solar thermal system. *Id.* Section 110.1. The Project does not appear to qualify for any of the exceptions listed to this provision. The Project does not state whether it has in fact incorporated any photovoltaic systems or a solar zone. DEIR at 5.7-36.

- The DEIR states that the Project will implement energy-saving features and operational programs, consistent with the reduction measures set forth in the RRG CAP. DEIR at 5.5-23; 5.5-11. The DEIR neither describes which of these designs and programs are to be implemented nor discusses their impact on energy consumption relative to other feasible designs and programs. The DEIR provides no quantified analysis or evidence to support its conclusion that the Project would decrease overall "per capital [sic]" energy consumption, reliance on natural gas, and increase reliance on renewable energy sources. DEIR at 5.5-24.

- The DEIR relies primarily upon the California Building Code requirements to reach its conclusion that potential impacts from wasteful energy use would be insignificant. DEIR at 5.5-24. But as the California Supreme Court has noted, such reliance is insufficient to ensure compliance – "That a project is designed to meet high building efficiency and conservation standards, for example, does not establish that its greenhouse gas emissions from transportation activities lack significant impacts." *Center for Biological Diversity v. Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, 229.

The DEIR fails to adequately analyze impacts to transportation.

- The Project is anticipated to contribute to the deficient intersection by contributing traffic (as measured by 50 or more peak hours trips) to the intersection of Sycamore Canyon Boulevard and Central Avenue, resulting in an increase to peak hour delays that exceed the City's criteria. Focused Traffic Analysis and VMT Analysis at 6. The Project would also contribute traffic to these deficient intersections along with other cumulative development projects. VMT Analysis at 6. The DEIR states that the Project shall contribute its fair share of 8.6% of the cost of modifying a traffic signal to alleviate an LOS deficiency and associated conflict with GP policies. DEIR at 5.8-26. However, the City of Riverside does not have a fair share program to collect fair share payments. VMT Analysis at 8.

- The DEIR states that the Project will have a less than significant impact caused by the Project's conflict with any plan addressing the circulation system. DEIR at 1.0-36. The DEIR incorrectly states that all the study area roadway segments are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic. DEIR at 5.10-30. However, there is an existing unacceptable LOS E for one of the study area roadway segments and the Project will only further burden the segment to LOS F by 2022. DEIR at 5.10-35. The DEIR must analyze the Project's impact to LOS as it conflicts with the City of Riverside General Plan's Mobility Element.

A. The DEIR's Discussion of Cumulative Impacts is Inadequate

A discussion of cumulative impacts requires a two-fold analysis; first, the DEIR must determine whether the combined effects from the proposed project and other projects would be cumulatively significant. If the DEIR determines the combined effects would be cumulatively significant, it must next determine whether the project's incremental effects are cumulatively considerable. *Communities for a Better Environment v. California Resource Agency* (3d Dist. 2002) 103 Cal. App. 4th 98, 120.

The need for such assessment reflects the fact that, although a project may cause an "individually limited" or "individually minor" incremental impact that, by itself, is not significant, the increment may be "cumulatively considerable," and thus significant, when viewed together with environmental changes anticipated from past, present, and probable future projects. CEQA Guidelines §§ 15064(h)(1). When relying on a plan, regulation or program, the EIR should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable. CEQA Guidelines §§ 15064(h)(3).

The Project notes 22 other total developments consisting of residential, retail, warehouse, office, institutional, hotel, gas station, fast food restaurants, a church, health/fitness club, and carwash as part of its analysis of cumulative impacts. DEIR at 4.0-2; 4.0-4. The DEIR admits that cumulative development would modify the visual characteristic of the surrounding area through redevelopment of vacant lots such as the Project site. DEIR at 5.1-28. The DEIR claims the SCAQMD recommends project-specific impacts be used to determine whether emissions are cumulatively considerable. DEIR at 5.2-34. The DEIR fails to analyze the combined emissions of construction with other proposed or reasonably foreseeable future projects under the first step of the cumulative impacts analysis to determine whether the Project will contribute to a significant cumulative impact. The EIR claims that the impacts associated with other cumulative projects would be addressed "on a case-by-case basis." DEIR at 5.1-29. This is an oxymoron and the DEIR fails to provide substantial evidence that the Project will not have a substantial cumulative effect on a scenic vista. DEIR at 5.1-28.

The CEQA Thresholds require the DEIR to analyze whether the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard. DEIR at 5.2-24. The DEIR analyzed emissions based on daily estimates of construction and operational emissions. DEIR at 5.2-26—5.2-28. However, the Project is estimated to take eighteen months to construct and will operate indefinitely. The DEIR fails to analyze the combined daily emissions to determine whether impacts to the implementation of an applicable air quality plan would be significant. The Project lacks substantial evidence that the Project is consistent with the 2016 Air Quality Management Plan. DEIR at 5.2-29.

The DEIR identifies seven air quality sensitive receptors, all within 1000 feet of the Project site. Air Quality Impact Analysis and Freeway Health Risk Assessment, Exhibit 3-A. The Project Area is surrounded by four noise sensitive receivers in addition to the Quail Run Open Space Park. Noise Impact Analysis at 53, Exhibit 9-A. The DEIR states the contractor shall place stationary construction equipment so the noise is directed away from the noise sensitive receivers under mitigation measure MM BIO-5. DEIR at 1.0-15—1.0-16. According to Exhibit 9-A of the Noise Impact Analysis, sensitive receivers are located around the entire Project site perimeter such that noise cannot be directed away from any sensitive receivers. Further, use of equipment like a tamper for deep dynamic compaction cannot be directed away from sensitive receivers. DEIR at 5.6-18—5.6-19.

The DEIR fails to support its conclusion that the cumulative projects would not result in the wasteful use of energy despite acknowledging each of the proposed developments would increase consumption and demand for energy. DEIR at 5.5-24. The DEIR's exclusive reliance on regulation of the cumulative projects by Energy Efficiency Standards embodied in Title 24 of the California Building Code is not substantial evidence that the Project will not contribute to significant cumulative impacts.

III. <u>The DEIR's Discussion of Mitigation and Alternatives is Deficient</u>

CEQA contains a "substantive mandate" that agencies refrain from approving a project with significant environmental effects if "there are feasible alternatives or mitigation measures" that can substantially lessen or avoid those effects. *Mountain Lion Foundation v. Fish and Game Comm.* (1997) 16 Cal.4th 105, 134; Pub. Res. Code § 21002. It "requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects." *Sierra Club v. Gilroy* (1990) 222 Cal.App.3d 30, 41. The EIR is required to consider and the City is required to adopt feasible mitigation and alternatives that can lessen or avoid the significant Project impacts. *City of Marina v. Board of Trustees of the California State Univ.* (2006) 2006 39 Cal.4th 341, 360; *see also* CEQA Guidelines § 15126.6(b).

Modifications incorporated into the project, whether required or not, which avoid or substantially lessen the significant environmental effect as identified in the final EIR shall be supported by substantial evidence in the record. CEQA Guidelines § 15091(a)-(b).

Claims "of infeasibility [are not] supported by substantial evidence," particularly where the DEIR fails even to discuss or consider possible mitigation. *County of San Diego v. Grossmont-Cuyamaca Community College Dist.* (2006) 141 Cal.App.4th 86, 100 (citing Pub. Res. Code § 21081.5; CEQA Guidelines § 15091(b)).

A. The DEIR's Failed to Adequately Discuss Mitigation

The DEIR failed to consider mitigation to GHG emissions based on its unsupported conclusion that the Project does not exceed any significance thresholds. DEIR at 5.7-48. Because it concluded the Project will not have a significant impact on energy use, the DEIR assumed the Project did not require any energy-related mitigation measures because the energy consumed is comparable to energy consumed by other residential uses of similar scale and intensity. DEIR at 5.5-24. The DEIR should consider feasible mitigation measures and deferred formulating mitigation.

The Project's Mitigation Measure BIO-8 provides that the Project will continue to construct on windy days despite the City of Riverside General Plan requirement to suspend all grading operations when wind speeds exceed 25 miles per hour. *Compare* EIR at 1.0-18 *with* Air Quality Element at AQ-34, Policy AQ-4.5. The EIR fails to discuss environmental impacts associated with violating the Air Quality Element of the General Plan Policies AQ-4.2, AQ-4.3, AQ-4.4, and AQ-4.5 that are designed to reduce particulates and particulate matter. Air Quality Element at AQ-34.

The DEIR notes a non-toxic chemical stabilizer may be applied to all stockpiles that would not be utilized within three days to mitigate fugitive dust emissions. DEIR at 5.3-38. The DEIR failed to identify what chemical stabilizer the Project will utilize and the potential environmental impacts of this chemical entering construction runoff.

The DEIR focused only on impacts to wildlife within the Multiple Species Habitat Conservation Plan caused by noise from construction equipment. DEIR at 5.3-32. All of the measures the DEIR selected to mitigate noise impacts are temporary because they correlate to construction noise. DEIR at 5.3-36—5.5-38. The DEIR must analyze and determine what mitigation would be necessary to reduce any significant environmental impacts caused from operational noise.

i. The DEIR Improperly Deferred Mitigation

Formulation of mitigation measures shall not be deferred until some future time. CEQA Guidelines § 15126.4(a)(1)(B); In *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, the court observed: "Numerous cases illustrate that reliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA's goals of full disclosure and informed decisionmaking; and consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment." *Id.* at 92 (citations omitted).

The DEIR states that the Contractor should establish construction Best Management Practices ('BMPs') to control erosion of graded/excavated areas and maintain the BMPs until permanent stormwater infiltration BMPs are operable. DEIR at 5.6-21. The DEIR improperly defers mitigation of erosion impacts.

The DEIR improperly defers mitigation of water quality impacts. The DEIR states that a Stormwater Pollution Prevention Plan shall be implemented and shall identify Best Management Practices ('BMPs') to control toxic substances, construction fuels, oils, and other liquids. DEIR at 5.3-38.

The DEIR improperly defers mitigation of impacts from lighting. The Project will have significant impacts to the protected species in the Multiple Species Habitat Conservation Plan area from direct night lighting. DEIR at 5.3-31. The DEIR states mitigation for the Project shall be designed and the design is to be confirmed.

The mitigation measures the DEIR selected to minimize short-term noise levels caused by construction are improperly deferred because the noise-reduction devices have not been specifically identified and noise attenuation techniques are to be employed as needed. DEIR at 5.3-38.

The Project would interfere substantially with the movement of wildlife in corridors. DEIR at 1.0-13. The Mitigation Measures MM BIO-2 through MM BIO-15 do not adequately address the Project's impacts to wildlife movement. In particular, MM BIO-7 provides that avoidance and minimization measures shall be included in the Project specifications to address direct construction impacts to wildlife corridors, but none of the measures it describes relates to the fact that the Project will cause wildlife to lose access to a travel route.

B. The DEIR's Discussion of Alternatives is Insufficient

"Under CEQA, the public agency bears the burden of demonstrating that, notwithstanding a project's impact on the environment, the agency's approval of the proposed project followed meaningful consideration of alternatives." *Pesticide Action Network v. California Dept. of Pesticide Regulation* (2017) 16 Cal.App.5th 224, 247. "Without meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process." *Laurel Heights Improvement Assoc. v. University of California* (1988) 47 Cal.3d 376, 404. "Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment [], the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." CEQA Guidelines § 15126.6(b) (emphasis added).

The Program and its objectives are defined too narrowly, thereby resulting in a narrowing of the consideration of alternatives to the Project. *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1455. The DEIR analyzed three alternatives; the No Project/No Development Alternative, the Commercial Development Alternative, and the Mixed Use Development Alternative. DEIR at Table 8.0-1. The DEIR weighed the possibility of an increased density alternative but did not explain why a reduced density alternative was rejected from further consideration. DEIR at 8.0-18.

The DEIR also failed to provide substantial evidence of its analysis for the comparison of Alternatives. The DEIR lists the Project Objectives, but fails to demonstrate which of the objectives each Alternative would or would not realize. *Compare* DEIR 8.0-1 *with* Table 8.0-1. Instead, the DEIR either states the Alternative does not meet any or all of the Project objectives. *Id.* A reasonable range of alternatives includes those which would impede the attainment of Project objectives to some degree.

The DEIR initially selected the No Development Alternative as the Environmentally Superior Alternative since it would eliminate significant impacts but would not meet any of the Project objectives. DEIR at 8.0-19. Therefore, the DEIR selected the Commercial Development Alternative as the Environmentally Superior Alternative. *Id.* However, the analysis admits that the Project's objectives do not include commercial development. DEIR at 8.0-18. Therefore, neither the Commercial Development nor the Mixed Use Development are within a reasonable range of alternatives; the DEIR's explanation that the applicant failed to successfully attract tenants for commercial development is not substantial evidence as to how or why this alternative is infeasible.

IV. The DEIR Should be Recirculated

The DEIR is sufficiently lacking that the only way to fix these issues is to revise it and recirculate an adequate report.

V. Conclusion

For the foregoing reasons, Friends of Riverside's Hills urges you to reject the Project and DEIR as proposed. Thank you for your consideration of these concerns.

Sincerely,

Rachel Blackburn

Enclosures:

1. Letter from Matt Hageman and Paul E. Rosenfeld, SWAPE, to DeLano & DeLano (April 30, 2021)

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April 30, 2021

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Subject: Comments on The Crestview Apartments Project (SCH No. 2020069047)

Dear Mr. DeLano,

We have reviewed the March 2021 Draft Environmental Impact Report ("DEIR") for The Crestview Apartments Project ("Project") located in the City of Riverside ("City"). The Project proposes to construct 237 residential units and 427 parking spaces, as well as an on-site leasing office, mail lounge, putting green, outdoor resort style pool and spa, dog run area with a dog wash station, fitness center, clubhouse, shade structures with barbecues and tables, and a walking perimeter loop trail, on the 9.44-acre site.

Our review concludes that the DEIR fails to adequately evaluate the Project's 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 updated EIR should be prepared to adequately assess and mitigate the potential air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2 (p. 5.2-25).[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

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

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.[2] 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 were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.[3]

When reviewing the Project's CalEEMod output files, provided in the Air Quality Impact Analysis & Freeway Health Risk Assessment ("AQ & HRA Report") as Appendix B to the DEIR and Greenhouse Gas Analysis ("GHG Report") as Appendix G to the DEIR, we found that several model inputs were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated 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 Parking Land Use Size

According to the DEIR, the Project proposes to construct 427 parking spaces. However, review of the CalEEMod output files demonstrates that, while the "12585 Crestview Apartments" model includes the correct number of parking spaces, the square footage of the parking land use was reduced from the default value of 171,200- to 35,719-SF (see excerpt below) (Appendix B, pp. 112, 190; Appendix G, pp. 82).

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	171,200.00	35,719.00

As you can see in the excerpt above, the parking land use size was manually reduced by 135,481-SF. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[4] According to the "User Entered Comments & Non-Default Data" table, the justification provided for this change is: "Per parcel number and TIA analysis" (Appendix B, pp. 111, 189; Appendix G, pp. 81). Furthermore, the DEIR states:

> "As specific building and unit areas were unavailable during the time of the Project's Energy Analysis, *the CalEEMod default square footage* of 75,000 SF for the 75 DU multifamily housing low rise, 162,000 SF for the 162 DU multifamily housing mid-rise, and *35,719 SF of parking space was used in calculating the total power cost of the on-site electricity usage during construction of the Project*" (emphasis added) (p. 5.5-13).

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[2] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.
[3] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 11, 12 – 13. A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.
[4] CalEEMod User Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 2, 9

As you can see in the excerpt above, the DEIR indicates that the default square footages were utilized to model the Project's emissions. Thus, regardless of the statement that 35,719-SF of parking square footage was used, by including a *non-default* parking land use size, the model is inconsistent with the information provided by the DEIR and should not be relied upon to determine Project significance.

This unsubstantiated reduction 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 including an unsubstantiated reduction the size of the proposed parking land use space, the model underestimates the Project's 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 "12585 Crestview Apartments" model includes several changes to the default individual construction phase lengths (see excerpt below) (Appendix B, pp. 111, 189; Appendix G, pp. 81).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	300.00
tblConstructionPhase	NumDays	20.00	40.00

As a result, the models include a construction schedule as follows (see excerpt below) (Appendix B, pp. 162, 240; Appendix G, pp. 133):

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Crushing	Demolition	10/16/2021	11/12/2021	5	20
2	Site Preparation	Site Preparation	10/4/2021	10/15/2021	5	10
3	Grading	Grading	11/13/2021	12/10/2021	5	20
4	Building Construction	Building Construction	12/11/2021	2/3/2023	5	300
5	Paving	Paving	2/4/2023	3/3/2023	5	20
6	Architectural Coating	Architectural Coating	3/4/2023	4/28/2023	5	40

As you can see in the excerpts above, the building construction phase was increased by approximately 30%, from the default value of 230 to 300 days; and the architectural coating phase was increased by 100%, from the default value of 20 to 40 days. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[6] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "Per 18 month site plan

[5] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 28
[6] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

provided by Project Applicant" (Appendix B, pp. 111, 189; Appendix G, pp. 81). Furthermore, regarding the Project's anticipated construction schedule, the DEIR states:

> "Construction of the proposed project is expected to occur over approximately 18 months" (p. 1.0-3).

However, these changes remain unsupported for two reasons. First, while the DEIR indicates the overall length of the construction period would be 18 months, the DEIR fails to provide the ***individual construction phase lengths***. Second, the DEIR fails to mention or justify why the individual construction phase lengths were ***disproportionately*** altered. As such, we cannot verify the changes.

These unsubstantiated changes present an issue, as they disproportionately spread out construction emissions over a longer period of time for some phases, but not others. According to the CalEEMod User's Guide, each construction phase is associated with different emissions activities (see excerpt below).[7]

> ***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 emissions are distorted, and possibly underestimated. Thus, by including unsubstantiated increases 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 Reductions to Energy Use Values

Review of the CalEEMod output files demonstrates that the "12585 Crestview Apartments" model includes several reductions to the default energy use values (see excerpt below) (Appendix B, pp. 111-112, 189-190; Appendix G, pp. 81-82).

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[7] "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.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	810.36	380.87
tblEnergyUse	LightingElect	741.44	348.48
tblEnergyUse	T24E	877.14	412.26
tblEnergyUse	T24E	772.17	362.92
tblEnergyUse	T24NG	9,544.50	4,485.92
tblEnergyUse	T24NG	8,764.08	4,119.12

As you can see in the excerpt above, the lighting electricity ("LightingElect"), Title 24 electricity energy intensity ("T24E"), and Title 24 natural gas intensity ("T24NG") values were each reduced. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[8] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "Title 24 2019" (Appendix B, pp. 111, 189; Appendix G, pp. 81). Furthermore, regarding Project compliance with Title 24 standards, the DEIR states:

> "[T]he Project will comply with the applicable Title 24 standards which would ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary" (p. 5.5-22).

However, these reductions remain unsupported. Simply because the 2019 Title 24 standards ***expect*** a reduction in building energy consumption does not ***guarantee*** that these reductions would be implemented locally on the Project site. Absent additional information demonstrating that these reductions would be achieved through the implementation, monitoring, and enforcement of energy-related mitigation measures, we are unable to verify the revised energy use values inputted into the model.

These unsubstantiated reductions present an issue, as CalEEMod uses energy use values to calculate the Project's emissions associated with building electricity and non-hearth natural gas usage.[9] By including unsubstantiated reductions to the default lighting electricity, Title 24 electricity energy intensity, and Title 24 natural gas intensity values, the model may underestimate the Project's energy-source operational emissions and should not be relied upon to determine Project significance.

Updated Analysis Indicates Significant Air Quality Impact

In an effort to more accurately estimate Project's construction-related and operational emissions, we prepared updated CalEEMod models, using the Project-specific information provided by the DEIR. In our updated models, we omitted the unsubstantiated changes to the parking land use size, individual construction phase lengths, and energy use values. Our updated analysis estimates that the Project's

[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[9] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 43

construction-related VOC emissions exceed the applicable SCAQMD thresholds of 75-pounds per day ("lbs/day") (see table below).[10]

Model	VOC
DEIR Construction	37.73
SWAPE Construction	77.02
% Increase	104%
SCAQMD Regional Threshold (lbs/day)	**75**
Threshold Exceeded?	***Yes***

As you can see in the excerpt above, the Project's construction-related VOC emissions, as estimated by SWAPE, increase by approximately 104% and exceed the applicable 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 DEIR. As a result, an updated 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 DEIR concludes that the proposed Project would have a less-than-significant health risk impact based on a quantified operational health risk analysis ("HRA"). Specifically, the DEIR estimates that the cancer risk posed by toxic air contaminant ("TAC") emissions from the I-215 Freeway to people expected to be housed on the Project site would be approximately 3.45 in one million, which would not exceed the SCAQMD threshold of 10 in one million (p. 5.2-31). Furthermore, regarding the potential health risk impacts associated with Project construction, the DEIR states:

> "Exposure to concentrations of TACs was assessed based on the Project's potential to result in increased exposure of sensitive receptors to TAC emission sources. The Project could potentially expose the adjacent sensitive receptors to temporary health hazards associated with TACs from diesel particulate matter from the use of construction equipment. As described under Threshold A, construction emissions would not exceed SCAQMD thresholds established to protect public health and air quality. Therefore, the health risk associated with construction emissions for the surrounding sensitive uses would be less than significant" (p. 5.2-31).

As demonstrated above, the DEIR concludes that the Project would result in a less-than-significant construction-related health risk impact because the Project's construction-related emissions would not exceed SCAQMD thresholds. However, the DEIR's evaluation of the Project's potential health risk impacts, as well as the less-than-significant impact conclusion, is incorrect for three reasons.

First, while the DEIR concludes that the Project's construction-related criteria air pollutants would not exceed SCAQMD thresholds, it fails to quantitatively evaluate the Project's construction-related and operational toxic air contaminants ("TAC") emissions or make a reasonable effort to connect these

[10] "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.

emissions to potential health risk impacts posed to nearby existing sensitive receptors. Despite the DEIR's qualitative claims that construction-related TAC emissions would be less-than-significant, construction of the proposed Project would produce diesel particulate matter ("DPM") emissions through the exhaust stacks of construction equipment over a potential construction period of approximately 18 months (p. 1.0-3). Furthermore, the Focused Traffic Analysis and Vehicle Miles Traveled Analysis ("TIA & VMT Analysis"), provided as Appendix I to the DEIR, indicates that the Project is expected to generate approximately 1,432 average daily vehicle trips, which would generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions (Appendix I, p. 1). However, the DEIR fails to discuss the Project's potential TAC emissions or indicate the concentrations at which such pollutants would trigger adverse health effects. Thus, without making a reasonable effort to connect the Project's construction-related and operational TAC emissions to the potential health risks posed to nearby receptors, the DEIR is inconsistent with CEQA's requirement to correlate the increase in emissions generated by the Project with the potential adverse impacts on human health.

Second, the Office of Environmental Health Hazard Assessment ("OEHHA"), the organization responsible for providing guidance on conducting HRAs in California, released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments* in February 2015.[11] This guidance document describes the types of projects that warrant the preparation of an HRA. The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors. As the Project's 18-month construction duration vastly exceeds the 2-month requirement set forth by OEHHA, it is clear that the Project meets the threshold warranting a quantified HRA under OEHHA guidance. Furthermore, 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"). 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 analysis of health risk impacts posed to nearby sensitive receptors from Project-generated DPM emissions be included in an updated EIR for the Project.

Third, while the DEIR quantifies the cancer risk posed by the I-215 Freeway, the DEIR is insufficient in addressing the *non-cancer health risks* posed to future, on-site receptors as a result of proximity to the I-215 Freeway. Additional impacts related to non-cancer health risks have been documented for people

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

living near congested roadways. Key findings from a 2005 California Air Resources Board ("CARB") report[12] on health risk impacts from nearby freeways include:

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet.
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume (Lin, 2000).
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet (Venn, 2001).
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic (English, 1999).

People housed by the proposed Project will be located directly southwest of the I-215 Freeway (Figure 3.0-2). Therefore, many of the Project's residents will be subjected to additional non-cancer health risks as a result of close proximity to the I-215 Freeway. Regarding risks posed to people living nearby busy roadways, CARB concludes:

> "The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation."[13]

As a result, CARB recommends that projects:

> "[a]void siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day."[14]

Despite this recommendation, asthma and other non-cancer, freeway-related health risks are not mentioned or assessed by the DEIR. As such, an updated EIR should be prepared to include an assessment of all risks faced by residents at the Project not only cancer, especially to sensitive groups, such as newborns and the elderly. Because of the proximity to the I-215 Freeway, all feasible mitigation should be considered in the updated EIR to reduce health impacts to people living at the project. Feasible mitigation, implemented at other Southern California projects adjacent to freeways include:

- Disclose to residents the potential health impacts from living in proximity to the I-215 Freeway;
- Installation, use, and maintenance of filtration systems with at least a Minimum Efficiency Reporting Value (MERV) 15;
- Lead Agency verification and certification of the implementation the filtration systems;

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[12] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf.
[13] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf, p. 10.
[14] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf, p. 15.

- Lead Agency verification of maintenance to include manufacturer's recommended filter replacement schedule; and
- Disclosure to residents that opening windows will reduce the health-protectiveness of the filter systems.

Screening-Level Analysis Indicates a Potentially Significant Health Risk Impact

In order to conduct our screening-level risk analysis we relied upon AERSCREEN, which is a screening level air quality dispersion model.[15] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[16] and the California Air Pollution Control Officers Associated ("CAPCOA")[17] guidance as the appropriate air dispersion model for Level 2 health risk screening analyses ("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.

In order to estimate the health risk impacts posed to residential sensitive receptors as a result of the Project's construction-related and operational TAC emissions, we prepared a preliminary HRA using the annual PM_{10} exhaust estimates from the DEIR's CalEEMod output files. Consistent with recommendations set forth by OEHHA, we assumed residential exposure begins during the third trimester stage of life. The DEIR's CalEEMod model indicates that construction activities will generate approximately 371 pounds of DPM over the 559-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{370.96\ lbs}{559\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00348\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.00348 grams per second ("g/s"). Subtracting the 559-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 28.47 years, approximately. The DEIR's operational CalEEMod emissions indicate that operational activities will generate approximately 87 pounds of DPM per year throughout operation. Applying the same equation used to estimate the construction DPM rate, we estimated the following emission rate for Project operation:

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[15] 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

[16] "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

[17] 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.

$$\text{Emission Rate}\left(\frac{grams}{second}\right) = \frac{86.8\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00125\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.00125 g/s. Construction and operational activity were simulated as a 9.44-acre rectangular area source in AERSCREEN with dimensions of 260 by 147 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[18] According to the DEIR, the nearest sensitive receptors are located approximately 448 feet, or 137 meters, southwest the Project site (p. 5.2-14). Thus, the single-hour concentration estimated by AERSCREEN for Project construction is approximately 3.146 µg/m^3 DPM at approximately 150 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.3146 µg/m^3 for Project construction at the MEIR. For Project operation, the single-hour concentration estimated by AERSCREEN is 1.13 µg/m^3 DPM at approximately 150 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.113 µg/m^3 for Project operation.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA. Consistent with the 559-day construction schedule used in the Project's modeling, the annualized average concentration for Project construction was used for the entire third trimester of pregnancy (0.25 years) and the first 1.28 years of the infantile stage of life (0 – 2 years); and the annualized averaged concentration for operation was used for the remainder of the child stage of life (2 – 16 years) and the entire the adult stage of life (16 – 30 years).

Consistent with OEHHA guidance and recommended by the SCAQMD, BAAQMD, and SJVAPCD guidance, we used Age Sensitivity Factors ("ASF") to account for the heightened susceptibility of young children to

[18] "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." EPA, 1992, *available at*: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; *see also* "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 p. 4-36.

the carcinogenic toxicity of air pollution.[19, 20, 21] 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). We also included the quantified cancer risk without adjusting for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution in accordance with older OEHHA guidance from 2003. This guidance utilizes a less health protective scenario than what is currently recommended by SCAQMD, the air quality district with jurisdiction over the City, and several other air districts in the state. Furthermore, in accordance with the guidance set forth by OEHHA, we used the 95th percentile breathing rates for infants.[22] Finally, according to SCAQMD guidance, we used a Fraction of Time At Home ("FAH") Value of 1 for the 3rd trimester and infant receptors.[23] We used a cancer potency factor of 1.1 $(mg/kg\text{-}day)^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

[19] "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.

[20] "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.

[21] "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.

[22] "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

[23] "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.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3146	361	4.3E-07	10	4.3E-06
3rd Trimester Duration	***0.25***			***4.3E-07***	***3rd Trimester Exposure***	***4.3E-06***
Construction	1.28	0.3146	1090	6.6E-06	10	6.6E-05
Operation	0.72	0.113	1090	1.3E-06	10	1.3E-05
Infant Exposure Duration	***2.00***			***8.0E-06***	***Infant Exposure***	***8.0E-05***
Operation	14.00	0.113	572	1.4E-05	3	4.1E-05
Child Exposure Duration	***14.00***			***1.4E-05***	***Child Exposure***	***4.1E-05***
Operation	14.00	0.113	261	4.5E-06	1	4.5E-06
Adult Exposure Duration	***14.00***			***4.5E-06***	***Adult Exposure***	***4.5E-06***
Lifetime Exposure Duration	**30.00**			**2.7E-05**	**Lifetime Exposure**	**1.3E-04**

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

As demonstrated in the first table above, the excess cancer risks posed to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 150 meters away, over the course of Project construction and operation, utilizing ASFs, are approximately 4.5, 41, 80, and 4.3 in one million, respectively. The excess cancer risk over the course of a residential lifetime (30 years), utilizing ASFs, is approximately 130 in one million. The infant, child, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the DEIR.

Utilizing ASFs is the most conservative, health-protective analysis according to the most recent guidance by OEHHA and reflects recommendations from the air district. Results without ASFs are presented in the table above, although we **do not** recommend utilizing these values for health risk analysis. Regardless, the excess cancer risks posed to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 150 meters away, over the course of Project construction and operation, without ASFs, are approximately 4.5, 14, 8, and 0.43 in one million, respectively. The excess cancer risk over the course of a residential lifetime, without ASFs, is approximately 27 in one million. The child and lifetime cancer risks, without ASFs, exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the DEIR. While we recommend the use of ASFs, the Project's cancer risk without ASFs, as estimated by SWAPE, exceeds the SCAQMD threshold regardless.

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. [24] 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 HRA indicates a potentially significant impact, the City should prepare an updated EIR with an HRA which makes a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, the City should prepare an updated, quantified air pollution model as well as an updated, quantified refined health risk analysis 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 DEIR estimates that the Project would result in net annual greenhouse gas ("GHG") emissions of 2,706.33 metric tons of carbon dioxide equivalents per year ("MT CO_2e/year") (see excerpt below) (p. 5.7-34, Table 5.7-5).

Emission Source	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	TotalCO_2E
Annual construction-related emissions amortized over 30 years	41.07	0.01	0.00	41.24
Area Source	60.92	4.97e-03	1.04e-03	61.35
Energy Source	683.00	0.01	4.88e-03	684.82
Mobile Source	1,655.18	0.06	0.00	1,656.79
Waste	22.13	1.31	0.00	54.83
Water Usage	190.83	0.51	0.01	207.31
Total CO_2E (All Sources)	**2,706.33**			

As a result, the DEIR concludes that the Project's estimated GHG emissions would not exceed the SCAQMD bright-line threshold of 3,000 MT CO_2e/year, and impacts would be less-than-significant (p. 5.7-34). Furthermore, the DEIR relies upon the Project's consistency with the 2008 and 2017 Scoping Plans, as well as the City's Climate Action Plan ("CAP") in order to conclude that the Project would result in a less-than-significant GHG impact (p. 5.7-35 - 5.7-48). However, the DEIR's GHG analysis, as well as the subsequent less-than-significant impact conclusion, is incorrect for the following three reasons:

(1) The DEIR's quantitative GHG analysis relies upon an incorrect and unsubstantiated air model;
(2) The DEIR relies upon an incorrect threshold; and

[24] "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, p. 1-5

(3) The DEIR's unsubstantiated air model indicates a potentially significant impact.

1) *Incorrect and Unsubstantiated Quantitative Analysis of Emissions*

As previously stated, the DEIR estimates that the Project would result in net annual GHG emissions of 2,706.33 MT CO_2e/year (p. 5.7-34). However, the DEIR's quantitative GHG analysis is unsubstantiated. As previously discussed, when we reviewed the Project's CalEEMod output files, provided in the AQ & HRA Report as Appendix B to the DEIR and GHG Report as Appendix G to the DEIR, we found that several of the values inputted into the model are not consistent with information disclosed in the DEIR. As a result, the model underestimates the Project's emissions, and the Project's quantitative GHG analysis should not be relied upon to determine Project significance. An updated 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 an Outdated Quantitative GHG Threshold*

As previously discussed, the DEIR estimates that the Project would result in net annual GHG emissions of 2,706.33 MT CO_2e/year, which would not exceed the SCAQMD bright-line threshold of 3,000 MT CO_2e/year (p. 5.7-34). However, the guidance that provided the 3,000 $MTCO_2$/year threshold, the SCAQMD's 2008 *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules, and Plans* report, was developed when the Global Warming Solutions Act of 2006 (commonly known as "AB 32") was the governing statute for GHG reductions in California. AB 32 requires California to reduce GHG emissions to 1990 levels by 2020.[25] As it is already April 2021, thresholds for 2020 are not applicable to the proposed Project. As such, the SCAQMD bright-line threshold of 3,000 MT CO_2e/year is outdated and inapplicable to the proposed Project, and the DEIR's less-than-significant GHG impact conclusion should not be relied upon.

Instead, we recommend that the Project apply the Association of Environmental Professionals' ("AEP") "2030 Land Use Efficiency Threshold" of 2.6 metric tons of CO_2 equivalents per service population per year ("MT CO_2e/SP/year").[26] 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 ***a project with a horizon between 2021 and 2030 should be evaluated based on a threshold using the 2030 target***. A more conservative approach would be to apply a 2030 threshold ***based on SB 32*** for any project with a horizon between 2021 and 2030 regardless of the status of the Scoping Plan Update" (emphasis added).[27]

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[25] HEALTH & SAFETY CODE 38550, *available at:* https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=38550.

[26] "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.

[27] "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.

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 the preparation of an updated EIR to compare the Project's estimated GHG emissions, as estimated in an updated air model, to the AEP's "2030 Land Use Efficiency Threshold" of 2.6 MT CO_2e/SP/year.

3) Failure to Identify a Potentially Significant Impact

When applying the AEP's "2030 Land Use Efficiency Threshold" of 2.6 MT CO_2e/SP/year, the Project's incorrect and unsubstantiated air model indicates a potentially significant GHG impact. As previously stated, the DEIR estimates that the Project would result in net annual GHG emissions of 2,706.33 MT CO_2e/year (p. 5.7-34). 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."[28] The DEIR estimates that the Project would house approximately 754 residents (p. 5.10-39, Table 5.10-11). As the Project would not require any employees, we estimate a service population of 754 people.[29] When dividing the Project's GHG emissions, as estimated by the DEIR, by a service population of 754 people, we find that the Project would emit approximately 3.6 MT CO_2e/SP/year (see table below).[30]

DEIR Service Population Efficiency	
Project Phase	**Proposed Project ($MT\ CO_2e$/year)**
Total	**2,706.33**
Service Population	754
Service Population Efficiency	**3.6**
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 potentially significant GHG impact not previously identified or addressed by the DEIR. Therefore, an updated EIR should be prepared and recirculated for the Project, and mitigation should be implemented where necessary.

Feasible Mitigation Measures Available to Reduce Emissions

Our analysis demonstrates that the Project would result in potentially significant air quality, health risk, and GHG impacts that 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

[28] CAPCOA *(*Jan. 2008) CEQA & Climate Change, p. 71-72, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.
[29] Calculated: 754 residents + 0 employees = 754 service population.
[30] Calculated: (2,706.33 MT CO_2e/year) / (754 service population) = (3.6 MT CO_2e/SP/year).

measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*.[31] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[32]
Measures – Energy
Building Energy Use
Install Programmable Thermostat Timers
Obtain Third-party HVAC Commissioning and Verification of Energy Savings
Install Energy Efficient Boilers
Alternative Energy Generation
Establish Onsite Renewable or Carbon-Neutral Energy Systems
Establish Onsite Renewable Energy System – Solar Power
Measures – Transportation
Land Use/Location
Increase Density
Increase Location Efficiency
Increase Diversity of Urban and Suburban Developments (Mixed Use)
Increase Destination Accessibility
Increase Transit Accessibility
Integrate Affordable and Below Market Rate Housing
Locate Project near Bike Path/Bike Lane
Neighborhood/Site Enhancements
Provide Pedestrian Network Improvements, such as: • Compact, mixed-use communities • Interconnected street network • Narrower roadways and shorter block lengths • Sidewalks • Accessibility to transit and transit shelters • Traffic calming measures and street trees • Parks and public spaces • Minimize pedestrian barriers
Provide Traffic Calming Measures, such as: • Marked crosswalks

[31] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
[32] "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.

• 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.
Incorporate Bike Lane Street Design (on-site)
Provide Bike Parking with Multi-Unit Residential Projects
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
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 – Solid Waste
Solid Waste
Recycle Demolished Construction Material
Measures – Vegetation
Vegetation
Urban Tree Planting
Create New Vegetated Open Space
Measures – Construction
Construction
Use Alternative Fuels for Construction Equipment
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
Use Local and Sustainable Building Materials
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.*[33] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

NEDC's *Diesel Emission Controls in Construction Projects*[34]
Measures – Diesel Emission Control Technology
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. Diesel Nonroad Construction Equipment i. All nonroad diesel engines on site must be Tier 2 or higher. Tier 0 and Tier 1 engines are not allowed on site ii. All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines 50hp and greater and by a minimum of 20% for engines less than 50hp.
d. 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.
e. 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.

[33] "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.

[34] "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.

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 updated 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 Health Risk Calculations
Attachment B:	SWAPE Project CalEEMod Modeling
Attachment C:	SWAPE Project AERSCREEN Modeling
Attachment D:	Paul Rosenfeld CV
Attachment E:	Matt Hagemann CV

Attachment A

Construction			
2021		**Total**	
Annual Emissions (tons/year)	0.0516	Total DPM (lbs)	370.9621918
Daily Emissions (lbs/day)	0.282739726	Total DPM (g)	168268.4502
Construction Duration (days)	77	Total Construction Days	559
Total DPM (lbs)	21.7709589	Emission Rate (g/s)	0.003483992
Total DPM (g)	9875.306959	Release Height (meters)	3
Start Date	10/16/2021	Initial Vertical Dimension (meters)	1.5
End Date	1/1/2022	Max Horizontal (meters)	260.0
Construction Days	77	Min Horizontal (meters)	147.0
2022		Total Acreage	9.44435933
Annual Emissions (tons/year)	0.1678	Setting	Urban
Daily Emissions (lbs/day)	0.919452055	Population	326,414
Construction Duration (days)	365	Start Date	10/16/2021
Total DPM (lbs)	335.6	End Date	4/28/2023
Total DPM (g)	152228.16	Total Construction Days	559
Start Date	1/1/2022	Total Years of Operation	28.47
End Date	1/1/2023		
Construction Days	365		
2023			
Annual Emissions (tons/year)	0.0212		
Daily Emissions (lbs/day)	0.116164384		
Construction Duration (days)	117		
Total DPM (lbs)	13.59123288		
Total DPM (g)	6164.983233		
Start Date	1/1/2023		
End Date	4/28/2023		
Construction Days	117		

Operation	
Emission Rate	
Annual Emissions (tons/year)	0.0434
Daily Emissions (lbs/day)	0.237808219
Emission Rate (g/s)	0.001248493
Release Height (meters)	3
Initial Vertical Dimension (meters)	1.5
Max Horizontal (meters)	260.0
Min Horizontal (meters)	147.0
Total Acreage	9.44435933
Setting	Urban
Population	326,414
Total Pounds of DPM	
Total DPM (lbs)	86.8

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3146	361	4.3E-07	10	4.3E-06
3rd Trimester Duration	***0.25***			***4.3E-07***	***3rd Trimester Exposure***	***4.3E-06***
Construction	1.28	0.3146	1090	6.6E-06	10	6.6E-05
Operation	0.72	0.113	1090	1.3E-06	10	1.3E-05
Infant Exposure Duration	***2.00***			***8.0E-06***	***Infant Exposure***	***8.0E-05***
Operation	14.00	0.113	572	1.4E-05	3	4.1E-05
Child Exposure Duration	***14.00***			***1.4E-05***	***Child Exposure***	***4.1E-05***
Operation	14.00	0.113	261	4.5E-06	1	4.5E-06
Adult Exposure Duration	***14.00***			***4.5E-06***	***Adult Exposure***	***4.5E-06***
Lifetime Exposure Duration	**30.00**			**2.7E-05**	**Lifetime Exposure**	**1.3E-04**

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

12585 Crestview Apartments

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	428.00	Space	0.82	171,200.00	0
Apartments Low Rise	75.00	Dwelling Unit	4.69	75,000.00	239
Apartments Mid Rise	162.00	Dwelling Unit	4.26	162,000.00	515

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Consistent with DEIR's model.

Construction Phase - See SWAPE comment about phase lengths.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Vehicle Trips - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Woodstoves - Consistent with DEIR's model.

Energy Use - See SWAPE comment about energy use values.

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/19/2022	1/6/2023
tblConstructionPhase	PhaseEndDate	5/24/2022	11/11/2022
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tblConstructionPhase	PhaseEndDate	7/6/2021	12/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2022	12/9/2022
tblConstructionPhase	PhaseEndDate	6/8/2021	11/26/2021

tblConstructionPhase	PhaseStartDate	6/22/2022	12/10/2022
tblConstructionPhase	PhaseStartDate	7/7/2021	12/25/2021
tblConstructionPhase	PhaseStartDate	4/28/2021	10/16/2021
tblConstructionPhase	PhaseStartDate	6/9/2021	11/27/2021
tblConstructionPhase	PhaseStartDate	5/25/2022	11/12/2022
tblConstructionPhase	PhaseStartDate	5/26/2021	11/13/2021
tblFireplaces	NumberGas	63.75	75.00
tblFireplaces	NumberGas	137.70	162.00
tblFireplaces	NumberNoFireplace	7.50	0.00
tblFireplaces	NumberNoFireplace	16.20	0.00
tblFireplaces	NumberWood	3.75	0.00
tblFireplaces	NumberWood	8.10	0.00
tblGrading	AcresOfGrading	40.00	50.00
tblGrading	AcresOfGrading	20.00	35.00
tblGrading	MaterialExported	0.00	10,000.00
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LotAcreage	3.85	0.82
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tblLandUse	Population	463.00	515.00
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tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	23.00
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tblVehicleEF	HHD	8.8620e-003	8.8060e-003
tblVehicleEF	HHD	4.9210e-003	0.02
tblVehicleEF	HHD	3.6000e-005	0.00
tblVehicleEF	HHD	1.4000e-004	5.0000e-006
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tblVehicleEF	LDT1	0.16	0.24
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.16	0.31
tblVehicleEF	LDT1	3.2270e-003	3.1280e-003

tblVehicleEF	LDT1	7.2500e-004	6.1500e-004
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.18	0.34
tblVehicleEF	LDT1	8.9360e-003	5.6560e-003
tblVehicleEF	LDT1	0.01	0.07
tblVehicleEF	LDT1	1.11	1.19
tblVehicleEF	LDT1	2.78	2.28
tblVehicleEF	LDT1	287.77	303.10
tblVehicleEF	LDT1	68.37	65.36
tblVehicleEF	LDT1	0.11	0.10
tblVehicleEF	LDT1	0.17	0.26
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.19	0.36
tblVehicleEF	LDT1	2.8910e-003	2.8860e-003
tblVehicleEF	LDT1	7.3200e-004	6.2200e-004

tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.21	0.40
tblVehicleEF	LDT2	4.7540e-003	3.1840e-003
tblVehicleEF	LDT2	5.7630e-003	0.06
tblVehicleEF	LDT2	0.68	0.79
tblVehicleEF	LDT2	1.27	2.60
tblVehicleEF	LDT2	330.23	322.49
tblVehicleEF	LDT2	76.02	69.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.26
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.3070e-003	3.0700e-003
tblVehicleEF	LDT2	7.8100e-004	6.5700e-004
tblVehicleEF	LDT2	0.06	0.08

tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	5.3890e-003	3.5750e-003
tblVehicleEF	LDT2	5.0030e-003	0.05
tblVehicleEF	LDT2	0.83	0.95
tblVehicleEF	LDT2	1.13	2.17
tblVehicleEF	LDT2	359.32	343.18
tblVehicleEF	LDT2	76.02	68.20
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.24
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.24
tblVehicleEF	LDT2	3.6000e-003	3.2670e-003
tblVehicleEF	LDT2	7.7900e-004	6.4900e-004
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14

tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.27
tblVehicleEF	LDT2	4.5710e-003	3.1320e-003
tblVehicleEF	LDT2	5.9350e-003	0.06
tblVehicleEF	LDT2	0.63	0.77
tblVehicleEF	LDT2	1.30	2.58
tblVehicleEF	LDT2	321.50	318.99
tblVehicleEF	LDT2	76.02	69.01
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.25
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.2190e-003	3.0370e-003
tblVehicleEF	LDT2	7.8200e-004	6.5700e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LHD1	4.9950e-003	4.5410e-003
tblVehicleEF	LHD1	8.5970e-003	4.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.89
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.99
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.91	1.39
tblVehicleEF	LHD1	0.93	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003

tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5540e-003
tblVehicleEF	LHD1	8.7610e-003	4.4900e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.82	0.61
tblVehicleEF	LHD1	2.04	0.84
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.98
tblVehicleEF	LHD1	29.33	9.91
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.80	1.31
tblVehicleEF	LHD1	0.90	0.27
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0270e-003
tblVehicleEF	LHD1	3.3200e-004	9.8000e-005
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5430e-003
tblVehicleEF	LHD1	8.5850e-003	4.4280e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17

tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.88
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.98
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.89	1.37
tblVehicleEF	LHD1	0.92	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003

tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD2	3.3070e-003	2.7700e-003
tblVehicleEF	LHD2	3.5370e-003	3.2640e-003
tblVehicleEF	LHD2	6.6670e-003	7.1780e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.48
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.29	1.52
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003

tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.4000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7770e-003
tblVehicleEF	LHD2	3.5730e-003	3.2860e-003
tblVehicleEF	LHD2	6.4430e-003	6.9030e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.45
tblVehicleEF	LHD2	0.98	0.45
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.93
tblVehicleEF	LHD2	22.93	6.38
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.22	1.43

tblVehicleEF	LHD2	0.45	0.15
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4700e-004	6.3000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7710e-003

tblVehicleEF	LHD2	3.5300e-003	3.2670e-003
tblVehicleEF	LHD2	6.7050e-003	7.1290e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.47
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.28	1.49
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004

tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.3000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	MCY	0.43	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.81	18.85
tblVehicleEF	MCY	9.70	8.64
tblVehicleEF	MCY	166.71	207.60
tblVehicleEF	MCY	45.36	60.36
tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.11	2.11
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.05	1.83

tblVehicleEF	MCY	2.0360e-003	2.0540e-003
tblVehicleEF	MCY	6.7200e-004	5.9700e-004
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.61	2.61
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.23	2.00
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.13	0.21
tblVehicleEF	MCY	19.51	18.83
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.71	207.41
tblVehicleEF	MCY	45.36	58.44
tblVehicleEF	MCY	0.97	0.97
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.09	2.07
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	1.84	1.61
tblVehicleEF	MCY	2.0460e-003	2.0530e-003

tblVehicleEF	MCY	6.5600e-004	5.7800e-004
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.59	2.56
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	2.00	1.75
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.37	18.30
tblVehicleEF	MCY	9.67	8.43
tblVehicleEF	MCY	166.71	206.64
tblVehicleEF	MCY	45.36	59.88
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.59	1.64
tblVehicleEF	MCY	1.02	1.05
tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.06	1.79
tblVehicleEF	MCY	2.0290e-003	2.0450e-003
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tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.61	2.59
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.24	1.95
tblVehicleEF	MDV	9.8990e-003	4.1640e-003
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tblVehicleEF	MDV	1.15	0.92
tblVehicleEF	MDV	2.62	3.01
tblVehicleEF	MDV	458.82	406.42
tblVehicleEF	MDV	104.21	86.29
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.11	0.10
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MDV	4.5960e-003	3.8690e-003
tblVehicleEF	MDV	1.0880e-003	8.2200e-004
tblVehicleEF	MDV	0.11	0.10

tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	0.01	4.6800e-003
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tblVehicleEF	MDV	104.21	85.29
tblVehicleEF	MDV	0.13	0.08
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tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.16	0.17
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tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17

tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	9.5100e-003	4.0920e-003
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tblVehicleEF	MDV	0.13	0.08
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.13	0.52
tblVehicleEF	MDV	0.20	0.38
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tblVehicleEF	MDV	1.0890e-003	8.2100e-004
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09

tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.53
tblVehicleEF	MDV	0.22	0.41
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tblVehicleEF	MH	5.24	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
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tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00

tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.10	0.08
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tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.30	0.00
tblVehicleEF	MH	9.8690e-003	8.7860e-003
tblVehicleEF	MH	6.5700e-004	0.00
tblVehicleEF	MH	2.52	0.00

tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.02	3.2740e-003
tblVehicleEF	MH	0.02	0.00
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tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.47	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00

tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.10	0.08
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tblVehicleEF	MHD	2.5470e-003	9.0550e-003
tblVehicleEF	MHD	6.7100e-004	7.6000e-005
tblVehicleEF	MHD	1.5020e-003	4.1800e-004
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tblVehicleEF	MHD	0.02	0.02

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tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	7.6500e-004	2.2800e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.34	0.04
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tblVehicleEF	MHD	1.1400e-004	3.6900e-004

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tblVehicleEF	MHD	0.02	0.07
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	5.9600e-004	2.3900e-004

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tblVehicleEF	OBUS	1.9500e-003	8.4680e-003
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tblVehicleEF	OBUS	1.7990e-003	2.7830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	8.3400e-004	1.2520e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.31
tblVehicleEF	OBUS	0.35	0.13
tblVehicleEF	OBUS	6.2600e-004	6.2400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9300e-004	2.1000e-004
tblVehicleEF	OBUS	1.7990e-003	2.7830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	8.3400e-004	1.2520e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.05	0.31
tblVehicleEF	OBUS	0.38	0.14

tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.5650e-003	6.6030e-003
tblVehicleEF	SBUS	0.06	8.0990e-003
tblVehicleEF	SBUS	7.84	3.43
tblVehicleEF	SBUS	0.57	0.55
tblVehicleEF	SBUS	6.44	1.08
tblVehicleEF	SBUS	1,128.57	369.74
tblVehicleEF	SBUS	1,093.03	1,096.55
tblVehicleEF	SBUS	55.12	6.92
tblVehicleEF	SBUS	8.81	3.32
tblVehicleEF	SBUS	3.97	4.42
tblVehicleEF	SBUS	12.20	0.78
tblVehicleEF	SBUS	8.4250e-003	3.3040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	8.0610e-003	3.1610e-003
tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	5.0680e-003	1.5760e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.4310e-003	7.9200e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.36	0.05

tblVehicleEF	SBUS	0.01	3.5360e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6300e-004	6.9000e-005
tblVehicleEF	SBUS	5.0680e-003	1.5760e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.4310e-003	7.9200e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.39	0.05
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.7050e-003	6.6880e-003
tblVehicleEF	SBUS	0.05	6.7520e-003
tblVehicleEF	SBUS	7.74	3.39
tblVehicleEF	SBUS	0.58	0.56
tblVehicleEF	SBUS	4.67	0.77
tblVehicleEF	SBUS	1,179.47	378.98
tblVehicleEF	SBUS	1,093.03	1,096.56
tblVehicleEF	SBUS	55.12	6.42
tblVehicleEF	SBUS	9.10	3.40
tblVehicleEF	SBUS	3.73	4.16
tblVehicleEF	SBUS	12.17	0.77
tblVehicleEF	SBUS	7.1020e-003	2.7930e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	6.7950e-003	2.6720e-003

tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	9.1290e-003	2.7600e-003
tblVehicleEF	SBUS	0.04	0.01
tblVehicleEF	SBUS	0.92	0.41
tblVehicleEF	SBUS	4.4980e-003	1.4670e-003
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.30	0.04
tblVehicleEF	SBUS	0.01	3.6240e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.3300e-004	6.3000e-005
tblVehicleEF	SBUS	9.1290e-003	2.7600e-003
tblVehicleEF	SBUS	0.04	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	4.4980e-003	1.4670e-003
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.33	0.04
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.5210e-003	6.6020e-003
tblVehicleEF	SBUS	0.06	8.2440e-003
tblVehicleEF	SBUS	8.00	3.48
tblVehicleEF	SBUS	0.57	0.55
tblVehicleEF	SBUS	6.79	1.10
tblVehicleEF	SBUS	1,058.28	356.98

tblVehicleEF	SBUS	1,093.03	1,096.55
tblVehicleEF	SBUS	55.12	6.96
tblVehicleEF	SBUS	8.43	3.21
tblVehicleEF	SBUS	3.93	4.35
tblVehicleEF	SBUS	12.21	0.78
tblVehicleEF	SBUS	0.01	4.0110e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	9.8080e-003	3.8370e-003
tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.3310e-003	8.1800e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.37	0.05
tblVehicleEF	SBUS	0.01	3.4160e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6900e-004	6.9000e-005
tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.3310e-003	8.1800e-004

tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.40	0.05
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.52	23.60
tblVehicleEF	UBUS	13.83	1.86
tblVehicleEF	UBUS	1,788.21	1,635.62
tblVehicleEF	UBUS	153.17	22.96
tblVehicleEF	UBUS	3.79	0.30
tblVehicleEF	UBUS	12.24	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.09	0.10
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7820e-003	2.2700e-004

tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.19	0.10
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.07	0.02
tblVehicleEF	UBUS	7.58	23.60
tblVehicleEF	UBUS	11.85	1.58
tblVehicleEF	UBUS	1,788.21	1,635.63
tblVehicleEF	UBUS	153.17	22.49
tblVehicleEF	UBUS	3.53	0.30
tblVehicleEF	UBUS	12.16	0.21
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	0.43	0.05
tblVehicleEF	UBUS	0.02	0.07

tblVehicleEF	UBUS	0.99	0.09
tblVehicleEF	UBUS	9.5110e-003	6.3200e-003
tblVehicleEF	UBUS	1.7480e-003	2.2300e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	1.83	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.09	0.09
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.51	23.60
tblVehicleEF	UBUS	14.02	1.85
tblVehicleEF	UBUS	1,788.21	1,635.62
tblVehicleEF	UBUS	153.17	22.93
tblVehicleEF	UBUS	3.75	0.30
tblVehicleEF	UBUS	12.25	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02

tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.10	0.09
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7850e-003	2.2700e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.20	0.10
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	6.39	4.91
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	5.86	4.09
tblVehicleTrips	WD_TR	6.59	7.33
tblVehicleTrips	WD_TR	6.65	5.44
tblWoodstoves	NumberCatalytic	3.75	0.00
tblWoodstoves	NumberCatalytic	8.10	0.00
tblWoodstoves	NumberNoncatalytic	3.75	0.00
tblWoodstoves	NumberNoncatalytic	8.10	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	0.1127	1.7153	0.5569	3.2000e-003	0.2452	0.0441	0.2893	0.1009	0.0415	0.1424	0.0000	305.6036	305.6036	0.0345	0.0000	306.4658
2022	1.0279	4.0699	3.0592	9.2400e-003	0.3438	0.1525	0.4964	0.0922	0.1423	0.2345	0.0000	824.8657	824.8657	0.1362	0.0000	828.2697
2023	0.1924	4.6300e-003	9.3100e-003	2.0000e-005	1.3500e-003	2.4000e-004	1.5900e-003	3.6000e-004	2.4000e-004	6.0000e-004	0.0000	1.8604	1.8604	7.0000e-005	0.0000	1.8622
Maximum	**1.0279**	**4.0699**	**3.0592**	**9.2400e-003**	**0.3438**	**0.1525**	**0.4964**	**0.1009**	**0.1423**	**0.2345**	**0.0000**	**824.8657**	**824.8657**	**0.1362**	**0.0000**	**828.2697**

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	0.1127	1.7153	0.5569	3.2000e-003	0.2452	0.0441	0.2893	0.1009	0.0415	0.1424	0.0000	305.6034	305.6034	0.0345	0.0000	306.4657
2022	1.0279	4.0699	3.0592	9.2400e-003	0.3438	0.1525	0.4964	0.0922	0.1423	0.2345	0.0000	824.8652	824.8652	0.1362	0.0000	828.2692
2023	0.1924	4.6300e-003	9.3100e-003	2.0000e-005	1.3500e-003	2.4000e-004	1.5900e-003	3.6000e-004	2.4000e-004	6.0000e-004	0.0000	1.8604	1.8604	7.0000e-005	0.0000	1.8622
Maximum	**1.0279**	**4.0699**	**3.0592**	**9.2400e-003**	**0.3438**	**0.1525**	**0.4964**	**0.1009**	**0.1423**	**0.2345**	**0.0000**	**824.8652**	**824.8652**	**0.1362**	**0.0000**	**828.2692**

	ROG	NOx	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)
2	**7-28-2021**	**10-27-2021**	0.2111	0.2111
3	**10-28-2021**	**1-27-2022**	1.9862	1.9862
4	**1-28-2022**	**4-27-2022**	1.2518	1.2518
5	**4-28-2022**	**7-27-2022**	1.2666	1.2666
6	**7-28-2022**	**10-27-2022**	1.2801	1.2801
7	**10-28-2022**	**1-27-2023**	1.1227	1.1227
		Highest	1.9862	1.9862

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	1.0239	0.0774	2.4710	4.4000e-004		0.0175	0.0175		0.0175	0.0175	0.0000	60.9155	60.9155	4.9600e-003	1.0400e-003	61.3504
Energy	0.0192	0.1643	0.0699	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	890.3918	890.3918	0.0190	6.6600e-003	892.8495
Mobile	0.5148	1.5229	4.8523	0.0172	1.5847	0.0168	1.6015	0.4242	0.0158	0.4400	0.0000	1,654.4361	1,654.4361	0.0642	0.0000	1,656.0420
Waste						0.0000	0.0000		0.0000	0.0000	22.1301	0.0000	22.1301	1.3079	0.0000	54.8263
Water						0.0000	0.0000		0.0000	0.0000	4.8989	185.9343	190.8332	0.5072	0.0127	207.3052
Total	**1.5579**	**1.7645**	**7.3932**	**0.0187**	**1.5847**	**0.0476**	**1.6323**	**0.4242**	**0.0466**	**0.4708**	**27.0290**	**2,791.6778**	**2,818.7067**	**1.9032**	**0.0204**	**2,872.3734**

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	1.0239	0.0774	2.4710	4.4000e-004		0.0175	0.0175		0.0175	0.0175	0.0000	60.9155	60.9155	4.9600e-003	1.0400e-003	61.3504
Energy	0.0192	0.1643	0.0699	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	890.3918	890.3918	0.0190	6.6600e-003	892.8495
Mobile	0.5148	1.5229	4.8523	0.0172	1.5847	0.0168	1.6015	0.4242	0.0158	0.4400	0.0000	1,654.4361	1,654.4361	0.0642	0.0000	1,656.0420
Waste						0.0000	0.0000		0.0000	0.0000	22.1301	0.0000	22.1301	1.3079	0.0000	54.8263
Water						0.0000	0.0000		0.0000	0.0000	4.8989	185.9343	190.8332	0.5072	0.0127	207.3052
Total	**1.5579**	**1.7645**	**7.3932**	**0.0187**	**1.5847**	**0.0476**	**1.6323**	**0.4242**	**0.0466**	**0.4708**	**27.0290**	**2,791.6778**	**2,818.7067**	**1.9032**	**0.0204**	**2,872.3734**

	ROG	NOx	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	Crushing	Demolition	10/16/2021	11/12/2021	5	20	
2	Site Preparation	Site Preparation	11/13/2021	11/26/2021	5	10	
3	Grading	Grading	11/27/2021	12/24/2021	5	20	
4	Building Construction	Building Construction	12/25/2021	11/11/2022	5	230	
5	Paving	Paving	11/12/2022	12/9/2022	5	20	
6	Architectural Coating	Architectural Coating	12/10/2022	1/6/2023	5	20	

Acres of Grading (Site Preparation Phase): 35

Acres of Grading (Grading Phase): 50

Acres of Paving: 0.82

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,272 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Crushing	Concrete/Industrial Saws	0	8.00	81	0.73
Crushing	Excavators	0	8.00	158	0.38
Crushing	Generator Sets	1	8.00	1050	0.74
Crushing	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	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
Crushing	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	3,750.00	14.70	6.90	23.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	243.00	53.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	49.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Crushing - 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	0.0302	0.4621	0.1453	6.9000e-004		9.5900e-003	9.5900e-003		9.5900e-003	9.5900e-003	0.0000	70.6511	70.6511	2.3600e-003	0.0000	70.7101
Total	**0.0302**	**0.4621**	**0.1453**	**6.9000e-004**		**9.5900e-003**	**9.5900e-003**		**9.5900e-003**	**9.5900e-003**	**0.0000**	**70.6511**	**70.6511**	**2.3600e-003**	**0.0000**	**70.7101**

3.2 Crushing - 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	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**1.3000e-004**	**9.0000e-005**	**9.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2667**	**0.2667**	**1.0000e-005**	**0.0000**	**0.2668**

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	0.0302	0.4621	0.1453	6.9000e-004		9.5900e-003	9.5900e-003		9.5900e-003	9.5900e-003	0.0000	70.6510	70.6510	2.3600e-003	0.0000	70.7100
Total	**0.0302**	**0.4621**	**0.1453**	**6.9000e-004**		**9.5900e-003**	**9.5900e-003**		**9.5900e-003**	**9.5900e-003**	**0.0000**	**70.6510**	**70.6510**	**2.3600e-003**	**0.0000**	**70.7100**

3.2 Crushing - 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	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**1.3000e-004**	**9.0000e-005**	**9.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2667**	**0.2667**	**1.0000e-005**	**0.0000**	**0.2668**

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					0.1089	0.0000	0.1089	0.0517	0.0000	0.0517	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.3039	0.1093	2.8000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	25.0542	25.0542	8.1000e-003	0.0000	25.2568
Total	**0.0267**	**0.3039**	**0.1093**	**2.8000e-004**	**0.1089**	**0.0132**	**0.1221**	**0.0517**	**0.0122**	**0.0638**	**0.0000**	**25.0542**	**25.0542**	**8.1000e-003**	**0.0000**	**25.2568**

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	3.9000e-004	2.6000e-004	2.8300e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8000	0.8000	2.0000e-005	0.0000	0.8004
Total	**3.9000e-004**	**2.6000e-004**	**2.8300e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8000**	**0.8000**	**2.0000e-005**	**0.0000**	**0.8004**

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					0.1089	0.0000	0.1089	0.0517	0.0000	0.0517	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.3039	0.1093	2.8000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	25.0542	25.0542	8.1000e-003	0.0000	25.2567
Total	**0.0267**	**0.3039**	**0.1093**	**2.8000e-004**	**0.1089**	**0.0132**	**0.1221**	**0.0517**	**0.0122**	**0.0638**	**0.0000**	**25.0542**	**25.0542**	**8.1000e-003**	**0.0000**	**25.2567**

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	3.9000e-004	2.6000e-004	2.8300e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8000	0.8000	2.0000e-005	0.0000	0.8004
Total	**3.9000e-004**	**2.6000e-004**	**2.8300e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8000**	**0.8000**	**2.0000e-005**	**0.0000**	**0.8004**

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					0.0886	0.0000	0.0886	0.0363	0.0000	0.0363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0338	0.3995	0.1638	4.4000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	38.5582	38.5582	0.0125	0.0000	38.8700
Total	**0.0338**	**0.3995**	**0.1638**	**4.4000e-004**	**0.0886**	**0.0161**	**0.1047**	**0.0363**	**0.0148**	**0.0511**	**0.0000**	**38.5582**	**38.5582**	**0.0125**	**0.0000**	**38.8700**

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	0.0102	0.4500	0.0631	1.5700e-003	0.0372	1.4300e-003	0.0386	0.0102	1.3600e-003	0.0116	0.0000	150.9765	150.9765	8.5800e-003	0.0000	151.1911
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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**0.0108**	**0.4504**	**0.0678**	**1.5800e-003**	**0.0388**	**1.4400e-003**	**0.0403**	**0.0106**	**1.3700e-003**	**0.0120**	**0.0000**	**152.3097**	**152.3097**	**8.6100e-003**	**0.0000**	**152.5251**

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					0.0886	0.0000	0.0886	0.0363	0.0000	0.0363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0338	0.3995	0.1638	4.4000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	38.5582	38.5582	0.0125	0.0000	38.8699
Total	**0.0338**	**0.3995**	**0.1638**	**4.4000e-004**	**0.0886**	**0.0161**	**0.1047**	**0.0363**	**0.0148**	**0.0511**	**0.0000**	**38.5582**	**38.5582**	**0.0125**	**0.0000**	**38.8699**

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	tons/yr										MT/yr					
Hauling	0.0102	0.4500	0.0631	1.5700e-003	0.0372	1.4300e-003	0.0386	0.0102	1.3600e-003	0.0116	0.0000	150.9765	150.9765	8.5800e-003	0.0000	151.1911
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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**0.0108**	**0.4504**	**0.0678**	**1.5800e-003**	**0.0388**	**1.4400e-003**	**0.0403**	**0.0106**	**1.3700e-003**	**0.0120**	**0.0000**	**152.3097**	**152.3097**	**8.6100e-003**	**0.0000**	**152.5251**

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	tons/yr										MT/yr					
Off-Road	7.7800e-003	0.0849	0.0455	1.1000e-004		3.6900e-003	3.6900e-003		3.4400e-003	3.4400e-003	0.0000	9.3314	9.3314	2.5400e-003	0.0000	9.3949
Total	**7.7800e-003**	**0.0849**	**0.0455**	**1.1000e-004**		**3.6900e-003**	**3.6900e-003**		**3.4400e-003**	**3.4400e-003**	**0.0000**	**9.3314**	**9.3314**	**2.5400e-003**	**0.0000**	**9.3949**

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	3.2000e-004	0.0124	2.3800e-003	3.0000e-005	8.4000e-004	2.0000e-005	8.6000e-004	2.4000e-004	2.0000e-005	2.6000e-004	0.0000	3.2326	3.2326	2.5000e-004	0.0000	3.2388
Worker	2.6000e-003	1.7600e-003	0.0191	6.0000e-005	6.6800e-003	4.0000e-005	6.7200e-003	1.7700e-003	4.0000e-005	1.8100e-003	0.0000	5.3997	5.3997	1.3000e-004	0.0000	5.4029
Total	**2.9200e-003**	**0.0141**	**0.0215**	**9.0000e-005**	**7.5200e-003**	**6.0000e-005**	**7.5800e-003**	**2.0100e-003**	**6.0000e-005**	**2.0700e-003**	**0.0000**	**8.6324**	**8.6324**	**3.8000e-004**	**0.0000**	**8.6417**

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	7.7800e-003	0.0849	0.0455	1.1000e-004		3.6900e-003	3.6900e-003		3.4400e-003	3.4400e-003	0.0000	9.3314	9.3314	2.5400e-003	0.0000	9.3949
Total	**7.7800e-003**	**0.0849**	**0.0455**	**1.1000e-004**		**3.6900e-003**	**3.6900e-003**		**3.4400e-003**	**3.4400e-003**	**0.0000**	**9.3314**	**9.3314**	**2.5400e-003**	**0.0000**	**9.3949**

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	3.2000e-004	0.0124	2.3800e-003	3.0000e-005	8.4000e-004	2.0000e-005	8.6000e-004	2.4000e-004	2.0000e-005	2.6000e-004	0.0000	3.2326	3.2326	2.5000e-004	0.0000	3.2388
Worker	2.6000e-003	1.7600e-003	0.0191	6.0000e-005	6.6800e-003	4.0000e-005	6.7200e-003	1.7700e-003	4.0000e-005	1.8100e-003	0.0000	5.3997	5.3997	1.3000e-004	0.0000	5.4029
Total	**2.9200e-003**	**0.0141**	**0.0215**	**9.0000e-005**	**7.5200e-003**	**6.0000e-005**	**7.5800e-003**	**2.0100e-003**	**6.0000e-005**	**2.0700e-003**	**0.0000**	**8.6324**	**8.6324**	**3.8000e-004**	**0.0000**	**8.6417**

3.5 Building Construction - 2022

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	0.3146	3.3484	1.9879	4.8400e-003		0.1434	0.1434		0.1338	0.1338	0.0000	419.5139	419.5139	0.1138	0.0000	422.3594
Total	**0.3146**	**3.3484**	**1.9879**	**4.8400e-003**		**0.1434**	**0.1434**		**0.1338**	**0.1338**	**0.0000**	**419.5139**	**419.5139**	**0.1138**	**0.0000**	**422.3594**

3.5 Building Construction - 2022

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	0.0133	0.5238	0.0996	1.5100e-003	0.0377	8.9000e-004	0.0386	0.0109	8.6000e-004	0.0117	0.0000	144.2177	144.2177	0.0105	0.0000	144.4805
Worker	0.1098	0.0711	0.7928	2.5900e-003	0.3005	1.7500e-003	0.3022	0.0798	1.6100e-003	0.0814	0.0000	234.1214	234.1214	5.0900e-003	0.0000	234.2486
Total	**0.1231**	**0.5948**	**0.8924**	**4.1000e-003**	**0.3381**	**2.6400e-003**	**0.3408**	**0.0907**	**2.4700e-003**	**0.0931**	**0.0000**	**378.3391**	**378.3391**	**0.0156**	**0.0000**	**378.7291**

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	0.3146	3.3484	1.9879	4.8400e-003		0.1434	0.1434		0.1338	0.1338	0.0000	419.5134	419.5134	0.1138	0.0000	422.3589
Total	**0.3146**	**3.3484**	**1.9879**	**4.8400e-003**		**0.1434**	**0.1434**		**0.1338**	**0.1338**	**0.0000**	**419.5134**	**419.5134**	**0.1138**	**0.0000**	**422.3589**

3.5 Building Construction - 2022

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	0.0133	0.5238	0.0996	1.5100e-003	0.0377	8.9000e-004	0.0386	0.0109	8.6000e-004	0.0117	0.0000	144.2177	144.2177	0.0105	0.0000	144.4805
Worker	0.1098	0.0711	0.7928	2.5900e-003	0.3005	1.7500e-003	0.3022	0.0798	1.6100e-003	0.0814	0.0000	234.1214	234.1214	5.0900e-003	0.0000	234.2486
Total	**0.1231**	**0.5948**	**0.8924**	**4.1000e-003**	**0.3381**	**2.6400e-003**	**0.3408**	**0.0907**	**2.4700e-003**	**0.0931**	**0.0000**	**378.3391**	**378.3391**	**0.0156**	**0.0000**	**378.7291**

3.6 Paving - 2022

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	1.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0121**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

3.6 Paving - 2022

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	6.0000e-004	3.9000e-004	4.3500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2846	1.2846	3.0000e-005	0.0000	1.2853
Total	**6.0000e-004**	**3.9000e-004**	**4.3500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2846**	**1.2846**	**3.0000e-005**	**0.0000**	**1.2853**

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	1.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0121**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

3.6 Paving - 2022

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	6.0000e-004	3.9000e-004	4.3500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2846	1.2846	3.0000e-005	0.0000	1.2853
Total	**6.0000e-004**	**3.9000e-004**	**4.3500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2846**	**1.2846**	**3.0000e-005**	**0.0000**	**1.2853**

3.7 Architectural Coating - 2022

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	0.5740					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.5760**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

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	1.4800e-003	9.6000e-004	0.0107	3.0000e-005	4.0400e-003	2.0000e-005	4.0600e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	3.1473	3.1473	7.0000e-005	0.0000	3.1490
Total	**1.4800e-003**	**9.6000e-004**	**0.0107**	**3.0000e-005**	**4.0400e-003**	**2.0000e-005**	**4.0600e-003**	**1.0700e-003**	**2.0000e-005**	**1.0900e-003**	**0.0000**	**3.1473**	**3.1473**	**7.0000e-005**	**0.0000**	**3.1490**

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	0.5740					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.5760**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

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	1.4800e-003	9.6000e-004	0.0107	3.0000e-005	4.0400e-003	2.0000e-005	4.0600e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	3.1473	3.1473	7.0000e-005	0.0000	3.1490
Total	**1.4800e-003**	**9.6000e-004**	**0.0107**	**3.0000e-005**	**4.0400e-003**	**2.0000e-005**	**4.0600e-003**	**1.0700e-003**	**2.0000e-005**	**1.0900e-003**	**0.0000**	**3.1473**	**3.1473**	**7.0000e-005**	**0.0000**	**3.1490**

3.7 Architectural Coating - 2023

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	0.1913					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-004	4.3400e-003	6.0400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.8511	0.8511	5.0000e-005	0.0000	0.8524
Total	**0.1920**	**4.3400e-003**	**6.0400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.8511**	**0.8511**	**5.0000e-005**	**0.0000**	**0.8524**

3.7 Architectural Coating - 2023

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	4.6000e-004	2.9000e-004	3.2700e-003	1.0000e-005	1.3500e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.6000e-004	0.0000	1.0093	1.0093	2.0000e-005	0.0000	1.0098
Total	**4.6000e-004**	**2.9000e-004**	**3.2700e-003**	**1.0000e-005**	**1.3500e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**0.0000**	**1.0093**	**1.0093**	**2.0000e-005**	**0.0000**	**1.0098**

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	0.1913					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-004	4.3400e-003	6.0400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.8511	0.8511	5.0000e-005	0.0000	0.8524
Total	**0.1920**	**4.3400e-003**	**6.0400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.8511**	**0.8511**	**5.0000e-005**	**0.0000**	**0.8524**

3.7 Architectural Coating - 2023

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	4.6000e-004	2.9000e-004	3.2700e-003	1.0000e-005	1.3500e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.6000e-004	0.0000	1.0093	1.0093	2.0000e-005	0.0000	1.0098
Total	**4.6000e-004**	**2.9000e-004**	**3.2700e-003**	**1.0000e-005**	**1.3500e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**0.0000**	**1.0093**	**1.0093**	**2.0000e-005**	**0.0000**	**1.0098**

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	0.5148	1.5229	4.8523	0.0172	1.5847	0.0168	1.6015	0.4242	0.0158	0.4400	0.0000	1,654.436 1	1,654.436 1	0.0642	0.0000	1,656.042 0
Unmitigated	0.5148	1.5229	4.8523	0.0172	1.5847	0.0168	1.6015	0.4242	0.0158	0.4400	0.0000	1,654.436 1	1,654.436 1	0.0642	0.0000	1,656.042 0

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	549.75	610.50	471.00	1,642,400	1,642,400
Apartments Mid Rise	881.28	795.42	662.58	2,514,638	2,514,638
Parking Lot	0.00	0.00	0.00		
Total	1,431.03	1,405.92	1,133.58	4,157,039	4,157,039

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
Apartments Low Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Apartments Mid Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

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	700.1644	700.1644	0.0153	3.1700e-003	701.4916
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	700.1644	700.1644	0.0153	3.1700e-003	701.4916
NaturalGas Mitigated	0.0192	0.1643	0.0699	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	190.2275	190.2275	3.6500e-003	3.4900e-003	191.3579
NaturalGas Unmitigated	0.0192	0.1643	0.0699	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	190.2275	190.2275	3.6500e-003	3.4900e-003	191.3579

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					
Apartments Low Rise	1.16809e+006	6.3000e-003	0.0538	0.0229	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003	0.0000	62.3336	62.3336	1.1900e-003	1.1400e-003	62.7040
Apartments Mid Rise	2.39664e+006	0.0129	0.1104	0.0470	7.0000e-004		8.9300e-003	8.9300e-003		8.9300e-003	8.9300e-003	0.0000	127.8939	127.8939	2.4500e-003	2.3400e-003	128.6539
Parking Lot	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
Total		**0.0192**	**0.1643**	**0.0699**	**1.0400e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**	**0.0000**	**190.2275**	**190.2275**	**3.6400e-003**	**3.4800e-003**	**191.3579**

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					
Apartments Low Rise	1.16809e+006	6.3000e-003	0.0538	0.0229	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003	0.0000	62.3336	62.3336	1.1900e-003	1.1400e-003	62.7040
Apartments Mid Rise	2.39664e+006	0.0129	0.1104	0.0470	7.0000e-004		8.9300e-003	8.9300e-003		8.9300e-003	8.9300e-003	0.0000	127.8939	127.8939	2.4500e-003	2.3400e-003	128.6539
Parking Lot	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
Total		**0.0192**	**0.1643**	**0.0699**	**1.0400e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**	**0.0000**	**190.2275**	**190.2275**	**3.6400e-003**	**3.4800e-003**	**191.3579**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	364520	219.1873	4.7900e-003	9.9000e-004	219.6028
Apartments Mid Rise	739969	444.9469	9.7300e-003	2.0100e-003	445.7903
Parking Lot	59920	36.0302	7.9000e-004	1.6000e-004	36.0985
Total		**700.1644**	**0.0153**	**3.1600e-003**	**701.4916**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	364520	219.1873	4.7900e-003	9.9000e-004	219.6028
Apartments Mid Rise	739969	444.9469	9.7300e-003	2.0100e-003	445.7903
Parking Lot	59920	36.0302	7.9000e-004	1.6000e-004	36.0985
Total		**700.1644**	**0.0153**	**3.1600e-003**	**701.4916**

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	1.0239	0.0774	2.4710	4.4000e-004		0.0175	0.0175		0.0175	0.0175	0.0000	60.9155	60.9155	4.9600e-003	1.0400e-003	61.3504
Unmitigated	1.0239	0.0774	2.4710	4.4000e-004		0.0175	0.0175		0.0175	0.0175	0.0000	60.9155	60.9155	4.9600e-003	1.0400e-003	61.3504

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	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.7500e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.9125	56.9125	1.0900e-003	1.0400e-003	57.2507
Landscaping	0.0742	0.0282	2.4501	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	4.0030	4.0030	3.8700e-003	0.0000	4.0997
Total	**1.0239**	**0.0774**	**2.4710**	**4.4000e-004**		**0.0175**	**0.0175**		**0.0175**	**0.0175**	**0.0000**	**60.9155**	**60.9155**	**4.9600e-003**	**1.0400e-003**	**61.3504**

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	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.7500e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.9125	56.9125	1.0900e-003	1.0400e-003	57.2507
Landscaping	0.0742	0.0282	2.4501	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	4.0030	4.0030	3.8700e-003	0.0000	4.0997
Total	**1.0239**	**0.0774**	**2.4710**	**4.4000e-004**		**0.0175**	**0.0175**		**0.0175**	**0.0175**	**0.0000**	**60.9155**	**60.9155**	**4.9600e-003**	**1.0400e-003**	**61.3504**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	190.8332	0.5072	0.0127	207.3052
Unmitigated	190.8332	0.5072	0.0127	207.3052

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.88655 / 3.08065	60.3903	0.1605	4.0300e-003	65.6029
Apartments Mid Rise	10.555 / 6.65421	130.4430	0.3467	8.7000e-003	141.7023
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**190.8332**	**0.5072**	**0.0127**	**207.3052**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.88655 / 3.08065	60.3903	0.1605	4.0300e-003	65.6029
Apartments Mid Rise	10.555 / 6.65421	130.4430	0.3467	8.7000e-003	141.7023
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**190.8332**	**0.5072**	**0.0127**	**207.3052**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.1301	1.3079	0.0000	54.8263
Unmitigated	22.1301	1.3079	0.0000	54.8263

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	34.5	7.0032	0.4139	0.0000	17.3501
Apartments Mid Rise	74.52	15.1269	0.8940	0.0000	37.4762
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**22.1301**	**1.3079**	**0.0000**	**54.8263**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	34.5	7.0032	0.4139	0.0000	17.3501
Apartments Mid Rise	74.52	15.1269	0.8940	0.0000	37.4762
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**22.1301**	**1.3079**	**0.0000**	**54.8263**

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

12585 Crestview Apartments

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	428.00	Space	0.82	171,200.00	0
Apartments Low Rise	75.00	Dwelling Unit	4.69	75,000.00	239
Apartments Mid Rise	162.00	Dwelling Unit	4.26	162,000.00	515

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Consistent with DEIR's model.

Construction Phase - See SWAPE comment about phase lengths.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Vehicle Trips - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Woodstoves - Consistent with DEIR's model.

Energy Use - See SWAPE comment about energy use values.

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/19/2022	1/6/2023
tblConstructionPhase	PhaseEndDate	5/24/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	5/25/2021	11/12/2021
tblConstructionPhase	PhaseEndDate	7/6/2021	12/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2022	12/9/2022
tblConstructionPhase	PhaseEndDate	6/8/2021	11/26/2021

tblConstructionPhase	PhaseStartDate	6/22/2022	12/10/2022
tblConstructionPhase	PhaseStartDate	7/7/2021	12/25/2021
tblConstructionPhase	PhaseStartDate	4/28/2021	10/16/2021
tblConstructionPhase	PhaseStartDate	6/9/2021	11/27/2021
tblConstructionPhase	PhaseStartDate	5/25/2022	11/12/2022
tblConstructionPhase	PhaseStartDate	5/26/2021	11/13/2021
tblFireplaces	NumberGas	63.75	75.00
tblFireplaces	NumberGas	137.70	162.00
tblFireplaces	NumberNoFireplace	7.50	0.00
tblFireplaces	NumberNoFireplace	16.20	0.00
tblFireplaces	NumberWood	3.75	0.00
tblFireplaces	NumberWood	8.10	0.00
tblGrading	AcresOfGrading	40.00	50.00
tblGrading	AcresOfGrading	20.00	35.00
tblGrading	MaterialExported	0.00	10,000.00
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LotAcreage	3.85	0.82
tblLandUse	Population	215.00	239.00
tblLandUse	Population	463.00	515.00
tblOffRoadEquipment	HorsePower	84.00	1,050.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	23.00
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tblVehicleEF	HHD	0.08	0.00
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tblVehicleEF	HHD	17.43	5.31
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tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.1440e-003	0.02
tblVehicleEF	HHD	3.9000e-005	0.00
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tblVehicleEF	HHD	8.8620e-003	8.8060e-003
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tblVehicleEF	HHD	3.6000e-005	0.00
tblVehicleEF	HHD	7.3000e-005	3.0000e-006
tblVehicleEF	HHD	2.3430e-003	9.7000e-005

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tblVehicleEF	HHD	0.04	0.02
tblVehicleEF	HHD	1.5400e-004	4.4400e-004
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tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	7.3000e-005	3.0000e-006
tblVehicleEF	HHD	2.3430e-003	9.7000e-005
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tblVehicleEF	HHD	4.3000e-005	2.0000e-006
tblVehicleEF	HHD	0.08	0.05
tblVehicleEF	HHD	1.5400e-004	4.4400e-004
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tblVehicleEF	HHD	8.8620e-003	8.8060e-003
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tblVehicleEF	HHD	3.6000e-005	0.00
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tblVehicleEF	HHD	1.04	0.02
tblVehicleEF	HHD	0.03	8.2000e-004
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tblVehicleEF	HHD	0.01	0.01
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tblVehicleEF	LDA	1.4310e-003	1.2090e-003
tblVehicleEF	LDA	2.0570e-003	1.6270e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	8.0650e-003	6.8280e-003
tblVehicleEF	LDA	0.04	0.22

tblVehicleEF	LDA	0.06	0.19
tblVehicleEF	LDA	2.2980e-003	2.4260e-003
tblVehicleEF	LDA	5.6100e-004	5.1100e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	9.9440e-003
tblVehicleEF	LDA	0.04	0.22
tblVehicleEF	LDA	0.06	0.21
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tblVehicleEF	LDT1	1.18	1.23
tblVehicleEF	LDT1	2.73	2.29
tblVehicleEF	LDT1	295.40	306.77
tblVehicleEF	LDT1	68.37	65.39
tblVehicleEF	LDT1	0.11	0.10
tblVehicleEF	LDT1	0.17	0.26
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tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
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tblVehicleEF	LDT1	0.30	0.22
tblVehicleEF	LDT1	0.12	0.11
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.18	0.73
tblVehicleEF	LDT1	0.19	0.37

tblVehicleEF	LDT1	2.9680e-003	2.9210e-003
tblVehicleEF	LDT1	7.3100e-004	6.2300e-004
tblVehicleEF	LDT1	0.18	0.16
tblVehicleEF	LDT1	0.30	0.23
tblVehicleEF	LDT1	0.12	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.18	0.74
tblVehicleEF	LDT1	0.21	0.40
tblVehicleEF	LDT1	0.01	6.4140e-003
tblVehicleEF	LDT1	0.01	0.06
tblVehicleEF	LDT1	1.43	1.45
tblVehicleEF	LDT1	2.40	1.92
tblVehicleEF	LDT1	320.93	328.53
tblVehicleEF	LDT1	68.37	64.60
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.16	0.24
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.16	0.31
tblVehicleEF	LDT1	3.2270e-003	3.1280e-003

tblVehicleEF	LDT1	7.2500e-004	6.1500e-004
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.18	0.34
tblVehicleEF	LDT1	8.9360e-003	5.6560e-003
tblVehicleEF	LDT1	0.01	0.07
tblVehicleEF	LDT1	1.11	1.19
tblVehicleEF	LDT1	2.78	2.28
tblVehicleEF	LDT1	287.77	303.10
tblVehicleEF	LDT1	68.37	65.36
tblVehicleEF	LDT1	0.11	0.10
tblVehicleEF	LDT1	0.17	0.26
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.19	0.36
tblVehicleEF	LDT1	2.8910e-003	2.8860e-003
tblVehicleEF	LDT1	7.3200e-004	6.2200e-004

tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.21	0.40
tblVehicleEF	LDT2	4.7540e-003	3.1840e-003
tblVehicleEF	LDT2	5.7630e-003	0.06
tblVehicleEF	LDT2	0.68	0.79
tblVehicleEF	LDT2	1.27	2.60
tblVehicleEF	LDT2	330.23	322.49
tblVehicleEF	LDT2	76.02	69.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.26
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.3070e-003	3.0700e-003
tblVehicleEF	LDT2	7.8100e-004	6.5700e-004
tblVehicleEF	LDT2	0.06	0.08

tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	5.3890e-003	3.5750e-003
tblVehicleEF	LDT2	5.0030e-003	0.05
tblVehicleEF	LDT2	0.83	0.95
tblVehicleEF	LDT2	1.13	2.17
tblVehicleEF	LDT2	359.32	343.18
tblVehicleEF	LDT2	76.02	68.20
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.24
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.24
tblVehicleEF	LDT2	3.6000e-003	3.2670e-003
tblVehicleEF	LDT2	7.7900e-004	6.4900e-004
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14

tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.27
tblVehicleEF	LDT2	4.5710e-003	3.1320e-003
tblVehicleEF	LDT2	5.9350e-003	0.06
tblVehicleEF	LDT2	0.63	0.77
tblVehicleEF	LDT2	1.30	2.58
tblVehicleEF	LDT2	321.50	318.99
tblVehicleEF	LDT2	76.02	69.01
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.25
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.2190e-003	3.0370e-003
tblVehicleEF	LDT2	7.8200e-004	6.5700e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LHD1	4.9950e-003	4.5410e-003
tblVehicleEF	LHD1	8.5970e-003	4.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.89
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.99
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.91	1.39
tblVehicleEF	LHD1	0.93	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003

tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5540e-003
tblVehicleEF	LHD1	8.7610e-003	4.4900e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.82	0.61
tblVehicleEF	LHD1	2.04	0.84
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.98
tblVehicleEF	LHD1	29.33	9.91
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.80	1.31
tblVehicleEF	LHD1	0.90	0.27
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0270e-003
tblVehicleEF	LHD1	3.3200e-004	9.8000e-005
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5430e-003
tblVehicleEF	LHD1	8.5850e-003	4.4280e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17

tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.88
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.98
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.89	1.37
tblVehicleEF	LHD1	0.92	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003

tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD2	3.3070e-003	2.7700e-003
tblVehicleEF	LHD2	3.5370e-003	3.2640e-003
tblVehicleEF	LHD2	6.6670e-003	7.1780e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.48
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.29	1.52
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003

tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.4000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7770e-003
tblVehicleEF	LHD2	3.5730e-003	3.2860e-003
tblVehicleEF	LHD2	6.4430e-003	6.9030e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.45
tblVehicleEF	LHD2	0.98	0.45
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.93
tblVehicleEF	LHD2	22.93	6.38
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.22	1.43

tblVehicleEF	LHD2	0.45	0.15
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4700e-004	6.3000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7710e-003

tblVehicleEF	LHD2	3.5300e-003	3.2670e-003
tblVehicleEF	LHD2	6.7050e-003	7.1290e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.47
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.28	1.49
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004

tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.3000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	MCY	0.43	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.81	18.85
tblVehicleEF	MCY	9.70	8.64
tblVehicleEF	MCY	166.71	207.60
tblVehicleEF	MCY	45.36	60.36
tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.11	2.11
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.05	1.83

tblVehicleEF	MCY	2.0360e-003	2.0540e-003
tblVehicleEF	MCY	6.7200e-004	5.9700e-004
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.61	2.61
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.23	2.00
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.13	0.21
tblVehicleEF	MCY	19.51	18.83
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.71	207.41
tblVehicleEF	MCY	45.36	58.44
tblVehicleEF	MCY	0.97	0.97
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.09	2.07
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	1.84	1.61
tblVehicleEF	MCY	2.0460e-003	2.0530e-003

tblVehicleEF	MCY	6.5600e-004	5.7800e-004
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.59	2.56
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	2.00	1.75
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.37	18.30
tblVehicleEF	MCY	9.67	8.43
tblVehicleEF	MCY	166.71	206.64
tblVehicleEF	MCY	45.36	59.88
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.59	1.64
tblVehicleEF	MCY	1.02	1.05
tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.06	1.79
tblVehicleEF	MCY	2.0290e-003	2.0450e-003
tblVehicleEF	MCY	6.7200e-004	5.9300e-004

tblVehicleEF	MCY	1.59	1.64
tblVehicleEF	MCY	1.02	1.05
tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.61	2.59
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.24	1.95
tblVehicleEF	MDV	9.8990e-003	4.1640e-003
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tblVehicleEF	MDV	1.15	0.92
tblVehicleEF	MDV	2.62	3.01
tblVehicleEF	MDV	458.82	406.42
tblVehicleEF	MDV	104.21	86.29
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.11	0.10
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MDV	4.5960e-003	3.8690e-003
tblVehicleEF	MDV	1.0880e-003	8.2200e-004
tblVehicleEF	MDV	0.11	0.10

tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	0.01	4.6800e-003
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tblVehicleEF	MDV	1.41	1.10
tblVehicleEF	MDV	2.31	2.51
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tblVehicleEF	MDV	104.21	85.29
tblVehicleEF	MDV	0.13	0.08
tblVehicleEF	MDV	0.24	0.31
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.03	0.02
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tblVehicleEF	MDV	0.17	0.32
tblVehicleEF	MDV	4.9910e-003	4.0790e-003
tblVehicleEF	MDV	1.0820e-003	8.1200e-004
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17

tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	9.5100e-003	4.0920e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.08	0.89
tblVehicleEF	MDV	2.68	2.99
tblVehicleEF	MDV	447.05	402.69
tblVehicleEF	MDV	104.21	86.25
tblVehicleEF	MDV	0.13	0.08
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.13	0.52
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MDV	4.4770e-003	3.8330e-003
tblVehicleEF	MDV	1.0890e-003	8.2100e-004
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09

tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.53
tblVehicleEF	MDV	0.22	0.41
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tblVehicleEF	MH	2.00	0.33
tblVehicleEF	MH	5.24	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00

tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.02	3.2740e-003
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tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	2.52	0.00
tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.30	0.00
tblVehicleEF	MH	9.8690e-003	8.7860e-003
tblVehicleEF	MH	6.5700e-004	0.00
tblVehicleEF	MH	2.52	0.00

tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.02	3.2740e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	1.99	0.33
tblVehicleEF	MH	5.28	0.00
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tblVehicleEF	MH	0.79	0.00
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tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.47	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00

tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.10	0.08
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tblVehicleEF	MHD	1.3500e-004	4.3400e-004
tblVehicleEF	MHD	2.6660e-003	9.4670e-003
tblVehicleEF	MHD	7.3000e-004	8.3000e-005
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tblVehicleEF	MHD	2.5470e-003	9.0550e-003
tblVehicleEF	MHD	6.7100e-004	7.6000e-005
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tblVehicleEF	MHD	0.02	0.02

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tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	7.6500e-004	2.2800e-004
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tblVehicleEF	MHD	0.02	0.07
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tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	1.4710e-003	4.4600e-004
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tblVehicleEF	MHD	0.02	0.02
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tblVehicleEF	OBUS	1.9500e-003	8.4680e-003
tblVehicleEF	OBUS	8.7100e-004	2.1800e-004
tblVehicleEF	OBUS	1.1000e-005	7.2000e-005
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tblVehicleEF	OBUS	8.0000e-004	2.0100e-004
tblVehicleEF	OBUS	2.0910e-003	2.6670e-003
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tblVehicleEF	OBUS	0.03	0.05
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tblVehicleEF	OBUS	8.7100e-004	2.1800e-004
tblVehicleEF	OBUS	1.0000e-005	6.4000e-005

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tblVehicleEF	OBUS	5.57	2.67
tblVehicleEF	OBUS	64.36	65.29
tblVehicleEF	OBUS	1,085.33	1,335.50

tblVehicleEF	OBUS	69.49	21.26
tblVehicleEF	OBUS	0.13	0.24
tblVehicleEF	OBUS	0.35	0.89
tblVehicleEF	OBUS	2.06	0.68
tblVehicleEF	OBUS	1.5000e-005	8.7000e-005
tblVehicleEF	OBUS	1.9500e-003	8.4680e-003
tblVehicleEF	OBUS	8.7100e-004	2.1800e-004
tblVehicleEF	OBUS	1.4000e-005	8.3000e-005
tblVehicleEF	OBUS	1.8490e-003	8.0880e-003
tblVehicleEF	OBUS	8.0000e-004	2.0100e-004
tblVehicleEF	OBUS	1.7990e-003	2.7830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	8.3400e-004	1.2520e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.31
tblVehicleEF	OBUS	0.35	0.13
tblVehicleEF	OBUS	6.2600e-004	6.2400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9300e-004	2.1000e-004
tblVehicleEF	OBUS	1.7990e-003	2.7830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	8.3400e-004	1.2520e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.05	0.31
tblVehicleEF	OBUS	0.38	0.14

tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.5650e-003	6.6030e-003
tblVehicleEF	SBUS	0.06	8.0990e-003
tblVehicleEF	SBUS	7.84	3.43
tblVehicleEF	SBUS	0.57	0.55
tblVehicleEF	SBUS	6.44	1.08
tblVehicleEF	SBUS	1,128.57	369.74
tblVehicleEF	SBUS	1,093.03	1,096.55
tblVehicleEF	SBUS	55.12	6.92
tblVehicleEF	SBUS	8.81	3.32
tblVehicleEF	SBUS	3.97	4.42
tblVehicleEF	SBUS	12.20	0.78
tblVehicleEF	SBUS	8.4250e-003	3.3040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	8.0610e-003	3.1610e-003
tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	5.0680e-003	1.5760e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.4310e-003	7.9200e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.36	0.05

tblVehicleEF	SBUS	0.01	3.5360e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6300e-004	6.9000e-005
tblVehicleEF	SBUS	5.0680e-003	1.5760e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.4310e-003	7.9200e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.39	0.05
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.7050e-003	6.6880e-003
tblVehicleEF	SBUS	0.05	6.7520e-003
tblVehicleEF	SBUS	7.74	3.39
tblVehicleEF	SBUS	0.58	0.56
tblVehicleEF	SBUS	4.67	0.77
tblVehicleEF	SBUS	1,179.47	378.98
tblVehicleEF	SBUS	1,093.03	1,096.56
tblVehicleEF	SBUS	55.12	6.42
tblVehicleEF	SBUS	9.10	3.40
tblVehicleEF	SBUS	3.73	4.16
tblVehicleEF	SBUS	12.17	0.77
tblVehicleEF	SBUS	7.1020e-003	2.7930e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	6.7950e-003	2.6720e-003

tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	9.1290e-003	2.7600e-003
tblVehicleEF	SBUS	0.04	0.01
tblVehicleEF	SBUS	0.92	0.41
tblVehicleEF	SBUS	4.4980e-003	1.4670e-003
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.30	0.04
tblVehicleEF	SBUS	0.01	3.6240e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.3300e-004	6.3000e-005
tblVehicleEF	SBUS	9.1290e-003	2.7600e-003
tblVehicleEF	SBUS	0.04	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	4.4980e-003	1.4670e-003
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.33	0.04
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	9.5210e-003	6.6020e-003
tblVehicleEF	SBUS	0.06	8.2440e-003
tblVehicleEF	SBUS	8.00	3.48
tblVehicleEF	SBUS	0.57	0.55
tblVehicleEF	SBUS	6.79	1.10
tblVehicleEF	SBUS	1,058.28	356.98

tblVehicleEF	SBUS	1,093.03	1,096.55
tblVehicleEF	SBUS	55.12	6.96
tblVehicleEF	SBUS	8.43	3.21
tblVehicleEF	SBUS	3.93	4.35
tblVehicleEF	SBUS	12.21	0.78
tblVehicleEF	SBUS	0.01	4.0110e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	5.0000e-004	4.8000e-005
tblVehicleEF	SBUS	9.8080e-003	3.8370e-003
tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	4.6000e-004	4.4000e-005
tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.3310e-003	8.1800e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.37	0.05
tblVehicleEF	SBUS	0.01	3.4160e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6900e-004	6.9000e-005
tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.3310e-003	8.1800e-004

tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.40	0.05
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.52	23.60
tblVehicleEF	UBUS	13.83	1.86
tblVehicleEF	UBUS	1,788.21	1,635.62
tblVehicleEF	UBUS	153.17	22.96
tblVehicleEF	UBUS	3.79	0.30
tblVehicleEF	UBUS	12.24	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.09	0.10
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7820e-003	2.2700e-004

tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.19	0.10
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.07	0.02
tblVehicleEF	UBUS	7.58	23.60
tblVehicleEF	UBUS	11.85	1.58
tblVehicleEF	UBUS	1,788.21	1,635.63
tblVehicleEF	UBUS	153.17	22.49
tblVehicleEF	UBUS	3.53	0.30
tblVehicleEF	UBUS	12.16	0.21
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	0.43	0.05
tblVehicleEF	UBUS	0.02	0.07

tblVehicleEF	UBUS	0.99	0.09
tblVehicleEF	UBUS	9.5110e-003	6.3200e-003
tblVehicleEF	UBUS	1.7480e-003	2.2300e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	1.83	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.09	0.09
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.51	23.60
tblVehicleEF	UBUS	14.02	1.85
tblVehicleEF	UBUS	1,788.21	1,635.62
tblVehicleEF	UBUS	153.17	22.93
tblVehicleEF	UBUS	3.75	0.30
tblVehicleEF	UBUS	12.25	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02

tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.10	0.09
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7850e-003	2.2700e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.20	0.10
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	6.39	4.91
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	5.86	4.09
tblVehicleTrips	WD_TR	6.59	7.33
tblVehicleTrips	WD_TR	6.65	5.44
tblWoodstoves	NumberCatalytic	3.75	0.00
tblWoodstoves	NumberCatalytic	8.10	0.00
tblWoodstoves	NumberNoncatalytic	3.75	0.00
tblWoodstoves	NumberNoncatalytic	8.10	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	5.4281	83.8963	28.0542	0.2037	21.9792	2.6472	24.6264	10.3848	2.4354	12.8202	0.0000	21,210.4884	21,210.4884	2.2895	0.0000	21,267.7267
2022	77.0190	34.9816	26.7702	0.0816	3.0555	1.2977	4.3533	0.8181	1.2111	2.0291	0.0000	8,039.2415	8,039.2415	1.2688	0.0000	8,070.9613
2023	76.9882	1.8447	3.9569	8.8100e-003	0.5477	0.0975	0.6452	0.1453	0.0973	0.2425	0.0000	858.8261	858.8261	0.0325	0.0000	859.6381
Maximum	**77.0190**	**83.8963**	**28.0542**	**0.2037**	**21.9792**	**2.6472**	**24.6264**	**10.3848**	**2.4354**	**12.8202**	**0.0000**	**21,210.4884**	**21,210.4884**	**2.2895**	**0.0000**	**21,267.7267**

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	5.4281	83.8963	28.0542	0.2037	21.9792	2.6472	24.6264	10.3848	2.4354	12.8202	0.0000	21,210.4884	21,210.4884	2.2895	0.0000	21,267.7267
2022	77.0190	34.9816	26.7702	0.0816	3.0555	1.2977	4.3533	0.8181	1.2111	2.0291	0.0000	8,039.2415	8,039.2415	1.2688	0.0000	8,070.9613
2023	76.9882	1.8447	3.9569	8.8100e-003	0.5477	0.0975	0.6452	0.1453	0.0973	0.2425	0.0000	858.8261	858.8261	0.0325	0.0000	859.6381
Maximum	**77.0190**	**83.8963**	**28.0542**	**0.2037**	**21.9792**	**2.6472**	**24.6264**	**10.3848**	**2.4354**	**12.8202**	**0.0000**	**21,210.4884**	**21,210.4884**	**2.2895**	**0.0000**	**21,267.7267**

	ROG	NOx	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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Energy	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137
Mobile	3.3387	8.5068	30.8316	0.1069	9.5347	0.0994	9.6341	2.5486	0.0937	2.6423		11,306.2319	11,306.2319	0.4058		11,316.3774
Total	**9.6699**	**13.5641**	**52.4884**	**0.1387**	**9.5347**	**0.5984**	**10.1331**	**2.5486**	**0.5927**	**3.1414**	**0.0000**	**17,509.3417**	**17,509.3417**	**0.5581**	**0.1131**	**17,556.9920**

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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Energy	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137
Mobile	3.3387	8.5068	30.8316	0.1069	9.5347	0.0994	9.6341	2.5486	0.0937	2.6423		11,306.2319	11,306.2319	0.4058		11,316.3774
Total	**9.6699**	**13.5641**	**52.4884**	**0.1387**	**9.5347**	**0.5984**	**10.1331**	**2.5486**	**0.5927**	**3.1414**	**0.0000**	**17,509.3417**	**17,509.3417**	**0.5581**	**0.1131**	**17,556.9920**

	ROG	NOx	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	Crushing	Demolition	10/16/2021	11/12/2021	5	20	
2	Site Preparation	Site Preparation	11/13/2021	11/26/2021	5	10	
3	Grading	Grading	11/27/2021	12/24/2021	5	20	
4	Building Construction	Building Construction	12/25/2021	11/11/2022	5	230	
5	Paving	Paving	11/12/2022	12/9/2022	5	20	
6	Architectural Coating	Architectural Coating	12/10/2022	1/6/2023	5	20	

Acres of Grading (Site Preparation Phase): 35

Acres of Grading (Grading Phase): 50

Acres of Paving: 0.82

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,272 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Crushing	Concrete/Industrial Saws	0	8.00	81	0.73
Crushing	Excavators	0	8.00	158	0.38
Crushing	Generator Sets	1	8.00	1050	0.74
Crushing	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	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
Crushing	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	3,750.00	14.70	6.90	23.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	243.00	53.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	49.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Crushing - 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	3.0149	46.2097	14.5262	0.0685		0.9593	0.9593		0.9593	0.9593		7,787.945 8	7,787.945 8	0.2604		7,794.455 2
Total	**3.0149**	**46.2097**	**14.5262**	**0.0685**		**0.9593**	**0.9593**		**0.9593**	**0.9593**		**7,787.945 8**	**7,787.945 8**	**0.2604**		**7,794.455 2**

3.2 Crushing - 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	0.0142	8.1000e-003	0.1109	3.2000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.8000e-004	9.0800e-003		31.9425	31.9425	7.6000e-004		31.9616
Total	**0.0142**	**8.1000e-003**	**0.1109**	**3.2000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0800e-003**		**31.9425**	**31.9425**	**7.6000e-004**		**31.9616**

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	3.0149	46.2097	14.5262	0.0685		0.9593	0.9593		0.9593	0.9593	0.0000	7,787.945 8	7,787.945 8	0.2604		7,794.455 2
Total	**3.0149**	**46.2097**	**14.5262**	**0.0685**		**0.9593**	**0.9593**		**0.9593**	**0.9593**	**0.0000**	**7,787.945 8**	**7,787.945 8**	**0.2604**		**7,794.455 2**

3.2 Crushing - 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	0.0142	8.1000e-003	0.1109	3.2000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.8000e-004	9.0800e-003		31.9425	31.9425	7.6000e-004		31.9616
Total	**0.0142**	**8.1000e-003**	**0.1109**	**3.2000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0800e-003**		**31.9425**	**31.9425**	**7.6000e-004**		**31.9616**

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					21.7780	0.0000	21.7780	10.3315	0.0000	10.3315			0.0000			0.0000
Off-Road	5.3428	60.7861	21.8537	0.0570		2.6460	2.6460		2.4343	2.4343		5,523.504 7	5,523.504 7	1.7864		5,568.165 1
Total	**5.3428**	**60.7861**	**21.8537**	**0.0570**	**21.7780**	**2.6460**	**24.4240**	**10.3315**	**2.4343**	**12.7658**		**5,523.504 7**	**5,523.504 7**	**1.7864**		**5,568.165 1**

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	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694
Total	**0.0853**	**0.0486**	**0.6655**	**1.9200e-003**	**0.2012**	**1.1900e-003**	**0.2024**	**0.0534**	**1.0900e-003**	**0.0545**		**191.6552**	**191.6552**	**4.5700e-003**		**191.7694**

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					21.7780	0.0000	21.7780	10.3315	0.0000	10.3315			0.0000			0.0000
Off-Road	5.3428	60.7861	21.8537	0.0570		2.6460	2.6460		2.4343	2.4343	0.0000	5,523.5047	5,523.5047	1.7864		5,568.1651
Total	**5.3428**	**60.7861**	**21.8537**	**0.0570**	**21.7780**	**2.6460**	**24.4240**	**10.3315**	**2.4343**	**12.7658**	**0.0000**	**5,523.5047**	**5,523.5047**	**1.7864**		**5,568.1651**

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	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694
Total	**0.0853**	**0.0486**	**0.6655**	**1.9200e-003**	**0.2012**	**1.1900e-003**	**0.2024**	**0.0534**	**1.0900e-003**	**0.0545**		**191.6552**	**191.6552**	**4.5700e-003**		**191.7694**

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					8.8633	0.0000	8.8633	3.6253	0.0000	3.6253			0.0000			0.0000
Off-Road	3.3813	39.9534	16.3820	0.0439		1.6111	1.6111		1.4822	1.4822		4,250.3144	4,250.3144	1.3746		4,284.6803
Total	**3.3813**	**39.9534**	**16.3820**	**0.0439**	**8.8633**	**1.6111**	**10.4744**	**3.6253**	**1.4822**	**5.1074**		**4,250.3144**	**4,250.3144**	**1.3746**		**4,284.6803**

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	0.9967	43.9024	5.9258	0.1583	3.7712	0.1418	3.9130	1.0337	0.1357	1.1694		16,800.4614	16,800.4614	0.9111		16,823.2385
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	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**1.0678**	**43.9429**	**6.4804**	**0.1599**	**3.9388**	**0.1428**	**4.0817**	**1.0782**	**0.1366**	**1.2148**		**16,960.1740**	**16,960.1740**	**0.9149**		**16,983.0464**

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					8.8633	0.0000	8.8633	3.6253	0.0000	3.6253			0.0000			0.0000
Off-Road	3.3813	39.9534	16.3820	0.0439		1.6111	1.6111		1.4822	1.4822	0.0000	4,250.3144	4,250.3144	1.3746		4,284.6803
Total	**3.3813**	**39.9534**	**16.3820**	**0.0439**	**8.8633**	**1.6111**	**10.4744**	**3.6253**	**1.4822**	**5.1074**	**0.0000**	**4,250.3144**	**4,250.3144**	**1.3746**		**4,284.6803**

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	0.9967	43.9024	5.9258	0.1583	3.7712	0.1418	3.9130	1.0337	0.1357	1.1694		16,800.4614	16,800.4614	0.9111		16,823.2385
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	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**1.0678**	**43.9429**	**6.4804**	**0.1599**	**3.9388**	**0.1428**	**4.0817**	**1.0782**	**0.1366**	**1.2148**		**16,960.1740**	**16,960.1740**	**0.9149**		**16,983.0464**

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	3.1137	33.9659	18.1952	0.0430		1.4763	1.4763		1.3775	1.3775		4,114.4297	4,114.4297	1.1209		4,142.4520
Total	**3.1137**	**33.9659**	**18.1952**	**0.0430**		**1.4763**	**1.4763**		**1.3775**	**1.3775**		**4,114.4297**	**4,114.4297**	**1.1209**		**4,142.4520**

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	0.1237	4.9046	0.8751	0.0137	0.3394	9.3300e-003	0.3487	0.0977	8.9200e-003	0.1066		1,448.2304	1,448.2304	0.1036		1,450.8206
Worker	1.1521	0.6563	8.9840	0.0260	2.7162	0.0160	2.7322	0.7203	0.0147	0.7351		2,587.3447	2,587.3447	0.0617		2,588.8870
Total	**1.2758**	**5.5609**	**9.8591**	**0.0397**	**3.0556**	**0.0253**	**3.0809**	**0.8181**	**0.0237**	**0.8417**		**4,035.5751**	**4,035.5751**	**0.1653**		**4,039.7076**

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	3.1137	33.9659	18.1952	0.0430		1.4763	1.4763		1.3775	1.3775	0.0000	4,114.4297	4,114.4297	1.1209		4,142.4520
Total	**3.1137**	**33.9659**	**18.1952**	**0.0430**		**1.4763**	**1.4763**		**1.3775**	**1.3775**	**0.0000**	**4,114.4297**	**4,114.4297**	**1.1209**		**4,142.4520**

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	0.1237	4.9046	0.8751	0.0137	0.3394	9.3300e-003	0.3487	0.0977	8.9200e-003	0.1066		1,448.2304	1,448.2304	0.1036		1,450.8206
Worker	1.1521	0.6563	8.9840	0.0260	2.7162	0.0160	2.7322	0.7203	0.0147	0.7351		2,587.3447	2,587.3447	0.0617		2,588.8870
Total	**1.2758**	**5.5609**	**9.8591**	**0.0397**	**3.0556**	**0.0253**	**3.0809**	**0.8181**	**0.0237**	**0.8417**		**4,035.5751**	**4,035.5751**	**0.1653**		**4,039.7076**

3.5 Building Construction - 2022

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	2.7963	29.7637	17.6698	0.0430		1.2743	1.2743		1.1892	1.1892		4,110.5322	4,110.5322	1.1153		4,138.4135
Total	**2.7963**	**29.7637**	**17.6698**	**0.0430**		**1.2743**	**1.2743**		**1.1892**	**1.1892**		**4,110.5322**	**4,110.5322**	**1.1153**		**4,138.4135**

3.5 Building Construction - 2022

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	0.1154	4.6273	0.8139	0.0136	0.3394	7.8400e-003	0.3472	0.0977	7.5000e-003	0.1052		1,435.9035	1,435.9035	0.0981		1,438.3565
Worker	1.0776	0.5906	8.2866	0.0250	2.7162	0.0156	2.7318	0.7203	0.0144	0.7347		2,492.8059	2,492.8059	0.0554		2,494.1913
Total	**1.1930**	**5.2180**	**9.1005**	**0.0386**	**3.0555**	**0.0234**	**3.0790**	**0.8181**	**0.0219**	**0.8399**		**3,928.7093**	**3,928.7093**	**0.1535**		**3,932.5478**

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	2.7963	29.7637	17.6698	0.0430		1.2743	1.2743		1.1892	1.1892	0.0000	4,110.5322	4,110.5322	1.1153		4,138.4135
Total	**2.7963**	**29.7637**	**17.6698**	**0.0430**		**1.2743**	**1.2743**		**1.1892**	**1.1892**	**0.0000**	**4,110.5322**	**4,110.5322**	**1.1153**		**4,138.4135**

3.5 Building Construction - 2022

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	0.1154	4.6273	0.8139	0.0136	0.3394	7.8400e-003	0.3472	0.0977	7.5000e-003	0.1052		1,435.9035	1,435.9035	0.0981		1,438.3565
Worker	1.0776	0.5906	8.2866	0.0250	2.7162	0.0156	2.7318	0.7203	0.0144	0.7347		2,492.8059	2,492.8059	0.0554		2,494.1913
Total	**1.1930**	**5.2180**	**9.1005**	**0.0386**	**3.0555**	**0.0234**	**3.0790**	**0.8181**	**0.0219**	**0.8399**		**3,928.7093**	**3,928.7093**	**0.1535**		**3,932.5478**

3.6 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1074					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2102**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.1074					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2102**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.660 3**	**2,207.660 3**	**0.7140**		**2,225.510 4**

3.6 Paving - 2022

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	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

3.7 Architectural Coating - 2022

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**76.8017**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.7 Architectural Coating - 2022

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	0.2173	0.1191	1.6710	5.0400e-003	0.5477	3.1400e-003	0.5509	0.1453	2.8900e-003	0.1482		502.6646	502.6646	0.0112		502.9439
Total	**0.2173**	**0.1191**	**1.6710**	**5.0400e-003**	**0.5477**	**3.1400e-003**	**0.5509**	**0.1453**	**2.8900e-003**	**0.1482**		**502.6646**	**502.6646**	**0.0112**		**502.9439**

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**76.8017**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.7 Architectural Coating - 2022

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	0.2173	0.1191	1.6710	5.0400e-003	0.5477	3.1400e-003	0.5509	0.1453	2.8900e-003	0.1482		502.6646	502.6646	0.0112		502.9439
Total	**0.2173**	**0.1191**	**1.6710**	**5.0400e-003**	**0.5477**	**3.1400e-003**	**0.5509**	**0.1453**	**2.8900e-003**	**0.1482**		**502.6646**	**502.6646**	**0.0112**		**502.9439**

3.7 Architectural Coating - 2023

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**76.7845**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

3.7 Architectural Coating - 2023

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	0.2037	0.1074	1.5421	4.8500e-003	0.5477	3.0700e-003	0.5508	0.1453	2.8200e-003	0.1481		483.5620	483.5620	0.0100		483.8127
Total	**0.2037**	**0.1074**	**1.5421**	**4.8500e-003**	**0.5477**	**3.0700e-003**	**0.5508**	**0.1453**	**2.8200e-003**	**0.1481**		**483.5620**	**483.5620**	**0.0100**		**483.8127**

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**76.7845**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

3.7 Architectural Coating - 2023

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	0.2037	0.1074	1.5421	4.8500e-003	0.5477	3.0700e-003	0.5508	0.1453	2.8200e-003	0.1481		483.5620	483.5620	0.0100		483.8127
Total	**0.2037**	**0.1074**	**1.5421**	**4.8500e-003**	**0.5477**	**3.0700e-003**	**0.5508**	**0.1453**	**2.8200e-003**	**0.1481**		**483.5620**	**483.5620**	**0.0100**		**483.8127**

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	3.3387	8.5068	30.8316	0.1069	9.5347	0.0994	9.6341	2.5486	0.0937	2.6423		11,306.2319	11,306.2319	0.4058		11,316.3774
Unmitigated	3.3387	8.5068	30.8316	0.1069	9.5347	0.0994	9.6341	2.5486	0.0937	2.6423		11,306.2319	11,306.2319	0.4058		11,316.3774

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	549.75	610.50	471.00	1,642,400	1,642,400
Apartments Mid Rise	881.28	795.42	662.58	2,514,638	2,514,638
Parking Lot	0.00	0.00	0.00		
Total	1,431.03	1,405.92	1,133.58	4,157,039	4,157,039

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
Apartments Low Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Apartments Mid Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

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	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.985 8	1,148.985 8	0.0220	0.0211	1,155.813 7
NaturalGas Unmitigated	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.985 8	1,148.985 8	0.0220	0.0211	1,155.813 7

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					
Apartments Low Rise	3200.24	0.0345	0.2949	0.1255	1.8800e-003		0.0238	0.0238		0.0238	0.0238		376.4988	376.4988	7.2200e-003	6.9000e-003	378.7361
Apartments Mid Rise	6566.14	0.0708	0.6051	0.2575	3.8600e-003		0.0489	0.0489		0.0489	0.0489		772.4870	772.4870	0.0148	0.0142	777.0775
Parking Lot	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
Total		**0.1053**	**0.9000**	**0.3830**	**5.7400e-003**		**0.0728**	**0.0728**		**0.0728**	**0.0728**		**1,148.9858**	**1,148.9858**	**0.0220**	**0.0211**	**1,155.8137**

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					
Apartments Low Rise	3.20024	0.0345	0.2949	0.1255	1.8800e-003		0.0238	0.0238		0.0238	0.0238		376.4988	376.4988	7.2200e-003	6.9000e-003	378.7361
Apartments Mid Rise	6.56614	0.0708	0.6051	0.2575	3.8600e-003		0.0489	0.0489		0.0489	0.0489		772.4870	772.4870	0.0148	0.0142	777.0775
Parking Lot	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
Total		**0.1053**	**0.9000**	**0.3830**	**5.7400e-003**		**0.0728**	**0.0728**		**0.0728**	**0.0728**		**1,148.9858**	**1,148.9858**	**0.0220**	**0.0211**	**1,155.8137**

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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Unmitigated	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010

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	0.4193					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4601	3.9314	1.6729	0.0251		0.3179	0.3179		0.3179	0.3179	0.0000	5,018.8235	5,018.8235	0.0962	0.0920	5,048.6479
Landscaping	0.5932	0.2258	19.6009	1.0400e-003		0.1084	0.1084		0.1084	0.1084		35.3006	35.3006	0.0341		36.1531
Total	**6.2259**	**4.1573**	**21.2738**	**0.0261**		**0.4263**	**0.4263**		**0.4263**	**0.4263**	**0.0000**	**5,054.1241**	**5,054.1241**	**0.1303**	**0.0920**	**5,084.8010**

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	0.4193					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4601	3.9314	1.6729	0.0251		0.3179	0.3179		0.3179	0.3179	0.0000	5,018.8235	5,018.8235	0.0962	0.0920	5,048.6479
Landscaping	0.5932	0.2258	19.6009	1.0400e-003		0.1084	0.1084		0.1084	0.1084		35.3006	35.3006	0.0341		36.1531
Total	**6.2259**	**4.1573**	**21.2738**	**0.0261**		**0.4263**	**0.4263**		**0.4263**	**0.4263**	**0.0000**	**5,054.1241**	**5,054.1241**	**0.1303**	**0.0920**	**5,084.8010**

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

12585 Crestview Apartments

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	428.00	Space	0.82	171,200.00	0
Apartments Low Rise	75.00	Dwelling Unit	4.69	75,000.00	239
Apartments Mid Rise	162.00	Dwelling Unit	4.26	162,000.00	515

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2023

Utility Company Riverside Public Utilities

CO2 Intensity (lb/MWhr) 1325.65 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Consistent with DEIR's model.

Construction Phase - See SWAPE comment about phase lengths.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Vehicle Trips - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Vehicle Emission Factors - Consistent with DEIR's model.

Woodstoves - Consistent with DEIR's model.

Energy Use - See SWAPE comment about energy use values.

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/19/2022	1/6/2023
tblConstructionPhase	PhaseEndDate	5/24/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	5/25/2021	11/12/2021
tblConstructionPhase	PhaseEndDate	7/6/2021	12/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2022	12/9/2022
tblConstructionPhase	PhaseEndDate	6/8/2021	11/26/2021

tblConstructionPhase	PhaseStartDate	6/22/2022	12/10/2022
tblConstructionPhase	PhaseStartDate	7/7/2021	12/25/2021
tblConstructionPhase	PhaseStartDate	4/28/2021	10/16/2021
tblConstructionPhase	PhaseStartDate	6/9/2021	11/27/2021
tblConstructionPhase	PhaseStartDate	5/25/2022	11/12/2022
tblConstructionPhase	PhaseStartDate	5/26/2021	11/13/2021
tblFireplaces	NumberGas	63.75	75.00
tblFireplaces	NumberGas	137.70	162.00
tblFireplaces	NumberNoFireplace	7.50	0.00
tblFireplaces	NumberNoFireplace	16.20	0.00
tblFireplaces	NumberWood	3.75	0.00
tblFireplaces	NumberWood	8.10	0.00
tblGrading	AcresOfGrading	40.00	50.00
tblGrading	AcresOfGrading	20.00	35.00
tblGrading	MaterialExported	0.00	10,000.00
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LotAcreage	3.85	0.82
tblLandUse	Population	215.00	239.00
tblLandUse	Population	463.00	515.00
tblOffRoadEquipment	HorsePower	84.00	1,050.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	23.00
tblVehicleEF	HHD	0.96	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.08	0.00
tblVehicleEF	HHD	2.07	6.43
tblVehicleEF	HHD	0.41	0.24
tblVehicleEF	HHD	1.44	4.3850e-003
tblVehicleEF	HHD	6,147.84	1,065.92
tblVehicleEF	HHD	1,399.88	1,272.83
tblVehicleEF	HHD	4.72	0.04
tblVehicleEF	HHD	17.43	5.31
tblVehicleEF	HHD	0.97	1.96
tblVehicleEF	HHD	20.29	2.50
tblVehicleEF	HHD	5.1890e-003	2.3650e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.1440e-003	0.02
tblVehicleEF	HHD	3.9000e-005	0.00
tblVehicleEF	HHD	4.9650e-003	2.2630e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8620e-003	8.8060e-003
tblVehicleEF	HHD	4.9210e-003	0.02
tblVehicleEF	HHD	3.6000e-005	0.00
tblVehicleEF	HHD	7.3000e-005	3.0000e-006
tblVehicleEF	HHD	2.3430e-003	9.7000e-005

tblVehicleEF	HHD	0.55	0.44
tblVehicleEF	HHD	4.3000e-005	2.0000e-006
tblVehicleEF	HHD	0.04	0.02
tblVehicleEF	HHD	1.5400e-004	4.4400e-004
tblVehicleEF	HHD	0.04	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	7.3000e-005	3.0000e-006
tblVehicleEF	HHD	2.3430e-003	9.7000e-005
tblVehicleEF	HHD	0.63	0.50
tblVehicleEF	HHD	4.3000e-005	2.0000e-006
tblVehicleEF	HHD	0.08	0.05
tblVehicleEF	HHD	1.5400e-004	4.4400e-004
tblVehicleEF	HHD	0.04	1.0000e-006
tblVehicleEF	HHD	0.91	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.08	0.00
tblVehicleEF	HHD	1.50	6.35
tblVehicleEF	HHD	0.41	0.24
tblVehicleEF	HHD	1.38	4.1390e-003
tblVehicleEF	HHD	6,513.09	1,052.83
tblVehicleEF	HHD	1,399.88	1,272.83
tblVehicleEF	HHD	4.72	0.04
tblVehicleEF	HHD	17.99	5.06
tblVehicleEF	HHD	0.91	1.85
tblVehicleEF	HHD	20.28	2.50

tblVehicleEF	HHD	4.3760e-003	2.0780e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.1440e-003	0.02
tblVehicleEF	HHD	3.9000e-005	0.00
tblVehicleEF	HHD	4.1860e-003	1.9880e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8620e-003	8.8060e-003
tblVehicleEF	HHD	4.9210e-003	0.02
tblVehicleEF	HHD	3.6000e-005	0.00
tblVehicleEF	HHD	1.4000e-004	5.0000e-006
tblVehicleEF	HHD	2.6540e-003	1.0600e-004
tblVehicleEF	HHD	0.51	0.46
tblVehicleEF	HHD	8.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.04	0.02
tblVehicleEF	HHD	1.5700e-004	4.4900e-004
tblVehicleEF	HHD	0.04	1.0000e-006
tblVehicleEF	HHD	0.06	9.8850e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.0000e-005	0.00
tblVehicleEF	HHD	1.4000e-004	5.0000e-006
tblVehicleEF	HHD	2.6540e-003	1.0600e-004
tblVehicleEF	HHD	0.59	0.53
tblVehicleEF	HHD	8.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.08	0.05
tblVehicleEF	HHD	1.5700e-004	4.4900e-004
tblVehicleEF	HHD	0.04	1.0000e-006

tblVehicleEF	HHD	1.04	0.02
tblVehicleEF	HHD	0.03	8.2000e-004
tblVehicleEF	HHD	0.08	0.00
tblVehicleEF	HHD	2.85	6.51
tblVehicleEF	HHD	0.41	0.15
tblVehicleEF	HHD	1.46	4.3390e-003
tblVehicleEF	HHD	5,643.45	1,077.40
tblVehicleEF	HHD	1,399.88	1,253.68
tblVehicleEF	HHD	4.72	0.04
tblVehicleEF	HHD	16.66	5.62
tblVehicleEF	HHD	0.96	1.92
tblVehicleEF	HHD	20.29	2.50
tblVehicleEF	HHD	6.3140e-003	2.7000e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.1440e-003	0.02
tblVehicleEF	HHD	3.9000e-005	0.00
tblVehicleEF	HHD	6.0400e-003	2.5830e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8620e-003	8.7520e-003
tblVehicleEF	HHD	4.9210e-003	0.02
tblVehicleEF	HHD	3.6000e-005	0.00
tblVehicleEF	HHD	5.5000e-005	3.0000e-006
tblVehicleEF	HHD	2.4340e-003	1.0800e-004
tblVehicleEF	HHD	0.59	0.40
tblVehicleEF	HHD	3.6000e-005	2.0000e-006
tblVehicleEF	HHD	0.04	0.02

tblVehicleEF	HHD	1.6500e-004	4.7200e-004
tblVehicleEF	HHD	0.04	1.0000e-006
tblVehicleEF	HHD	0.05	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	5.5000e-005	3.0000e-006
tblVehicleEF	HHD	2.4340e-003	1.0800e-004
tblVehicleEF	HHD	0.68	0.46
tblVehicleEF	HHD	3.6000e-005	2.0000e-006
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	1.6500e-004	4.7200e-004
tblVehicleEF	HHD	0.04	1.0000e-006
tblVehicleEF	LDA	3.3240e-003	1.8870e-003
tblVehicleEF	LDA	4.1920e-003	0.04
tblVehicleEF	LDA	0.51	0.56
tblVehicleEF	LDA	0.96	2.04
tblVehicleEF	LDA	235.32	258.31
tblVehicleEF	LDA	54.50	53.65
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.17
tblVehicleEF	LDA	1.5540e-003	1.3120e-003
tblVehicleEF	LDA	2.2370e-003	1.7690e-003
tblVehicleEF	LDA	1.4310e-003	1.2090e-003
tblVehicleEF	LDA	2.0570e-003	1.6270e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.04

tblVehicleEF	LDA	8.3520e-003	6.9510e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.06	0.19
tblVehicleEF	LDA	2.3560e-003	2.4590e-003
tblVehicleEF	LDA	5.6100e-004	5.1100e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.06	0.21
tblVehicleEF	LDA	3.7650e-003	2.1290e-003
tblVehicleEF	LDA	3.6350e-003	0.04
tblVehicleEF	LDA	0.62	0.68
tblVehicleEF	LDA	0.85	1.71
tblVehicleEF	LDA	256.22	279.26
tblVehicleEF	LDA	54.50	53.02
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.15
tblVehicleEF	LDA	1.5540e-003	1.3120e-003
tblVehicleEF	LDA	2.2370e-003	1.7690e-003
tblVehicleEF	LDA	1.4310e-003	1.2090e-003
tblVehicleEF	LDA	2.0570e-003	1.6270e-003
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	9.4470e-003	7.7550e-003

tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.05	0.16
tblVehicleEF	LDA	2.5670e-003	2.6590e-003
tblVehicleEF	LDA	5.5900e-004	5.0500e-004
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.05	0.18
tblVehicleEF	LDA	3.2080e-003	1.8550e-003
tblVehicleEF	LDA	4.3060e-003	0.04
tblVehicleEF	LDA	0.48	0.54
tblVehicleEF	LDA	0.98	2.02
tblVehicleEF	LDA	229.53	254.78
tblVehicleEF	LDA	54.50	53.62
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.16
tblVehicleEF	LDA	1.5540e-003	1.3120e-003
tblVehicleEF	LDA	2.2370e-003	1.7690e-003
tblVehicleEF	LDA	1.4310e-003	1.2090e-003
tblVehicleEF	LDA	2.0570e-003	1.6270e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	8.0650e-003	6.8280e-003
tblVehicleEF	LDA	0.04	0.22

tblVehicleEF	LDA	0.06	0.19
tblVehicleEF	LDA	2.2980e-003	2.4260e-003
tblVehicleEF	LDA	5.6100e-004	5.1100e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	9.9440e-003
tblVehicleEF	LDA	0.04	0.22
tblVehicleEF	LDA	0.06	0.21
tblVehicleEF	LDT1	9.2940e-003	5.7490e-003
tblVehicleEF	LDT1	0.01	0.07
tblVehicleEF	LDT1	1.18	1.23
tblVehicleEF	LDT1	2.73	2.29
tblVehicleEF	LDT1	295.40	306.77
tblVehicleEF	LDT1	68.37	65.39
tblVehicleEF	LDT1	0.11	0.10
tblVehicleEF	LDT1	0.17	0.26
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.18	0.16
tblVehicleEF	LDT1	0.30	0.22
tblVehicleEF	LDT1	0.12	0.11
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.18	0.73
tblVehicleEF	LDT1	0.19	0.37

tblVehicleEF	LDT1	2.9680e-003	2.9210e-003
tblVehicleEF	LDT1	7.3100e-004	6.2300e-004
tblVehicleEF	LDT1	0.18	0.16
tblVehicleEF	LDT1	0.30	0.23
tblVehicleEF	LDT1	0.12	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.18	0.74
tblVehicleEF	LDT1	0.21	0.40
tblVehicleEF	LDT1	0.01	6.4140e-003
tblVehicleEF	LDT1	0.01	0.06
tblVehicleEF	LDT1	1.43	1.45
tblVehicleEF	LDT1	2.40	1.92
tblVehicleEF	LDT1	320.93	328.53
tblVehicleEF	LDT1	68.37	64.60
tblVehicleEF	LDT1	0.11	0.09
tblVehicleEF	LDT1	0.16	0.24
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.16	0.31
tblVehicleEF	LDT1	3.2270e-003	3.1280e-003

tblVehicleEF	LDT1	7.2500e-004	6.1500e-004
tblVehicleEF	LDT1	0.36	0.30
tblVehicleEF	LDT1	0.37	0.26
tblVehicleEF	LDT1	0.24	0.22
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.18	0.72
tblVehicleEF	LDT1	0.18	0.34
tblVehicleEF	LDT1	8.9360e-003	5.6560e-003
tblVehicleEF	LDT1	0.01	0.07
tblVehicleEF	LDT1	1.11	1.19
tblVehicleEF	LDT1	2.78	2.28
tblVehicleEF	LDT1	287.77	303.10
tblVehicleEF	LDT1	68.37	65.36
tblVehicleEF	LDT1	0.11	0.10
tblVehicleEF	LDT1	0.17	0.26
tblVehicleEF	LDT1	2.2770e-003	1.9040e-003
tblVehicleEF	LDT1	3.3510e-003	2.5710e-003
tblVehicleEF	LDT1	2.0960e-003	1.7520e-003
tblVehicleEF	LDT1	3.0820e-003	2.3640e-003
tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.19	0.36
tblVehicleEF	LDT1	2.8910e-003	2.8860e-003
tblVehicleEF	LDT1	7.3200e-004	6.2200e-004

tblVehicleEF	LDT1	0.16	0.16
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.21	0.86
tblVehicleEF	LDT1	0.21	0.40
tblVehicleEF	LDT2	4.7540e-003	3.1840e-003
tblVehicleEF	LDT2	5.7630e-003	0.06
tblVehicleEF	LDT2	0.68	0.79
tblVehicleEF	LDT2	1.27	2.60
tblVehicleEF	LDT2	330.23	322.49
tblVehicleEF	LDT2	76.02	69.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.26
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.3070e-003	3.0700e-003
tblVehicleEF	LDT2	7.8100e-004	6.5700e-004
tblVehicleEF	LDT2	0.06	0.08

tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	5.3890e-003	3.5750e-003
tblVehicleEF	LDT2	5.0030e-003	0.05
tblVehicleEF	LDT2	0.83	0.95
tblVehicleEF	LDT2	1.13	2.17
tblVehicleEF	LDT2	359.32	343.18
tblVehicleEF	LDT2	76.02	68.20
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.24
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.24
tblVehicleEF	LDT2	3.6000e-003	3.2670e-003
tblVehicleEF	LDT2	7.7900e-004	6.4900e-004
tblVehicleEF	LDT2	0.12	0.15
tblVehicleEF	LDT2	0.12	0.14

tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.27
tblVehicleEF	LDT2	4.5710e-003	3.1320e-003
tblVehicleEF	LDT2	5.9350e-003	0.06
tblVehicleEF	LDT2	0.63	0.77
tblVehicleEF	LDT2	1.30	2.58
tblVehicleEF	LDT2	321.50	318.99
tblVehicleEF	LDT2	76.02	69.01
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.10	0.25
tblVehicleEF	LDT2	1.6020e-003	1.3550e-003
tblVehicleEF	LDT2	2.3660e-003	1.8060e-003
tblVehicleEF	LDT2	1.4730e-003	1.2480e-003
tblVehicleEF	LDT2	2.1760e-003	1.6600e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.2190e-003	3.0370e-003
tblVehicleEF	LDT2	7.8200e-004	6.5700e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.04	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.46
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LHD1	4.9950e-003	4.5410e-003
tblVehicleEF	LHD1	8.5970e-003	4.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.89
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.99
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.91	1.39
tblVehicleEF	LHD1	0.93	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003

tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.6750e-003	2.3920e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8430e-003	1.2620e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.31	0.44
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5540e-003
tblVehicleEF	LHD1	8.7610e-003	4.4900e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.82	0.61
tblVehicleEF	LHD1	2.04	0.84
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.98
tblVehicleEF	LHD1	29.33	9.91
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.80	1.31
tblVehicleEF	LHD1	0.90	0.27
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.22	0.06
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0270e-003
tblVehicleEF	LHD1	3.3200e-004	9.8000e-005
tblVehicleEF	LHD1	6.8550e-003	4.2440e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.4810e-003	2.4050e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.44
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	4.9950e-003	4.5430e-003
tblVehicleEF	LHD1	8.5850e-003	4.4280e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17

tblVehicleEF	LHD1	0.81	0.60
tblVehicleEF	LHD1	2.14	0.88
tblVehicleEF	LHD1	9.25	9.36
tblVehicleEF	LHD1	596.36	619.96
tblVehicleEF	LHD1	29.33	9.98
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.89	1.37
tblVehicleEF	LHD1	0.92	0.28
tblVehicleEF	LHD1	9.6600e-004	1.0130e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.9000e-004	2.1100e-004
tblVehicleEF	LHD1	9.2400e-004	9.6900e-004
tblVehicleEF	LHD1	2.5590e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	9.8330e-003
tblVehicleEF	LHD1	7.2700e-004	1.9400e-004
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.8420e-003	6.0260e-003
tblVehicleEF	LHD1	3.3400e-004	9.9000e-005
tblVehicleEF	LHD1	3.2380e-003	2.4970e-003

12585 Crestview Apartments - Riverside-South Coast County, Winter

tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.6810e-003	1.3210e-003
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.33	0.47
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD2	3.3070e-003	2.7700e-003
tblVehicleEF	LHD2	3.5370e-003	3.2640e-003
tblVehicleEF	LHD2	6.6670e-003	7.1780e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.48
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.29	1.52
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003

tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.4000e-005
tblVehicleEF	LHD2	1.3090e-003	1.1190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0300e-004	6.1300e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.19
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7770e-003
tblVehicleEF	LHD2	3.5730e-003	3.2860e-003
tblVehicleEF	LHD2	6.4430e-003	6.9030e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.45
tblVehicleEF	LHD2	0.98	0.45
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.93
tblVehicleEF	LHD2	22.93	6.38
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.22	1.43

tblVehicleEF	LHD2	0.45	0.15
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004
tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4700e-004	6.3000e-005
tblVehicleEF	LHD2	2.4680e-003	1.9920e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3130e-003	1.1680e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.07	0.20
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	3.3070e-003	2.7710e-003

tblVehicleEF	LHD2	3.5300e-003	3.2670e-003
tblVehicleEF	LHD2	6.7050e-003	7.1290e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.40	0.44
tblVehicleEF	LHD2	1.03	0.47
tblVehicleEF	LHD2	14.34	14.92
tblVehicleEF	LHD2	592.89	614.92
tblVehicleEF	LHD2	22.93	6.42
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.28	1.49
tblVehicleEF	LHD2	0.46	0.16
tblVehicleEF	LHD2	1.2850e-003	1.5130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5700e-004	9.8000e-005
tblVehicleEF	LHD2	1.2290e-003	1.4470e-003
tblVehicleEF	LHD2	2.7020e-003	2.7370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2800e-004	9.1000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.09	0.03
tblVehicleEF	LHD2	1.4000e-004	1.4200e-004

tblVehicleEF	LHD2	5.7620e-003	5.9160e-003
tblVehicleEF	LHD2	2.4800e-004	6.3000e-005
tblVehicleEF	LHD2	1.0230e-003	1.1350e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.9800e-004	6.3500e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	MCY	0.43	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.81	18.85
tblVehicleEF	MCY	9.70	8.64
tblVehicleEF	MCY	166.71	207.60
tblVehicleEF	MCY	45.36	60.36
tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.11	2.11
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.05	1.83

tblVehicleEF	MCY	2.0360e-003	2.0540e-003
tblVehicleEF	MCY	6.7200e-004	5.9700e-004
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.83	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.61	2.61
tblVehicleEF	MCY	0.55	1.77
tblVehicleEF	MCY	2.23	2.00
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.13	0.21
tblVehicleEF	MCY	19.51	18.83
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.71	207.41
tblVehicleEF	MCY	45.36	58.44
tblVehicleEF	MCY	0.97	0.97
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.09	2.07
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	1.84	1.61
tblVehicleEF	MCY	2.0460e-003	2.0530e-003

tblVehicleEF	MCY	6.5600e-004	5.7800e-004
tblVehicleEF	MCY	3.35	2.75
tblVehicleEF	MCY	1.23	1.09
tblVehicleEF	MCY	2.09	1.72
tblVehicleEF	MCY	2.59	2.56
tblVehicleEF	MCY	0.55	1.74
tblVehicleEF	MCY	2.00	1.75
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.37	18.30
tblVehicleEF	MCY	9.67	8.43
tblVehicleEF	MCY	166.71	206.64
tblVehicleEF	MCY	45.36	59.88
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8630e-003	1.7970e-003
tblVehicleEF	MCY	3.2830e-003	2.7750e-003
tblVehicleEF	MCY	1.7410e-003	1.6800e-003
tblVehicleEF	MCY	3.0870e-003	2.6090e-003
tblVehicleEF	MCY	1.59	1.64
tblVehicleEF	MCY	1.02	1.05
tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.06	1.79
tblVehicleEF	MCY	2.0290e-003	2.0450e-003
tblVehicleEF	MCY	6.7200e-004	5.9300e-004

tblVehicleEF	MCY	1.59	1.64
tblVehicleEF	MCY	1.02	1.05
tblVehicleEF	MCY	0.73	0.76
tblVehicleEF	MCY	2.61	2.59
tblVehicleEF	MCY	0.63	2.02
tblVehicleEF	MCY	2.24	1.95
tblVehicleEF	MDV	9.8990e-003	4.1640e-003
tblVehicleEF	MDV	0.01	0.08
tblVehicleEF	MDV	1.15	0.92
tblVehicleEF	MDV	2.62	3.01
tblVehicleEF	MDV	458.82	406.42
tblVehicleEF	MDV	104.21	86.29
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.11	0.10
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MDV	4.5960e-003	3.8690e-003
tblVehicleEF	MDV	1.0880e-003	8.2200e-004
tblVehicleEF	MDV	0.11	0.10

tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	0.01	4.6800e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	1.41	1.10
tblVehicleEF	MDV	2.31	2.51
tblVehicleEF	MDV	498.05	428.48
tblVehicleEF	MDV	104.21	85.29
tblVehicleEF	MDV	0.13	0.08
tblVehicleEF	MDV	0.24	0.31
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.17	0.32
tblVehicleEF	MDV	4.9910e-003	4.0790e-003
tblVehicleEF	MDV	1.0820e-003	8.1200e-004
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.22	0.17

tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.45
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	9.5100e-003	4.0920e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.08	0.89
tblVehicleEF	MDV	2.68	2.99
tblVehicleEF	MDV	447.05	402.69
tblVehicleEF	MDV	104.21	86.25
tblVehicleEF	MDV	0.13	0.08
tblVehicleEF	MDV	0.25	0.33
tblVehicleEF	MDV	1.6580e-003	1.4180e-003
tblVehicleEF	MDV	2.3780e-003	1.8620e-003
tblVehicleEF	MDV	1.5280e-003	1.3080e-003
tblVehicleEF	MDV	2.1870e-003	1.7120e-003
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.13	0.52
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MDV	4.4770e-003	3.8330e-003
tblVehicleEF	MDV	1.0890e-003	8.2100e-004
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.08	0.09

tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.53
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MH	0.02	3.2740e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.00	0.33
tblVehicleEF	MH	5.24	0.00
tblVehicleEF	MH	995.46	929.33
tblVehicleEF	MH	57.13	0.00
tblVehicleEF	MH	1.48	4.27
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.08	0.00

tblVehicleEF	MH	0.49	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.02	3.2740e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.05	0.33
tblVehicleEF	MH	4.88	0.00
tblVehicleEF	MH	995.46	929.33
tblVehicleEF	MH	57.13	0.00
tblVehicleEF	MH	1.37	4.03
tblVehicleEF	MH	0.76	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	2.52	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.30	0.00
tblVehicleEF	MH	9.8690e-003	8.7860e-003
tblVehicleEF	MH	6.5700e-004	0.00
tblVehicleEF	MH	2.52	0.00

tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	0.32	0.00
tblVehicleEF	MH	0.02	3.2740e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	1.99	0.33
tblVehicleEF	MH	5.28	0.00
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tblVehicleEF	MH	1.46	4.20
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.7800e-004	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	8.9900e-004	0.00
tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.47	0.00
tblVehicleEF	MH	0.07	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.8680e-003	8.7860e-003
tblVehicleEF	MH	6.6300e-004	0.00

tblVehicleEF	MH	1.38	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.47	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
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tblVehicleEF	MHD	2.5650e-003	8.7300e-004
tblVehicleEF	MHD	0.05	7.0300e-003
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tblVehicleEF	MHD	148.43	67.29
tblVehicleEF	MHD	1,056.49	911.02
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tblVehicleEF	MHD	1.3500e-004	4.3400e-004
tblVehicleEF	MHD	2.6660e-003	9.4670e-003
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tblVehicleEF	MHD	6.7100e-004	7.6000e-005
tblVehicleEF	MHD	1.5020e-003	4.1800e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.02

tblVehicleEF	MHD	7.6500e-004	2.2800e-004
tblVehicleEF	MHD	0.02	9.5450e-003
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.31	0.04
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tblVehicleEF	MHD	0.01	8.6560e-003
tblVehicleEF	MHD	6.3400e-004	7.1000e-005
tblVehicleEF	MHD	1.5020e-003	4.1800e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	7.6500e-004	2.2800e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.34	0.04
tblVehicleEF	MHD	0.02	2.6270e-003
tblVehicleEF	MHD	2.5980e-003	8.8800e-004
tblVehicleEF	MHD	0.05	6.7570e-003
tblVehicleEF	MHD	0.23	0.29
tblVehicleEF	MHD	0.21	0.12
tblVehicleEF	MHD	4.84	0.76
tblVehicleEF	MHD	157.22	67.24
tblVehicleEF	MHD	1,056.49	911.02
tblVehicleEF	MHD	54.56	7.14
tblVehicleEF	MHD	0.42	0.39
tblVehicleEF	MHD	0.44	0.86
tblVehicleEF	MHD	11.41	1.80
tblVehicleEF	MHD	1.1400e-004	3.6900e-004

tblVehicleEF	MHD	2.6660e-003	9.4670e-003
tblVehicleEF	MHD	7.3000e-004	8.3000e-005
tblVehicleEF	MHD	1.0900e-004	3.5300e-004
tblVehicleEF	MHD	2.5470e-003	9.0550e-003
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tblVehicleEF	MHD	2.8970e-003	7.5100e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	1.4710e-003	4.4600e-004
tblVehicleEF	MHD	0.02	9.6090e-003
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.30	0.04
tblVehicleEF	MHD	1.5100e-003	6.3800e-004
tblVehicleEF	MHD	0.01	8.6560e-003
tblVehicleEF	MHD	6.3000e-004	7.1000e-005
tblVehicleEF	MHD	2.8970e-003	7.5100e-004
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.4710e-003	4.4600e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.33	0.04
tblVehicleEF	MHD	0.02	2.9460e-003
tblVehicleEF	MHD	2.5410e-003	8.7400e-004
tblVehicleEF	MHD	0.05	6.9640e-003
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tblVehicleEF	MHD	0.21	0.12

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tblVehicleEF	MHD	1,056.49	911.02
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tblVehicleEF	MHD	0.39	0.41
tblVehicleEF	MHD	0.46	0.89
tblVehicleEF	MHD	11.44	1.80
tblVehicleEF	MHD	1.6400e-004	5.2400e-004
tblVehicleEF	MHD	2.6660e-003	9.4670e-003
tblVehicleEF	MHD	7.3000e-004	8.3000e-005
tblVehicleEF	MHD	1.5700e-004	5.0100e-004
tblVehicleEF	MHD	2.5470e-003	9.0550e-003
tblVehicleEF	MHD	6.7100e-004	7.6000e-005
tblVehicleEF	MHD	1.0970e-003	4.3600e-004
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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	5.9600e-004	2.3900e-004
tblVehicleEF	MHD	0.02	9.5510e-003
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tblVehicleEF	MHD	0.31	0.04
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tblVehicleEF	MHD	0.01	8.6560e-003
tblVehicleEF	MHD	6.3600e-004	7.1000e-005
tblVehicleEF	MHD	1.0970e-003	4.3600e-004
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	5.9600e-004	2.3900e-004

tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.34	0.04
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tblVehicleEF	OBUS	5.6790e-003	5.4050e-003
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tblVehicleEF	OBUS	0.35	0.91
tblVehicleEF	OBUS	2.07	0.69
tblVehicleEF	OBUS	1.2000e-005	7.5000e-005
tblVehicleEF	OBUS	1.9500e-003	8.4680e-003
tblVehicleEF	OBUS	8.7100e-004	2.1800e-004
tblVehicleEF	OBUS	1.1000e-005	7.2000e-005
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tblVehicleEF	OBUS	8.0000e-004	2.0100e-004
tblVehicleEF	OBUS	2.0910e-003	2.6670e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	9.0600e-004	1.1770e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.29

tblVehicleEF	OBUS	0.34	0.13
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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	OBUS	2.0910e-003	2.6670e-003
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tblVehicleEF	OBUS	9.0600e-004	1.1770e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.05	0.29
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tblVehicleEF	OBUS	5.7930e-003	5.5390e-003
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tblVehicleEF	OBUS	1.0000e-005	6.7000e-005
tblVehicleEF	OBUS	1.9500e-003	8.4680e-003
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tblVehicleEF	OBUS	1.8490e-003	8.0880e-003
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tblVehicleEF	OBUS	3.8840e-003	4.6970e-003
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tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	1.7290e-003	2.2650e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.29
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tblVehicleEF	OBUS	0.02	0.03
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tblVehicleEF	OBUS	5.6610e-003	5.4160e-003
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tblVehicleEF	OBUS	0.05	0.31
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tblVehicleEF	OBUS	6.2600e-004	6.2400e-004
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tblVehicleEF	SBUS	0.02	0.03
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tblVehicleEF	SBUS	0.02	0.06
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tblVehicleEF	SBUS	2.6870e-003	2.6500e-003
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tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
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tblVehicleEF	SBUS	4.3640e-003	1.4840e-003
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tblVehicleEF	SBUS	2.3310e-003	8.1800e-004

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tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.40	0.05
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.52	23.60
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tblVehicleEF	UBUS	1,788.21	1,635.62
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tblVehicleEF	UBUS	3.79	0.30
tblVehicleEF	UBUS	12.24	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.09	0.10
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7820e-003	2.2700e-004

tblVehicleEF	UBUS	9.0420e-003	2.8050e-003
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	4.5390e-003	1.1470e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.19	0.10
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.07	0.02
tblVehicleEF	UBUS	7.58	23.60
tblVehicleEF	UBUS	11.85	1.58
tblVehicleEF	UBUS	1,788.21	1,635.63
tblVehicleEF	UBUS	153.17	22.49
tblVehicleEF	UBUS	3.53	0.30
tblVehicleEF	UBUS	12.16	0.21
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	0.43	0.05
tblVehicleEF	UBUS	0.02	0.07

tblVehicleEF	UBUS	0.99	0.09
tblVehicleEF	UBUS	9.5110e-003	6.3200e-003
tblVehicleEF	UBUS	1.7480e-003	2.2300e-004
tblVehicleEF	UBUS	0.02	4.9810e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.0520e-003	2.2660e-003
tblVehicleEF	UBUS	1.83	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.09	0.09
tblVehicleEF	UBUS	1.36	3.04
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.51	23.60
tblVehicleEF	UBUS	14.02	1.85
tblVehicleEF	UBUS	1,788.21	1,635.62
tblVehicleEF	UBUS	153.17	22.93
tblVehicleEF	UBUS	3.75	0.30
tblVehicleEF	UBUS	12.25	0.22
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1820e-003
tblVehicleEF	UBUS	1.4880e-003	2.2400e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0570e-003
tblVehicleEF	UBUS	0.04	2.0670e-003
tblVehicleEF	UBUS	1.3680e-003	2.0600e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02

tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	0.42	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.10	0.09
tblVehicleEF	UBUS	9.5090e-003	6.3200e-003
tblVehicleEF	UBUS	1.7850e-003	2.2700e-004
tblVehicleEF	UBUS	8.1990e-003	2.8430e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.1400e-003	1.2010e-003
tblVehicleEF	UBUS	1.82	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.20	0.10
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	HW_TL	14.70	11.50
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	6.39	4.91
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	5.86	4.09
tblVehicleTrips	WD_TR	6.59	7.33
tblVehicleTrips	WD_TR	6.65	5.44
tblWoodstoves	NumberCatalytic	3.75	0.00
tblWoodstoves	NumberCatalytic	8.10	0.00
tblWoodstoves	NumberNoncatalytic	3.75	0.00
tblWoodstoves	NumberNoncatalytic	8.10	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	5.4265	84.3384	26.4822	0.2000	21.9792	2.6472	24.6264	10.3848	2.4354	12.8202	0.0000	20,817.4981	20,817.4981	2.3709	0.0000	20,876.7695
2022	77.0155	34.9552	25.3148	0.0785	3.0555	1.2980	4.3535	0.8181	1.2113	2.0294	0.0000	7,728.5445	7,728.5445	1.2729	0.0000	7,760.3677
2023	76.9857	1.8483	3.6559	8.3100e-003	0.5477	0.0975	0.6452	0.1453	0.0973	0.2425	0.0000	809.1160	809.1160	0.0312	0.0000	809.8958
Maximum	**77.0155**	**84.3384**	**26.4822**	**0.2000**	**21.9792**	**2.6472**	**24.6264**	**10.3848**	**2.4354**	**12.8202**	**0.0000**	**20,817.4981**	**20,817.4981**	**2.3709**	**0.0000**	**20,876.7695**

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	5.4265	84.3384	26.4822	0.2000	21.9792	2.6472	24.6264	10.3848	2.4354	12.8202	0.0000	20,817.4981	20,817.4981	2.3709	0.0000	20,876.7695
2022	77.0155	34.9552	25.3148	0.0785	3.0555	1.2980	4.3535	0.8181	1.2113	2.0294	0.0000	7,728.5445	7,728.5445	1.2729	0.0000	7,760.3677
2023	76.9857	1.8483	3.6559	8.3100e-003	0.5477	0.0975	0.6452	0.1453	0.0973	0.2425	0.0000	809.1160	809.1160	0.0312	0.0000	809.8958
Maximum	**77.0155**	**84.3384**	**26.4822**	**0.2000**	**21.9792**	**2.6472**	**24.6264**	**10.3848**	**2.4354**	**12.8202**	**0.0000**	**20,817.4981**	**20,817.4981**	**2.3709**	**0.0000**	**20,876.7695**

	ROG	NOx	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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Energy	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137
Mobile	3.1873	8.9377	27.9049	0.1013	9.5336	0.0995	9.6331	2.5482	0.0938	2.6420		10,686.8612	10,686.8612	0.3659		10,696.0080
Total	**9.5185**	**13.9950**	**49.5617**	**0.1332**	**9.5336**	**0.5985**	**10.1321**	**2.5482**	**0.5928**	**3.1411**	**0.0000**	**16,889.9711**	**16,889.9711**	**0.5182**	**0.1131**	**16,936.6227**

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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Energy	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137
Mobile	3.1873	8.9377	27.9049	0.1013	9.5336	0.0995	9.6331	2.5482	0.0938	2.6420		10,686.8612	10,686.8612	0.3659		10,696.0080
Total	**9.5185**	**13.9950**	**49.5617**	**0.1332**	**9.5336**	**0.5985**	**10.1321**	**2.5482**	**0.5928**	**3.1411**	**0.0000**	**16,889.9711**	**16,889.9711**	**0.5182**	**0.1131**	**16,936.6227**

	ROG	NOx	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	Crushing	Demolition	10/16/2021	11/12/2021	5	20	
2	Site Preparation	Site Preparation	11/13/2021	11/26/2021	5	10	
3	Grading	Grading	11/27/2021	12/24/2021	5	20	
4	Building Construction	Building Construction	12/25/2021	11/11/2022	5	230	
5	Paving	Paving	11/12/2022	12/9/2022	5	20	
6	Architectural Coating	Architectural Coating	12/10/2022	1/6/2023	5	20	

Acres of Grading (Site Preparation Phase): 35

Acres of Grading (Grading Phase): 50

Acres of Paving: 0.82

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,272 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Crushing	Concrete/Industrial Saws	0	8.00	81	0.73
Crushing	Excavators	0	8.00	158	0.38
Crushing	Generator Sets	1	8.00	1050	0.74
Crushing	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	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
Crushing	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	3,750.00	14.70	6.90	23.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	243.00	53.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	49.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Crushing - 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	3.0149	46.2097	14.5262	0.0685		0.9593	0.9593		0.9593	0.9593		7,787.945 8	7,787.945 8	0.2604		7,794.455 2
Total	**3.0149**	**46.2097**	**14.5262**	**0.0685**		**0.9593**	**0.9593**		**0.9593**	**0.9593**		**7,787.945 8**	**7,787.945 8**	**0.2604**		**7,794.455 2**

3.2 Crushing - 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	0.0140	8.3800e-003	0.0895	2.9000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.8000e-004	9.0800e-003		28.6558	28.6558	6.6000e-004		28.6724
Total	**0.0140**	**8.3800e-003**	**0.0895**	**2.9000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0800e-003**		**28.6558**	**28.6558**	**6.6000e-004**		**28.6724**

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	3.0149	46.2097	14.5262	0.0685		0.9593	0.9593		0.9593	0.9593	0.0000	7,787.945 8	7,787.945 8	0.2604		7,794.455 2
Total	**3.0149**	**46.2097**	**14.5262**	**0.0685**		**0.9593**	**0.9593**		**0.9593**	**0.9593**	**0.0000**	**7,787.945 8**	**7,787.945 8**	**0.2604**		**7,794.455 2**

3.2 Crushing - 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	0.0140	8.3800e-003	0.0895	2.9000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.8000e-004	9.0800e-003		28.6558	28.6558	6.6000e-004		28.6724
Total	**0.0140**	**8.3800e-003**	**0.0895**	**2.9000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0800e-003**		**28.6558**	**28.6558**	**6.6000e-004**		**28.6724**

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					21.7780	0.0000	21.7780	10.3315	0.0000	10.3315			0.0000			0.0000
Off-Road	5.3428	60.7861	21.8537	0.0570		2.6460	2.6460		2.4343	2.4343		5,523.5047	5,523.5047	1.7864		5,568.1651
Total	**5.3428**	**60.7861**	**21.8537**	**0.0570**	**21.7780**	**2.6460**	**24.4240**	**10.3315**	**2.4343**	**12.7658**		**5,523.5047**	**5,523.5047**	**1.7864**		**5,568.1651**

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	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342
Total	**0.0838**	**0.0503**	**0.5372**	**1.7200e-003**	**0.2012**	**1.1900e-003**	**0.2024**	**0.0534**	**1.0900e-003**	**0.0545**		**171.9348**	**171.9348**	**3.9700e-003**		**172.0342**

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					21.7780	0.0000	21.7780	10.3315	0.0000	10.3315			0.0000			0.0000
Off-Road	5.3428	60.7861	21.8537	0.0570		2.6460	2.6460		2.4343	2.4343	0.0000	5,523.5047	5,523.5047	1.7864		5,568.1651
Total	**5.3428**	**60.7861**	**21.8537**	**0.0570**	**21.7780**	**2.6460**	**24.4240**	**10.3315**	**2.4343**	**12.7658**	**0.0000**	**5,523.5047**	**5,523.5047**	**1.7864**		**5,568.1651**

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	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342
Total	**0.0838**	**0.0503**	**0.5372**	**1.7200e-003**	**0.2012**	**1.1900e-003**	**0.2024**	**0.0534**	**1.0900e-003**	**0.0545**		**171.9348**	**171.9348**	**3.9700e-003**		**172.0342**

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					8.8633	0.0000	8.8633	3.6253	0.0000	3.6253			0.0000			0.0000
Off-Road	3.3813	39.9534	16.3820	0.0439		1.6111	1.6111		1.4822	1.4822		4,250.3144	4,250.3144	1.3746		4,284.6803
Total	**3.3813**	**39.9534**	**16.3820**	**0.0439**	**8.8633**	**1.6111**	**10.4744**	**3.6253**	**1.4822**	**5.1074**		**4,250.3144**	**4,250.3144**	**1.3746**		**4,284.6803**

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	1.0444	44.3431	6.8156	0.1547	3.7712	0.1436	3.9148	1.0337	0.1374	1.1711		16,423.9047	16,423.9047	0.9929		16,448.7274
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	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**1.1142**	**44.3850**	**7.2632**	**0.1562**	**3.9388**	**0.1446**	**4.0835**	**1.0782**	**0.1383**	**1.2165**		**16,567.1838**	**16,567.1838**	**0.9962**		**16,592.0892**

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					8.8633	0.0000	8.8633	3.6253	0.0000	3.6253			0.0000			0.0000
Off-Road	3.3813	39.9534	16.3820	0.0439		1.6111	1.6111		1.4822	1.4822	0.0000	4,250.3144	4,250.3144	1.3746		4,284.6803
Total	**3.3813**	**39.9534**	**16.3820**	**0.0439**	**8.8633**	**1.6111**	**10.4744**	**3.6253**	**1.4822**	**5.1074**	**0.0000**	**4,250.3144**	**4,250.3144**	**1.3746**		**4,284.6803**

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	1.0444	44.3431	6.8156	0.1547	3.7712	0.1436	3.9148	1.0337	0.1374	1.1711		16,423.9047	16,423.9047	0.9929		16,448.7274
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	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**1.1142**	**44.3850**	**7.2632**	**0.1562**	**3.9388**	**0.1446**	**4.0835**	**1.0782**	**0.1383**	**1.2165**		**16,567.1838**	**16,567.1838**	**0.9962**		**16,592.0892**

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	3.1137	33.9659	18.1952	0.0430		1.4763	1.4763		1.3775	1.3775		4,114.4297	4,114.4297	1.1209		4,142.4520
Total	**3.1137**	**33.9659**	**18.1952**	**0.0430**		**1.4763**	**1.4763**		**1.3775**	**1.3775**		**4,114.4297**	**4,114.4297**	**1.1209**		**4,142.4520**

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	0.1314	4.8623	1.0352	0.0132	0.3394	9.6100e-003	0.3490	0.0977	9.1900e-003	0.1069		1,393.7581	1,393.7581	0.1154		1,396.6442
Worker	1.1306	0.6787	7.2518	0.0233	2.7162	0.0160	2.7322	0.7203	0.0147	0.7351		2,321.1203	2,321.1203	0.0536		2,322.4612
Total	**1.2620**	**5.5411**	**8.2870**	**0.0365**	**3.0556**	**0.0256**	**3.0812**	**0.8181**	**0.0239**	**0.8420**		**3,714.8784**	**3,714.8784**	**0.1691**		**3,719.1054**

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	3.1137	33.9659	18.1952	0.0430		1.4763	1.4763		1.3775	1.3775	0.0000	4,114.4297	4,114.4297	1.1209		4,142.4520
Total	**3.1137**	**33.9659**	**18.1952**	**0.0430**		**1.4763**	**1.4763**		**1.3775**	**1.3775**	**0.0000**	**4,114.4297**	**4,114.4297**	**1.1209**		**4,142.4520**

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	0.1314	4.8623	1.0352	0.0132	0.3394	9.6100e-003	0.3490	0.0977	9.1900e-003	0.1069		1,393.7581	1,393.7581	0.1154		1,396.6442
Worker	1.1306	0.6787	7.2518	0.0233	2.7162	0.0160	2.7322	0.7203	0.0147	0.7351		2,321.1203	2,321.1203	0.0536		2,322.4612
Total	**1.2620**	**5.5411**	**8.2870**	**0.0365**	**3.0556**	**0.0256**	**3.0812**	**0.8181**	**0.0239**	**0.8420**		**3,714.8784**	**3,714.8784**	**0.1691**		**3,719.1054**

3.5 Building Construction - 2022

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	2.7963	29.7637	17.6698	0.0430		1.2743	1.2743		1.1892	1.1892		4,110.5322	4,110.5322	1.1153		4,138.4135
Total	**2.7963**	**29.7637**	**17.6698**	**0.0430**		**1.2743**	**1.2743**		**1.1892**	**1.1892**		**4,110.5322**	**4,110.5322**	**1.1153**		**4,138.4135**

3.5 Building Construction - 2022

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	0.1227	4.5810	0.9663	0.0131	0.3394	8.1000e-003	0.3475	0.0977	7.7400e-003	0.1055		1,381.5888	1,381.5888	0.1095		1,384.3250
Worker	1.0606	0.6106	6.6787	0.0224	2.7162	0.0156	2.7318	0.7203	0.0144	0.7347		2,236.4235	2,236.4235	0.0482		2,237.6293
Total	**1.1833**	**5.1916**	**7.6450**	**0.0355**	**3.0555**	**0.0237**	**3.0792**	**0.8181**	**0.0221**	**0.8401**		**3,618.0123**	**3,618.0123**	**0.1577**		**3,621.9542**

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	2.7963	29.7637	17.6698	0.0430		1.2743	1.2743		1.1892	1.1892	0.0000	4,110.5322	4,110.5322	1.1153		4,138.4135
Total	**2.7963**	**29.7637**	**17.6698**	**0.0430**		**1.2743**	**1.2743**		**1.1892**	**1.1892**	**0.0000**	**4,110.5322**	**4,110.5322**	**1.1153**		**4,138.4135**

3.5 Building Construction - 2022

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	0.1227	4.5810	0.9663	0.0131	0.3394	8.1000e-003	0.3475	0.0977	7.7400e-003	0.1055		1,381.5888	1,381.5888	0.1095		1,384.3250
Worker	1.0606	0.6106	6.6787	0.0224	2.7162	0.0156	2.7318	0.7203	0.0144	0.7347		2,236.4235	2,236.4235	0.0482		2,237.6293
Total	**1.1833**	**5.1916**	**7.6450**	**0.0355**	**3.0555**	**0.0237**	**3.0792**	**0.8181**	**0.0221**	**0.8401**		**3,618.0123**	**3,618.0123**	**0.1577**		**3,621.9542**

3.6 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1074					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2102**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.1074					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2102**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.660 3**	**2,207.660 3**	**0.7140**		**2,225.510 4**

3.6 Paving - 2022

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	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

3.7 Architectural Coating - 2022

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**76.8017**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.7 Architectural Coating - 2022

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	0.2139	0.1231	1.3467	4.5200e-003	0.5477	3.1400e-003	0.5509	0.1453	2.8900e-003	0.1482		450.9661	450.9661	9.7300e-003		451.2092
Total	**0.2139**	**0.1231**	**1.3467**	**4.5200e-003**	**0.5477**	**3.1400e-003**	**0.5509**	**0.1453**	**2.8900e-003**	**0.1482**		**450.9661**	**450.9661**	**9.7300e-003**		**451.2092**

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**76.8017**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.7 Architectural Coating - 2022

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	0.2139	0.1231	1.3467	4.5200e-003	0.5477	3.1400e-003	0.5509	0.1453	2.8900e-003	0.1482		450.9661	450.9661	9.7300e-003		451.2092
Total	**0.2139**	**0.1231**	**1.3467**	**4.5200e-003**	**0.5477**	**3.1400e-003**	**0.5509**	**0.1453**	**2.8900e-003**	**0.1482**		**450.9661**	**450.9661**	**9.7300e-003**		**451.2092**

3.7 Architectural Coating - 2023

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**76.7845**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

3.7 Architectural Coating - 2023

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	0.2012	0.1110	1.2411	4.3500e-003	0.5477	3.0700e-003	0.5508	0.1453	2.8200e-003	0.1481		433.8519	433.8519	8.7400e-003		434.0705
Total	**0.2012**	**0.1110**	**1.2411**	**4.3500e-003**	**0.5477**	**3.0700e-003**	**0.5508**	**0.1453**	**2.8200e-003**	**0.1481**		**433.8519**	**433.8519**	**8.7400e-003**		**434.0705**

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	76.5290					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**76.7845**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

3.7 Architectural Coating - 2023

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	0.2012	0.1110	1.2411	4.3500e-003	0.5477	3.0700e-003	0.5508	0.1453	2.8200e-003	0.1481		433.8519	433.8519	8.7400e-003		434.0705
Total	**0.2012**	**0.1110**	**1.2411**	**4.3500e-003**	**0.5477**	**3.0700e-003**	**0.5508**	**0.1453**	**2.8200e-003**	**0.1481**		**433.8519**	**433.8519**	**8.7400e-003**		**434.0705**

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	3.1873	8.9377	27.9049	0.1013	9.5336	0.0995	9.6331	2.5482	0.0938	2.6420		10,686.8612	10,686.8612	0.3659		10,696.0080
Unmitigated	3.1873	8.9377	27.9049	0.1013	9.5336	0.0995	9.6331	2.5482	0.0938	2.6420		10,686.8612	10,686.8612	0.3659		10,696.0080

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	549.75	610.50	471.00	1,642,400	1,642,400
Apartments Mid Rise	881.28	795.42	662.58	2,514,638	2,514,638
Parking Lot	0.00	0.00	0.00		
Total	1,431.03	1,405.92	1,133.58	4,157,039	4,157,039

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
Apartments Low Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	11.50	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Apartments Mid Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

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	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137
NaturalGas Unmitigated	0.1053	0.9000	0.3830	5.7400e-003		0.0728	0.0728		0.0728	0.0728		1,148.9858	1,148.9858	0.0220	0.0211	1,155.8137

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					
Apartments Low Rise	3200.24	0.0345	0.2949	0.1255	1.8800e-003		0.0238	0.0238		0.0238	0.0238		376.4988	376.4988	7.2200e-003	6.9000e-003	378.7361
Apartments Mid Rise	6566.14	0.0708	0.6051	0.2575	3.8600e-003		0.0489	0.0489		0.0489	0.0489		772.4870	772.4870	0.0148	0.0142	777.0775
Parking Lot	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
Total		**0.1053**	**0.9000**	**0.3830**	**5.7400e-003**		**0.0728**	**0.0728**		**0.0728**	**0.0728**		**1,148.9858**	**1,148.9858**	**0.0220**	**0.0211**	**1,155.8137**

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					
Apartments Low Rise	3.20024	0.0345	0.2949	0.1255	1.8800e-003		0.0238	0.0238		0.0238	0.0238		376.4988	376.4988	7.2200e-003	6.9000e-003	378.7361
Apartments Mid Rise	6.56614	0.0708	0.6051	0.2575	3.8600e-003		0.0489	0.0489		0.0489	0.0489		772.4870	772.4870	0.0148	0.0142	777.0775
Parking Lot	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
Total		**0.1053**	**0.9000**	**0.3830**	**5.7400e-003**		**0.0728**	**0.0728**		**0.0728**	**0.0728**		**1,148.9858**	**1,148.9858**	**0.0220**	**0.0211**	**1,155.8137**

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	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010
Unmitigated	6.2259	4.1573	21.2738	0.0261		0.4263	0.4263		0.4263	0.4263	0.0000	5,054.1241	5,054.1241	0.1303	0.0920	5,084.8010

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	0.4193					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4601	3.9314	1.6729	0.0251		0.3179	0.3179		0.3179	0.3179	0.0000	5,018.8235	5,018.8235	0.0962	0.0920	5,048.6479
Landscaping	0.5932	0.2258	19.6009	1.0400e-003		0.1084	0.1084		0.1084	0.1084		35.3006	35.3006	0.0341		36.1531
Total	**6.2259**	**4.1573**	**21.2738**	**0.0261**		**0.4263**	**0.4263**		**0.4263**	**0.4263**	**0.0000**	**5,054.1241**	**5,054.1241**	**0.1303**	**0.0920**	**5,084.8010**

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	0.4193					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4601	3.9314	1.6729	0.0251		0.3179	0.3179		0.3179	0.3179	0.0000	5,018.8235	5,018.8235	0.0962	0.0920	5,048.6479
Landscaping	0.5932	0.2258	19.6009	1.0400e-003		0.1084	0.1084		0.1084	0.1084		35.3006	35.3006	0.0341		36.1531
Total	**6.2259**	**4.1573**	**21.2738**	**0.0261**		**0.4263**	**0.4263**		**0.4263**	**0.4263**	**0.0000**	**5,054.1241**	**5,054.1241**	**0.1303**	**0.0920**	**5,084.8010**

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

Attachment C

Start date and time 04/26/21 14:23:45

AERSCREEN 16216

Crestview Apartments

Crestview Apartments

```
         -----------------  DATA ENTRY VALIDATION  -----------------
                        METRIC              ENGLISH
 ** AREADATA **  ---------------     ----------------

 Emission Rate:    0.348E-02 g/s         0.276E-01 lb/hr
 Area Height:           3.00 meters           9.84 feet
 Area Source Length:  260.00 meters         853.02 feet
 Area Source Width:   147.00 meters         482.28 feet
 Vertical Dimension:    1.50 meters           4.92 feet
 Model Mode:           URBAN
 Population:          326414
 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:

2021.04.26_Crestview_Construction.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 04/26/21 14:24:33

 ****

  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 04/26/21 14:24:49


 REFINE       started 04/26/21 14:24:49


  AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


     ********   WARNING MESSAGES   ********
```

```
              ***  NONE  ***


 REFINE       ended 04/26/21 14:24:51


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

  AERSCREEN Finished Successfully

  With no errors or warnings

  Check log file for details

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


  Ending date and time  04/26/21 14:24:53
```

```
 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
   0.25886E+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
   0.27843E+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
   0.29589E+01        50.00      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
   0.31100E+01        75.00      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
   0.32435E+01       100.00      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
   0.33641E+01       125.00      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
*  0.33912E+01       131.00      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
   0.31455E+01       150.00      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
   0.22614E+01       175.00      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
   0.18211E+01       200.00      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
   0.15297E+01       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
   0.13478E+01       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
   0.12006E+01       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
   0.10782E+01       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
   0.97603E+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
   0.88945E+00       350.00      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
   0.81462E+00       375.00      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
   0.75044E+00       400.00      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
   0.69458E+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
   0.64508E+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
   0.60160E+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
   0.56309E+00       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
   0.52843E+00       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
   0.49732E+00       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
   0.46930E+00       575.00      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
   0.44371E+00       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
   0.42060E+00       625.00      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
   0.39963E+00       650.00      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
   0.38040E+00       675.00      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
   0.36240E+00       700.00      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
   0.34589E+00       725.00      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
   0.33070E+00       750.00      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
   0.31669E+00       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
   0.30373E+00       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
   0.29164E+00       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
   0.28026E+00       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
   0.26965E+00       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
   0.25971E+00       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
   0.25036E+00       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
   0.24160E+00       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
   0.23338E+00       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
   0.22565E+00      1000.00      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
   0.21836E+00      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
   0.21144E+00      1050.00      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
   0.20486E+00      1075.00      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
   0.19863E+00      1100.00      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
   0.19274E+00      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
   0.18715E+00      1150.00      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
   0.18184E+00      1175.00      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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   0.17679E+00      1200.00      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
   0.17199E+00      1225.00      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
   0.16741E+00      1250.00      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
   0.16301E+00      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
   0.15881E+00      1300.00      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
   0.15479E+00      1325.00      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
   0.15096E+00      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
   0.14728E+00      1375.00      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
   0.14377E+00      1400.00      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
   0.14035E+00      1425.00      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
   0.13708E+00      1450.00      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
   0.13394E+00      1475.00      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
   0.13093E+00      1500.00      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
   0.12803E+00      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
   0.12525E+00      1550.00      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
   0.12257E+00      1575.00      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
   0.11999E+00      1600.00      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
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310.0    2.0
   0.11750E+00      1625.00      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
   0.11511E+00      1650.00      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
   0.11279E+00      1675.00      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
   0.11055E+00      1700.00      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
   0.10839E+00      1725.00      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
   0.10630E+00      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
   0.10429E+00      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
   0.10234E+00      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
   0.10046E+00      1825.00      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
   0.98631E-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
   0.96864E-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
   0.95153E-01      1900.00      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
   0.93492E-01      1925.00      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
   0.91873E-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
   0.90303E-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
   0.88780E-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
   0.87300E-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
   0.85864E-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
   0.84467E-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
   0.83101E-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
   0.81773E-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
   0.80482E-01      2150.00      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
   0.79226E-01      2175.00      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
   0.78004E-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
   0.76814E-01      2225.00      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
   0.75656E-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
   0.74528E-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
   0.73433E-01      2300.00      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
   0.72364E-01      2325.00      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
   0.71320E-01      2350.00      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
   0.70302E-01      2375.00      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
   0.69309E-01      2400.00      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
   0.68340E-01      2425.00      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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   0.67395E-01      2450.00      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
   0.66476E-01      2475.00      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
   0.65578E-01      2500.00      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
   0.64702E-01      2525.00      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
   0.63844E-01      2550.00      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
   0.63002E-01      2575.00      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
   0.62180E-01      2600.00      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
   0.61377E-01      2625.00      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
   0.60591E-01      2650.00      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
   0.60396E-01      2675.00      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
   0.59632E-01      2700.00      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
   0.58884E-01      2725.00      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
   0.58153E-01      2750.00      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
   0.57437E-01      2775.00      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
   0.56736E-01      2800.00      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
   0.56049E-01      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
   0.55377E-01      2850.00      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
   0.54719E-01      2875.00      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
   0.54075E-01      2900.00      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
   0.53443E-01      2925.00      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
   0.52824E-01      2950.00      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
   0.52217E-01      2975.00      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
   0.51622E-01      3000.00      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
   0.51039E-01      3025.00      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
   0.50468E-01      3050.00      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
   0.49907E-01      3075.00      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
   0.49357E-01      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
   0.48817E-01      3125.00      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
   0.48288E-01      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
   0.47768E-01      3175.00      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
   0.47258E-01      3200.00      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
   0.46757E-01      3225.00      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
   0.46266E-01      3250.00      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
   0.45783E-01      3275.00      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
   0.45309E-01      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
   0.44843E-01      3325.00      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
   0.44386E-01      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
   0.43936E-01      3375.00      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
   0.43495E-01      3400.00      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
   0.43061E-01      3425.00      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
   0.42635E-01      3450.00      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
   0.42215E-01      3475.00      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
   0.41803E-01      3500.00      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
   0.41398E-01      3525.00      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
   0.41000E-01      3550.00      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
   0.40608E-01      3575.00      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
   0.40222E-01      3600.00      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
   0.39843E-01      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
   0.39470E-01      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
   0.39103E-01      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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   0.38742E-01      3700.00      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
   0.38387E-01      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
   0.38037E-01      3750.00      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
   0.37693E-01      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
   0.37354E-01      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
   0.37020E-01      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
   0.36692E-01      3850.00      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
   0.36368E-01      3875.00      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
   0.36050E-01      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
   0.35736E-01      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
   0.35427E-01      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
   0.35122E-01      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
   0.34822E-01      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
   0.34527E-01      4025.00      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
   0.34235E-01      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
   0.33948E-01      4075.00      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
   0.33665E-01      4100.00      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
   0.33387E-01      4125.00      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
   0.33112E-01      4149.99      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
   0.32841E-01      4175.00      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
   0.32574E-01      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
   0.32310E-01      4225.00      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
   0.32051E-01      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
   0.31794E-01      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
   0.31542E-01      4300.00      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
   0.31293E-01      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
   0.31047E-01      4350.00      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
   0.30804E-01      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
   0.30565E-01      4400.00      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
   0.30329E-01      4425.00      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
   0.30096E-01      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
   0.29866E-01      4475.00      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
   0.29640E-01      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
   0.29416E-01      4525.00      0.00  10.0        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
   0.29195E-01      4550.00      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
   0.28977E-01      4575.00      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
   0.28762E-01      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
   0.28549E-01      4625.00      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
   0.28340E-01      4650.00      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
   0.28133E-01      4675.00      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
   0.27928E-01      4700.00      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
   0.27726E-01      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
   0.27527E-01      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
   0.27330E-01      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
   0.27135E-01      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
   0.26943E-01      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
   0.26753E-01      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
   0.26566E-01      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
   0.26380E-01      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
   0.26198E-01      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
```

```
   0.26017E-01      4950.00      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
   0.25838E-01      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
   0.25661E-01      5000.00      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
```

Start date and time 04/26/21 14:25:04

AERSCREEN 16216

Crestview Apartments Operation

Crestview Apartments Operation

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

	METRIC	ENGLISH
** AREADATA **	---------------	----------------
Emission Rate:	0.125E-02 g/s	0.992E-02 lb/hr
Area Height:	3.00 meters	9.84 feet
Area Source Length:	260.00 meters	853.02 feet
Area Source Width:	147.00 meters	482.28 feet
Vertical Dimension:	1.50 meters	4.92 feet
Model Mode:	URBAN	
Population:	326414	
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:

2021.04.26_Crestview_Operation.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 04/26/21 14:25:55
 ********************************************

   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 04/26/21 14:26:12


REFINE       started 04/26/21 14:26:12


 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


    ********   WARNING MESSAGES   ********
```

```
              ***  NONE  ***


 REFINE       ended 04/26/21 14:26:14


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

  AERSCREEN Finished Successfully

  With no errors or warnings

  Check log file for details

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


  Ending date and time  04/26/21 14:26:16
```

```
  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
   0.92997E+00        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
   0.10003E+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
   0.10630E+01       50.00      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
   0.11173E+01       75.00      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
   0.11652E+01      100.00      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
   0.12086E+01      125.00      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
*  0.12183E+01      131.00      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
   0.11300E+01      150.00      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
   0.81240E+00      175.00      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
   0.65422E+00      200.00      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
   0.54956E+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
   0.48420E+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
   0.43132E+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
   0.38736E+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
   0.35064E+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
   0.31954E+00      350.00      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
   0.29265E+00      375.00      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
   0.26960E+00      400.00      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
   0.24953E+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
   0.23175E+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
   0.21612E+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
   0.20229E+00      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
   0.18984E+00      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
   0.17866E+00      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
   0.16860E+00      575.00      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
   0.15940E+00      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
   0.15110E+00      625.00      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
   0.14357E+00      650.00      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
   0.13666E+00      675.00      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
   0.13019E+00      700.00      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
   0.12426E+00      725.00      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
   0.11881E+00      750.00      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
   0.11377E+00      775.00      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
   0.10912E+00       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
   0.10477E+00       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
   0.10068E+00       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
   0.96874E-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
   0.93302E-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
   0.89943E-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
   0.86797E-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
   0.83843E-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
   0.81064E-01      1000.00      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
   0.78447E-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
   0.75961E-01      1050.00      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
   0.73596E-01      1075.00      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
   0.71360E-01      1100.00      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
   0.69242E-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
   0.67234E-01      1150.00      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
   0.65326E-01      1175.00      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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   0.63513E-01      1200.00      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
   0.61787E-01      1225.00      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
   0.60143E-01      1250.00      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
   0.58561E-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
   0.57052E-01      1300.00      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
   0.55610E-01      1325.00      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
   0.54231E-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
   0.52912E-01      1375.00      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
   0.51648E-01      1400.00      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
   0.50422E-01      1425.00      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
   0.49247E-01      1450.00      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
   0.48119E-01      1475.00      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
   0.47036E-01      1500.00      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
   0.45995E-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
   0.44997E-01      1550.00      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
   0.44035E-01      1575.00      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
   0.43107E-01      1600.00      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
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310.0    2.0
   0.42213E-01      1625.00      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
   0.41352E-01      1650.00      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
   0.40519E-01      1675.00      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
   0.39714E-01      1700.00      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
   0.38938E-01      1725.00      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
   0.38190E-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
   0.37466E-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
   0.36766E-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
   0.36089E-01      1825.00      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
   0.35434E-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
   0.34799E-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
   0.34184E-01      1900.00      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
   0.33587E-01      1925.00      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
   0.33006E-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
   0.32442E-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
   0.31894E-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
   0.31363E-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
   0.30847E-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
   0.30345E-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
   0.29854E-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
   0.29377E-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
   0.28913E-01      2150.00      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
   0.28462E-01      2175.00      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
   0.28023E-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
   0.27596E-01      2225.00      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
   0.27180E-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
   0.26774E-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
   0.26381E-01      2300.00      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
   0.25997E-01      2325.00      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
   0.25622E-01      2350.00      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
   0.25256E-01      2375.00      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
   0.24899E-01      2400.00      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
   0.24551E-01      2425.00      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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   0.24212E-01      2450.00      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
   0.23882E-01      2475.00      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
   0.23559E-01      2500.00      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
   0.23245E-01      2525.00      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
   0.22936E-01      2550.00      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
   0.22634E-01      2575.00      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
   0.22339E-01      2600.00      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
   0.22050E-01      2625.00      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
   0.21768E-01      2650.00      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
   0.21698E-01      2675.00      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
   0.21423E-01      2700.00      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
   0.21154E-01      2725.00      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
   0.20892E-01      2750.00      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
   0.20634E-01      2775.00      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
   0.20382E-01      2800.00      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
   0.20136E-01      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
   0.19894E-01      2850.00      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
   0.19658E-01      2875.00      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
   0.19427E-01      2900.00      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
   0.19199E-01      2925.00      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
   0.18977E-01      2950.00      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
   0.18759E-01      2975.00      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
   0.18545E-01      3000.00      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
   0.18336E-01      3025.00      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
   0.18131E-01      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
   0.17929E-01      3075.00      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
   0.17732E-01      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
   0.17538E-01      3125.00      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
   0.17347E-01      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
   0.17161E-01      3175.00      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
   0.16978E-01      3200.00      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
   0.16798E-01      3225.00      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
   0.16621E-01      3250.00      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
   0.16448E-01      3275.00      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
   0.16277E-01      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
   0.16110E-01      3325.00      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
   0.15946E-01      3350.00      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
   0.15784E-01      3375.00      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
   0.15626E-01      3400.00      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
   0.15470E-01      3425.00      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
   0.15317E-01      3450.00      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
   0.15166E-01      3475.00      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
   0.15018E-01      3500.00      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
   0.14872E-01      3525.00      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
   0.14729E-01      3550.00      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
   0.14589E-01      3575.00      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
   0.14450E-01      3600.00      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
   0.14314E-01      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
   0.14180E-01      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
   0.14048E-01      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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   0.13918E-01      3700.00      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
   0.13791E-01      3725.00      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
   0.13665E-01      3750.00      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
   0.13541E-01      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
   0.13419E-01      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
   0.13300E-01      3825.00      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
   0.13182E-01      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
   0.13065E-01      3875.00      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
   0.12951E-01      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
   0.12838E-01      3925.00      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
   0.12727E-01      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
   0.12618E-01      3975.00      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
   0.12510E-01      4000.00      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
   0.12404E-01      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
   0.12299E-01      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
   0.12196E-01      4075.00      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
   0.12094E-01      4100.00      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
   0.11994E-01      4125.00      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
   0.11896E-01      4150.00      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
   0.11798E-01      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
   0.11702E-01      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
   0.11608E-01      4225.00      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
   0.11514E-01      4250.00      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
   0.11422E-01      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
   0.11331E-01      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
   0.11242E-01      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
   0.11154E-01      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
   0.11067E-01      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
   0.10981E-01      4400.00      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
   0.10896E-01      4425.00      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
   0.10812E-01      4450.00      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
   0.10730E-01      4475.00      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
   0.10648E-01      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
   0.10568E-01      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
   0.10488E-01      4550.00      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
   0.10410E-01      4575.00      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
   0.10333E-01      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
   0.10256E-01      4625.00      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
   0.10181E-01      4650.00      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
   0.10107E-01      4675.00      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
   0.10033E-01      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
   0.99607E-02      4725.00      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
   0.98890E-02      4750.00      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
   0.98183E-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
   0.97484E-02      4800.00      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
   0.96794E-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
   0.96112E-02      4850.00      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
   0.95438E-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
   0.94773E-02      4900.00      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
   0.94115E-02      4924.99      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
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   0.93466E-02      4950.00      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
   0.92824E-02      4975.00      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
   0.92190E-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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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).

Senior Regulatory and Litigation Support Analyst:

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.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

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<u>Other Experience:</u>

Selected as subject matter expert for the California Professional Geologist licensing examinations, 2009-2011.

From:	Kevin Dawson
To:	Assadzadeh, Candice
Cc:	Richard Block; Gurumantra Khalsa; Everett DeLano
Subject:	[External] Crestview DEIR comments- Kevin Dawson
Date:	Monday, May 3, 2021 2:06:47 PM

City of Riverside
Community & Economic Development Department
Planning Division
3900 Main Street, 3rd Floor
Riverside, California 92522
Attn: Candice Assadzadeh, Senior Planner
(951) 826-5667
cassadzadeh@riversideca.gov

Dear Staff,

Please include these comments for the Crestview DEIR, located at Sycamore and Central.

I am concerned the traffic study is inadequate. The project site is unfortunately located in a natural regional choke zone, where freeway traffic is regularly gridlocked, forcing frantic commuters to seek alternative routes along adjacent surface streets. The intersections of Central, Watkins, Sycamore and the 60/215 should be viewed as a pinch point, similar as that of the middle of an hour glass. Many grains of sand may want to pass through, but the physical reality of the narrow space imposes a limit.
Just a few years ago, Cal trans spent billions to upgrade this traffic corridor. The construction took years and imposed harsh impacts upon local residents. Within a few months of reopening, the traffic was as impacted, as before.

I believe the traffic study has failed to assess the impacts the Moreno Valley Fairview Highlands warehouse project will have on traffic around the project site. I believe that project is supposed to add 10,000 trucks to the 60 freeway! The added air pollution might require greater setback of residences from the freeway corridor.
Greater number of trucks, traveling slower due to traffic, should equate greater air quality impacts, than if traffic was flowing faster. Given the steep grade, air quality impacts are greater still, as Diesel engines emit greater particulate matter when under extreme load, such as when accelerating or climbing a steep grade. The air quality study should reflect the impacts grade and volume would have on the corridor.

I believe the traffic study failed to adequately address the true impacts of UCR upon regional traffic. UCR is currently at 22,500, current enrollment, and that does not include staff and faculty. The campus is planning to increase enrollment to 36,000, and the Chancellor has told the UC Regents, that he envisions growing the campus to 60-70k. The campus is just completing a new 1200 stall, four story parking structure, that will increase traffic on the east side of campus, on Watkins drive.

UCR has just finished four massive new dormitories, from which traffic impacts are yet to be determine but will feed onto Blaine and Watkins.

UCR is building a new medical school building, for which parking will be at the new parking structure on Big Springs.

Riverside Unified School District is planning a new 1200 student high school, on the UCR campus at the conner of Canyon Crest and Blaine. The location doesn't have adequate land for on site parking, so most student will be bused.

There is a proposal for three more warehouses near Rustin and Marlborough , and one at Spruce. Currently there is already a tremendous commuter traffic load from the Hunter business center, via Rustin to Spruce to Watkins, to Central. This load will increase with the added warehouses.
There should be an acknowledgment and attempt to assess the impact third party driving apps will have on traffic patterns, as these different projects imposes their traffic loads onto the streets and freeways. During an evening of heavy traffic load on Watkins drive, I walked along the backed up line of vehicles and asked if they were using a driving app that had guided them, and informally about 1/3 indicated yes.

I believe the Crestview DEIR failed to include many of these impacts on traffic and air quality. The cumulative impacts have yet to be studied or determined. Too many of these projects are either in planning, construction, or pre-opening phase, for any true measure of impacts can be accurately assessed. UCR and other businesses have yet to reopen from the COVID closures, for any accurate measure can be made. Will the post COVID world go back to pre-COVID loads, or will it be more or less? One thing is for certain, 10,000 more trucks a day, to and from Fairview-Highland, is going have a huge impact on the region, and especially at the Crestview project site choke point.

Below are photos illustrating the very typical commuter traffic on Watkins Dr. The location is Watkins and Big Springs. The photos are pre-COVID closure, but also pre-UCR parking Structure, pre-UCR medschool building, pre-UCR new dormitories, and pre- new warehouses on Spruce/Rustin/Marlborough.

Respectfully,

Kevin Dawson

269 Goins Ct.
Riverside, CA 92507

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FOR LEASE
RIDIN58

Sent from my iPad

DELANO & DELANO

May 3, 2021

VIA E-MAIL

Candice Assadzadeh
Senior Planner, City of Riverside
Community & Economic Development Department
Planning Division
3900 Main Street, 3rd Floor
Riverside, CA 92522

Re: Crestview Apartments Draft Environmental Impact Report (P20-310); SCH # 2020069047

Dear City of Riverside:

This letter is submitted on behalf of Friends of Riverside's Hills in connection with the proposed Crestview Apartments Project ("Project") and related Draft Environmental Impact Report ("DEIR"). This letter is to supplement a previous letter sent from our office on May 3, 2021.

The DEIR fails to adequately analyze impacts to transportation. Table 4-2 of the Focused Traffic Analysis and Vehicle Miles Traveled Analysis contains a summary of cumulative development projects that lacks any University of California Riverside campus development projects. Traffic Analysis at 54. Among other projects, there is a nearly complete 4-story, 1,200 space parking garage on Big Springs Road. The World Logistics Center managed by the City of Moreno Valley Community Development Department will add a significant number trucks to the area, largely on the freeway segment near the Project, and left out of the transportation analysis. If a cumulative impact of a proposed project and other activities are significant, it must be discussed; this requirement must be interpreted so as to afford the fullest possible protection of the environment within the reasonable scope of the statutory and regulatory language. *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal App. 3d 421, 431-432. The DEIR must consider these projects and any contributions to cumulative impacts.

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The DEIR has not mitigated impacts to traffic. The Focused Traffic Analysis Table 1-3 notes two improvements. Traffic Analysis at 9. The amount of the improvement in delay attributed to the intersection at Sycamore Canyon Boulevard and Central Avenue is not given and the improvement for the intersection at Watkins Drive and SR-60 WB On-Ramp will not occur, if ever, until 2040. The improvements refer to right turns to or from the portions of Sycamore Canyon Boulevard south of Central Avenue. However, as shown on Table 3-2, the same 2-lane roadway was already at 98% traffic volume capacity in 2019, so the efficacy of the proposed improvements is uncertain.

For the foregoing reasons, Friends of Riverside's Hills urges you to reject the Project and DEIR as proposed. Thank you for your consideration of these concerns.

Sincerely,

Rachel Blackburn

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Mitchell M. Tsai
Attorney At Law

155 South El Molino Avenue
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Pasadena, California 91101

VIA U.S. MAIL & E-MAIL

May 3, 2021

Candance Assadzadeh, Senior Planner
City of Riverside Community & Economic Development Dept.
Planning Division
3900 Main Street, 3rd Floor
Riverside, CA 92522
Em: cassadzadeh@riversideca.gov

RE: Crestview Apartments Project

Dear Ms. Assadzadeh,

On behalf of the Southwest Regional Council of Carpenters ("**Commenter**" or "**Carpenter**"), my Office is submitting these comments on the City of Riverside's ("**City**" or "**Lead Agency**") Draft Environmental Impact Report ("**DEIR**") (SCH No. 2020069047) for the Crestview Apartments Project, a new residential development proposed for 237 residential units and supporting uses ("**Project**").

The Southwest Carpenters is a labor union representing 50,000 union carpenters in six states and has a strong interest in well ordered land use planning and addressing the environmental impacts of development projects.

Individual members of the Southwest Carpenters live, work and recreate in the City and surrounding communities and would be directly affected by the Project's environmental impacts.

Commenters expressly reserves the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

Commenters expressly reserves the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens*

for Local Control v. Bakersfield (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

Commenters incorporates by reference all comments raising issues regarding the EIR submitted prior to certification of the EIR for the Project. *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal. App. 4th 173, 191 (finding that any party who has objected to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, Commenter requests that the Lead Agency provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act ("**CEQA**"), Cal Public Resources Code ("**PRC**") § 21000 *et seq*, and the California Planning and Zoning Law ("**Planning and Zoning Law**"), Cal. Gov't Code §§ 65000–65010. California Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

The City should require the Applicant provide additional community benefits such as requiring local hire and use of a skilled and trained workforce to build the Project. The City should require the use of workers who have graduated from a Joint Labor Management apprenticeship training program approved by the State of California, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state approved apprenticeship training program or who are registered apprentices in an apprenticeship training program approved by the State of California.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the UC Berkeley Center for Labor Research and Education concluded:

> . . . labor should be considered an investment rather than a cost – and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

The City should also require the Project to be built to standards exceeding the current 2019 California Green Building Code to mitigate the Project's environmental impacts and to advance progress towards the State of California's environmental goals.

I. THE PROJECT WOULD BE APPROVED IN VIOLATION OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

A. Background Concerning the California Environmental Quality Act

CEQA has two basic purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 California Code of Regulations ("**CCR**" or "**CEQA Guidelines**") § 15002(a)(1).[2] "Its

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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

[2] The CEQA Guidelines, codified in Title 14 of the California Code of Regulations, section 15000 *et seq*, are regulatory guidelines promulgated by the state Natural Resources Agency for the implementation of CEQA. (Cal. Pub. Res. Code § 21083.) The CEQA Guidelines are given "great weight in interpreting CEQA except when . . . clearly unauthorized or erroneous." *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal. 4th 204, 217.

purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. Thus, the EIR 'protects not only the environment but also informed self-government.' [Citation.]" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal. App. 4th 1344, 1354 ("*Berkeley Jets")*; *County of Inyo v. Yorty* (1973) 32 Cal. App. 3d 795, 810.

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. CEQA Guidelines § 15002(a)(2) and (3). *See also, Berkeley Jets,* 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal. 3d 376, 400. The EIR serves to provide public agencies and the public in general with information about the effect that a proposed project is likely to have on the environment and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines § 15002(a)(2). If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081. CEQA Guidelines § 15092(b)(2)(A–B).

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position.' A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added) (quoting *Laurel Heights,* 47 Cal. 3d at 391, 409 fn. 12). Drawing this line and determining whether the EIR complies with CEQA's information disclosure requirements presents a question of law subject to independent review by the courts. *Sierra Club v. Cnty. of Fresno* (2018) 6 Cal. 5th 502, 515; *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal. App. 4th 48, 102, 131. As the court stated in *Berkeley Jets*, 91 Cal. App. 4th at 1355:

> A prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.

The preparation and circulation of an EIR is more than a set of technical hurdles for agencies and developers to overcome. The EIR's function is to ensure that government officials who decide to build or approve a project do so with a full understanding of the environmental consequences and, equally important, that the public is assured those consequences have been considered. For the EIR to serve these goals it must present information so that the foreseeable impacts of pursuing the project can be understood and weighed, and the public must be given an adequate opportunity to comment on that presentation before the decision to go forward is made. *Communities for a Better Environment v. Richmond* (2010) 184 Cal. App. 4th 70, 80 (quoting *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 449–450).

B. <u>CEQA Requires Revision and Recirculation of an Environmental Impact Report When Substantial Changes or New Information Comes to Light</u>

Section 21092.1 of the California Public Resources Code requires that "[w]hen significant new information is added to an environmental impact report after notice has been given pursuant to Section 21092 … but prior to certification, the public agency shall give notice again pursuant to Section 21092, and consult again pursuant to Sections 21104 and 21153 before certifying the environmental impact report" in order to give the public a chance to review and comment upon the information. CEQA Guidelines § 15088.5.

Significant new information includes "changes in the project or environmental setting as well as additional data or other information" that "deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative)." CEQA Guidelines § 15088.5(a). Examples of significant new information requiring recirculation include "new significant environmental impacts from the project or from a new mitigation measure," "substantial increase in the severity of an environmental impact," "feasible project alternative or mitigation measure considerably different from others previously analyzed" as well as when "the draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." *Id.*

An agency has an obligation to recirculate an environmental impact report for public notice and comment due to "significant new information" regardless of whether the agency opts to include it in a project's environmental impact report. *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal. App. 4th 74, 95 [finding that in light of a new expert report disclosing potentially significant impacts to groundwater supply "the EIR should have been revised and recirculated for purposes of informing the public and governmental agencies of the volume of groundwater at risk and to allow the public and governmental agencies to respond to such information."]. If significant new information was brought to the attention of an agency prior to certification, an agency is required to revise and recirculate that information as part of the environmental impact report.

For all of the reasons outlined below, the DEIR should be revised and recirculated for additional public comment.

C. Due to the COVID-19 Crisis, the City Must Adopt a Mandatory Finding of Significance that the Project May Cause a Substantial Adverse Effect on Human Beings and Mitigate COVID-19 Impacts

CEQA requires that an agency make a finding of significance when a Project may cause a significant adverse effect on human beings. PRC § 21083(b)(3); CEQA Guidelines § 15065(a)(4).

Public health risks related to construction work requires a mandatory finding of significance under CEQA. Construction work has been defined as a Lower to High-risk activity for COVID-19 spread by the Occupations Safety and Health Administration. Recently, several construction sites have been identified as sources of community spread of COVID-19.[3]

SWRCC recommends that the Lead Agency adopt additional CEQA mitigation measures to mitigate public health risks from the Project's construction activities. SWRCC requests that the Lead Agency require safe on-site construction work practices as well as training and certification for any construction workers on the Project Site.

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[3] Santa Clara County Public Health (June 12, 2020) COVID-19 CASES AT CONSTRUCTION SITES HIGHLIGHT NEED FOR CONTINUED VIGILANCE IN SECTORS THAT HAVE REOPENED, *available at* https://www.sccgov.org/sites/covid19/Pages/press-release-06-12-2020-cases-at-construction-sites.aspx.

In particular, based upon SWRCC's experience with safe construction site work practices, SWRCC recommends that the Lead Agency require that while construction activities are being conducted at the Project Site:

Construction Site Design:

- The Project Site will be limited to two controlled entry points.
- Entry points will have temperature screening technicians taking temperature readings when the entry point is open.
- The Temperature Screening Site Plan shows details regarding access to the Project Site and Project Site logistics for conducting temperature screening.
- A 48-hour advance notice will be provided to all trades prior to the first day of temperature screening.
- The perimeter fence directly adjacent to the entry points will be clearly marked indicating the appropriate 6-foot social distancing position for when you approach the screening area. Please reference the Apex temperature screening site map for additional details.
- There will be clear signage posted at the project site directing you through temperature screening.
- Provide hand washing stations throughout the construction site.

Testing Procedures:

- The temperature screening being used are non-contact devices.
- Temperature readings will not be recorded.
- Personnel will be screened upon entering the testing center and should only take 1-2 seconds per individual.
- Hard hats, head coverings, sweat, dirt, sunscreen or any other cosmetics must be removed on the forehead before temperature screening.

- Anyone who refuses to submit to a temperature screening or does not answer the health screening questions will be refused access to the Project Site.
- Screening will be performed at both entrances from 5:30 am to 7:30 am.; main gate [ZONE 1] and personnel gate [ZONE 2]
- After 7:30 am only the main gate entrance [ZONE 1] will continue to be used for temperature testing for anybody gaining entry to the project site such as returning personnel, deliveries, and visitors.
- If the digital thermometer displays a temperature reading above 100.0 degrees Fahrenheit, a second reading will be taken to verify an accurate reading.
- If the second reading confirms an elevated temperature, DHS will instruct the individual that he/she will not be allowed to enter the Project Site. DHS will also instruct the individual to promptly notify his/her supervisor and his/her human resources (HR) representative and provide them with a copy of Annex A.

<u>Planning</u>

- Require the development of an Infectious Disease Preparedness and Response Plan that will include basic infection prevention measures (requiring the use of personal protection equipment), policies and procedures for prompt identification and isolation of sick individuals, social distancing (prohibiting gatherings of no more than 10 people including all-hands meetings and all-hands lunches) communication and training and workplace controls that meet standards that may be promulgated by the Center for Disease Control, Occupational Safety and Health Administration, Cal/OSHA, California Department of Public Health or applicable local public health agencies.[4]

The United Brotherhood of Carpenters and Carpenters International Training Fund has developed COVID-19 Training and Certification to ensure that Carpenter union members and apprentices conduct safe work practices. The Agency should require that all construction workers undergo COVID-19 Training and Certification before being allowed to conduct construction activities at the Project Site.

D. The DEIR's Mitigation Measures are Impermissibly Vague and Defer Critical Details

The DEIR improperly defers critical details of mitigation measures. Feasible mitigation measures for significant environmental effects must be set forth in an EIR for consideration by the lead agency's decision makers and the public before certification of the EIR and approval of a project. The formulation of mitigation measures generally cannot be deferred until after certification of the EIR and approval of a project. CEQA Guidelines § 15126.4(a)(1)(B) ("…[f]ormulation of mitigation measures should not be deferred until some future time.").

Deferring critical details of mitigation measures undermines CEQA's purpose as a public information and decision-making statute. "[R]eliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA's goals of full disclosure and informed decisionmaking; and[,] consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment." *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal. App. 4th 70, 92 ("*Communities*"). As the Court noted in *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307, "[a] study conducted after approval of a project will inevitably have a diminished influence on decision-making. Even if the study is subject to administrative approval, it is analogous to the

[4] *See also* The Center for Construction Research and Training, North America's Building Trades Unions (April 27 2020) NABTU and CPWR COVIC-19 Standards for U.S Constructions Sites, *available at* https://www.cpwr.com/sites/default/files/NABTU_CPWR_Standards_COVID-19.pdf; Los Angeles County Department of Public Works (2020) Guidelines for Construction Sites During COVID-19 Pandemic, *available at* https://dpw.lacounty.gov/building-and-safety/docs/pw_guidelines-construction-sites.pdf.

..

sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA."

A lead agency's adoption of an EIR's proposed mitigation measure for a significant environmental effect that merely states a "generalized goal" to mitigate a significant effect without committing to any specific criteria or standard of performance violates CEQA by improperly deferring the formulation and adoption of enforceable mitigation measures. *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 670; *Communities*, 184 Cal.App.4th at 93 ("EIR merely proposes a generalized goal of no net increase in greenhouse gas emissions and then sets out a handful of cursorily described mitigation measures for future consideration that might serve to mitigate the [project's significant environmental effects."); cf. *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1029 (upheld EIR that set forth a range of mitigation measures to offset significant traffic impacts where performance criteria would have to be met, even though further study was needed and EIR did not specify which measures had to be adopted by city).].

Here, the DEIR features several mitigation measures which are impermissibly vague and defer critical details:

- *MM AES-1*: DEIR states a Photometric Plan *will be* drafted and reviewed by the City before issuing of building permits to prevent light spillage.
- *MM BIO-2 and MM BIO-10*: Fails to conduct and include a Burrowing Owl Protection and Relocation Plan despite the Project site having suitable habitat for burrowing owls; BIO-10 attempts to address impacts to water quality but defers drafting and submission of a Stormwater Pollution Prevention Plan until issuing of building permit to address runoff that may affect plants or wildlife.
- *MM CUL-2*: DEIR fails to include an Archaeological Monitoring Plan and defers drafting of such plans until issuing of building permits.

As a result of the above deficiencies in the DEIR's analysis and mitigation efforts, the DEIR needs to be revised and recirculated with plans that are subjected to public comment and an appropriate level of specificity to ensure adequacy and enforceability.

E. The DEIR Fails to Support Its Findings with Substantial Evidence

When new information is brought to light showing that an impact previously discussed in the DEIR but found to be insignificant with or without mitigation in the DEIR's analysis has the potential for a significant environmental impact supported by substantial evidence, the EIR must consider and resolve the conflict in the evidence. See *Visalia Retail, L.P. v. City of Visalia* (2018) 20 Cal. App. 5th 1, 13, 17; see also *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal. App. 4th 1099, 1109. While a lead agency has discretion to formulate standards for determining significance and the need for mitigation measures—the choice of any standards or thresholds of significance must be "based to the extent possible on scientific and factual data and an exercise of reasoned judgment based on substantial evidence. CEQA Guidelines § 15064(b); *Cleveland Nat'l Forest Found. v. San Diego Ass'n of Gov'ts* (2017) 3 Cal. App. 5th 497, 515; *Mission Bay Alliance v. Office of Community Inv. & Infrastructure* (2016) 6 Cal. App. 5th 160, 206. And when there is evidence that an impact could be significant, an EIR cannot adopt a contrary finding without providing an adequate explanation along with supporting evidence. *East Sacramento Partnership for a Livable City v. City of Sacramento* (2016) 5 Cal. App. 5th 281, 302.

In addition, a determination that regulatory compliance will be sufficient to prevent significant adverse impacts must be based on a project-specific analysis of potential impacts and the effect of regulatory compliance. In *Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal. App. 4th 1, the court set aside an EIR for a statewide crop disease control plan because it did not include an evaluation of the risks to the environment and human health from the proposed program but simply presumed that no adverse impacts would occur from use of pesticides in accordance with the registration and labeling program of the California Department of Pesticide Regulation. *See also Ebbetts Pass Forest Watch v Department of Forestry & Fire Protection* (2008) 43 Cal. App. 4th 936, 956 (fact that Department of Pesticide Regulation had assessed environmental effects of certain herbicides in general did not excuse failure to assess effects of their use for specific timber harvesting project).

1. *The DEIR Fails to Support its Findings on Greenhouse Gas Impacts with Substantial Evidence.*

CEQA Guidelines § 15064.4 allow a lead agency to determine the significance of a project's GHG impact via a qualitative analysis (e.g., extent to which a project complies with regulations or requirements of state/regional/local GHG plans), and/or a quantitative analysis (e.g., using model or methodology to estimate project emissions and compare it to a numeric threshold). So too, CEQA Guidelines allow lead agencies to select what model or methodology to estimate GHG emissions so long as the selection is supported with substantial evidence, and the lead agency "should explain the limitations of the particular model or methodology selected for use." CEQA Guidelines § 15064.4(c).

CEQA Guidelines sections 15064.4(b)(3) and 15183.5(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.

CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) make clear 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 CAP 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 the substantial evidence that the incremental contribution of an individual project is not cumulatively considerable.

Here, the DEIR's analysis of greenhouse gas emissions impacts is not supported by substantial evidence for at least the following reasons:

- The DEIR utilized an incorrect and unsubstantiated quantitative analysis of emissions; and
- The DEIR failed to identify a potentially significant GHG impact when applying a 2.6 MT CO_2e/SP/year threshold per AEP guidance[5].

The DEIR's greenhouse gas emissions estimate is largely based upon its VMT modeling which estimates an 11.5 mile average trip length based upon the Project TAZ and RivTAM. However, this trip length is not based upon substantial evidence because it does not represent conditions at the Project site. The Project is located between the 215 freeway and SR-60 and is optimally located for long-distance commuting to surrounding jobs centers in Orange County, Los Angeles, and San Diego. The DEIR assumes that most operational Project trips will take place locally which is not substantiated by any facts or analysis in the DEIR.

2. The DEIR Fails to Support its Findings on Transportation Impacts with Substantial Evidence.

CEQA Guidelines § 15064.3(b) requires analysis of a Project's vehicle miles traveled (VMT) impacts as part of the environmental document's transportation impacts analysis. The OPR technical guidance suggests that projects which have a VMT per capita of 15% or more below existing conditions may indicate a less than significant transportation impact relating to VMT.[6] Assuming then this is the proper methodology, the DEIR fails to demonstrate a less than significant impact with respect to VMT.

The DEIR utilizes the RivTAM estimates (Riverside County Transportation Analysis Model) for project trips and lengths for a significance determination which underestimates resident and worker trips for the Project site and is unsubstantiated. The analysis for VMT should be based upon the actual conditions at the Project site and not on any City-wide estimates for home-based VMT. Even if the DEIR determined that there would be a significant impact requiring mitigation—it does not

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[5] "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.

[66] OPR Technical Advisory, On Evaluating Transportation Impacts in CEQA (Dec. 2018), available at https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

demonstrate that MM-TRANS 1-3 would mitigate the significant effects of VMT without a more accurate analysis of VMT based upon OPR's guidance.

II. THE PROJECT VIOLATES THE STATE PLANNING AND ZONING LAW AS WELL AS THE CITY'S GENERAL PLAN

A. Background Regarding the State Planning and Zoning Law

Each California city and county must adopt a comprehensive, long-term general plan governing development. *Napa Citizens for Honest Gov. v. Napa County Bd. of Supervisors* (2001) 91 Cal. App.4th 342, 352, citing Gov. Code §§ 65030, 65300. The general plan sits at the top of the land use planning hierarchy (See *DeVita v. County of Napa* (1995) 9 Cal. App. 4th 763, 773), and serves as a "constitution" or "charter" for all future development. *Lesher Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal. App. 3d 531, 540.

General plan consistency is "the linchpin of California's land use and development laws; it is the principle which infused the concept of planned growth with the force of law." See *Debottari v. Norco City Council* (1985) 171 Cal. App. 3d 1204, 1213.

State law mandates two levels of consistency. First, a general plan must be internally or "horizontally" consistent: its elements must "comprise an integrated, internally consistent and compatible statement of policies for the adopting agency." (See Gov. Code § 65300.5; *Sierra Club v. Bd. of Supervisors* (1981) 126 Cal. App. 3d 698, 704.) A general plan amendment thus may not be internally inconsistent, nor may it cause the general plan as a whole to become internally inconsistent. See *DeVita*, 9 Cal. App. 4th at 796 fn. 12.

Second, state law requires "vertical" consistency, meaning that zoning ordinances and other land use decisions also must be consistent with the general plan. (See Gov. Code § 65860(a)(2) [land uses authorized by zoning ordinance must be "compatible with the objectives, policies, general land uses, and programs specified in the [general] plan."]; see also *Neighborhood Action Group v. County of Calaveras* (1984) 156 Cal. App. 3d 1176, 1184.) A zoning ordinance that conflicts with the general plan or impedes achievement of its policies is invalid and cannot be given effect. See *Lesher*, 52 Cal. App. 3d at 544.

State law requires that all subordinate land use decisions, including conditional use permits, be consistent with the general plan. See Gov. Code § 65860(a)(2); *Neighborhood Action Group*, 156 Cal. App. 3d at 1184.

A project cannot be found consistent with a general plan if it conflicts with a general plan policy that is "fundamental, mandatory, and clear," regardless of whether it is consistent with other general plan policies. See *Endangered Habitats League v. County of Orange* (2005) 131 Cal. App. 4th 777, 782-83; *Families Unafraid to Uphold Rural El Dorado County v. Bd. of Supervisors* (1998) 62 Cal. App. 4th 1332, 1341-42 ("*FUTURE*").

Moreover, even in the absence of such a direct conflict, an ordinance or development project may not be approved if it interferes with or frustrates the general plan's policies and objectives. See *Napa Citizens*, 91 Cal. App. 4th at 378-79; see also *Lesher*, 52 Cal. App. 3d at 544 (zoning ordinance restricting development conflicted with growth-oriented policies of general plan).

B. The DEIR is Required to Review the Project's Consistency with Regional Housing Plans, Sustainable Community Strategy and Regional Transportation Plans

CEQA Guidelines section 15125(d) requires that an environmental impact report "discuss any inconsistencies between the proposed project and applicable general plans, specific plans and regional plans. *See also Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal. App. 5th 467, 543.

1. *The DEIR Fails to Demonstrate Consistency with SCAG's RTP/SCS Plan.*

The Project's environmental documents fail as an informational document since the Project DEIR fails to discuss consistency with the 2020 RTP / SCS – Connect SoCal. The DEIR's entire analysis is based upon a terse discussion of the RTP/SCS plan on p. 6.0-3 of the DEIR. There, the DEIR states the Project would not conflict with Connect SoCal because certain land use and transportation mitigation measures being implemented for the Project and no conflict with plans for the local circulation system. This is not analysis so much as a conclusory statement that is not supported by fact, and does not demonstrate consistency with any plan.

2. *The DEIR Fails to Demonstrate Consistency with the State Housing Law's Regional Housing Needs Assessment Requirements and the City's Obligations to Fulfill those Requirements in its Housing Element.*

State law requires that jurisdictions provide their fair share of regional housing needs and adopt a general plan for future growth (California Government Code Section 65300). The California Department of Housing and Community Development (HCD) is mandated to determine state-wide housing needs by income category for each Council of Governments (COG) throughout the state. The housing need is determined based on four broad household income categories: very low (households making less than 50 percent of median family income), low (50 to 80 percent of median family income), moderate (80 to 120 percent of median family income), and above moderate (more than 120 percent of median family income). The intent of the future needs allocation by income groups is to relieve the undue concentration of very low and low-income households in a single jurisdiction and to help allocate resources in a fair and equitable manner.

CEQA requires the DEIR analyze the Project's consistency with the State's housing goals. CEQA Guidelines section 15125(d) requires that an environmental impact report "discuss any inconsistencies between the proposed project and applicable general plans, specific plans and regional plans. *See also Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal. App. 5th 467, 543.

The City fails to conduct any consistency analysis with SCAG's 6th Cycle RHNA Allocation Plan.[7]

The DEIR should be revised and recirculated with an analysis of how the Project is consistent with the City of Riverside's 6th Cycle RHNA allocation.

III. CONCLUSION

Commenters request that the City revise and recirculate the Project's environmental impact report to address the aforementioned concerns. If the City has any questions or concerns, feel free to contact my Office.

Sincerely,

Mitchell M. Tsai
Attorneys for Southwest Regional
Council of Carpenters

[7] Available at https://scag.ca.gov/sites/main/files/file-attachments/6th-cycle-rhna-final-allocation-plan.pdf?1616462966.

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B); and

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C);

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
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Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

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[1] "California Emissions Estimator Model." CAPCOA, 2017*, available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017*, available at:* http://www.aqmd.gov/caleemod/home.
[3] "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. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

"$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$

Where:

n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

"$Emissions_{pollutant} = VMT * EF_{running,pollutant}$

Where:

$Emissions_{pollutant}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

$EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. 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.[8] The default number of construction-related worker trips is calculated by multiplying the

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "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. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the *location* and *urbanization* selected on the project characteristic screen. These values were *supplied by the air districts or use a default average for the state*. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

[9] "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. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. 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.

<u>EXHIBIT B</u>

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

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., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

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 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 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

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

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
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
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 25 years of experience in environmental policy, assessment and remediation. 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) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- 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).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, 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 industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- 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.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

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 taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

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).

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Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

May 2nd, 2021

To: Candice Assadzadeh, Senior Planner, City of Riverside

From: Leonard Nunney for Friends of Riverside's Hills (FRH)

Re: Response to Crestview Apartments Draft EIR (P19-0905).

The project being considered has a number of potentially significant environmental impacts that are not adequately considered and/or mitigated by the project DEIR. For this (and other reasons documented elsewhere) Friends of Riverside's Hills (FRH) opposes this project in its current form. FRH is a 501(c)(3) non-profit group dedicated to the preservation and enhancement of the quality of life of the residents of Riverside by maintaining the natural beauty of the City, and by promoting the establishment of a network of linked natural open space areas in the City of Riverside and in the surrounding area.

In presenting the concerns of FRH, I need to point out that I am a professor at the University of California Riverside and one aspect of my research concerns the ability of small populations to avoid extinction. For example, two of my early (1990s) peer-reviewed scientific papers (Assessing minimum viable population size: demography meets population genetics, and Estimating the effective population size of conserved populations) have been cited 403 and 383 times, respectively, according to Google Scholar (as of today). As a result of my expertise, I became a member of the Scientific Advisory Panel that was involved in the establishment of the MSHCP, and that strongly advocated for the critical role of linkages.

The proposed project site is in a very environmentally sensitive area near to Sycamore Canyon Wilderness Park (SCWP), a park of approximately 1500 acres, and it adjoins Quail Run Park (QRP), another natural open space area of about 30 acres. These two natural open space areas are critical components in the conservation of biodiversity in Western Riverside County and are important to the enjoyment of natural open space by residents of the area and visitors. The concerns documented in this letter focus on these two issues.

SCWP is core area within the Western Riverside County Multiple Species Habitat Conservation Plan (the MSHCP). When the plan was developed it was recognized that it was critical to link SCWP to the Box Springs Mountain Park, another core area to the east by the establishment of constrained linkage 7.

1. **Aesthetics (Section 5.1)**

Threshold A: Would the Project have a substantial adverse effect on a scenic vista?
The DEIR states there would be a less than significant impact without mitigation. However, the DEIR failed to consider the significant impact on those individuals using the nearby natural space areas, and the impact on those who walk or bike along Central

Avenue. The DEIR analysis assumes only that any effect would be transient of those driving on Central Avenue.

First, the Riverside Municipal Code Title 17 covering grading is quite clear in its intent to preserve the aesthetic quality of hillside areas through its regulation of grading on properties with an average natural slope of 10% or greater. The subject property has a current average slope of 25.9% (the DEIR incorrectly states this as the average natural slope (ANS); this is incorrect, the ANS was significantly greater than this figure prior to the extensive grading noted in section 4.2 of the DEIR)

The Grading Title states (section 17.04.010): a "purpose of this title [is] to regulate hillside and arroyo grading in a manner which minimizes the adverse effects of grading on natural landforms,….." and that:

"The required review of hillside/arroyo grading includes regulations to:

A. **Ensure that significant natural characteristics such as land form, vegetation, wildlife communities, scenic qualities, and open space can substantially be maintained**; to preserve unique and significant geologic; biologic and hydrologic features of public value; to encourage alternative approaches to conventional hillside construction practices by achieving land use patterns and intensities that are consistent with the natural characteristics of hill areas such as slope, landform vegetation, and scenic quality.

B. **Maintain the identity, image and environmental quality of the City**; and to achieve land use densities that are in keeping with the General Plan.

C. **Minimize the visual impact of grading**.

D. **Minimize grading which relates to the natural contour of the land, and which will round off, in a natural manner, sharp angles at the top and ends of cut and fill slopes, and which does not result in a staircase or padding affect**

…….

I. **Preserve major hillsides viewscapes visible from points within the city so that they are not detrimentally altered by the intrusion of highly visible cut and/or fill slopes, building lines** and/or road surfaces."

(Bold emphasis added).

The project totally ignores the hillside/arroyo grading regulations, and instead proposes to change the form of the slopes and create a "staircase" of tall walls and 2:1 slopes that total up to about 30ft (See DEIR Fig 3.0-7). This design is in direct conflict with item I above. These slopes are along Central Ave, used by many people exercising and biking to UCR, and along the south west edge bordering QRP, that is visible not only from this open space areas, but also by the large number of people using a major trail in SCWP (as shown in the next paragraph). The extreme degree to which this "staircasing" has a major impact on the landform and the scenic vista can be seen in Fig 5.1-5 “Overhead View of Basin & Walls”.

Second, the height (approximately 50ft) of these buildings is entirely inconsistent with the viewscape in the area. In particular, SCWP is a very heavily used park, with the major point of entry on Central Ave, west of the project. From the parking area, a major trail first heads up hill towards the project and then follows the high ground south (see Fig 1 map). This stretch of trail provides dramatic views of the Box Springs Mountains to the east, looking over the project site. The project will severely impact this viewscape. Part of the line of sight does cross a few, largely hidden, single story homes, but the view is otherwise entirely undisturbed by buildings.

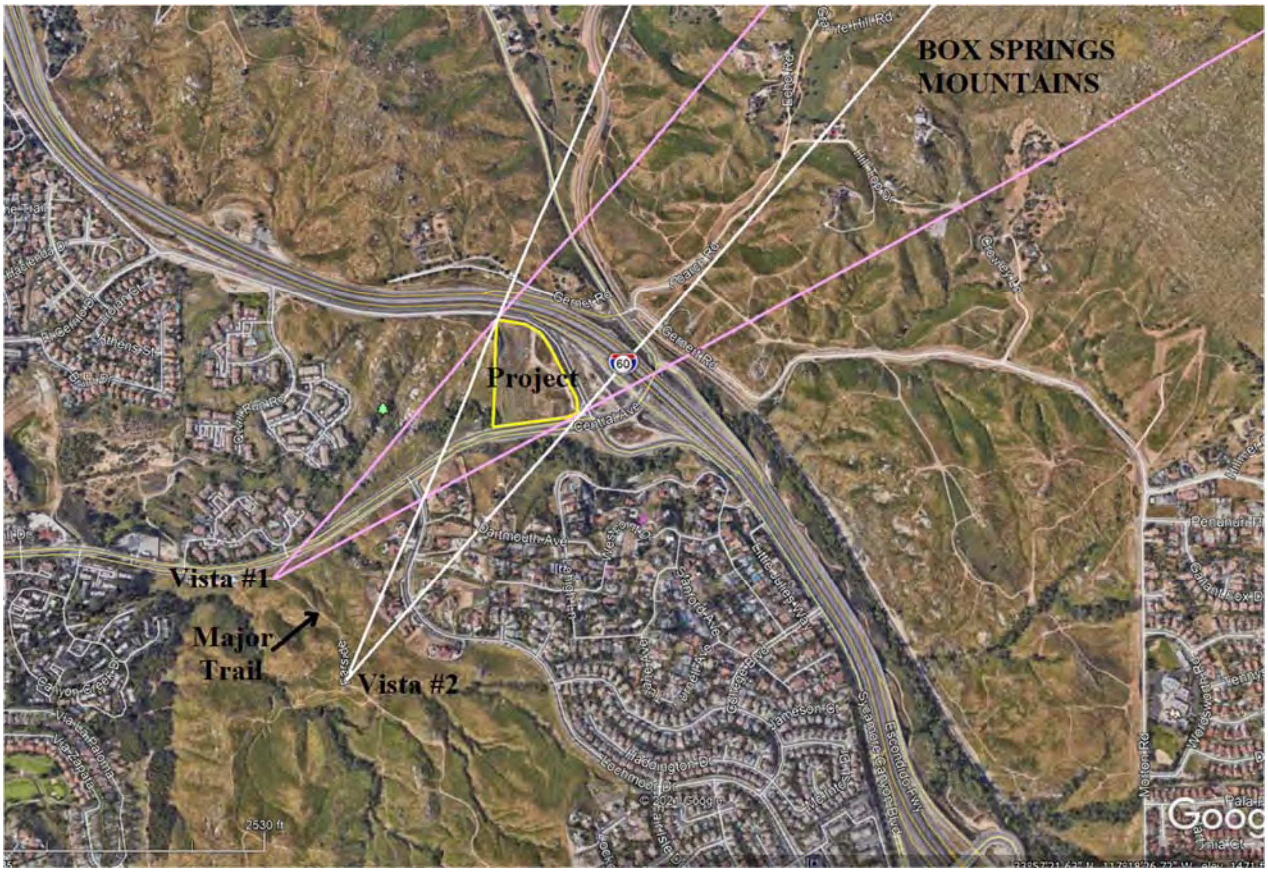

Fig 1: Lines (pink from SCWP vista point #1; white from SCWP vista point #2) show the undisturbed line of sight over the project site to the Box Springs Mountains. The project will create a huge 50ft high complex in this otherwise undisturbed viewscape.

In conclusion, the proposed project will have a significant impact on the viewscape, both due to its height and due to the very high staircase of slopes along its south and west edges. These issues have not been mitigated or even considered in the DEIR.

Threshold D: Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

It can be seen from Fig 1 that the project will stick up in the evening and nighttime viewscape from SCWP like a sore thumb, with lighted rooms at all levels of the building. This lighting will dramatically degrade the viewscape, with the only apparent mitigation being to significantly lower the height of the buildings to a height more compatible with the single-story homes to the south of the project site.

2. **Biological Resources (Section 5.3).**

Threshold B: Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The DEIR correctly identifies a blue line stream on the project site, although it incorrectly classifies it as intermittent. I have been observing the stream for many years and it has been flowing year-round. They also incorrectly identified the nature of the culvert that brings the stream under Central Ave to the site as an "84-inch corrugate metal culvert" (DEIR 5.3-10; App. C 5.1.1) when it actually almost immediately narrows to an approximately 65" diameter culvert made of concrete (see Appendix B within Appendix C, Photograph 8).

The conclusion that there is no wetland outside of the immediate stream bed is not based on appropriate data. It is stated that "Within the project footprint, the substrate within the drainage consisted of rock and loose sandy deposits that would not allow anaerobic conditions within the soil. Therefore, it was determined that no areas met all three wetland parameters and no jurisdictional wetland features exist within the project site." (DEIR 5.; App. C 5.1.2). A minimum requirement would be to determine the depth of the water table and perform other tests according to the guidelines in the Corps Arid West Regional Supplement (cited in the DEIR and defined in Appendix C of Appendix C); however, there is no indication that this was done (i.e. no data are provided). Thus, the wetland delineation is based on inadequate data.

Comments relating to both Threshold B and Threshold F (defined below). A critical feature of protecting the conserved 0.53 acres surrounding the stream and the adjoining QRP is to prevent any light or sound leakage. The MSHCP wildlands/urban interface requires that "Shielding shall be incorporated in project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased". Given that the location currently has zero light, this means that there must be no light leakage whatsoever. While AES-1 states that project lighting must not spill from the project area in to the open space areas, it also states that shielding will be used "where feasible" and it does not address lights installed by residents.

In addition, there needs to be additional constraints to prevent the degradation of the same area due to invasive species planted in the project. The mitigation in the DEIR refers to Table 6.2. This is a good start, but it was not recognized in the DEIR analysis that the list of invasive plant species is dynamic, and appropriate mitigation must ensure that the plants have not been r3ecognized as invasive within inland Southern California since Table 6.2 was constructed. This can be done by checking the California Invasive Plant Council website and the Consortium of California Herbaria (CCH) and CalFlora databases to see if non-native plants from horticulture are being recorded as naturalized in local wildlands.

Fencing: the fencing separating the developed project from the 0.53 acres of open space and QRP must be of a construction that does not allow the passage of domestic cats, since they are a major wildlife predator. There appears to be no analysis of this concern in the DEIR. It is not clear if the tubular steel fence will encompass all of this boundary, but in any event, it needs to be specified how the passage of domestic cats will be prevented.

Threshold D: Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?

and

Threshold F: Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Contrary to the conclusions of the DEIR, as proposed and mitigated the project will have a serious environmental impact on wildlife movement between SCWP and the Box Springs Mountains, and as such will conflict with the stated goals of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The result will be a serious environmental impact.

As noted in the DEIR, the project site is located in the area of the proposed constrained linkage 7 between these two locations as part of the MSHCP. Some of the relevant description (bold emphasis added) is (MSHCP vol 1 3:79-80, attached):

> "Proposed Constrained Linkage 7 is comprised of **upland Habitat in the vicinity of Central Avenue**. It is the **only connection from Sycamore Canyon Park to Box Springs Reserve**. This Linkage is important for species dispersal and would reduce the likelihood of species extinction as a result of population isolation…….
>
> Since this Linkage is affected by edge, it is anticipated that treatment and management of edge conditions along this Linkage will be necessary to ensure that it provides Habitat and movement functions for species using the Linkage…… Maintenance of an **adequate wildlife undercrossing at least 10-20 feet wide** with fencing and vegetative cover will be important to accommodate bobcat movement."

Thus, the description defines minimum dimensions of the linkage (10-20 ft wide), that it is upland habitat, and that edge mitigation/management will be important. The edge mitigation involves adherence to the wildland/urban interface guidelines (MSHCP vol1 6:42-46).

Fig 2: Western entrance to the (approximately) 450-foot-long 5-foot diameter culvert under I215 freeway that is a non-feasible option for creating Constrained Linkage 7. (photo June 2019 LN)

The precise location of a viable constrained linkage 7 is undefined (see the RCA Joint Project Review of the project at the end of Appendix C). However, if the plan does not place it on the project site, then it appears that the RCA places it coming from the Park, north to Quail Run Park, and then onto the SW corner of the project site before crossing south under Central Avenue to APN 256-050-004. The linkage is then channeled by the high retaining wall created by Sycamore Canyon Boulevard to the culvert passing under the I215 freeway (Fig 2).

The culvert under the I215 is roughly 450ft long and less than 6ft in diameter, ending in APN 256-050-004 at its eastern end. At its western end, the entrance is blocked by a permanent pond (Fig 2). Furthermore, the culvert under Central Ave is also about 250ft long and less than 6ft in diameter. This route does not satisfy the basic necessary conditions for the linkage, which requires upland habitat and a minimum 10-20ft width. It is also extraordinarily unlikely that any of the animals covered under the MSHCP would travel the length of either of these culverts: the width at the bottom of the culverts that can be used by animals is narrow (perhaps 3ft) and most of that is taken up by running water, plus the entrance to the freeway culvert in APN 256-050-004 is fronted by a deep pool of water (Fig 2), and the entrance to the culvert under Central is habitually partially blocked (Fig 3). Creation of a 10-20 ft wide useable tunnel under the freeway and under Central does not appear feasible at this time.

Fig 3: Southern entrance to the (approximately) 250-foot-long 5-foot diameter culvert under Central Ave that is a non-feasible option for creating Constrained Linkage 7.

The vastly superior (and much more straightforward) route for the linkage is to stay to the north side of Central Ave, leaving Quail Run Park, and passing across the project site before following Central Ave under the 215 freeway. In the absence of the impacts of this project, this route is likely to be the one naturally followed by the main target species, the bobcat, since this route avoids the very narrow, wet culvert under Central Ave and the extraordinarily long and wet one under the freeway, noting that no route for a functional constrained linkage 7 has yet been defined by the RCA.

The potential environmental impact of failing to create a functioning constrained linkage 7 is very great. SCWP is a multi-species wildlife preserve that is a core area within the MSHCP as well as being an enormously valuable resource for the City of Riverside and its residents. However, it has one major drawback: it is of moderate size and has become effectively isolated from all other natural areas. This drawback is minimized if a habitat connection can be maintained between Sycamore Canyon Wilderness Park and the Box Springs Mountain Park, i.e. by constrained linkage 7.

Despite its size (about 1500 acres), the animal populations of the Park are vulnerable to extinction if the Park becomes completely isolated. Data from studies of habitat islands both natural (islands, mountaintops, etc.) and artificial (national parks) have established that completely isolated populations of moderate size go extinct, even if most of the time they might seem robust and consist of several hundred individuals. Moreover, populations in areas like the SCWP that are subject to environmental fluctuation (e.g. annual rainfall variation associated with climate cycles and climate change) and disturbance (such as fire, and invasion by exotic species) are at increased risk of extinction. This outcome has been established using mathematical and simulation models.

This concern over the potential loss of biodiversity via a local extinction was an important factor influencing the design of the MSHCP, and in the case of SCWP, constrained linkage 7 was proposed to mitigate its isolation, since apart from this proposed linkage SCWP has become completely isolated from all other core areas of the MSHCP.

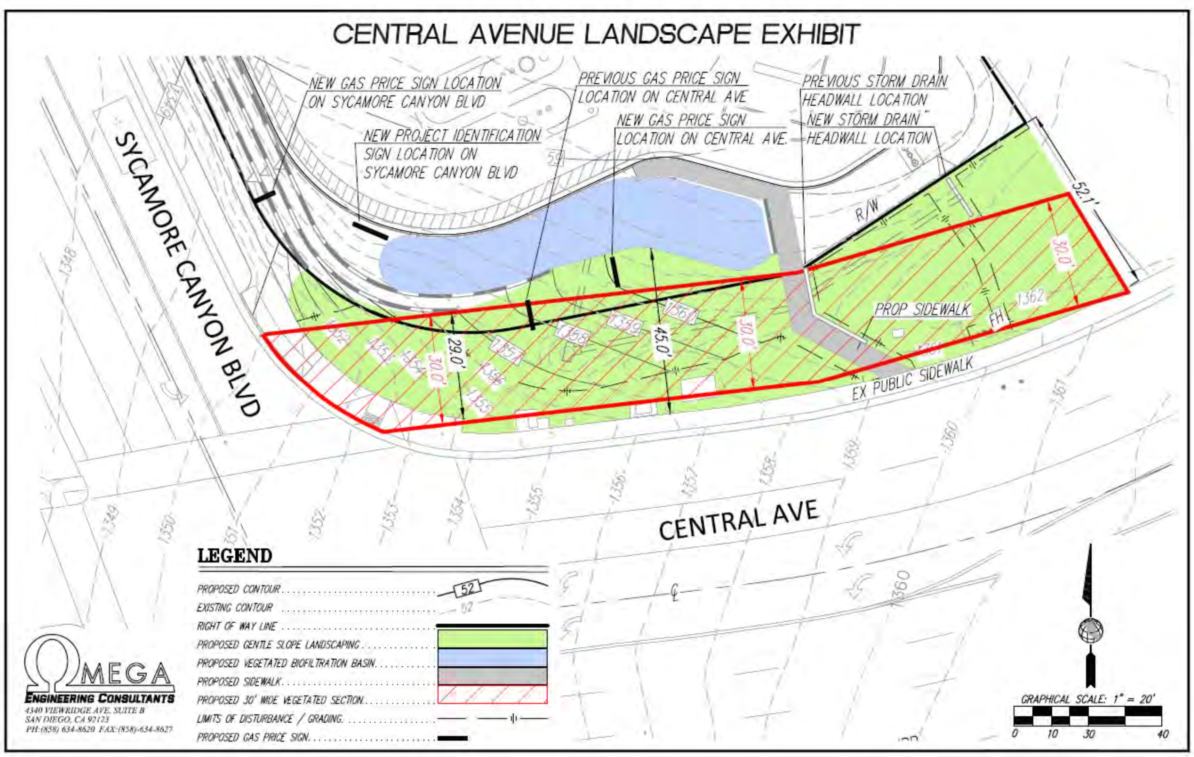

Fig 4: Commercial Project to the immediate east of the project showing the inclusion of a 30ft wide buffer to encourage wildlife movement.

The only viable route for constrained linkage 7 appears to be from QRP along a habitat corridor following the north side of Central Ave to the Freeway underpass. The option for such a route has already been incorporated into the design of the commercial development to the immediate east of the project. Specifically, the inclusion of a 30ft wide buffer along Central Ave with natural vegetation and minimal to no light intrusion (fig 4). In my expert opinion, it is essential that a similar 30ft (or more) buffer along Central Ave be incorporated into the project, from the western edge of the property as a continuous strip to the eastern edge at Sycamore Canyon Boulevard. This wildlife buffer should be planted with native vegetation and protected to the extent possible according to the MSHCP wildland/urban interface guidelines.

Cumulative Environmental Effects:

The DEIR concluded that there will not be any cumulative effects of the project: "potential cumulative impacts to sensitive biological resources were found to be less than significant with implementation of mitigation measures MM BIO-1 through MM BIO-15 and AES-1" (DEIR 5.3.7). However, there is no consideration of the most serious cumulative effect which has been the progressive isolation of SCWP through development, both commercial (notable warehouses) and suburban. At this point in time the ONLY remaining link between SCWP and any other wildlife area is through constrained linkage 7, which this project, as currently planned, will effectively destroy. The isolation of SCWP will inexorably lead to the progressive loss of its biodiversity over time (as outlined above), a very considerable environmental impact.

3. **Wildfire (Section 5.13)**

Threshold F: Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

It is important to prevent wildfire mitigation undermining biological mitigation, specifically so that the necessary wildfire mitigation does not degrade any of the open space areas either on or adjacent to the project. For example, MM FIRE-7 "Thinning Zone 2 Required Maintenance" involves the removal and/or thinning of "native vegetation". According to the Fire Zones "Fuel Treatment Site Plan" (DEIR Appendix K), there is no on-site Zone 2 protection along most of the western edge of the project. Why is the project not mitigating for the fire risk by placing the buildings further back from the open space areas (both onsite and QRP) along the projects western edge? Furthermore, a portion of the zone 1 area in the center of this western edge appears to be dangerously truncated. This zone mapping represents a failure to mitigate the wildfire risk, creating a very serious environmental impact.

Thank you for your attention to these concerns.

Regards,

Leonard Nunney (951 313 5386)
For Friends of Riverside's Hills (email watkinshill@juno.com)
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