lbs)		45.2

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	ASF	Cancer Risk with ASFs*
Construction	0.25	N/A	361	10	N/A
3rd Trimester Duration	***0.25***			***3rd Trimester Exposure***	***N/A***
Construction	1.74	N/A	1090	10	N/A
Operation	0.26	0.4006	1090	10	1.7E-05
Infant Exposure Duration	***2.00***			***Infant Exposure***	***1.7E-05***
Operation	14.00	0.4006	572	3	1.5E-04
Child Exposure Duration	***14.00***			***Child Exposure***	***1.5E-04***
Operation	14.00	0.4006	261	1	1.6E-05
Adult Exposure Duration	***14.00***			***Adult Exposure***	***1.6E-05***
Lifetime Exposure Duration	**30.00**			**Lifetime Exposure**	**1.8E-04**

Attachment B

GHG CALCULATIONS: IS/MND Modeling

Line (L)	Value	Unit
Project Total VMT		
1	3,490,968	Project Total VMT
Total Emissions From Passenger and Light Duty Vehicles		
2	1,222.85	Mobile Emissions (MT CO2e/year) (CalEEMod Output, Tbl. 2.2, Mitigated Operational).
3	3,490,968	Project Total VMT (see L1)
4	91.89%	Passenger and Light-Duty VMT Fleet Mix
5	3,207,802	VMT from Passenger & Light-Duty Vehicles**** [Calc: (L3*L4)]
6	1,123.66	Passenger and Light Duty Vehicle Emissions (MT CO2e/year) [Calc: (L2*L4)]
7	6,787.00	Passenger and Light-Duty Vehicle Emissions (Total lbs CO2e/day) [Calc: (L6 converted into lbs) / (365 days)]
8	130	Service Population [0 residents + 130 long-term jobs]
9	52.21	Per Service Population Emissions (lbs CO2e/day/SP) [Calc: (L7/L8)]
Daily VMT Per Capita From Passenger and Light Duty Vehicles		
10	3,207,802	VMT from Passenger & Light-Duty Vehicles**** (see L5)
11	8,788	Daily VMT from Passenger & Light-Duty Vehicles [Calc: (L10/365)]
12	130	Service Population [0 residents + 130 long-term jobs]
13	67.60	Daily VMT Per Capita [(Calc: L11/L12)]

CO_2e Per Capita Emissions from Passenger & Light-Duty Trucks,	
Exceedances under RTP/SCS Performance-Based SB 375 Goals	
Sources	**Project**
	IS/MND Modeling
Annual Mobile Emissions (MT CO_2e/year)	1,222.85
Passenger & Light-Duty Fleet Mix (%)	91.89%
Daily CO_2e Emissions (lbs/day)	6,787.00
Service Population	130
Per Capita Emissions (lbs/day)	**52.21**
21.3 lbs/day/SP (2020 Goal) Exceeded?	**Yes**
18.8 lbs/day/SP (2035 Goal) Exceeded?	**Yes**

Daily VMT Per Capita from Passenger & Light-Duty Trucks,	
Exceedances under RTP/SCS Performance-Based SB 375 Target	
Sources	**Project**
	IS/MND Modeling
Annual VMT from Auto & Light-Duty Vehicles	3,207,802
Daily VMT from Auto & Light-Duty Vehicles	8,788
Service Population	130
Daily VMT Per Capita	67.60
2020 RTP/SCS Benchmarks, SCAG-Wide	
23.2 VMT (2016 Baseline) Exceed?	**Yes**
20.7 VMT (2045 Target) Exceed?	**Yes**
2020 RTP/SCS Benchmarks, Los Angeles County	
22.2 VMT (2016 Baseline) Exceed?	**Yes**
19.2 VMT (2045 Target) Exceed?	**Yes**

2017 Scoping Plan Daily VMT Per Capita						
	Los Angeles County			State		
Year	Population	LDV VMT Baseline	VMT Per Capita	Population	LDV VMT Baseline	VMT Per Capita
2010	9,838,771	216,979,221.64	22.05	37,335,085	836,463,980.46	22.40
2022	10,534,881	220,487,425.77	20.93	41,321,565	916,010,145.57	22.17
2030	10,868,614	215,539,586.12	19.83	43,939,250	957,178,153.19	21.78

Daily VMT Per Capita from Passenger & Light-Duty Trucks, Exceedances under 2017 Scoping Plan Performance-Based SB 375 Benchmarks	
Sources	Project
	IS/MND Modeling
Annual VMT from Auto & Light-Duty Vehicles	3,207,802
Daily VMT from Auto & Light-Duty Vehicles	8,788
Service Population	130
Daily VMT Per Capita	67.60
2017 Scoping Plan Benchmarks, Statewide	
22.40 VMT (2010 Baseline) Exceed?	**Yes**
22.17 VMT (2022 Projected) Exceed?	**Yes**
21.78 VMT (2030 Projected) Exceed?	**Yes**
2017 Scoping Plan Benchmarks, Los Angeles County Specific	
22.05 VMT (2010 Baseline) Exceed?	**Yes**
20.93 VMT (2022 Projected) Exceed?	**Yes**
19.83 VMT (2030 Projected) Exceed?	**Yes**

11469 Jefferson - Operations

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 31

Climate Zone 11

Operational Year 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44

CH4 Intensity (lb/MWhr) 0.029

N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See SWAPE comment regarding CO2 intensity factor.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Vehicle Trips - Consistent with the IS/MND's model.

Vehicle Emission Factors - See SWAPE comment regarding operational vehicle emission factors.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Mitigation - Consistent with the IS/MND's model.

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	8.36
tblVehicleTrips	ST_TR	94.36	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	8.36
tblVehicleTrips	SU_TR	72.16	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	89.95	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6399	0.6196	0.6034	1.4600e-003	0.0529	0.0267	0.0796	0.0144	0.0247	0.0391	0.0000	132.3248	132.3248	0.0215	0.0000	132.8611
Maximum	**0.6399**	**0.6196**	**0.6034**	**1.4600e-003**	**0.0529**	**0.0267**	**0.0796**	**0.0144**	**0.0247**	**0.0391**	**0.0000**	**132.3248**	**132.3248**	**0.0215**	**0.0000**	**132.8611**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6399	0.6196	0.6034	1.4600e-003	0.0529	0.0267	0.0796	0.0144	0.0247	0.0391	0.0000	132.3247	132.3247	0.0215	0.0000	132.8610
Maximum	**0.6399**	**0.6196**	**0.6034**	**1.4600e-003**	**0.0529**	**0.0267**	**0.0796**	**0.0144**	**0.0247**	**0.0391**	**0.0000**	**132.3247**	**132.3247**	**0.0215**	**0.0000**	**132.8610**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-9-2021	5-8-2021	0.3619	0.3619
2	5-9-2021	8-8-2021	0.8914	0.8914
		Highest	0.8914	0.8914

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Energy	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	631.6018	631.6018	0.0218	7.2800e-003	634.3165
Mobile	0.3735	2.0366	4.4176	0.0162	1.3265	0.0130	1.3395	0.3555	0.0121	0.3676	0.0000	1,498.5302	1,498.5302	0.0753	0.0000	1,500.4131
Waste						0.0000	0.0000		0.0000	0.0000	20.8715	0.0000	20.8715	1.2335	0.0000	51.7083
Water						0.0000	0.0000		0.0000	0.0000	1.7402	24.8200	26.5603	0.1798	4.4300e-003	32.3752
Total	**0.8951**	**2.2134**	**4.5701**	**0.0173**	**1.3265**	**0.0264**	**1.3529**	**0.3555**	**0.0256**	**0.3810**	**22.6118**	**2,154.9598**	**2,177.5716**	**1.5104**	**0.0117**	**2,218.8214**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Energy	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	631.6018	631.6018	0.0218	7.2800e-003	634.3165
Mobile	0.3735	2.0366	4.4176	0.0162	1.3265	0.0130	1.3395	0.3555	0.0121	0.3676	0.0000	1,498.5302	1,498.5302	0.0753	0.0000	1,500.4131
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	1.7402	24.8200	26.5603	0.1798	4.4300e-003	32.3752
Total	**0.8951**	**2.2134**	**4.5701**	**0.0173**	**1.3265**	**0.0264**	**1.3529**	**0.3555**	**0.0256**	**0.3810**	**1.7402**	**2,154.9598**	**2,156.7000**	**0.2769**	**0.0117**	**2,167.1131**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.30	0.00	0.96	81.67	0.00	2.33

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/9/2021	2/22/2021	5	10	
2	Site Preparation	Site Preparation	2/23/2021	2/23/2021	5	1	
3	Grading	Grading	2/24/2021	2/25/2021	5	2	
4	Building Construction	Building Construction	2/26/2021	7/15/2021	5	100	
5	Paving	Paving	7/16/2021	7/22/2021	5	5	
6	Architectural Coating	Architectural Coating	7/23/2021	7/29/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4778	0.4778	1.0000e-005	0.0000	0.4782
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4778**	**0.4778**	**1.0000e-005**	**0.0000**	**0.4782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4778	0.4778	1.0000e-005	0.0000	0.4782
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4778**	**0.4778**	**1.0000e-005**	**0.0000**	**0.4782**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0239	0.0239	0.0000	0.0000	0.0239
Total	**1.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0239**	**0.0239**	**0.0000**	**0.0000**	**0.0239**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0239	0.0239	0.0000	0.0000	0.0239
Total	**1.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0239**	**0.0239**	**0.0000**	**0.0000**	**0.0239**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**7.5000e-004**	**4.1000e-004**	**1.1600e-003**	**4.1000e-004**	**3.9000e-004**	**8.0000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0956	0.0956	0.0000	0.0000	0.0956
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0956**	**0.0956**	**0.0000**	**0.0000**	**0.0956**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**7.5000e-004**	**4.1000e-004**	**1.1600e-003**	**4.1000e-004**	**3.9000e-004**	**8.0000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

3.4 Grading - 2021

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0956	0.0956	0.0000	0.0000	0.0956
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0956**	**0.0956**	**0.0000**	**0.0000**	**0.0956**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1403	0.0348	3.7000e-004	9.1400e-003	2.8000e-004	9.4200e-003	2.6400e-003	2.7000e-004	2.9100e-003	0.0000	35.4012	35.4012	2.2400e-003	0.0000	35.4572
Worker	0.0156	0.0116	0.1307	4.0000e-004	0.0411	3.1000e-004	0.0415	0.0109	2.8000e-004	0.0112	0.0000	35.8373	35.8373	9.6000e-004	0.0000	35.8613
Total	**0.0198**	**0.1519**	**0.1655**	**7.7000e-004**	**0.0503**	**5.9000e-004**	**0.0509**	**0.0136**	**5.5000e-004**	**0.0141**	**0.0000**	**71.2385**	**71.2385**	**3.2000e-003**	**0.0000**	**71.3185**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1403	0.0348	3.7000e-004	9.1400e-003	2.8000e-004	9.4200e-003	2.6400e-003	2.7000e-004	2.9100e-003	0.0000	35.4012	35.4012	2.2400e-003	0.0000	35.4572
Worker	0.0156	0.0116	0.1307	4.0000e-004	0.0411	3.1000e-004	0.0415	0.0109	2.8000e-004	0.0112	0.0000	35.8373	35.8373	9.6000e-004	0.0000	35.8613
Total	**0.0198**	**0.1519**	**0.1655**	**7.7000e-004**	**0.0503**	**5.9000e-004**	**0.0509**	**0.0136**	**5.5000e-004**	**0.0141**	**0.0000**	**71.2385**	**71.2385**	**3.2000e-003**	**0.0000**	**71.3185**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4301	0.4301	1.0000e-005	0.0000	0.4303
Total	**1.9000e-004**	**1.4000e-004**	**1.5700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4301**	**0.4301**	**1.0000e-005**	**0.0000**	**0.4303**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4301	0.4301	1.0000e-005	0.0000	0.4303
Total	**1.9000e-004**	**1.4000e-004**	**1.5700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4301**	**0.4301**	**1.0000e-005**	**0.0000**	**0.4303**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.5739**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.2000e-004	1.3100e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3584	0.3584	1.0000e-005	0.0000	0.3586
Total	**1.6000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3584**	**0.3584**	**1.0000e-005**	**0.0000**	**0.3586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.5739**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.2000e-004	1.3100e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3584	0.3584	1.0000e-005	0.0000	0.3586
Total	**1.6000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3584**	**0.3584**	**1.0000e-005**	**0.0000**	**0.3586**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3735	2.0366	4.4176	0.0162	1.3265	0.0130	1.3395	0.3555	0.0121	0.3676	0.0000	1,498.530 2	1,498.530 2	0.0753	0.0000	1,500.413 1
Unmitigated	0.3735	2.0366	4.4176	0.0162	1.3265	0.0130	1.3395	0.3555	0.0121	0.3676	0.0000	1,498.530 2	1,498.530 2	0.0753	0.0000	1,500.413 1

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Hotel	1,463.00	1,463.00	1463.00	3,490,968	3,490,968
Quality Restaurant	0.00	0.00	0.00		
Total	1,463.00	1,463.00	1,463.00	3,490,968	3,490,968

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	439.1449	439.1449	0.0181	3.7500e-003	440.7159
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	439.1449	439.1449	0.0181	3.7500e-003	440.7159
NaturalGas Mitigated	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	192.4569	192.4569	3.6900e-003	3.5300e-003	193.6006
NaturalGas Unmitigated	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	192.4569	192.4569	3.6900e-003	3.5300e-003	193.6006

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	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
Health Club	12670	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6761	0.6761	1.0000e-005	1.0000e-005	0.6801
Hotel	2.82933e+006	0.0153	0.1387	0.1165	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.9837	150.9837	2.8900e-003	2.7700e-003	151.8810
Quality Restaurant	764508	4.1200e-003	0.0375	0.0315	2.2000e-004		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	40.7971	40.7971	7.8000e-004	7.5000e-004	41.0395
Total		**0.0195**	**0.1768**	**0.1485**	**1.0500e-003**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**192.4569**	**192.4569**	**3.6800e-003**	**3.5300e-003**	**193.6006**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	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
Health Club	12670	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6761	0.6761	1.0000e-005	1.0000e-005	0.6801
Hotel	2.82933e+006	0.0153	0.1387	0.1165	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.9837	150.9837	2.8900e-003	2.7700e-003	151.8810
Quality Restaurant	764508	4.1200e-003	0.0375	0.0315	2.2000e-004		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	40.7971	40.7971	7.8000e-004	7.5000e-004	41.0395
Total		**0.0195**	**0.1768**	**0.1485**	**1.0500e-003**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**192.4569**	**192.4569**	**3.6800e-003**	**3.5300e-003**	**193.6006**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	329918	105.1189	4.3400e-003	9.0000e-004	105.4950
Health Club	7770	2.4757	1.0000e-004	2.0000e-005	2.4846
Hotel	894341	284.9564	0.0118	2.4300e-003	285.9758
Quality Restaurant	146236	46.5939	1.9200e-003	4.0000e-004	46.7606
Total		**439.1449**	**0.0181**	**3.7500e-003**	**440.7159**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	329918	105.1189	4.3400e-003	9.0000e-004	105.4950
Health Club	7770	2.4757	1.0000e-004	2.0000e-005	2.4846
Hotel	894341	284.9564	0.0118	2.4300e-003	285.9758
Quality Restaurant	146236	46.5939	1.9200e-003	4.0000e-004	46.7606
Total		**439.1449**	**0.0181**	**3.7500e-003**	**440.7159**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Unmitigated	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Total	**0.5022**	**4.0000e-005**	**4.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.8700e-003**	**7.8700e-003**	**2.0000e-005**	**0.0000**	**8.3900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Total	**0.5022**	**4.0000e-005**	**4.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.8700e-003**	**7.8700e-003**	**2.0000e-005**	**0.0000**	**8.3900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.5603	0.1798	4.4300e-003	32.3752
Unmitigated	26.5603	0.1798	4.4300e-003	32.3752

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.0414002 / 0.0253743	0.2747	1.3600e-003	3.0000e-005	0.3189
Hotel	4.43918 / 0.493243	21.5715	0.1455	3.5900e-003	26.2778
Quality Restaurant	1.0047 / 0.0641296	4.7140	0.0329	8.1000e-004	5.7785
Total		**26.5603**	**0.1798**	**4.4300e-003**	**32.3752**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.0414002 / 0.0253743	0.2747	1.3600e-003	3.0000e-005	0.3189
Hotel	4.43918 / 0.493243	21.5715	0.1455	3.5900e-003	26.2778
Quality Restaurant	1.0047 / 0.0641296	4.7140	0.0329	8.1000e-004	5.7785
Total		**26.5603**	**0.1798**	**4.4300e-003**	**32.3752**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	20.8715	1.2335	0.0000	51.7083

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Health Club	3.99	0.8099	0.0479	0.0000	2.0066
Hotel	95.81	19.4486	1.1494	0.0000	48.1830
Quality Restaurant	3.02	0.6130	0.0362	0.0000	1.5188
Total		**20.8715**	**1.2335**	**0.0000**	**51.7083**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator		0.0000	0.0000	0.0000	0.0000
Health Club		0.0000	0.0000	0.0000	0.0000
Hotel		0.0000	0.0000	0.0000	0.0000
Quality Restaurant		0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

11469 Jefferson - Operations

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 11 **Operational Year** 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See SWAPE comment regarding CO2 intensity factor.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Vehicle Trips - Consistent with the IS/MND's model.

Vehicle Emission Factors - See SWAPE comment regarding operational vehicle emission factors.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Mitigation - Consistent with the IS/MND's model.

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	8.36
tblVehicleTrips	ST_TR	94.36	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	8.36
tblVehicleTrips	SU_TR	72.16	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	89.95	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	229.6016	10.9562	10.7455	0.0271	1.0239	0.4593	1.4832	0.4434	0.4227	0.8328	0.0000	2,723.8398	2,723.8398	0.4269	0.0000	2,734.5130
Maximum	**229.6016**	**10.9562**	**10.7455**	**0.0271**	**1.0239**	**0.4593**	**1.4832**	**0.4434**	**0.4227**	**0.8328**	**0.0000**	**2,723.8398**	**2,723.8398**	**0.4269**	**0.0000**	**2,734.5130**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	229.6016	10.9562	10.7455	0.0271	1.0239	0.4593	1.4832	0.4434	0.4227	0.8328	0.0000	2,723.8398	2,723.8398	0.4269	0.0000	2,734.5130
Maximum	**229.6016**	**10.9562**	**10.7455**	**0.0271**	**1.0239**	**0.4593**	**1.4832**	**0.4434**	**0.4227**	**0.8328**	**0.0000**	**2,723.8398**	**2,723.8398**	**0.4269**	**0.0000**	**2,734.5130**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.2214	10.8617	25.2626	0.0927	7.4230	0.0712	7.4942	1.9861	0.0664	2.0525		9,444.5009	9,444.5009	0.4570		9,455.9259
Total	**5.0807**	**11.8307**	**26.1087**	**0.0985**	**7.4230**	**0.1449**	**7.5680**	**1.9861**	**0.1402**	**2.1263**		**10,607.0219**	**10,607.0219**	**0.4795**	**0.0213**	**10,625.3593**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.2214	10.8617	25.2626	0.0927	7.4230	0.0712	7.4942	1.9861	0.0664	2.0525		9,444.5009	9,444.5009	0.4570		9,455.9259
Total	**5.0807**	**11.8307**	**26.1087**	**0.0985**	**7.4230**	**0.1449**	**7.5680**	**1.9861**	**0.1402**	**2.1263**		**10,607.0219**	**10,607.0219**	**0.4795**	**0.0213**	**10,625.3593**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/9/2021	2/22/2021	5	10	
2	Site Preparation	Site Preparation	2/23/2021	2/23/2021	5	1	
3	Grading	Grading	2/24/2021	2/25/2021	5	2	
4	Building Construction	Building Construction	2/26/2021	7/15/2021	5	100	
5	Paving	Paving	7/16/2021	7/22/2021	5	5	
6	Architectural Coating	Architectural Coating	7/23/2021	7/29/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.433 8	1,147.433 8	0.2138		1,152.779 7
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**		**1,147.433 8**	**1,147.433 8**	**0.2138**		**1,152.779 7**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0211	0.0137	0.1884	5.6000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		55.3702	55.3702	1.4900e-003		55.4074
Total	**0.0211**	**0.0137**	**0.1884**	**5.6000e-004**	**0.0559**	**4.1000e-004**	**0.0563**	**0.0148**	**3.8000e-004**	**0.0152**		**55.3702**	**55.3702**	**1.4900e-003**		**55.4074**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0211	0.0137	0.1884	5.6000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		55.3702	55.3702	1.4900e-003		55.4074
Total	**0.0211**	**0.0137**	**0.1884**	**5.6000e-004**	**0.0559**	**4.1000e-004**	**0.0563**	**0.0148**	**3.8000e-004**	**0.0152**		**55.3702**	**55.3702**	**1.4900e-003**		**55.4074**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	**0.0633**	**0.0411**	**0.5651**	**1.6700e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.1105**	**166.1105**	**4.4700e-003**		**166.2222**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	**0.0633**	**0.0411**	**0.5651**	**1.6700e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.1105**	**166.1105**	**4.4700e-003**		**166.2222**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2214	10.8617	25.2626	0.0927	7.4230	0.0712	7.4942	1.9861	0.0664	2.0525		9,444.500 9	9,444.500 9	0.4570		9,455.925 9
Unmitigated	2.2214	10.8617	25.2626	0.0927	7.4230	0.0712	7.4942	1.9861	0.0664	2.0525		9,444.500 9	9,444.500 9	0.4570		9,455.925 9

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Hotel	1,463.00	1,463.00	1463.00	3,490,968	3,490,968
Quality Restaurant	0.00	0.00	0.00		
Total	1,463.00	1,463.00	1,463.00	3,490,968	3,490,968

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
NaturalGas Unmitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	34.7123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7751.58	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2094.54	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	0.0347123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7.75158	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2.09454	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Unmitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

11469 Jefferson - Operations

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 31

Climate Zone 11

Operational Year 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44

CH4 Intensity (lb/MWhr) 0.029

N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See SWAPE comment regarding CO2 intensity factor.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Vehicle Trips - Consistent with the IS/MND's model.

Vehicle Emission Factors - See SWAPE comment regarding operational vehicle emission factors.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Mitigation - Consistent with the IS/MND's model.

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	8.36
tblVehicleTrips	ST_TR	94.36	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	8.36
tblVehicleTrips	SU_TR	72.16	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	89.95	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	229.6075	10.9669	10.5372	0.0264	1.0239	0.4595	1.4834	0.4434	0.4229	0.8328	0.0000	2,647.1622	2,647.1622	0.4290	0.0000	2,657.8860
Maximum	**229.6075**	**10.9669**	**10.5372**	**0.0264**	**1.0239**	**0.4595**	**1.4834**	**0.4434**	**0.4229**	**0.8328**	**0.0000**	**2,647.1622**	**2,647.1622**	**0.4290**	**0.0000**	**2,657.8860**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	229.6075	10.9669	10.5372	0.0264	1.0239	0.4595	1.4834	0.4434	0.4229	0.8328	0.0000	2,647.1622	2,647.1622	0.4290	0.0000	2,657.8860
Maximum	**229.6075**	**10.9669**	**10.5372**	**0.0264**	**1.0239**	**0.4595**	**1.4834**	**0.4434**	**0.4229**	**0.8328**	**0.0000**	**2,647.1622**	**2,647.1622**	**0.4290**	**0.0000**	**2,657.8860**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.1043	10.9950	23.9828	0.0877	7.4230	0.0717	7.4948	1.9861	0.0669	2.0531		8,935.1246	8,935.1246	0.4611		8,946.6527
Total	**4.9635**	**11.9640**	**24.8289**	**0.0935**	**7.4230**	**0.1455**	**7.5685**	**1.9861**	**0.1407**	**2.1268**		**10,097.6456**	**10,097.6456**	**0.4836**	**0.0213**	**10,116.0861**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.1043	10.9950	23.9828	0.0877	7.4230	0.0717	7.4948	1.9861	0.0669	2.0531		8,935.1246	8,935.1246	0.4611		8,946.6527
Total	**4.9635**	**11.9640**	**24.8289**	**0.0935**	**7.4230**	**0.1455**	**7.5685**	**1.9861**	**0.1407**	**2.1268**		**10,097.6456**	**10,097.6456**	**0.4836**	**0.0213**	**10,116.0861**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/9/2021	2/22/2021	5	10	
2	Site Preparation	Site Preparation	2/23/2021	2/23/2021	5	1	
3	Grading	Grading	2/24/2021	2/25/2021	5	2	
4	Building Construction	Building Construction	2/26/2021	7/15/2021	5	100	
5	Paving	Paving	7/16/2021	7/22/2021	5	5	
6	Architectural Coating	Architectural Coating	7/23/2021	7/29/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.433 8	1,147.433 8	0.2138		1,152.779 7
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**		**1,147.433 8**	**1,147.433 8**	**0.2138**		**1,152.779 7**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0231	0.0150	0.1693	5.2000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		51.7834	51.7834	1.3900e-003		51.8181
Total	**0.0231**	**0.0150**	**0.1693**	**5.2000e-004**	**0.0559**	**4.1000e-004**	**0.0563**	**0.0148**	**3.8000e-004**	**0.0152**		**51.7834**	**51.7834**	**1.3900e-003**		**51.8181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0231	0.0150	0.1693	5.2000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		51.7834	51.7834	1.3900e-003		51.8181
Total	**0.0231**	**0.0150**	**0.1693**	**5.2000e-004**	**0.0559**	**4.1000e-004**	**0.0563**	**0.0148**	**3.8000e-004**	**0.0152**		**51.7834**	**51.7834**	**1.3900e-003**		**51.8181**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.433 8	1,147.433 8	0.2138		1,152.779 7
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.433 8**	**1,147.433 8**	**0.2138**		**1,152.779 7**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.946 5**	**1,543.946 5**	**0.0722**		**1,545.750 2**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.215 8	1,103.215 8	0.3568		1,112.135 8
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.215 8**	**1,103.215 8**	**0.3568**		**1,112.135 8**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.946 5**	**1,543.946 5**	**0.0722**		**1,545.750 2**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.342 5	1,035.342 5	0.3016		1,042.881 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.342 5**	**1,035.342 5**	**0.3016**		**1,042.881 8**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	**0.0692**	**0.0450**	**0.5078**	**1.5600e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.3502**	**155.3502**	**4.1600e-003**		**155.4543**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	**0.0692**	**0.0450**	**0.5078**	**1.5600e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.3502**	**155.3502**	**4.1600e-003**		**155.4543**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	2.1043	10.9950	23.9828	0.0877	7.4230	0.0717	7.4948	1.9861	0.0669	2.0531		8,935.1246	8,935.1246	0.4611		8,946.6527
Unmitigated	2.1043	10.9950	23.9828	0.0877	7.4230	0.0717	7.4948	1.9861	0.0669	2.0531		8,935.1246	8,935.1246	0.4611		8,946.6527

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Hotel	1,463.00	1,463.00	1463.00	3,490,968	3,490,968
Quality Restaurant	0.00	0.00	0.00		
Total	1,463.00	1,463.00	1,463.00	3,490,968	3,490,968

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
NaturalGas Unmitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	34.7123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7751.58	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2094.54	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	0.0347123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7.75158	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2.09454	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Unmitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

11469 Jefferson - Construction

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 11 **Operational Year** 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the IS/MND's model.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Construction Phase - See SWAPE comment regarding constructuion schedule and number of days per week,

Off-road Equipment - See SWAPE comment regarding construction equipment unit amounts and usage hours.

Trips and VMT - See SWAPE comment regarding worker, vendor, and hauling trips.

Demolition -

Grading - See SWAPE comment regarding material export.

Construction Off-road Equipment Mitigation - Consistent with the DEIR's model.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblGrading	MaterialExported	0.00	43,836.00
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	5,044.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
2020	21.7234	753.5728	156.4009	2.1378	51.2224	2.8718	54.0942	13.9401	2.7462	16.6862	0.0000	230,963.8803	230,963.8803	15.6343	0.0000	231,354.7366
2021	229.6016	10.9562	10.7455	0.0271	1.0239	0.4593	1.4832	0.2758	0.4227	0.6985	0.0000	2,723.8398	2,723.8398	0.4269	0.0000	2,734.5130
Maximum	**229.6016**	**753.5728**	**156.4009**	**2.1378**	**51.2224**	**2.8718**	**54.0942**	**13.9401**	**2.7462**	**16.6862**	**0.0000**	**230,963.8803**	**230,963.8803**	**15.6343**	**0.0000**	**231,354.7366**

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
2020	20.9887	746.2746	156.6292	2.1378	51.2224	2.4223	53.6447	13.9401	2.3182	16.2582	0.0000	230,963.8803	230,963.8803	15.6343	0.0000	231,354.7366
2021	229.4124	3.5764	11.2079	0.0271	1.0239	0.0304	1.0543	0.2758	0.0296	0.3054	0.0000	2,723.8398	2,723.8398	0.4269	0.0000	2,734.5130
Maximum	**229.4124**	**746.2746**	**156.6292**	**2.1378**	**51.2224**	**2.4223**	**53.6447**	**13.9401**	**2.3182**	**16.2582**	**0.0000**	**230,963.8803**	**230,963.8803**	**15.6343**	**0.0000**	**231,354.7366**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.37	1.92	-0.41	0.00	0.00	26.37	1.58	0.00	25.91	4.72	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.6194	12.6894	28.7558	0.1046	8.3224	0.0806	8.4030	2.2268	0.0751	2.3019		10,658.9230	10,658.9230	0.5222		10,671.9771
Total	**5.4787**	**13.6584**	**29.6019**	**0.1104**	**8.3224**	**0.1543**	**8.4767**	**2.2268**	**0.1489**	**2.3756**		**11,821.4440**	**11,821.4440**	**0.5446**	**0.0213**	**11,841.4106**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.6194	12.6894	28.7558	0.1046	8.3224	0.0806	8.4030	2.2268	0.0751	2.3019		10,658.9230	10,658.9230	0.5222		10,671.9771
Total	**5.4787**	**13.6584**	**29.6019**	**0.1104**	**8.3224**	**0.1543**	**8.4767**	**2.2268**	**0.1489**	**2.3756**		**11,821.4440**	**11,821.4440**	**0.5446**	**0.0213**	**11,841.4106**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/4/2020	5/15/2020	5	10	
2	Excavation	Grading	5/16/2020	5/19/2020	5	2	
3	Building Construction	Building Construction	5/20/2020	10/6/2020	5	100	
4	Foundation	Building Construction	10/7/2020	2/23/2021	5	100	
5	Continuous Concrete Pour	Building Construction	2/24/2021	7/13/2021	5	100	
6	Paving	Paving	7/14/2021	7/20/2021	5	5	
7	Architectural Coating	Architectural Coating	7/21/2021	7/27/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Excavation	Concrete/Industrial Saws	1	8.00	81	0.73
Excavation	Rubber Tired Dozers	1	1.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation	Cranes	1	4.00	231	0.29
Foundation	Forklifts	2	6.00	89	0.20
Foundation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Continuous Concrete Pour	Cranes	1	4.00	231	0.29
Continuous Concrete Pour	Forklifts	2	6.00	89	0.20
Continuous Concrete Pour	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	155.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	4	10.00	0.00	5,480.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	5,044.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Continuous Concrete Pour	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**3.3468**	**0.4672**	**3.8140**	**0.5067**	**0.4457**	**0.9524**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1177	4.2182	0.8393	0.0120	0.2709	0.0136	0.2845	0.0742	0.0130	0.0872		1,299.4103	1,299.4103	0.0872		1,301.5902
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0452	0.0304	0.4088	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		114.4418	114.4418	3.2900e-003		114.5240
Total	**0.1630**	**4.2486**	**1.2481**	**0.0132**	**0.3826**	**0.0145**	**0.3971**	**0.1039**	**0.0138**	**0.1177**		**1,413.8520**	**1,413.8520**	**0.0905**		**1,416.1142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	0.1326	0.5747	7.8509	0.0120		0.0177	0.0177		0.0177	0.0177	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.1326**	**0.5747**	**7.8509**	**0.0120**	**3.3468**	**0.0177**	**3.3645**	**0.5067**	**0.0177**	**0.5244**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1177	4.2182	0.8393	0.0120	0.2709	0.0136	0.2845	0.0742	0.0130	0.0872		1,299.410 3	1,299.410 3	0.0872		1,301.590 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0452	0.0304	0.4088	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		114.4418	114.4418	3.2900e-003		114.5240
Total	**0.1630**	**4.2486**	**1.2481**	**0.0132**	**0.3826**	**0.0145**	**0.3971**	**0.1039**	**0.0138**	**0.1177**		**1,413.852 0**	**1,413.852 0**	**0.0905**		**1,416.114 2**

3.3 Excavation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2315	0.0000	3.2315	0.7891	0.0000	0.7891			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.235 2	1,147.235 2	0.2169		1,152.657 8
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**3.2315**	**0.4672**	**3.6987**	**0.7891**	**0.4457**	**1.2348**		**1,147.235 2**	**1,147.235 2**	**0.2169**		**1,152.657 8**

3.3 Excavation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	20.8108	745.6695	148.3695	2.1246	47.8792	2.4037	50.2829	13.1213	2.2997	15.4210		229,702.2033	229,702.2033	15.4141		230,087.5548
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0452	0.0304	0.4088	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		114.4418	114.4418	3.2900e-003		114.5240
Total	**20.8560**	**745.6999**	**148.7783**	**2.1258**	**47.9910**	**2.4046**	**50.3955**	**13.1510**	**2.3005**	**15.4514**		**229,816.6451**	**229,816.6451**	**15.4174**		**230,202.0788**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2315	0.0000	3.2315	0.7891	0.0000	0.7891			0.0000			0.0000
Off-Road	0.1326	0.5747	7.8509	0.0120		0.0177	0.0177		0.0177	0.0177	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.1326**	**0.5747**	**7.8509**	**0.0120**	**3.2315**	**0.0177**	**3.2491**	**0.7891**	**0.0177**	**0.8068**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.3 Excavation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	20.8108	745.6695	148.3695	2.1246	47.8792	2.4037	50.2829	13.1213	2.2997	15.4210		229,702.2033	229,702.2033	15.4141		230,087.5548
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0452	0.0304	0.4088	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		114.4418	114.4418	3.2900e-003		114.5240
Total	**20.8560**	**745.6999**	**148.7783**	**2.1258**	**47.9910**	**2.4046**	**50.3955**	**13.1510**	**2.3005**	**15.4514**		**229,816.6451**	**229,816.6451**	**15.4174**		**230,202.0788**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3831	13.7269	2.7313	0.0391	0.8814	0.0443	0.9257	0.2416	0.0423	0.2839		4,228.532 5	4,228.532 5	0.2838		4,235.626 4
Vendor	0.0952	3.0431	0.7246	7.4600e-003	0.1856	0.0151	0.2007	0.0534	0.0144	0.0679		795.9005	795.9005	0.0500		797.1498
Worker	0.3393	0.2281	3.0661	8.6200e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		858.3131	858.3131	0.0247		858.9300
Total	**0.8177**	**16.9981**	**6.5221**	**0.0552**	**1.9053**	**0.0657**	**1.9710**	**0.5173**	**0.0626**	**0.5799**		**5,882.746 1**	**5,882.746 1**	**0.3584**		**5,891.706 2**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,102.978 1	1,102.978 1	0.3567		1,111.896 2
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,102.978 1**	**1,102.978 1**	**0.3567**		**1,111.896 2**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3831	13.7269	2.7313	0.0391	0.8814	0.0443	0.9257	0.2416	0.0423	0.2839		4,228.532 5	4,228.532 5	0.2838		4,235.626 4
Vendor	0.0952	3.0431	0.7246	7.4600e-003	0.1856	0.0151	0.2007	0.0534	0.0144	0.0679		795.9005	795.9005	0.0500		797.1498
Worker	0.3393	0.2281	3.0661	8.6200e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		858.3131	858.3131	0.0247		858.9300
Total	**0.8177**	**16.9981**	**6.5221**	**0.0552**	**1.9053**	**0.0657**	**1.9710**	**0.5173**	**0.0626**	**0.5799**		**5,882.746 1**	**5,882.746 1**	**0.3584**		**5,891.706 2**

3.5 Foundation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.978 1	1,102.978 1	0.3567		1,111.896 2
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.978 1**	**1,102.978 1**	**0.3567**		**1,111.896 2**

3.5 Foundation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0952	3.0431	0.7246	7.4600e-003	0.1856	0.0151	0.2007	0.0534	0.0144	0.0679		795.9005	795.9005	0.0500		797.1498
Worker	0.3393	0.2281	3.0661	8.6200e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		858.3131	858.3131	0.0247		858.9300
Total	**0.4346**	**3.2712**	**3.7908**	**0.0161**	**1.0239**	**0.0214**	**1.0454**	**0.2758**	**0.0203**	**0.2960**		**1,654.2136**	**1,654.2136**	**0.0747**		**1,656.0798**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.5 Foundation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0952	3.0431	0.7246	7.4600e-003	0.1856	0.0151	0.2007	0.0534	0.0144	0.0679		795.9005	795.9005	0.0500		797.1498
Worker	0.3393	0.2281	3.0661	8.6200e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		858.3131	858.3131	0.0247		858.9300
Total	**0.4346**	**3.2712**	**3.7908**	**0.0161**	**1.0239**	**0.0214**	**1.0454**	**0.2758**	**0.0203**	**0.2960**		**1,654.2136**	**1,654.2136**	**0.0747**		**1,656.0798**

3.5 Foundation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Foundation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Foundation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.6 Continuous Concrete Pour - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0807	2.7659	0.6564	7.4000e-003	0.1856	5.5700e-003	0.1912	0.0534	5.3300e-003	0.0588		790.0716	790.0716	0.0478		791.2664
Worker	0.3166	0.2053	2.8254	8.3400e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		830.5525	830.5525	0.0223		831.1109
Total	**0.3973**	**2.9712**	**3.4818**	**0.0157**	**1.0239**	**0.0117**	**1.0357**	**0.2758**	**0.0110**	**0.2868**		**1,620.6240**	**1,620.6240**	**0.0701**		**1,622.3772**

3.7 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.7 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1119	0.4851	6.9028	0.0113		0.0149	0.0149		0.0149	0.0149	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.1119**	**0.4851**	**6.9028**	**0.0113**		**0.0149**	**0.0149**		**0.0149**	**0.0149**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.7 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

3.8 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.8 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	**0.0633**	**0.0411**	**0.5651**	**1.6700e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.1105**	**166.1105**	**4.4700e-003**		**166.2222**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**229.3491**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.8 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	**0.0633**	**0.0411**	**0.5651**	**1.6700e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.1105**	**166.1105**	**4.4700e-003**		**166.2222**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6194	12.6894	28.7558	0.1046	8.3224	0.0806	8.4030	2.2268	0.0751	2.3019		10,658.92 30	10,658.92 30	0.5222		10,671.97 71
Unmitigated	2.6194	12.6894	28.7558	0.1046	8.3224	0.0806	8.4030	2.2268	0.0751	2.3019		10,658.92 30	10,658.92 30	0.5222		10,671.97 71

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	23.05	14.61	18.71	45,395	45,395
Hotel	1,429.75	1,433.25	1041.25	3,280,389	3,280,389
Quality Restaurant	297.73	312.33	238.85	414,857	414,857
Total	1,750.54	1,760.19	1,298.81	3,740,641	3,740,641

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
NaturalGas Unmitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	34.7123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7751.58	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2094.54	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	0.0347123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7.75158	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2.09454	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Unmitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

11469 Jefferson - Construction

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 11 **Operational Year** 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the IS/MND's model.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Construction Phase - See SWAPE comment regarding constructuion schedule and number of days per week,

Off-road Equipment - See SWAPE comment regarding construction equipment unit amounts and usage hours.

Trips and VMT - See SWAPE comment regarding worker, vendor, and hauling trips.

Demolition -

Grading - See SWAPE comment regarding material export.

Construction Off-road Equipment Mitigation - Consistent with the DEIR's model.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblGrading	MaterialExported	0.00	43,836.00
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	5,044.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	22.3252	763.1486	167.7106	2.0985	51.2224	2.9086	54.1310	13.9401	2.7814	16.7215	0.0000	226,728.3347	226,728.3347	16.3033	0.0000	227,135.9182
2021	229.6075	10.9669	10.5372	0.0264	1.0239	0.4595	1.4834	0.2758	0.4229	0.6987	0.0000	2,647.1622	2,647.1622	0.4290	0.0000	2,657.8860
Maximum	**229.6075**	**763.1486**	**167.7106**	**2.0985**	**51.2224**	**2.9086**	**54.1310**	**13.9401**	**2.7814**	**16.7215**	**0.0000**	**226,728.3347**	**226,728.3347**	**16.3033**	**0.0000**	**227,135.9182**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	21.5905	755.8504	167.9390	2.0985	51.2224	2.4591	53.6815	13.9401	2.3534	16.2935	0.0000	226,728.3347	226,728.3347	16.3033	0.0000	227,135.9182
2021	229.4183	3.5871	10.9997	0.0264	1.0239	0.0305	1.0545	0.2758	0.0298	0.3056	0.0000	2,647.1622	2,647.1622	0.4290	0.0000	2,657.8860
Maximum	**229.4183**	**755.8504**	**167.9390**	**2.0985**	**51.2224**	**2.4591**	**53.6815**	**13.9401**	**2.3534**	**16.2935**	**0.0000**	**226,728.3347**	**226,728.3347**	**16.3033**	**0.0000**	**227,135.9182**

11469 Jefferson - Construction - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.37	1.90	-0.39	0.00	0.00	26.08	1.58	0.00	25.62	4.71	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.4798	12.8258	27.4080	0.0989	8.3224	0.0812	8.4036	2.2268	0.0758	2.3025		10,080.9552	10,080.9552	0.5281		10,094.1573
Total	**5.3390**	**13.7948**	**28.2542**	**0.1047**	**8.3224**	**0.1550**	**8.4774**	**2.2268**	**0.1495**	**2.3763**		**11,243.4762**	**11,243.4762**	**0.5506**	**0.0213**	**11,263.5908**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Energy	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
Mobile	2.4798	12.8258	27.4080	0.0989	8.3224	0.0812	8.4036	2.2268	0.0758	2.3025		10,080.9552	10,080.9552	0.5281		10,094.1573
Total	**5.3390**	**13.7948**	**28.2542**	**0.1047**	**8.3224**	**0.1550**	**8.4774**	**2.2268**	**0.1495**	**2.3763**		**11,243.4762**	**11,243.4762**	**0.5506**	**0.0213**	**11,263.5908**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/4/2020	5/15/2020	5	10	
2	Excavation	Grading	5/16/2020	5/19/2020	5	2	
3	Building Construction	Building Construction	5/20/2020	10/6/2020	5	100	
4	Foundation	Building Construction	10/7/2020	2/23/2021	5	100	
5	Continuous Concrete Pour	Building Construction	2/24/2021	7/13/2021	5	100	
6	Paving	Paving	7/14/2021	7/20/2021	5	5	
7	Architectural Coating	Architectural Coating	7/21/2021	7/27/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Excavation	Concrete/Industrial Saws	1	8.00	81	0.73
Excavation	Rubber Tired Dozers	1	1.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation	Cranes	1	4.00	231	0.29
Foundation	Forklifts	2	6.00	89	0.20
Foundation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Continuous Concrete Pour	Cranes	1	4.00	231	0.29
Continuous Concrete Pour	Forklifts	2	6.00	89	0.20
Continuous Concrete Pour	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	155.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	4	10.00	0.00	5,480.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	5,044.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Continuous Concrete Pour	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**3.3468**	**0.4672**	**3.8140**	**0.5067**	**0.4457**	**0.9524**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1211	4.2724	0.9035	0.0118	0.2709	0.0138	0.2847	0.0742	0.0132	0.0874		1,275.4920	1,275.4920	0.0910		1,277.7665
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0333	0.3681	1.0700e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		107.0365	107.0365	3.0700e-003		107.1132
Total	**0.1705**	**4.3057**	**1.2716**	**0.0129**	**0.3826**	**0.0147**	**0.3973**	**0.1039**	**0.0140**	**0.1179**		**1,382.5285**	**1,382.5285**	**0.0941**		**1,384.8798**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	0.1326	0.5747	7.8509	0.0120		0.0177	0.0177		0.0177	0.0177	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.1326**	**0.5747**	**7.8509**	**0.0120**	**3.3468**	**0.0177**	**3.3645**	**0.5067**	**0.0177**	**0.5244**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1211	4.2724	0.9035	0.0118	0.2709	0.0138	0.2847	0.0742	0.0132	0.0874		1,275.4920	1,275.4920	0.0910		1,277.7665
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0333	0.3681	1.0700e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		107.0365	107.0365	3.0700e-003		107.1132
Total	**0.1705**	**4.3057**	**1.2716**	**0.0129**	**0.3826**	**0.0147**	**0.3973**	**0.1039**	**0.0140**	**0.1179**		**1,382.5285**	**1,382.5285**	**0.0941**		**1,384.8798**

3.3 Excavation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2315	0.0000	3.2315	0.7891	0.0000	0.7891			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**3.2315**	**0.4672**	**3.6987**	**0.7891**	**0.4457**	**1.2348**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.3 Excavation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	21.4085	755.2424	159.7200	2.0854	47.8792	2.4406	50.3198	13.1213	2.3350	15.4563		225,474.0630	225,474.0630	16.0834		225,876.1472
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0333	0.3681	1.0700e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		107.0365	107.0365	3.0700e-003		107.1132
Total	**21.4578**	**755.2757**	**160.0881**	**2.0865**	**47.9910**	**2.4414**	**50.4324**	**13.1510**	**2.3357**	**15.4867**		**225,581.0995**	**225,581.0995**	**16.0864**		**225,983.2604**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2315	0.0000	3.2315	0.7891	0.0000	0.7891			0.0000			0.0000
Off-Road	0.1326	0.5747	7.8509	0.0120		0.0177	0.0177		0.0177	0.0177	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.1326**	**0.5747**	**7.8509**	**0.0120**	**3.2315**	**0.0177**	**3.2491**	**0.7891**	**0.0177**	**0.8068**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

3.3 Excavation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	21.4085	755.2424	159.7200	2.0854	47.8792	2.4406	50.3198	13.1213	2.3350	15.4563		225,474.0630	225,474.0630	16.0834		225,876.1472
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0333	0.3681	1.0700e-003	0.1118	8.5000e-004	0.1126	0.0296	7.8000e-004	0.0304		107.0365	107.0365	3.0700e-003		107.1132
Total	**21.4578**	**755.2757**	**160.0881**	**2.0865**	**47.9910**	**2.4414**	**50.4324**	**13.1510**	**2.3357**	**15.4867**		**225,581.0995**	**225,581.0995**	**16.0864**		**225,983.2604**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3941	13.9031	2.9403	0.0384	0.8814	0.0449	0.9263	0.2416	0.0430	0.2845		4,150.697 7	4,150.697 7	0.2961		4,158.099 6
Vendor	0.0998	3.0400	0.8079	7.2500e-003	0.1856	0.0153	0.2009	0.0534	0.0146	0.0681		772.8871	772.8871	0.0537		774.2288
Worker	0.3701	0.2498	2.7607	8.0600e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		802.7737	802.7737	0.0230		803.3493
Total	**0.8640**	**17.1928**	**6.5088**	**0.0537**	**1.9053**	**0.0666**	**1.9719**	**0.5173**	**0.0635**	**0.5808**		**5,726.358 6**	**5,726.358 6**	**0.3728**		**5,735.677 7**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,102.978 1	1,102.978 1	0.3567		1,111.896 2
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,102.978 1**	**1,102.978 1**	**0.3567**		**1,111.896 2**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3941	13.9031	2.9403	0.0384	0.8814	0.0449	0.9263	0.2416	0.0430	0.2845		4,150.697 7	4,150.697 7	0.2961		4,158.099 6
Vendor	0.0998	3.0400	0.8079	7.2500e-003	0.1856	0.0153	0.2009	0.0534	0.0146	0.0681		772.8871	772.8871	0.0537		774.2288
Worker	0.3701	0.2498	2.7607	8.0600e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		802.7737	802.7737	0.0230		803.3493
Total	**0.8640**	**17.1928**	**6.5088**	**0.0537**	**1.9053**	**0.0666**	**1.9719**	**0.5173**	**0.0635**	**0.5808**		**5,726.358 6**	**5,726.358 6**	**0.3728**		**5,735.677 7**

3.5 Foundation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.978 1	1,102.978 1	0.3567		1,111.896 2
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.978 1**	**1,102.978 1**	**0.3567**		**1,111.896 2**

3.5 Foundation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0998	3.0400	0.8079	7.2500e-003	0.1856	0.0153	0.2009	0.0534	0.0146	0.0681		772.8871	772.8871	0.0537		774.2288
Worker	0.3701	0.2498	2.7607	8.0600e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		802.7737	802.7737	0.0230		803.3493
Total	**0.4699**	**3.2897**	**3.5686**	**0.0153**	**1.0239**	**0.0217**	**1.0456**	**0.2758**	**0.0205**	**0.2963**		**1,575.6609**	**1,575.6609**	**0.0767**		**1,577.5781**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.5 Foundation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0998	3.0400	0.8079	7.2500e-003	0.1856	0.0153	0.2009	0.0534	0.0146	0.0681		772.8871	772.8871	0.0537		774.2288
Worker	0.3701	0.2498	2.7607	8.0600e-003	0.8383	6.3600e-003	0.8447	0.2223	5.8600e-003	0.2282		802.7737	802.7737	0.0230		803.3493
Total	**0.4699**	**3.2897**	**3.5686**	**0.0153**	**1.0239**	**0.0217**	**1.0456**	**0.2758**	**0.0205**	**0.2963**		**1,575.660 9**	**1,575.660 9**	**0.0767**		**1,577.578 1**

3.5 Foundation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.215 8	1,103.215 8	0.3568		1,112.135 8
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.215 8**	**1,103.215 8**	**0.3568**		**1,112.135 8**

3.5 Foundation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.9465**	**1,543.9465**	**0.0722**		**1,545.7502**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.5 Foundation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.9465**	**1,543.9465**	**0.0722**		**1,545.7502**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.9465**	**1,543.9465**	**0.0722**		**1,545.7502**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1397	0.6052	7.7261	0.0114		0.0186	0.0186		0.0186	0.0186	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.1397**	**0.6052**	**7.7261**	**0.0114**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

3.6 Continuous Concrete Pour - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0849	2.7571	0.7345	7.1900e-003	0.1856	5.7500e-003	0.1914	0.0534	5.5000e-003	0.0589		767.1956	767.1956	0.0513		768.4788
Worker	0.3459	0.2248	2.5391	7.7900e-003	0.8383	6.1700e-003	0.8445	0.2223	5.6800e-003	0.2280		776.7509	776.7509	0.0208		777.2713
Total	**0.4308**	**2.9819**	**3.2735**	**0.0150**	**1.0239**	**0.0119**	**1.0358**	**0.2758**	**0.0112**	**0.2869**		**1,543.9465**	**1,543.9465**	**0.0722**		**1,545.7502**

3.7 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.7 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1119	0.4851	6.9028	0.0113		0.0149	0.0149		0.0149	0.0149	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.1119**	**0.4851**	**6.9028**	**0.0113**		**0.0149**	**0.0149**		**0.0149**	**0.0149**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.7 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

3.8 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**229.5383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.8 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	**0.0692**	**0.0450**	**0.5078**	**1.5600e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.3502**	**155.3502**	**4.1600e-003**		**155.4543**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	229.3194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**229.3491**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.8 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	**0.0692**	**0.0450**	**0.5078**	**1.5600e-003**	**0.1677**	**1.2300e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.3502**	**155.3502**	**4.1600e-003**		**155.4543**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4798	12.8258	27.4080	0.0989	8.3224	0.0812	8.4036	2.2268	0.0758	2.3025		10,080.95 52	10,080.95 52	0.5281		10,094.15 73
Unmitigated	2.4798	12.8258	27.4080	0.0989	8.3224	0.0812	8.4036	2.2268	0.0758	2.3025		10,080.95 52	10,080.95 52	0.5281		10,094.15 73

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	23.05	14.61	18.71	45,395	45,395
Hotel	1,429.75	1,433.25	1041.25	3,280,389	3,280,389
Quality Restaurant	297.73	312.33	238.85	414,857	414,857
Total	1,750.54	1,760.19	1,298.81	3,740,641	3,740,641

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595
NaturalGas Unmitigated	0.1066	0.9687	0.8137	5.8100e-003		0.0736	0.0736		0.0736	0.0736		1,162.4516	1,162.4516	0.0223	0.0213	1,169.3595

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	34.7123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7751.58	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2094.54	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	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
Health Club	0.0347123	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0838	4.0838	8.0000e-005	7.0000e-005	4.1081
Hotel	7.75158	0.0836	0.7600	0.6384	4.5600e-003		0.0578	0.0578		0.0578	0.0578		911.9511	911.9511	0.0175	0.0167	917.3704
Quality Restaurant	2.09454	0.0226	0.2054	0.1725	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.4167	246.4167	4.7200e-003	4.5200e-003	247.8811
Total		**0.1066**	**0.9687**	**0.8137**	**5.8100e-003**		**0.0736**	**0.0736**		**0.0736**	**0.0736**		**1,162.4516**	**1,162.4516**	**0.0223**	**0.0213**	**1,169.3595**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Unmitigated	2.7527	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4355					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0100e-003	3.0000e-004	0.0324	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0694	0.0694	1.8000e-004		0.0740
Total	**2.7527**	**3.0000e-004**	**0.0324**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0694**	**0.0694**	**1.8000e-004**		**0.0740**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

11469 Jefferson - Construction

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	138.00	Space	0.28	56,300.00	0
Health Club	0.70	1000sqft	0.02	700.00	0
Hotel	175.00	Room	0.50	117,987.00	0
Quality Restaurant	3.31	1000sqft	0.08	3,313.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the IS/MND's model.

Land Use - See SWAPE comment regarding parking and failure to model all proposed land uses.

Construction Phase - See SWAPE comment regarding constructuion schedule and number of days per week,

Off-road Equipment - See SWAPE comment regarding construction equipment unit amounts and usage hours.

Trips and VMT - See SWAPE comment regarding worker, vendor, and hauling trips.

Demolition -

Grading - See SWAPE comment regarding material export.

Construction Off-road Equipment Mitigation - Consistent with the DEIR's model.

11469 Jefferson - Construction - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblGrading	MaterialExported	0.00	43,836.00
tblLandUse	LandUseSquareFeet	55,200.00	56,300.00
tblLandUse	LandUseSquareFeet	254,100.00	117,987.00
tblLandUse	LandUseSquareFeet	3,310.00	3,313.00
tblLandUse	LotAcreage	1.24	0.28
tblLandUse	LotAcreage	5.83	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	5,044.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1513	2.5343	1.2374	6.3700e-003	0.1939	0.0516	0.2455	0.0507	0.0478	0.0984	0.0000	608.6009	608.6009	0.0607	0.0000	610.1182
2021	0.6567	0.7814	0.7547	1.8800e-003	0.0703	0.0328	0.1031	0.0190	0.0302	0.0492	0.0000	171.1406	171.1406	0.0275	0.0000	171.8281
Maximum	**0.6567**	**2.5343**	**1.2374**	**6.3700e-003**	**0.1939**	**0.0516**	**0.2455**	**0.0507**	**0.0478**	**0.0984**	**0.0000**	**608.6009**	**608.6009**	**0.0607**	**0.0000**	**610.1182**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0884	1.8225	1.2662	6.3700e-003	0.1939	8.0800e-003	0.2020	0.0507	7.7800e-003	0.0585	0.0000	608.6008	608.6008	0.0607	0.0000	610.1181
2021	0.6109	0.2531	0.7862	1.8800e-003	0.0703	2.1500e-003	0.0725	0.0190	2.1000e-003	0.0211	0.0000	171.1405	171.1405	0.0275	0.0000	171.8280
Maximum	**0.6109**	**1.8225**	**1.2662**	**6.3700e-003**	**0.1939**	**8.0800e-003**	**0.2020**	**0.0507**	**7.7800e-003**	**0.0585**	**0.0000**	**608.6008**	**608.6008**	**0.0607**	**0.0000**	**610.1181**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**13.45**	**37.40**	**-3.03**	**0.00**	**0.00**	**87.88**	**21.28**	**0.00**	**87.33**	**46.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-4-2020**	**8-3-2020**	1.9112	1.6218
2	**8-4-2020**	**11-3-2020**	0.7645	0.4698
3	**11-4-2020**	**2-3-2021**	0.4269	0.1438
4	**2-4-2021**	**5-3-2021**	0.3864	0.1316
5	**5-4-2021**	**8-3-2021**	0.9044	0.6801
		Highest	1.9112	1.6218

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Energy	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	631.6018	631.6018	0.0218	7.2800e-003	634.3165
Mobile	0.4198	2.2683	4.8179	0.0175	1.4214	0.0140	1.4354	0.3809	0.0131	0.3940	0.0000	1,616.0510	1,616.0510	0.0823	0.0000	1,618.1089
Waste						0.0000	0.0000		0.0000	0.0000	20.8715	0.0000	20.8715	1.2335	0.0000	51.7083
Water						0.0000	0.0000		0.0000	0.0000	1.7402	24.8200	26.5603	0.1798	4.4300e-003	32.3752
Total	**0.9414**	**2.4451**	**4.9705**	**0.0185**	**1.4214**	**0.0275**	**1.4489**	**0.3809**	**0.0266**	**0.4074**	**22.6118**	**2,272.4807**	**2,295.0924**	**1.5174**	**0.0117**	**2,336.5173**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Energy	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	631.6018	631.6018	0.0218	7.2800e-003	634.3165
Mobile	0.4198	2.2683	4.8179	0.0175	1.4214	0.0140	1.4354	0.3809	0.0131	0.3940	0.0000	1,616.0510	1,616.0510	0.0823	0.0000	1,618.1089
Waste						0.0000	0.0000		0.0000	0.0000	20.8715	0.0000	20.8715	1.2335	0.0000	51.7083
Water						0.0000	0.0000		0.0000	0.0000	1.7402	24.8200	26.5603	0.1798	4.4300e-003	32.3752
Total	**0.9414**	**2.4451**	**4.9705**	**0.0185**	**1.4214**	**0.0275**	**1.4489**	**0.3809**	**0.0266**	**0.4074**	**22.6118**	**2,272.4807**	**2,295.0924**	**1.5174**	**0.0117**	**2,336.5173**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/4/2020	5/15/2020	5	10	
2	Excavation	Grading	5/16/2020	5/19/2020	5	2	
3	Building Construction	Building Construction	5/20/2020	10/6/2020	5	100	
4	Foundation	Building Construction	10/7/2020	2/23/2021	5	100	
5	Continuous Concrete Pour	Building Construction	2/24/2021	7/13/2021	5	100	
6	Paving	Paving	7/14/2021	7/20/2021	5	5	
7	Architectural Coating	Architectural Coating	7/21/2021	7/27/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 183,000; Non-Residential Outdoor: 61,000; Striped Parking Area: 3,378 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Excavation	Concrete/Industrial Saws	1	8.00	81	0.73
Excavation	Rubber Tired Dozers	1	1.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation	Cranes	1	4.00	231	0.29
Foundation	Forklifts	2	6.00	89	0.20
Foundation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Continuous Concrete Pour	Cranes	1	4.00	231	0.29
Continuous Concrete Pour	Forklifts	2	6.00	89	0.20
Continuous Concrete Pour	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	155.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	4	10.00	0.00	5,480.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	75.00	29.00	5,044.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Continuous Concrete Pour	5	75.00	29.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	2.5300e-003	0.0000	2.5300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	**4.3400e-003**	**0.0394**	**0.0381**	**6.0000e-005**	**0.0167**	**2.3400e-003**	**0.0191**	**2.5300e-003**	**2.2300e-003**	**4.7600e-003**	**0.0000**	**5.2038**	**5.2038**	**9.8000e-004**	**0.0000**	**5.2284**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-004	0.0218	4.3400e-003	6.0000e-005	1.3300e-003	7.0000e-005	1.4000e-003	3.7000e-004	7.0000e-005	4.3000e-004	0.0000	5.8485	5.8485	4.0000e-004	0.0000	5.8585
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.7000e-004	1.8900e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4938	0.4938	1.0000e-005	0.0000	0.4942
Total	**8.2000e-004**	**0.0219**	**6.2300e-003**	**7.0000e-005**	**1.8800e-003**	**7.0000e-005**	**1.9500e-003**	**5.2000e-004**	**7.0000e-005**	**5.8000e-004**	**0.0000**	**6.3423**	**6.3423**	**4.1000e-004**	**0.0000**	**6.3527**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	2.5300e-003	0.0000	2.5300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-004	2.8700e-003	0.0393	6.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	**6.6000e-004**	**2.8700e-003**	**0.0393**	**6.0000e-005**	**0.0167**	**9.0000e-005**	**0.0168**	**2.5300e-003**	**9.0000e-005**	**2.6200e-003**	**0.0000**	**5.2038**	**5.2038**	**9.8000e-004**	**0.0000**	**5.2284**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-004	0.0218	4.3400e-003	6.0000e-005	1.3300e-003	7.0000e-005	1.4000e-003	3.7000e-004	7.0000e-005	4.3000e-004	0.0000	5.8485	5.8485	4.0000e-004	0.0000	5.8585
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.7000e-004	1.8900e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4938	0.4938	1.0000e-005	0.0000	0.4942
Total	**8.2000e-004**	**0.0219**	**6.2300e-003**	**7.0000e-005**	**1.8800e-003**	**7.0000e-005**	**1.9500e-003**	**5.2000e-004**	**7.0000e-005**	**5.8000e-004**	**0.0000**	**6.3423**	**6.3423**	**4.1000e-004**	**0.0000**	**6.3527**

3.3 Excavation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2300e-003	0.0000	3.2300e-003	7.9000e-004	0.0000	7.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7000e-004	7.8700e-003	7.6200e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.5000e-004	4.5000e-004	0.0000	1.0408	1.0408	2.0000e-004	0.0000	1.0457
Total	**8.7000e-004**	**7.8700e-003**	**7.6200e-003**	**1.0000e-005**	**3.2300e-003**	**4.7000e-004**	**3.7000e-003**	**7.9000e-004**	**4.5000e-004**	**1.2400e-003**	**0.0000**	**1.0408**	**1.0408**	**2.0000e-004**	**0.0000**	**1.0457**

3.3 Excavation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0211	0.7689	0.1533	2.1100e-003	0.0471	2.4200e-003	0.0495	0.0129	2.3100e-003	0.0153	0.0000	206.7713	206.7713	0.0143	0.0000	207.1275
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0988	0.0988	0.0000	0.0000	0.0988
Total	**0.0211**	**0.7689**	**0.1537**	**2.1100e-003**	**0.0472**	**2.4200e-003**	**0.0496**	**0.0130**	**2.3100e-003**	**0.0153**	**0.0000**	**206.8701**	**206.8701**	**0.0143**	**0.0000**	**207.2264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2300e-003	0.0000	3.2300e-003	7.9000e-004	0.0000	7.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3000e-004	5.7000e-004	7.8500e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.0408	1.0408	2.0000e-004	0.0000	1.0457
Total	**1.3000e-004**	**5.7000e-004**	**7.8500e-003**	**1.0000e-005**	**3.2300e-003**	**2.0000e-005**	**3.2500e-003**	**7.9000e-004**	**2.0000e-005**	**8.1000e-004**	**0.0000**	**1.0408**	**1.0408**	**2.0000e-004**	**0.0000**	**1.0457**

3.3 Excavation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0211	0.7689	0.1533	2.1100e-003	0.0471	2.4200e-003	0.0495	0.0129	2.3100e-003	0.0153	0.0000	206.7713	206.7713	0.0143	0.0000	207.1275
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0988	0.0988	0.0000	0.0000	0.0988
Total	**0.0211**	**0.7689**	**0.1537**	**2.1100e-003**	**0.0472**	**2.4200e-003**	**0.0496**	**0.0130**	**2.3100e-003**	**0.0153**	**0.0000**	**206.8701**	**206.8701**	**0.0143**	**0.0000**	**207.2264**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0431	0.4426	0.3694	5.7000e-004		0.0261	0.0261		0.0240	0.0240	0.0000	50.0302	50.0302	0.0162	0.0000	50.4348
Total	**0.0431**	**0.4426**	**0.3694**	**5.7000e-004**		**0.0261**	**0.0261**		**0.0240**	**0.0240**	**0.0000**	**50.0302**	**50.0302**	**0.0162**	**0.0000**	**50.4348**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0194	0.7077	0.1411	1.9400e-003	0.0434	2.2300e-003	0.0456	0.0119	2.1300e-003	0.0140	0.0000	190.3202	190.3202	0.0131	0.0000	190.6481
Vendor	4.8600e-003	0.1547	0.0383	3.7000e-004	9.1400e-003	7.6000e-004	9.9000e-003	2.6400e-003	7.3000e-004	3.3600e-003	0.0000	35.6630	35.6630	2.3400e-003	0.0000	35.7216
Worker	0.0167	0.0128	0.1420	4.1000e-004	0.0411	3.2000e-004	0.0415	0.0109	2.9000e-004	0.0112	0.0000	37.0375	37.0375	1.0600e-003	0.0000	37.0641
Total	**0.0410**	**0.8753**	**0.3215**	**2.7200e-003**	**0.0936**	**3.3100e-003**	**0.0970**	**0.0255**	**3.1500e-003**	**0.0286**	**0.0000**	**263.0207**	**263.0207**	**0.0165**	**0.0000**	**263.4337**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.0303	0.3863	5.7000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	50.0302	50.0302	0.0162	0.0000	50.4347
Total	**6.9800e-003**	**0.0303**	**0.3863**	**5.7000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**	**50.0302**	**50.0302**	**0.0162**	**0.0000**	**50.4347**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0194	0.7077	0.1411	1.9400e-003	0.0434	2.2300e-003	0.0456	0.0119	2.1300e-003	0.0140	0.0000	190.3202	190.3202	0.0131	0.0000	190.6481
Vendor	4.8600e-003	0.1547	0.0383	3.7000e-004	9.1400e-003	7.6000e-004	9.9000e-003	2.6400e-003	7.3000e-004	3.3600e-003	0.0000	35.6630	35.6630	2.3400e-003	0.0000	35.7216
Worker	0.0167	0.0128	0.1420	4.1000e-004	0.0411	3.2000e-004	0.0415	0.0109	2.9000e-004	0.0112	0.0000	37.0375	37.0375	1.0600e-003	0.0000	37.0641
Total	**0.0410**	**0.8753**	**0.3215**	**2.7200e-003**	**0.0936**	**3.3100e-003**	**0.0970**	**0.0255**	**3.1500e-003**	**0.0286**	**0.0000**	**263.0207**	**263.0207**	**0.0165**	**0.0000**	**263.4337**

3.5 Foundation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0267	0.2744	0.2290	3.5000e-004		0.0162	0.0162		0.0149	0.0149	0.0000	31.0188	31.0188	0.0100	0.0000	31.2696
Total	**0.0267**	**0.2744**	**0.2290**	**3.5000e-004**		**0.0162**	**0.0162**		**0.0149**	**0.0149**	**0.0000**	**31.0188**	**31.0188**	**0.0100**	**0.0000**	**31.2696**

3.5 Foundation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0100e-003	0.0959	0.0238	2.3000e-004	5.6700e-003	4.7000e-004	6.1400e-003	1.6400e-003	4.5000e-004	2.0800e-003	0.0000	22.1111	22.1111	1.4500e-003	0.0000	22.1474
Worker	0.0104	7.9600e-003	0.0881	2.5000e-004	0.0255	2.0000e-004	0.0257	6.7700e-003	1.8000e-004	6.9600e-003	0.0000	22.9632	22.9632	6.6000e-004	0.0000	22.9797
Total	**0.0134**	**0.1039**	**0.1118**	**4.8000e-004**	**0.0312**	**6.7000e-004**	**0.0319**	**8.4100e-003**	**6.3000e-004**	**9.0400e-003**	**0.0000**	**45.0743**	**45.0743**	**2.1100e-003**	**0.0000**	**45.1271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3300e-003	0.0188	0.2395	3.5000e-004		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	31.0187	31.0187	0.0100	0.0000	31.2695
Total	**4.3300e-003**	**0.0188**	**0.2395**	**3.5000e-004**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**31.0187**	**31.0187**	**0.0100**	**0.0000**	**31.2695**

3.5 Foundation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0100e-003	0.0959	0.0238	2.3000e-004	5.6700e-003	4.7000e-004	6.1400e-003	1.6400e-003	4.5000e-004	2.0800e-003	0.0000	22.1111	22.1111	1.4500e-003	0.0000	22.1474
Worker	0.0104	7.9600e-003	0.0881	2.5000e-004	0.0255	2.0000e-004	0.0257	6.7700e-003	1.8000e-004	6.9600e-003	0.0000	22.9632	22.9632	6.6000e-004	0.0000	22.9797
Total	**0.0134**	**0.1039**	**0.1118**	**4.8000e-004**	**0.0312**	**6.7000e-004**	**0.0319**	**8.4100e-003**	**6.3000e-004**	**9.0400e-003**	**0.0000**	**45.0743**	**45.0743**	**2.1100e-003**	**0.0000**	**45.1271**

3.5 Foundation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1517	0.1380	2.2000e-004		8.5000e-003	8.5000e-003		7.8200e-003	7.8200e-003	0.0000	19.0156	19.0156	6.1500e-003	0.0000	19.1693
Total	**0.0147**	**0.1517**	**0.1380**	**2.2000e-004**		**8.5000e-003**	**8.5000e-003**		**7.8200e-003**	**7.8200e-003**	**0.0000**	**19.0156**	**19.0156**	**6.1500e-003**	**0.0000**	**19.1693**

3.5 Foundation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5700e-003	0.0533	0.0132	1.4000e-004	3.4700e-003	1.1000e-004	3.5800e-003	1.0000e-003	1.0000e-004	1.1000e-003	0.0000	13.4525	13.4525	8.5000e-004	0.0000	13.4737
Worker	5.9400e-003	4.3900e-003	0.0497	1.5000e-004	0.0156	1.2000e-004	0.0158	4.1500e-003	1.1000e-004	4.2600e-003	0.0000	13.6182	13.6182	3.7000e-004	0.0000	13.6273
Total	**7.5100e-003**	**0.0577**	**0.0629**	**2.9000e-004**	**0.0191**	**2.3000e-004**	**0.0193**	**5.1500e-003**	**2.1000e-004**	**5.3600e-003**	**0.0000**	**27.0706**	**27.0706**	**1.2200e-003**	**0.0000**	**27.1010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6500e-003	0.0115	0.1468	2.2000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	19.0156	19.0156	6.1500e-003	0.0000	19.1693
Total	**2.6500e-003**	**0.0115**	**0.1468**	**2.2000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**19.0156**	**19.0156**	**6.1500e-003**	**0.0000**	**19.1693**

3.5 Foundation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5700e-003	0.0533	0.0132	1.4000e-004	3.4700e-003	1.1000e-004	3.5800e-003	1.0000e-003	1.0000e-004	1.1000e-003	0.0000	13.4525	13.4525	8.5000e-004	0.0000	13.4737
Worker	5.9400e-003	4.3900e-003	0.0497	1.5000e-004	0.0156	1.2000e-004	0.0158	4.1500e-003	1.1000e-004	4.2600e-003	0.0000	13.6182	13.6182	3.7000e-004	0.0000	13.6273
Total	**7.5100e-003**	**0.0577**	**0.0629**	**2.9000e-004**	**0.0191**	**2.3000e-004**	**0.0193**	**5.1500e-003**	**2.1000e-004**	**5.3600e-003**	**0.0000**	**27.0706**	**27.0706**	**1.2200e-003**	**0.0000**	**27.1010**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

3.6 Continuous Concrete Pour - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1403	0.0348	3.7000e-004	9.1400e-003	2.8000e-004	9.4200e-003	2.6400e-003	2.7000e-004	2.9100e-003	0.0000	35.4012	35.4012	2.2400e-003	0.0000	35.4572
Worker	0.0156	0.0116	0.1307	4.0000e-004	0.0411	3.1000e-004	0.0415	0.0109	2.8000e-004	0.0112	0.0000	35.8373	35.8373	9.6000e-004	0.0000	35.8613
Total	**0.0198**	**0.1519**	**0.1655**	**7.7000e-004**	**0.0503**	**5.9000e-004**	**0.0509**	**0.0136**	**5.5000e-004**	**0.0141**	**0.0000**	**71.2385**	**71.2385**	**3.2000e-003**	**0.0000**	**71.3185**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.0303	0.3863	5.7000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**6.9800e-003**	**0.0303**	**0.3863**	**5.7000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

3.6 Continuous Concrete Pour - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1403	0.0348	3.7000e-004	9.1400e-003	2.8000e-004	9.4200e-003	2.6400e-003	2.7000e-004	2.9100e-003	0.0000	35.4012	35.4012	2.2400e-003	0.0000	35.4572
Worker	0.0156	0.0116	0.1307	4.0000e-004	0.0411	3.1000e-004	0.0415	0.0109	2.8000e-004	0.0112	0.0000	35.8373	35.8373	9.6000e-004	0.0000	35.8613
Total	**0.0198**	**0.1519**	**0.1655**	**7.7000e-004**	**0.0503**	**5.9000e-004**	**0.0509**	**0.0136**	**5.5000e-004**	**0.0141**	**0.0000**	**71.2385**	**71.2385**	**3.2000e-003**	**0.0000**	**71.3185**

3.7 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.7 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4301	0.4301	1.0000e-005	0.0000	0.4303
Total	**1.9000e-004**	**1.4000e-004**	**1.5700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4301**	**0.4301**	**1.0000e-005**	**0.0000**	**0.4303**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-004	1.2100e-003	0.0173	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**1.2100e-003**	**0.0173**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.7 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4301	0.4301	1.0000e-005	0.0000	0.4303
Total	**1.9000e-004**	**1.4000e-004**	**1.5700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4301**	**0.4301**	**1.0000e-005**	**0.0000**	**0.4303**

3.8 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.5739**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.8 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.2000e-004	1.3100e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3584	0.3584	1.0000e-005	0.0000	0.3586
Total	**1.6000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3584**	**0.3584**	**1.0000e-005**	**0.0000**	**0.3586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0000e-005	3.2000e-004	4.5800e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.5734**	**3.2000e-004**	**4.5800e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.8 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.2000e-004	1.3100e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3584	0.3584	1.0000e-005	0.0000	0.3586
Total	**1.6000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3584**	**0.3584**	**1.0000e-005**	**0.0000**	**0.3586**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4198	2.2683	4.8179	0.0175	1.4214	0.0140	1.4354	0.3809	0.0131	0.3940	0.0000	1,616.0510	1,616.0510	0.0823	0.0000	1,618.1089
Unmitigated	0.4198	2.2683	4.8179	0.0175	1.4214	0.0140	1.4354	0.3809	0.0131	0.3940	0.0000	1,616.0510	1,616.0510	0.0823	0.0000	1,618.1089

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Health Club	23.05	14.61	18.71	45,395	45,395
Hotel	1,429.75	1,433.25	1041.25	3,280,389	3,280,389
Quality Restaurant	297.73	312.33	238.85	414,857	414,857
Total	1,750.54	1,760.19	1,298.81	3,740,641	3,740,641

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Health Club	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Hotel	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Quality Restaurant	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	439.1449	439.1449	0.0181	3.7500e-003	440.7159
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	439.1449	439.1449	0.0181	3.7500e-003	440.7159
NaturalGas Mitigated	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	192.4569	192.4569	3.6900e-003	3.5300e-003	193.6006
NaturalGas Unmitigated	0.0195	0.1768	0.1485	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	192.4569	192.4569	3.6900e-003	3.5300e-003	193.6006

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	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
Health Club	12670	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6761	0.6761	1.0000e-005	1.0000e-005	0.6801
Hotel	2.82933e+006	0.0153	0.1387	0.1165	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.9837	150.9837	2.8900e-003	2.7700e-003	151.8810
Quality Restaurant	764508	4.1200e-003	0.0375	0.0315	2.2000e-004		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	40.7971	40.7971	7.8000e-004	7.5000e-004	41.0395
Total		**0.0195**	**0.1768**	**0.1485**	**1.0500e-003**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**192.4569**	**192.4569**	**3.6800e-003**	**3.5300e-003**	**193.6006**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	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
Health Club	12670	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6761	0.6761	1.0000e-005	1.0000e-005	0.6801
Hotel	2.82933e+006	0.0153	0.1387	0.1165	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.9837	150.9837	2.8900e-003	2.7700e-003	151.8810
Quality Restaurant	764508	4.1200e-003	0.0375	0.0315	2.2000e-004		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	40.7971	40.7971	7.8000e-004	7.5000e-004	41.0395
Total		**0.0195**	**0.1768**	**0.1485**	**1.0500e-003**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**192.4569**	**192.4569**	**3.6800e-003**	**3.5300e-003**	**193.6006**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	329918	105.1189	4.3400e-003	9.0000e-004	105.4950
Health Club	7770	2.4757	1.0000e-004	2.0000e-005	2.4846
Hotel	894341	284.9564	0.0118	2.4300e-003	285.9758
Quality Restaurant	146236	46.5939	1.9200e-003	4.0000e-004	46.7606
Total		**439.1449**	**0.0181**	**3.7500e-003**	**440.7159**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	329918	105.1189	4.3400e-003	9.0000e-004	105.4950
Health Club	7770	2.4757	1.0000e-004	2.0000e-005	2.4846
Hotel	894341	284.9564	0.0118	2.4300e-003	285.9758
Quality Restaurant	146236	46.5939	1.9200e-003	4.0000e-004	46.7606
Total		**439.1449**	**0.0181**	**3.7500e-003**	**440.7159**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Unmitigated	0.5022	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Total	**0.5022**	**4.0000e-005**	**4.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.8700e-003**	**7.8700e-003**	**2.0000e-005**	**0.0000**	**8.3900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.8700e-003	7.8700e-003	2.0000e-005	0.0000	8.3900e-003
Total	**0.5022**	**4.0000e-005**	**4.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.8700e-003**	**7.8700e-003**	**2.0000e-005**	**0.0000**	**8.3900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.5603	0.1798	4.4300e-003	32.3752
Unmitigated	26.5603	0.1798	4.4300e-003	32.3752

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.0414002 / 0.0253743	0.2747	1.3600e-003	3.0000e-005	0.3189
Hotel	4.43918 / 0.493243	21.5715	0.1455	3.5900e-003	26.2778
Quality Restaurant	1.0047 / 0.0641296	4.7140	0.0329	8.1000e-004	5.7785
Total		**26.5603**	**0.1798**	**4.4300e-003**	**32.3752**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.0414002 / 0.0253743	0.2747	1.3600e-003	3.0000e-005	0.3189
Hotel	4.43918 / 0.493243	21.5715	0.1455	3.5900e-003	26.2778
Quality Restaurant	1.0047 / 0.0641296	4.7140	0.0329	8.1000e-004	5.7785
Total		**26.5603**	**0.1798**	**4.4300e-003**	**32.3752**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.8715	1.2335	0.0000	51.7083
Unmitigated	20.8715	1.2335	0.0000	51.7083

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Health Club	3.99	0.8099	0.0479	0.0000	2.0066
Hotel	95.81	19.4486	1.1494	0.0000	48.1830
Quality Restaurant	3.02	0.6130	0.0362	0.0000	1.5188
Total		**20.8715**	**1.2335**	**0.0000**	**51.7083**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Health Club	3.99	0.8099	0.0479	0.0000	2.0066
Hotel	95.81	19.4486	1.1494	0.0000	48.1830
Quality Restaurant	3.02	0.6130	0.0362	0.0000	1.5188
Total		**20.8715**	**1.2335**	**0.0000**	**51.7083**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

```
Start date and time  02/08/21 10:49:51

                             AERSCREEN 16216


Jefferson Hotel Operation


            Jefferson Hotel Operation



         -----------------  DATA ENTRY VALIDATION  -----------------

                        METRIC              ENGLISH

 ** AREADATA **  ---------------     ----------------


 Emission Rate:    0.650E-03 g/s         0.516E-02 lb/hr

 Area Height:            3.00 meters           9.84 feet

 Area Source Length:   77.00 meters         252.62 feet

 Area Source Width:    41.00 meters         134.51 feet

 Vertical Dimension:    1.50 meters           4.92 feet

 Model Mode:           URBAN

 Population:         1410000

 Dist to Ambient Air:           1.0 meters             3. feet



 ** BUILDING DATA **
```

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters   0.0 feet

Probe distance: 5000. meters   16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K   -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Dominant Surface Profile: Urban

Dominant Climate Type: Average Moisture

Surface friction velocity (u*): not adjusted

DEBUG OPTION ON

AERSCREEN output file:

2020.02.08_JeffersonHotel_Operational.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run

****

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

```
Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season            Albedo     Bo       zo

Winter             0.35     1.50     1.000

Spring             0.14     1.00     1.000

Summer             0.16     2.00     1.000

Autumn             0.18     2.00     1.000


Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl


Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl


Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl


Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl


Buildings and/or terrain present or rectangular area source, skipping probe


FLOWSECTOR   started 02/08/21 10:53:14
 ********************************************


  Running AERMOD
 Processing Winter


Processing surface roughness sector  1
```

```
*****************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0


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

               ***  NONE  ***


*****************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5


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

               ***  NONE  ***


*****************************************************

Processing wind flow sector   3


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  10


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

               ***  NONE  ***
```

****

Processing wind flow sector   4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 15

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

*** NONE ***

****

Processing wind flow sector   5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 20

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

*** NONE ***

****

Processing wind flow sector   6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 25

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

*** NONE ***

****

Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 30

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

               *** NONE ***

 ****

  Running AERMOD

 Processing Spring

Processing surface roughness sector 1

****

Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0

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

               *** NONE ***

****

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5

```
    ********   WARNING MESSAGES   ********
               ***  NONE  ***

**************************************************
Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  10

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

**************************************************
Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  15

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

**************************************************
Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  20
```

```
    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  25

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  30

    ********   WARNING MESSAGES   ********
               ***  NONE  ***
 ********************************************

  Running AERMOD
 Processing Summer

Processing surface roughness sector  1
```

****

Processing wind flow sector   1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0

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

*** NONE ***

****

Processing wind flow sector   2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5

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

*** NONE ***

****

Processing wind flow sector   3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 10

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

*** NONE ***

****

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 15

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

*** NONE ***

****

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 20

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

*** NONE ***

****

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 25

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

*** NONE ***

****

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 30

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

*** NONE ***

****

Running AERMOD

Processing Autumn

Processing surface roughness sector 1

****

Processing wind flow sector   1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0

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

*** NONE ***

****

Processing wind flow sector   2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5

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

*** NONE ***

****

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 10

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

*** NONE ***

****

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 15

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

*** NONE ***

****

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 20

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

```
               ***  NONE  ***


*****************************************************

Processing wind flow sector   6


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  25


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

               ***  NONE  ***


*****************************************************

Processing wind flow sector   7


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  30


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

               ***  NONE  ***


FLOWSECTOR   ended 02/08/21 10:53:26


REFINE       started 02/08/21 10:53:26


 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


    ********   WARNING MESSAGES   ********
```

*** NONE ***

REFINE ended 02/08/21 10:53:28

****

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

****

Ending date and time 02/08/21 10:53:30

```
 Concentration     Distance Elevation  Diag  Season/Month   Zo sector       Date
 H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT
REF TA     HT
   0.28376E+01         1.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.34662E+01        25.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
*  0.37102E+01        39.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28110E+01        50.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14233E+01        75.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.92189E+00       100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66553E+00       125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.51213E+00       150.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41126E+00       175.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.34081E+00       200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28881E+00       225.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24929E+00       250.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21829E+00       275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.19345E+00       300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.17305E+00       325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15616E+00       350.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
```

```
310.0    2.0
   0.14195E+00       375.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12985E+00       400.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11945E+00       425.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11043E+00       450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10252E+00       475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.95531E-01       500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.89309E-01       525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.83746E-01       550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.78758E-01       575.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74264E-01       600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70198E-01       625.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66504E-01       649.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.63133E-01       675.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60051E-01       700.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.57220E-01       725.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.54613E-01       749.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52377E-01       775.00      0.00   0.0        Winter       0-360   10011001
```

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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50138E-01       800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48060E-01       825.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46127E-01       850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44325E-01       875.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42641E-01       900.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41065E-01       925.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39587E-01       950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.38199E-01       975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.36893E-01      1000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.35662E-01      1025.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.34501E-01      1050.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.33404E-01      1075.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.32366E-01      1100.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.31382E-01      1125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30450E-01      1149.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29564E-01      1175.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
```

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   0.28722E-01      1200.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27920E-01      1225.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27157E-01      1250.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26428E-01      1275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25734E-01      1300.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25070E-01      1325.00      0.00  30.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24435E-01      1350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23828E-01      1375.00      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23246E-01      1400.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22688E-01      1425.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22154E-01      1450.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21640E-01      1475.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21147E-01      1500.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20673E-01      1525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20218E-01      1550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.19779E-01      1574.99      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.19357E-01      1600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.18950E-01      1625.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18558E-01      1650.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18179E-01      1675.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.17814E-01      1700.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.17462E-01      1725.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.17121E-01      1750.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.16791E-01      1775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.16472E-01      1800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.16164E-01      1824.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15865E-01      1850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15576E-01      1875.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15296E-01      1900.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15024E-01      1924.99      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14761E-01      1950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14505E-01      1975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14258E-01      2000.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14017E-01      2025.00      0.00   0.0        Winter       0-360   10011001
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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13783E-01      2050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13556E-01      2075.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13336E-01      2100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13121E-01      2125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12913E-01      2150.00      0.00  30.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12710E-01      2175.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12512E-01      2200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12320E-01      2224.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12133E-01      2250.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11951E-01      2275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11773E-01      2300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11600E-01      2325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11431E-01      2350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11267E-01      2375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11107E-01      2400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10950E-01      2425.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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   0.10797E-01      2449.99      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10648E-01      2475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10503E-01      2500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10360E-01      2525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10222E-01      2550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10086E-01      2575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.99534E-02      2600.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.98238E-02      2625.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.96972E-02      2650.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.95733E-02      2675.00      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.94521E-02      2700.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.93336E-02      2725.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.92176E-02      2750.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.91041E-02      2775.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.89930E-02      2800.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.88842E-02      2825.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.87777E-02      2850.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.86733E-02      2875.00      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.85711E-02      2900.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.84710E-02      2925.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.83729E-02      2950.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.82767E-02      2975.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.81824E-02      3000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.80900E-02      3025.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.79994E-02      3050.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.79105E-02      3074.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.78233E-02      3100.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.77377E-02      3125.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.76538E-02      3150.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.75714E-02      3174.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74906E-02      3199.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74112E-02      3225.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.73333E-02      3250.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.72568E-02      3275.00      0.00  30.0        Winter       0-360   10011001
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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.71816E-02      3300.00      0.00   5.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.71078E-02      3325.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70353E-02      3350.00      0.00   5.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.69641E-02      3375.00      0.00  20.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.68941E-02      3400.00      0.00   5.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.68253E-02      3425.00      0.00  25.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.67577E-02      3450.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66913E-02      3475.00      0.00  20.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66259E-02      3500.00      0.00  20.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.65617E-02      3525.00      0.00  25.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.64985E-02      3550.00      0.00  25.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.64364E-02      3575.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.63753E-02      3600.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.63152E-02      3625.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.62561E-02      3650.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.61979E-02      3675.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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   0.61407E-02      3700.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60844E-02      3725.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60289E-02      3750.00      0.00  25.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.59744E-02      3775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.59206E-02      3800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.58678E-02      3825.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.58157E-02      3849.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.57644E-02      3875.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.57139E-02      3900.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.56642E-02      3925.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.56151E-02      3950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.55669E-02      3975.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.55193E-02      4000.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.54725E-02      4025.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.54263E-02      4050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.53808E-02      4075.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.53360E-02      4100.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.52918E-02      4125.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52482E-02      4150.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52052E-02      4175.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.51629E-02      4200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.51211E-02      4225.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50800E-02      4250.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50394E-02      4275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49993E-02      4300.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49598E-02      4325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49209E-02      4350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48824E-02      4375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48445E-02      4400.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48071E-02      4425.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.47702E-02      4449.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.47338E-02      4475.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46978E-02      4500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.       6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46624E-02      4525.00      0.00   0.0        Winter       0-360   10011001
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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46273E-02      4550.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45928E-02      4575.00      0.00   5.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45587E-02      4600.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45250E-02      4625.00      0.00  25.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44918E-02      4650.00      0.00  25.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44589E-02      4675.00      0.00  15.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44265E-02      4700.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.43945E-02      4725.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.43629E-02      4750.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.43317E-02      4775.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.43008E-02      4800.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42704E-02      4825.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42403E-02      4850.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42106E-02      4875.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41812E-02      4900.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41522E-02      4925.00      0.00   0.0        Winter      0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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   0.41235E-02      4950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40952E-02      4975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40672E-02      5000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

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Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The Southern District of Illinois
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 3:19-cv-00302-SMY-GCS
Rosenfeld Deposition. 2-19-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, *Plaintiff,* vs. Marathon Petroleum, LP, *Defendant.*
Case No.: 1716-CV10006
Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case: No 1:19-cv-00315-RHW
Rosenfeld Deposition, 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

<u>Senior Regulatory and Litigation Support Analyst:</u>

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at more than 150 industrial facilities.
- Expert witness on numerous cases including, for example, perfluorooctanoic acid (PFOA) contamination of groundwater, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted

public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor’s investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9.

Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA’s national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region’s 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific

principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

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Other Experience:

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