455 MARKET STREET, SUITE 300 SAN FRANCISCO, CA 94105-2421

VOICE (415) 904-5200 FAX (415) 904-5400

CALIFORNIA COASTAL COMMISSION ENERGY, OCEAN RESOURCES AND FEDERAL CONSISTENCY

# W7a

CD-0004-22 (BOEM)

**JUNE 8, 2022** 

CORRESPONDENCE Received between May 28, 2022 and June 3, 2022



June 3, 2022

Chair Donne Brownsey California Coastal Commission 455 Market Street, Suite 300 San Francisco, CA 94105

#### Re: Coastal Commission Hearing - June 8, 2022 - Item 7a Federal Consistency Review for leasing and lease activities within the Morro Bay Wind Energy Area (CD-0004-22) - Support with Additional Conditions

Dear Chair Brownsey and Commissioners:

Our organizations, Natural Resources Defense Council, Environmental Defense Center, Center for Biological Diversity, Defenders of Wildlife, National Audubon Society, Surfrider Foundation, American Bird Conservancy, Ocean Conservation Research, Whale and Dolphin Conservation, Morro Coast Audubon Society, and Santa Barbara Audubon Society, submit these comments regarding the California Coastal Commission's (Commission's) review of the Consistency Determination (CD) submitted by the Bureau of Ocean Energy Management (BOEM) for its proposal to issue up to three commercial wind energy leases in Morro Bay and allow site assessment and site characterization activities on leases, grants, and other easements. The purpose of the Commission's review is to determine whether the proposal is consistent, to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).

Offshore wind provides a tremendous opportunity to fight climate change, reduce local and regional air pollution, and grow a new industry that will support thousands of well-paying jobs in both coastal and inland communities. Our organizations are united in support of responsibly developed offshore wind, which: (1) avoids, minimizes, mitigates, and monitors for adverse

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impacts on wildlife and habitats; (2) minimizes negative impacts on other ocean uses; (3) includes robust consultation with Native American Tribes and communities; (4) meaningfully engages state and local governments and stakeholders from the outset; (5) includes comprehensive efforts to avoid negative impacts to underserved communities; and (6) uses the best available scientific and technological data to ensure science-based and stakeholder-informed decision making.

We strongly support the staff report's overarching approach of looking at offshore wind development holistically, and we generally concur with the conditions put forth in the staff report. We also appreciate the discussion of several important topics in the staff report, including cumulative impacts, adaptive management, and coordinated data collection and sharing. Further, we appreciate that the Commission sets expectations for development activities far in advance, as we believe that will help minimize or prevent project delay while fulfilling resource protection legal obligations.

However, we urge the Commission to require development conditions in this consistency review for all offshore wind development activities. Recommended conditions on future development, which are derived from staff recommended conditions and discussion of future lease development impacts in the staff report, are set forth in our letter.<sup>1</sup>

We support the proposed conditions in the staff report and recommend they be strengthened in key ways and applied to future development activities:

- Conditions 1(a), 1(b), 1(c), and 1(d) should provide additional specificity about the requirements BOEM and lessees must meet.
- Condition 1(e) should require consistency with the State Land Commission's lowenergy geophysical survey program, require lessees to demonstrate how they will minimize underwater noise, and adopt additional requirements related to noise from construction and operation activities. We recommend that this condition be applied to future development activities.
- Condition 1(f) should require a minimum of four Protected Species Observers, improve monitoring requirements to better detect sea turtles and marine mammals, require additional survey and data collection to fill gaps in baseline data, specify mooring design characteristics, and ensure data is made publicly available in a prompt manner. We recommend that this condition be applied to future development activities.
- Condition 2 should apply to future development activities.
- Condition 3 should require lessees to collect and review information to establish strong baseline data on existing vessel traffic. It should also be applied to future development activities.

We also encourage the Commission to adopt additional conditions:

- Conditions to reduce the risk of entanglement of marine mammals, sea turtles, sharks, and diving birds, including monitoring during operations, avoidance and minimization measures, and improved data transparency.
- Conditions to protect benthic habitat, including specific survey requirements during the

<sup>&</sup>lt;sup>1</sup> See Staff Report at 52-71.

site assessment and characterization phase, and conditions to avoid harmful impacts during the construction and operations phase.

- Conditions to improve the understanding of risks to birds and bats, and to minimize collisions with such taxa.
- A condition to reduce the introduction of invasive species.
- Conditions related to improving adaptive management and understanding of cumulative impacts.

## 1. The Commission Must Consider Reasonably Foreseeable Effects on Coastal Uses and Resources.

Pursuant to the Coastal Zone Management Act ("CZMA," 16 U.S.C. § 1451 *et. seq.*), California is granted the authority to review federal actions to ensure they are consistent with the state's coastal policies. This authority has been integral to the state's ability to protect its iconic ocean vistas and unparalleled wildlife and habitat for all to enjoy. California's standard of review for federal consistency determinations consists of the CCMP, namely the policies of Chapter 3 of the Coastal Act. With regards to marine resources, Article 4 of the Coastal Act states: "Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes."<sup>2</sup>

As noted in the staff report, federal consistency determinations must consider not only direct effects of federal agency actions, such as leasing, but also indirect effects that are reasonably foreseeable. The staff report describes future development activities that will likely occur on the proposed leases, as well as the reasonably foreseeable effects of such activities. The staff report also suggests specific measures that would avoid or minimize effects on the state's coastal uses and resources. The Commission should include such measures in its conditional concurrence.

## A. The CZMA Requires the Commission to Consider Reasonably Foreseeable Effects on Coastal Uses and Resources.

In passing the CZMA, Congress declared that it is the national policy "to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations." 16 U.S.C. § 1452(1); see also *Secretary of the Interior v. California*, 464 U.S. 312, 316 (1984) (stating that the CZMA was enacted to "encourage the prudent management and conservation of natural resources in the coastal zone"). One of the linchpins of the CZMA is the requirement for "coordination and cooperation" between the federal government and coastal states. 16 U.S.C. § 1456.

Under the CZMA, each coastal state may adopt a coastal management plan (CMP) that provides for "the protection of natural resources, including wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat, within the coastal zone." 16 U.S.C. § 1452(2)(A). A CMP guides "management of coastal development to improve, safeguard, and restore the quality of coastal waters, and to protect natural resources and existing uses of those waters," among other objectives. 16 U.S.C. § 1452(2)(C). The CZMA guarantees

<sup>&</sup>lt;sup>2</sup> California Public Resources Code § 30230.

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participating states the opportunity to review federal and federally permitted activities for consistency with their CMPs. 16 U.S.C. §§ 1456(c)(1)(C), 1456(C)(3); 15 C.F.R. §§ 930.30 et. seq., 930.50 et. seq. Federal activities that may affect coastal resources must be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of management programs." 16 U.S.C. § 1456(c)(1)(A).

In 1984, the U.S. Supreme Court interpreted this consistency requirement narrowly, relying on the fact that the CZMA applied to federal actions "directly affecting" California's coastal zone. 464 U.S. 312, 342. In 1990, when Congress reauthorized the CZMA, it made it known that it did not intend such a narrow application of the CZMA. Accordingly, Congress amended the Act with the express intent of overturning the Supreme Court ruling in Secretary of the Interior v. *California*<sup>3</sup> and ensuring that state consistency review would protect states from not only direct effects, but also indirect effects caused by federal agency action or activities. In particular, Congress stated that the determination of whether a federal agency action affects any land or water use or natural resource of the coastal zone must include not only direct effects, but also cumulative, secondary, indirect, and reasonably foreseeable effects.<sup>4</sup> The 1990 amendments to the CZMA were implemented through regulations. The regulations require federal agencies to consider proposed activities' "effects on any coastal use or resource" when making consistency determinations. 15 C.F.R. § 930.39(b). The regulations explain that coastal zone effects are comprised of "reasonably foreseeable direct and indirect effects on any coastal use or resource." 15 C.F.R. § 930.33(a)(1). Such effects "include both direct effects which result from the activity and occur at the same time and place as the activity, and indirect (cumulative and secondary) effects which result from the activity and are *later in time or farther removed in distance, but are* still reasonably foreseeable." 15 C.F.R. § 930.11(g) (emphasis added); see also Ocean Mammal Institute v. Gates, 546 F.Supp.2d 960, 981-82 (D. Hawaii 2008) (court rejected Navy's determination that mid-frequency active sonar would not result in reasonably foreseeable effects because the determination was based on insufficient information).

## **B.** The Commission Must Consider Reasonably Foreseeable Effects at the Leasing Stage.

The requirement to consider reasonably foreseeable effects applies to leasing proposals that will be followed by future development activities. In enacting the 1990 CZMA amendments, Congress expressly noted the need to submit leasing proposals to coastal states for consistency review. For example, Congress stated its intention "to make clear that outer Continental Shelf oil and gas lease sales are subject to the requirements of section 307(c)(1)."<sup>5</sup> Congress noted that oil and gas lease sales are more than "merely paper transactions" and may affect a state's coastal zone.<sup>6</sup> Providing state consistency review at the leasing stage is important to involve all parties early in the process so that the state "will discover if there are any consistency problems with the lease sale at the beginning of the process rather than the end."<sup>7</sup> Thorough consistency review at

<sup>&</sup>lt;sup>3</sup> 136 Cong. Rec. H8068, 8075-76 (Sept. 26, 1990) (the "principal objective in amending this section is to overturn the decision of the Supreme Court in Secretary of the Interior v. California, 464 U.S. 312 (1984);" "In amending section 307(c)(1), the Committee intends to overturn the Court's holding, and also to dispel any doubt as to the applicability of this requirement to all federal agency activities that meet the standard of review."

<sup>&</sup>lt;sup>4</sup> 136 Cong. Rec. H8076 (Sept. 26, 1990).

<sup>&</sup>lt;sup>5</sup> 136 Cong. Rec. H8075 (Sept. 26, 1990).

<sup>&</sup>lt;sup>6</sup> *Id*. at H8081.

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the leasing stage ensures that problems with eventual development are discovered before an area is leased.<sup>8</sup> Accordingly, review of lease sales must address all reasonably foreseeable effects, including those resulting from "potential exploration, development and shoreside facilities."<sup>9</sup>

In 2002, the Ninth Circuit Court of Appeals confirmed that federal oil leasing activities are subject to state consistency review under the 1990 amendments to the CZMA. *State of California v. Norton*, 311 F.3d 1162 (9th Cir. 2002). The court pointed out that "activities that will ultimately take place under the extended leases will affect the natural resources of the coastal zone." *Id.* at 1171. Although the federal government argued that such activities would be reviewed later, in the context of exploration plans or development and production plans, the court rejected that argument and held that when Congress amended the CZMA in 1990, it made it clear that oil and gas leases themselves are subject to consistency review under 16 U.S.C. § 1456(c)(1). *Id.* at 1172-73. The court noted that a leasing decision is "a significant decision…with all of the far reaching effects and perils that go along with offshore oil production." *Id.* at 1173.<sup>10</sup> As such, the court ruled that the State of California was entitled to review the leases.

Following the ruling in *State of California v. Norton*, the federal government submitted CDs in support of the leases. The CDs, however, omitted information related to future development of the leases. Because of this omission, the Commission objected to the CDs, stating that without this information the Commission could not determine the leases' consistency with the CCMP.<sup>11</sup> The Commission explained that its review must consider "the broad and long-term coastal effects (i.e., post-suspension exploration, development and production activities) that are reasonably foreseeable if a lease [] is granted."<sup>12</sup> The Commission noted that information regarding future development and production was necessary to determine whether the leases were consistent with the CCMP.<sup>13</sup> In particular, the Commission found that review could not be deferred to future reviews of exploration plans and development and production plans.<sup>14</sup>

Similar to oil and gas leasing, which precedes future exploration, development, and production activities, offshore wind leasing is a necessary precursor to future construction and development activities. In both situations, the Commission needs to consider such future activities and their indirect, reasonably foreseeable effects on coastal uses and resources.

## C. The Commission Staff Report Acknowledges the Broad Scope of State Consistency Review.

The staff report acknowledges the Commission's broad scope of review under the CZMA. The report notes that the CZMA requires review of "any related, reasonably foreseeable activities and

<sup>&</sup>lt;sup>8</sup> Id.

<sup>&</sup>lt;sup>9</sup> *Id*. at H8080.

 <sup>&</sup>lt;sup>10</sup> Although *State of California v. Norton* dealt with lease suspensions, the court pointed out that "the very broad and long term effects of these suspensions" "closely resemble the effects of a [lease] sale." 311 F.3d 1162, 1174.
<sup>11</sup> California Coastal Commission Staff Reports and Recommendations on Consistency Determination Nos. CD-047-05, CD-048-05, CD-049-05 (Bonito, Rocky Point and Sword Units), CD-051-05 (Cavern Point), CD-050-05

<sup>(</sup>Gato Canyon) (2005).

 <sup>&</sup>lt;sup>12</sup> See, for example, California Coastal Commission Staff Report and Recommendation on Consistency Determination Nos. CD-047-05, CD-048-05, CD-049-05 (Bonito, Rocky Point and Sword Units) (page 2).
<sup>13</sup> *Id.*, pages 3-4, 8-9, 14-17.

<sup>&</sup>lt;sup>14</sup> *Id.*, pages 16-17.

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effects with California's coastal program..." and that "CDs must consider both the direct effects of project-related activities as well as the 'indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance but are still reasonably foreseeable.' 15 C.F.R. § 930.11(g)."<sup>15</sup> The report notes that "it is [] reasonably foreseeable that the leases will lead to construction and operation of at least some offshore wind facilities, and it is feasible to describe, at least at a high level, the types of impacts that such facilities could have on coastal resources."<sup>16</sup>

Importantly, the staff report explains why it is important not to defer review of future activities and effects. As the report states, "[r]eview of this CD is the state's opportunity to examine the impacts of offshore wind development at a programmatic level; to assess whether the Morro Bay WEA is a suitable site for offshore wind in California and whether there are certain areas within the WEA that are more or less suited to future projects..."<sup>17</sup> Although "[f]uture consistency certifications at the construction and operations phase will examine specific projects and their specific impacts, [] they are not well-suited to address larger issues related to the Morro Bay WEA..."<sup>18</sup>

#### D. The Commission Must Ensure Consistency with the California Coastal Management Program by Including Conditions that Address Future Lease Development.

The Commission's staff report already identifies future lease development activities and conditions that could be adopted to avoid or mitigate the known effects of such activities. The Commission should require the conditions addressing such reasonably foreseeable effects now to ensure consistency with the CMP and protection of the coastal and marine ecosystems in Morro Bay.

The Commission staff report discusses future lease development activities and potential effects on coastal uses and resources.<sup>19</sup> The report also identifies measures that can address such reasonably foreseeable activities and effects, including measures to protect seafloor habitats;.<sup>20</sup> birds and bats;.<sup>21</sup> and marine mammals, fish, invertebrates, sea turtles, and other sensitive wildlife.<sup>22</sup> These conditions are necessary to ensure appropriate siting and protection of coastal uses and resources..<sup>23</sup>

Given that this is California's sole opportunity to evaluate the potential impacts associated with three lease sales in the Morro Bay WEA at the programmatic level, we urge the Commission to include conditions associated with development activities as part of its

<sup>&</sup>lt;sup>15</sup> Staff Report at 23, 32.

<sup>&</sup>lt;sup>16</sup> Staff Report at 24.

<sup>&</sup>lt;sup>17</sup> Staff Report at 24.

<sup>&</sup>lt;sup>18</sup> Staff Report at 25.

<sup>&</sup>lt;sup>19</sup> See Staff Report at 52-71 (Marine Resources and Water Quality), 87-98 (Commercial and Recreational Fishing), 100 (Oil Spills), 102-105 (Coastal Hazards), 106-108 (Scenic and Visual Resources), 110 (Public Access and Recreation), 119-121 (Tribal and Cultural Resources), 130-132 (Environmental Justice), 135 (Air Quality), and 138-39 (Fill of Coastal Waters).

<sup>&</sup>lt;sup>20</sup> Staff Report at 52, 53, 61, 63.

<sup>&</sup>lt;sup>21</sup> Staff Report at 63-65.

<sup>&</sup>lt;sup>22</sup> Staff Report at 65-69.

<sup>&</sup>lt;sup>23</sup> Staff Report at 24-25.

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conditional concurrence with the Morro Bay CD.

In this letter we comment on the Conditions recommended in the staff report and offer recommended conditions for development activities. As noted above, we urge the Commission to adopt the staff's recommended Conditions for site assessment and characterization activities, *and* to require additional conditions associated with development activities.

#### 2. Morro Bay Has Unique Biological Resources That Must Be Protected From Lease Activities and Future Development Activities.

The Morro Bay WEA is situated in the California Current Ecosystem (CCE) and located adjacent to the coastal (200 m) Davidson Current which carries warmer, more saline water from the south into the cooler, fresher water from the north in the CCE. The mixing of these different water masses makes the California Central Coast one of the rarest bioregions in the world, supporting high levels of biodiversity along the mainland United States.<sup>24</sup> The overlap of "[o]ceanographic processes in the region foster the transport of materials, such as nutrients and fish and invertebrate larvae, between the marine (islands) and coastal habitats and are primary food sources that support biological communities."<sup>25</sup> The CCE's ecological value is underscored by its numerous federal and state protected areas. The Morro Bay WEA is also proximate to the Monterey Bay National Marine Sanctuary and near or bordering the proposed Chumash Heritage National Marine Sanctuary.

The WEA includes critical habitat for the Central America and Mexico Distinct Population Segment (DPS) of North Pacific humpback whales,<sup>26</sup> overlaps with known blue whale and fin whale home ranges, and overlaps with critical habitat for the leatherback sea turtle.<sup>27</sup> Marine mammal presence and abundance varies in the WEA, driven by seasonal changes and habitat variability under different ocean conditions; additionally, different whale types (e.g., baleen vs. toothed whales) differ in habitat use. A comprehensive understanding of marine mammal distribution in the WEA, including through utilizing multiple sources of data, analyzing species data individually, and incorporating environmental variables, is crucial to reviewing development impacts on marine mammals.<sup>28</sup>

<sup>&</sup>lt;sup>24</sup> Steven J. Bograd, Elliott L. Hazen, Sara M. Maxwell, Andrew W. Leising, Helen Bailey, And Richard D. Brodeur, The Offshore Ecosystem, as included in Ecosystems of California, Threats and Responses: Supplement for Decision-Making, <u>https://calnat.ucanr.edu/files/263126.pdf</u>.

<sup>&</sup>lt;sup>25</sup> A Biogeographic Assessment of the Channel Islands National Marine Sanctuary: A Review of Boundary Expansion Concepts for NOAA's National Marine Sanctuary Program, NOAA Technical Memorandum NOS NCCOS 21, November 2005. Available at: https://repository.library.noaa.gov/view/noaa/2161.

<sup>&</sup>lt;sup>26</sup> Exhibit 2-3f in the BOEM CD should be noted as Final Humpback Whale Critical Habitat.

<sup>&</sup>lt;sup>27</sup> WEA Memorandum at pp. 24-36; NGO Letter; Maxwell, Sara, et al. Cumulative Human Impacts on Marine Predators. Nature Communications 4 (2013): 2688. https://doi.org/10.1038/ncomms3688; Irvine, Ladd M., Bruce R. Mate, Martha H. Winsor, Daniel M. Palacios, Steven J. Bograd, Daniel P. Costa, and Helen Bailey. Spatial and Temporal Occurrence of Blue Whales off the U.S. West Coast, with Implications for Management. Edited by Andreas Fahlman. PLoS ONE 9, no. 7 (July 23, 2014): e102959; Eguchi, Tomoharu, et al. Predicting Overlap between Drift Gillnet Fishing and Leatherback Turtle Habitat in the California Current Ecosystem. Fisheries Oceanography 26, no. 1 (2017): 17–33.

<sup>&</sup>lt;sup>28</sup> Exhibit 2-3 only shows summer/fall density. Winter/spring density should be included to fully understand seasonal changes in whale presence and abundance (e.g., Navy density maps include winter-spring & summer-fall data: https://seamap.env.duke.edu/models/mapper/PACGOA). Exhibit 2-5b combines all marine mammal datasets

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The WEA also overlaps the range of the federally endangered Short-tailed Albatross, as denoted by the U.S. Fish and Wildlife Service (USFWS),<sup>29</sup> with highest densities of immature and breeding-age birds occurring during winter months.<sup>30</sup> At-sea densities of federally-listed Scripp's Murrelet and state-listed Guadalupe Murrelet, species likely to be sensitive to underwater noise, also overlap with the WEA.<sup>31</sup> Near-threatened Elegant Tern foraging habitat overlaps with the Morro Bay WEA.<sup>32</sup> As such, wind development in this area may cause significant adverse environmental impacts to endangered or threatened species.<sup>33</sup>

The staff report includes impacts of both lease exploration and future lease development. According to the staff report, lease exploration impacts include seafloor disturbance and water quality; elevated levels of underwater sound; vessel strike risk; and increased entanglement risk. Future offshore wind development impacts could include seafloor disturbance; turbine strikes; entanglement risk from mooring lines and inter-array cables; displacement, avoidance, or attraction of marine life to turbines; vessel strike risk; elevated levels of underwater noise; artificial reef effect; invasive species; weakened upwelling; and disturbances caused by electromagnetic fields. The staff report recommends conditions related to lease exploration, all of which would also apply to future lease development impacts. The Commission should include these conditions for future development. Additionally, the staff report provides an outline for additional conditions associated with development. The Commission should adopt these development conditions to address the remainder of future lease development impacts. Our detailed recommendations to the Commission are below.

#### 3. The Commission Should Strengthen Conditions.

<u>Conditions 1(a), 1(b), 1(c), 1(d)</u>: Our organizations support the intent of these four conditions. However, the conditions should specify the requirements for BOEM and lessees to meet them. Specifically, Condition 1(c) says, "encourage lessees to collaborate" yet does not guarantee that this collaboration will happen, and thus provides no certainty that this measure will accomplish its intended aim to "increase efficiency and minimize impacts of geophysical and other surveys conducted during the site assessment phase.".<sup>34</sup> The Commission should additionally require that BOEM's review of survey, sampling, and analysis plans consider the cumulative impacts of all lessees' plans, as well as require that the Commission can access the

into a single heatmap, which inaccurately portrays a low risk to species because not all species use the area in the same way. Additionally, this analysis should include data for all seasons, under different ocean conditions, and consider baleen and toothed whales separately, as they differ in habitat use.

<sup>&</sup>lt;sup>29</sup> https://ecos.fws.gov/ecp/species/433#crithab

<sup>&</sup>lt;sup>30</sup> Orben RA, O Connor AJ, Suryan RM, Ozaki K, Sato F, Deguchi T. 2018. Ontogenetic changes in at-sea distributions of immature short-tailed albatrosses Phoebastria albatrus. Endangered Species Research 35:23–37.

<sup>&</sup>lt;sup>31</sup> Leirness JB, Adams J, Ballance LT, Coyne M, Felis JJ, Joyce T, Pereksta DM, Winship AJ, Jeffrey CFG, Ainley D, Croll D, Evenson J, Jahncke J, McIver W, Miller PI, Pearson S, Strong C, Sydeman W, Waddell JE, Zamon JE, Christensen J. 2021. Modeling at-sea density of marine birds to support renewable energy planning on the Pacific Outer Continental Shelf of the contiguous United States. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-014. p. 385.

<sup>&</sup>lt;sup>32</sup> IUCN Red List, available at https://www.iucnredlist.org/species/22694552/178970750#habitat-ecology.

<sup>&</sup>lt;sup>33</sup> WEA Memorandum at pp. 24-36

<sup>&</sup>lt;sup>34</sup> Staff report at 12.

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lessee's survey plans submissions (1(b)) to ensure that oversight of lessees' collaboration and impact minimization will occur.

While we support Condition 1(d) to make Freedom of Information Act (FOIA)-applicable documents and data available, we recommend clarifying this condition to state that this information will promptly be made publicly available. As currently written, the language appears to allow BOEM to only make this information available upon a FOIA request.

We also recommend the Commission require additional data transparency measures. For instance, we recommend the Commission add language stating that environmental information from site assessment and characterization activities shall promptly be made publicly available. Additionally, all incidences of observed marine debris and entanglements and all incidences of collision fatality shall promptly be made publicly available. Public availability of documents, raw data, and transparency conditions should apply to all phases of development, operations, and decommissioning.

<u>Condition 1(e)</u>: We recommend requiring, rather than encouraging, consistency with the State Lands Commission's low-energy geophysical survey program to minimize impacts and ensure prompt reporting of publicly available information. We also recommend the Commission adopt similar conditions related to future development activities.

BOEM should require lessees to demonstrate how underwater noise will be minimized to the fullest extent feasible during site assessment and characterization activities, including through the use of technically and commercially feasible and effective noise reduction and attenuation measures (e.g., using survey equipment that can be deployed at depth, and operating sub-bottom profiling systems at power settings that achieve the lowest practicable source level for the objective). As discussed in the previous section, we recommend requirements for data sharing and transparency so that the fewest number of surveys necessary are conducted to minimize cumulative impacts during the site assessment phase.

The Commission should adopt additional conditions related to construction and operational noise. Specifically, we recommend that BOEM require the lessee to submit a plan to BOEM, National Marine Fisheries Service (NMFS), and the Commission detailing the noise generating activities that will occur during construction of floating wind platforms (e.g., vessel noise, dynamic positioning systems (if used), pile driving for anchors at depth), the difference from baseline soundscape noise, and the actions that will be taken to reduce noise levels to the fullest extent feasible. We also recommend that BOEM require that lessees take measures to reduce underwater noise levels generated by turbines during operations (e.g., engineering solutions to acoustically decouple the turbine from the mast and platform, use of direct drive wind turbine generators as opposed to generators that rely on a gear box).

**<u>Condition 1(f)(i)</u>**: Condition 1(f)(i) should apply to future development activities, as all of these marine wildlife protection and monitoring measures are necessary during construction and operations.

We support Conditions 1(f)(i)(1), 1(f)(i)(3), and 1(f)(i)(4).

Regarding Condition 1(f)(i)(2), we recommend a minimum of four Protected Species Observers

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(PSO) on each vessel, following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon. Monitoring of the visual clearance zone should be undertaken by vessel-based PSOs stationed on the survey vessel to enable monitoring of the entire 500 meter clearance zone for marine mammals. We also recommend that PSOs monitor for and that vessels maintain appropriate distance from sea turtles, to be consistent with the CCMP to maintain healthy populations of marine species. Finally, we recommend that surveys begin during daylight hours, in good visibility (1 nm or greater), and only continue into the night if needed (rather than beginning at night).

While we support Condition 1(f)(i)(5), we recommend these data promptly be made publicly available and include observed marine debris and entanglements and all observed incidences of collision fatality. Survey activities could be completed over several years, so providing monitoring data only 90 days after completion is not adequately informative when impacts could arise at any point prior to completion. Delaying the release of monitoring data precludes adaptive management and prevents meaningful mitigation. Frequent reporting is necessary to alert agencies, lessees, and the public to impacts in a timely manner and to enable avoidance, minimization, and mitigation of impacts throughout all phases of development, operations, and decommissioning.

For offshore wind development to proceed responsibly, there is a need for additional survey and data collection on a wide array of species that scientists have identified as expected to occur in the Morro Bay WEA. There is also a need for additional surveys and data collection on environmental variables for preferred habitat conditions. As BOEM progresses with leasing in California, the agency should concurrently work to fill critical gaps in baseline data on wildlife in the Morro Bay WEA at a variety of spatial and temporal scales.

We appreciate the discussion in the staff report regarding baseline, construction, and operational noise data. However, it is critical to assess baseline noise prior to project development, including leasing activities. We recommend that BOEM, in coordination with lessees, collect sufficient data (broadband soundscape recordings through all seasons) to assess noise levels prior to project development to assess the extent to which development will increase underwater noise and subsequent risks to marine life, and to promptly make this data publicly available. Broadband baseline soundscape recordings are needed across all four seasons on noise levels within and adjacent to the WEA, vessel traffic routes, and transmission corridors to shore, and provide for control sites for future monitoring.

As part of the agency's determination that leasing activities are consistent with marine resource protection under the Coastal Act, BOEM states that "[m]oorings will be designed to minimize or remove entanglement risk for protected species."<sup>35</sup> We agree with the staff report that the three buoys could increase risk of entanglement, particularly if marine debris is caught on mooring lines. While the BOEM CD provides information regarding different mooring scenarios as related to fill,<sup>36</sup> there are no details provided on designs that would minimize or remove entanglement risk. We recommend the Commission articulate mooring design characteristics to minimize entanglement risk.

<sup>&</sup>lt;sup>35</sup> BOEM CD at 18.

<sup>&</sup>lt;sup>36</sup> BOEM CD at 15, 24.

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We support the staff report's discussion of elements for monitoring, mitigation, and adaptive management plans for the Commission's future review of construction and operating plans. However, the staff report falls short of requiring conditions of offshore wind development activities. Rather than signal expectations, we believe the Commission should clearly set conditions for responsible offshore wind development in California.

<u>Conditions 1(f)(ii), 1(f)(iii)</u>: We support these conditions and recommend the Commission also apply them to future development activities.

<u>Condition 1(f)(iv), Condition 2</u>: We support these conditions. We support the requirement for an anchoring plan, and the requirement that anchoring sites include a buffer of sufficient distance to fully protect sensitive habitat from anchors and related infrastructure (Condition 1(f)(iv)(2)). We also support the requirement that lessees avoid intentional contact within hard substrate, rock outcroppings, seamounts, or deep-sea coral/sponge habitat during site assessment and characterization activities. We are particularly concerned about impacts on benthic habitat that is designated as Habitat Areas of Particular Concern (HAPC), which are subsets of essential fish habitat that have a particularly important ecological role in fish life cycles or are especially sensitive, rare, or vulnerable. HAPC fulfill important ecological functions and are especially vulnerable to degradation.

We also recommend the Commission adopt the additional conditions provided in this letter (under "Conditions Regarding Protection of Benthic Habitat") throughout all phases of development to protect benthic habitat.

<u>Condition 3</u>: We support this condition, and recommend the Commission require it for future development activities. A requirement for vessel speeds of no more than10 knots, including vessel transit, would be adequately protective.

Increased vessel traffic associated with all phases of offshore wind energy development poses an increased vessel collision risk for sea turtles and large whales.<sup>37</sup> The risk of serious injury and mortality from vessel collisions increases significantly at vessel speeds greater than 10 knots.<sup>38</sup> Yet BOEM's submitted CD significantly underestimates the impact of vessel strikes on marine life. For leasing activities, the BOEM CD notes that "[v]essel speeds during site characterization surveys within the Proposed Action Area will likely be limited to less than 5 knots (2.57 m/s), but transit speeds will vary."<sup>39</sup> The CD adds, "the project-related vessel traffic could increase the overall vessel traffic and risk of collision with marine mammals in the Proposed Action Area; however the required vessel strike avoidance measures, as well as reporting requirements, will minimize vessel interactions with protected species to negligible levels."<sup>40</sup> It is difficult to fathom how BOEM reaches the conclusion that impacts from vessel traffic associated with site characterization are expected overall to be "negligible," when a vessel strike—even if a rare occurrence—has a high potential to result in the death of the individual that is struck. Further,

<sup>&</sup>lt;sup>37</sup> Rockwood, R. C., Calambokidis, J., & Jahncke, J. 2017. High mortality of blue, humpback and fin whales from modeling of vessel collisions on the US West Coast suggests population impacts and insufficient protection. PloS one, 12(8), e0183052.

<sup>&</sup>lt;sup>38</sup> Conn, P. B., & Silber, G. K. 2013. Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales. Ecosphere, 4(4), 1-16.

<sup>&</sup>lt;sup>39</sup> BOEM CD at 17-18.

<sup>&</sup>lt;sup>40</sup> BOEM CD at 19.

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the submitted CD entirely ignores the impact of potential vessel strikes during future project development because its scope is limited to site assessment and characterization activities. There are potentially hundreds of project-related vessels engaged in all phases of construction and operation, significantly increasing the risk of increased vessel collision and serious injury and mortality.

The staff report states, "[i]f future consultation with NMFS, USFWS or other state or federal agency results in different vessel speed requirements, BOEM will work with Commission staff to ensure that any new requirements remain consistent and do not diminish the level of resource protection provided by this requirement."<sup>41</sup> We support this and recommend that any changes to vessel speed requirements (e.g., allowing speeds above 10 knots) are limited to circumstances where the best available scientific information demonstrates that whales or sea turtles do not use the habitat or transit the area. We also note that slower speeds may be required in some instances to adequately protect sea turtles. Projects may develop, in consultation with NOAA, an "Adaptive Plan" that modifies these vessel speed restrictions. However, the monitoring methods that inform the Adaptive Plan must follow a scientific study design and be proven effective using vessels traveling at 10 knots or less. If the resulting Adaptive Plan is scientifically proven.<sup>42</sup> to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to the 10-knot speed restriction.

One of the mitigation measures BOEM requires in the CD is a minimum separation distance of 500 meters between all whales around the vessel at all times. We support this requirement and remind the agency that in addition to ESA listed species, all marine mammals are protected under the Marine Mammal Protection Act (MMPA). We recommend adopting an additional condition that BOEM require all project-associated vessels to maintain a separation distance of 100 meters for other marine mammal species, and that both the 500 meter and 100 meter separation distance be required during all activities, including transit. This is necessary for all phases of development to ensure that activities are undertaken in a manner sufficiently protective of all marine mammals, consistent with the CCMP.

As the staff report notes, the Morro Bay WEA has significant existing vessel traffic, and vessel trips from lease exploration alone would be a significant addition to vessel traffic.<sup>43</sup> We recommend the Commission adopt an additional condition that BOEM require lessees to collect and review information to enable an accurate assessment of existing vessel traffic (routes, size, and number of vessels) prior to exploration and development activities to assess additional risk from all project associated vessel traffic. We note that BOEM reviewed Automatic Identification System (AIS) data on vessel traffic from 2011 and 2017.<sup>44</sup> However, it is critical to have a more recent and comprehensive understanding of vessel traffic to assess how project-associated vessel traffic will increase risk to marine species so that mitigation measures are adequately protective and consistent with the CCMP.

<u>**Condition 7**</u>: We support this condition and agree with the liaison's proposed duties to coordinate survey work, help manage conflicts, and help prevent entanglement during site

<sup>&</sup>lt;sup>41</sup> Staff report at 14-15.

<sup>&</sup>lt;sup>42</sup> I.e., *via* an independently conducted and peer-reviewed scientific publication.

<sup>&</sup>lt;sup>43</sup> In 2017, some portions [of] the Morro Bay WEA had over 300 vessels traveling through them annually, with most of the WEA averaging between 100 and 200 vessels (staff report at 50).

<sup>&</sup>lt;sup>44</sup> BOEM CD at 46.

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assessment and characterization activities. While the fisheries liaison may be helpful in mitigating "potential entanglement impacts throughout the course of lease exploration activities,"<sup>45</sup> we urge the Commission to adopt the entanglement recommendations provided in this letter as its primary method of minimizing entanglement risk throughout all phases of development.

#### 4. **Recommendations For Additional Conditions.**

We urge the Commission to adopt the following additional conditions.

#### <u>Recommendations to Reduce Risk of Secondary Entanglement of Marine Mammals, Sea</u> <u>Turtles, Sharks, and Diving Birds</u>

BOEM shall require the lessee to develop and implement management practices to monitor, avoid, and minimize the risk to marine species, including marine mammals, sea turtles, sharks, and diving birds, from secondary entanglement of marine debris (including fishing gear) ensnared on project infrastructure, including platforms, mooring lines, inter-array cables, and anchors. We note that these are initial recommendations that may change as new scientific and/or technological advancements occur, and as data on the effectiveness of the measures becomes available and informs the adaptive management of this risk. Additional recommendations may also be developed for other marine species.

Below we provide initial recommendations for monitoring and minimizing the risk of secondary entanglement:

- I. Monitoring during operations
  - A. Continuous monitoring for strains on mooring lines and inter-array cables resulting from ensnarement of marine debris or entanglement of an animal (e.g., using load cells or other appropriate sensor-types with proven sufficient sensitivity to detect a marine debris ensnarement or entanglement event).<sup>46</sup>
  - B. Daily visual inspection of infrastructure for ensnarement of marine debris or entanglement of an animal<sup>47</sup> at depths where marine debris is most likely to occur (e.g., using cameras or other appropriate techniques).<sup>48</sup>
  - C. Monthly inspection of the full length of submerged infrastructure (including platforms, mooring lines, inter-array cables, and anchors) for ensnared marine debris or entanglement of an animal (e.g., using side-scan sonar, and/or underwater autonomous vehicle (AUV) or remotely operated vehicles (ROV)

<sup>&</sup>lt;sup>45</sup> Staff report at 51.

<sup>&</sup>lt;sup>46</sup> "...the Kincardine Floating Offshore Wind Farm in Scotland has integrated load cells with the mooring lines to periodically monitor line performance and potentially detect the entanglement of floating marine debris, including derelict fishing gear." SEER Educational Research Brief on Risk to Marine Life from Marine Debris & Floating Offshore Wind Cables Systems (p.5). https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Entanglement-Considerations.pdf.

 <sup>&</sup>lt;sup>47</sup> Visual inspection at least once during each 24-hour period may provide an alert of an entangled marine mammal or sea turtle at an early enough point in time that rescue efforts can be made and the animal can be released alive.
<sup>48</sup> This information will be based on data from other regions. Initial research and expert consultation indicates that marine debris ensnarement is most likely to occur at depths of 0-5 meters below the sea surface.

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surveys).<sup>49</sup>

- II. Avoidance and Minimization Measures
  - A. Design features: <sup>50</sup>
    - 1. Mooring lines and inter-array cables should be designed and maintained in configurations that minimize the potential for entanglement of marine species (e.g., lines and cables should remain under tension).<sup>51</sup>
    - 2. Infrastructure should be designed to facilitate visual or acoustic detection of ensnared marine debris at depths where marine debris is most likely to occur (e.g., by using lighter coloration or textures to contrast with marine debris).

#### B. Protocol when ensnarement and/or entanglements are identified:

- 1. If monitoring shows that marine debris has become ensnared on any project structure, but no marine mammals, sea turtles, sharks or diving bird species are caught within it, the lessee will notify the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW) within 24 hours of detection and shall remove marine debris as soon as possible in a manner that does not jeopardize human safety, property, or the environment.
- 2. If monitoring shows that marine mammals or sea turtles have become entangled, injured, or impinged by ensnared marine debris or project structures, the lessee will immediately notify NMFS, USFWS, and CDFW, follow the Reporting Protocol for Injured or Stranded Marine Mammals, and provide those agencies all available information on the

<sup>&</sup>lt;sup>49</sup> ROVs may also be an important tool for marine debris removal at depth. The Kincardine Floating Offshore Wind Farm also "will use remotely operated vehicles and vessel-mounted sensors (such as multibeam sonar) to periodically survey floating cable systems, which could also monitor for the presence of derelict fishing gear." SEER Educational Research Brief on Risk to Marine Life from Marine Debris & Floating Offshore Wind Cables Systems (p.5). https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Entanglement-Considerations.pdf. See, also, Federal Energy Regulatory Commission (FERC) Environmental Assessment for Hydropower License for the PacWave South Project (April 2020) at p. xvi.

https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/environmentalanalysis/PacWave%20South%20EA.pdf

<sup>&</sup>lt;sup>50</sup> We note the Commission's expectations regarding inter-array cable and mooring line design features to minimize interactions with marine wildlife (staff report at 61); however, as detailed in our recommendations, minimum standards for all phases of development must be established now rather than later in the permitting process (such as during consistency certifications) to provide clear guidelines from the outset.

<sup>&</sup>lt;sup>51</sup> Marine species are more likely to become entangled in slack lines. "Taut mooring configurations are preferable because less slack in lines is likely to reduce entanglement potential (Benjamins et al. 2014). Highest relative risk may occur with catenary moorings given that the lines are not taut. Chains and nylon ropes are thought to have higher snagging potential, as do accessory buoys." Maxwell et al. 2022. "Potential impacts of floating wind turbine technology for marine species and habitats." Journal of Environmental Management, 307, 114577 (p. 10). https://doi.org/10.1016/j.jenvman.2022.114577. Burying inter-array cables, when possible, may also reduce entanglement risk. Id. at Table 2.

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incident.<sup>52</sup>

- 3. If sharks or diving birds are observed entangled or entrapped in marine debris, the lessee will report the incident to NMFS, FWS, and CDFW within 24 hours of detection, and consult with the appropriate agency regarding marine debris removal at the earliest possible time in a manner that avoids jeopardizing human safety, property, or the environment.
- C. Return/recycle: The lessee shall report recovered fishing gear to CDFW. The lessee shall consult with CDFW to arrange for disposal of the gear at a suitable location, prioritizing the physical recycling of materials (as opposed to incineration).
- III. Data transparency: All incidences of observed marine debris and entanglements shall promptly be made publicly available.

#### **Conditions Regarding Protection of Benthic Habitat**

Benthic habitat supports biodiverse marine communities, commercially important fisheries, and nutrient cycling. BOEM should require the lessee to implement management practices to avoid, minimize, and mitigate impacts from all stages of development and types of project infrastructure that would disturb benthic habitat. It is particularly important to protect biogenic structural habitat, which is comprised of three-dimensional structures created by slow-growing living organisms (e.g., corals, sponges) that support a high density and diversity of marine species and HAPC, which are ecologically important for fisheries.<sup>53</sup> The below measures are recommendations for mapping and protecting benthic habitat.

- I. Site assessment and characterization
  - A. Detailed benthic surveys of HAPC conducted prior to leasing are highly recommended. If detailed surveys are not conducted prior to leasing, surveys must occur as part of site assessment and characterization activities at the very latest.<sup>54</sup>
  - B. Prior to deployment of anchored meteorological buoys, the lessee shall obtain a box core sample in the expected location of each buoy's anchor to confirm benthic sediment composition. The lessee shall avoid biogenic structural habitat

<sup>&</sup>lt;sup>52</sup> See National Marine Fisheries Service Large Whale Entanglement Response Program for whale entanglement reporting protocol (https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/west-coast-large-whale-entanglement-response-program#reports); Sea Turtle Disentanglement Network for sea turtle reporting protocol. https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/sea-turtle-disentanglement-network).

<sup>&</sup>lt;sup>53</sup> Biogenic habitats "encompass both a) those living species that form emergent three-dimensional structure, that separate areas in which it occurs from surrounding lower vertical dimension seafloor habitats and b) non-living structure generated by living organisms, such as infaunal tubes and burrows." Source: New Zealand Government Ministry for Primary Industries, "Linking marine fisheries species to biogenic habitats in New Zealand: a review and synthesis of knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 130. May 2014. https://fs.fish.govt.nz/Doc/23651/AEBR\_130\_2514\_HAB2007-01%20(obj%201,%202,%20RR3).pdf.ashx.

<sup>&</sup>lt;sup>54</sup> We note the staff report provides Commission expectations for lessees to provide detailed mapping of HAPC (staff report at 52). However, we continue to recommend that mapping be required before leasing to best inform siting decisions and avoid or minimize impacts to benthic habitat. As that is not possible for the Morro Bay WEA at this stage, we recommend that BOEM require detailed mapping during site assessment and characterization.

(as confirmed by the core sample) when anchoring meteorological buoys.<sup>55</sup>

#### II. Construction and operations

- A. The lessee shall conduct detailed benthic habitat surveys of prospective offshore wind development sites, ensuring that designated HAPCs receive particular attention.
- B. As part of BOEM's review of a lessee's construction and operations plan, BOEM shall require that the lessee avoid intentional contact within rock outcroppings, seamounts, or deep-sea coral/sponge habitat and include a buffer that fully protects these habitats from bottom contact, including, but not limited to, anchoring, mooring, and sediment sampling.<sup>56</sup>
- C. Where surveys affirm the presence of biogenic structural habitat, and BOEM and the Commission determine that impacts to biogenic structural habitat cannot be avoided, the lessee shall submit a mitigation plan to BOEM and the Commission for their approval prior to advancing development.
- D. For developments where impacts to biogenic structural habitat cannot be avoided, BOEM shall require the lessee to select a mooring system with a minimally intensive benthic footprint.

#### **Conditions Regarding Collision and Lighting for Birds and Bats**

While there is significant concern for collision impacts during turbine operation, there is also risk of collision during site assessment and characterization activities (e.g., collision with meteorological buoys and vessels). We recommend the Commission evaluate risks to birds listed under the Federal and California Endangered Species Acts as well as those predicted to be in and near the Morro Bay WEA by recent modeling.<sup>57</sup> We agree with the staff report that more information is needed on seabird distribution within the Morro Bay WEA to comprehensively assess the degree of impacts..<sup>58</sup> We also agree with the staff report that there is a need for much greater understanding of bat distributions in the lease areas, greater understanding of the risk of turbine strikes and bird and bat mortality, and identification of species most at risk. However, our current understanding of offshore wind-avian interactions and avian at-sea distribution along the Pacific OCS is sufficient to predict that potential impacts are likely to occur and the nature of those impacts, and therefore it is important to integrate protections for birds and bats into California's consistency determination.

<sup>&</sup>lt;sup>55</sup> Biogenic habitat is described in Buhl-Mortensen, 2010 et al. Biological structures as a source of habitat heterogeneity and biodiversity on the deep ocean margins. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1439-0485.2010.00359.x.

<sup>&</sup>lt;sup>56</sup> This extends the language in Condition 1.f.iv. and Condition 2 to the development phase. We note the staff report includes an expectation regarding future lease development impacts: "If rocky reef habitat is sufficiently dense on the seafloor, it may preclude anchoring of wind turbines and future development in those areas" (staff report at 52). However, we recommend BOEM require avoidance of biogenic habitat at all phases of development to sufficiently protect these important ecosystems.

<sup>&</sup>lt;sup>57</sup> Leirness JB, Adams J, Ballance LT, Coyne M, Felis JJ, Joyce T, Pereksta DM, Winship AJ, Jeffrey CFG, Ainley D, Croll D, Evenson J, Jahncke J, McIver W, Miller PI, Pearson S, Strong C, Sydeman W, Waddell JE, Zamon JE, Christensen J. 2021. Modeling at-sea density of marine birds to support renewable energy planning on the Pacific Outer Continental Shelf of the contiguous United States. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-014. 385 p.

<sup>&</sup>lt;sup>58</sup> Staff report at 45.

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We recommend the Commission adopt additional conditions during all phases of development to maintain healthy populations of bird and bat species, consistent with the CCMP. The following suggestions are adapted from the New York State Energy Research and Development Authorities Environmental Technical Working Group:

- I. To avoid and minimize attraction and disorientation-related impacts to birds and bats, artificial lighting on offshore wind projects (e.g., flight safety and navigation lighting, work-related lighting) should be reduced to the extent possible while maintaining human safety and compliance with FAA, USCG, DOD and BOEM regulations. This should be implemented during all phases of offshore wind energy development, from preconstruction to decommissioning, and include the following:
  - A. Use of 'On demand' transportation safety lighting systems (e.g., Aircraft Detection Lighting Systems).
  - B. Use the fewest number of lights on structures possible under regulatory requirements and protection of human safety.
  - C. To the extent possible, avoid use of white lights in favor of red or other colors and use flashing lights instead of steady burning lights.
  - D. Avoid high intensity lights (e.g., sodium vapor, quartz, halogen).
  - E. Lighting should be hooded, down-shielded, and/or directional (e.g., down-lit).
  - F. Activities that would require extensive lighting should be planned during daylight hours when feasible. This is particularly important for activities requiring flood lighting during periods of high risk to birds and bats.
  - G. Where feasible, lighting intensity should be reduced, or lights should be extinguished during periods when birds are most likely to be present and on overcast nights when lights are most likely to attract/disorient birds.
- II. Collision Monitoring
  - A. Collision Risk Assessment: The Commission should recommend that BOEM require comprehensive and complementary tools to evaluate risks and document impacts to birds and bats vulnerable to population-level impacts from turbine collision, including marine radar, acoustic, and collision detection technologies.
  - B. Documenting Collision Events: Understanding the population-level cumulative impacts of the offshore wind build out along the Pacific OCS will require a method for accurately estimating the *observed* level of take of birds and bats of all sizes. The Department of Energy (DOE) has recently funded development of collision detection technology from the Albertani Lab.<sup>59</sup> at Oregon State University and WT Bird from WEST, Inc.<sup>60</sup> Similar technologies are being tested at Block Island Wind Project and other offshore locations in the European Union and United Kingdom and are making rapid gains in being effective, officially verified, commercially available, and affordable at scale in the near future, possibly at the same time as the projects would be ready for construction

<sup>&</sup>lt;sup>59</sup> Clocker, K., et al. 2021. Autonomous Sensor System for Wind Turbine Blade Collision Detection. Inst. Elec. & Elec. Eng'rs.

<sup>&</sup>lt;sup>60</sup> Verhoef, J.P., et al. 2004. WT-Bird: A Low Cost Solution for Detecting Bird Collisions. Energy Research Center, Netherlands.

and operation.<sup>61</sup> However, these technologies should be fully integrated into turbine design before they can be deployed. DOE is currently evaluating the development status of these integrated systems based on their readiness for offshore wind deployment.<sup>62</sup> BOEM should support the development of these technologies and should require turbine developers to integrate these systems into their turbine designs, and the Commission should ask the agency to do so.

- C. Data transparency: All incidences of observed avian and bat collision with turbines, vessels, platforms, buoys or other structures associated with site assessment, construction, and operation activities should be made publicly available and reported to USFWS.
- III. Turbine Collision Minimization Strategies. In addition to the lighting recommendations provided above, we urge the Commission to encourage BOEM to adopt the following strategies to minimize collision risk with lease stipulations:
  - A. Set restrictions on maximum allowable turbine height, as it has done in response to marine use concerns. The newest contracted offshore wind turbines are reaching heights of more than 300 meters. Further increasing this maximum turbine height will increase risk to trans-Pacific migrants. Likewise, BOEM should also set minimum requirements for turbine air-gap (e.g., the distance between the water surface and the rotor swept zone). Decreasing this air gap increases collision risk for lower flying foraging and commuting birds in the marine environment.
  - B. Automated, smart, and/or seasonal curtailment strategies.<sup>63</sup> This type of automated curtailment system has resulted in significant decreases in collision mortality events within land-based wind farms where it has been deployed.<sup>64</sup>
  - C. Bat deterrent systems. Deterrent technologies are being developed for land-based turbines, including turbine coatings (to counteract bat attraction to smooth surfaces which might be perceived as water), <sup>65</sup> ultraviolet lighting (which many bat species can see), <sup>66</sup> and ultrasonic noise emitters (to possibly "jam" bats'

https://www.energy.gov/sites/prod/files/2019/05/f63/TCU%20-%20M17%20-%20Hale-Bennett.pdf.

<sup>&</sup>lt;sup>61</sup> Dirksen, S. 2017. Review of methods and techniques for field validation of collision rates and avoidance amongst birds and bats at offshore wind turbines. Sjoerd Dirksen Ecology.

<sup>&</sup>lt;sup>62</sup> Brown-Saracino, J. Technologies and Approaches for Monitoring Bird and Bat Collisions Offshore (Presentation to the State of the Science Workshop on Wildlife and Offshore Wind Energy Development), N.Y. ETWG (Nov. 13-14, 2018).

<sup>&</sup>lt;sup>63</sup> We acknowledge that blanket seasonal curtailment strategies may be economically unviable for offshore wind energy development. However, we note that reasonably tailored smart curtailment strategies will be an important mitigation strategy for responsibly operated offshore wind energy facilities. Developments in Next Generation Weather Radar, or "Nexrad", System make it easier to predict migration timing. Ongoing research into the timing and environmental cues driving migration dynamics across the Atlantic makes it possible to predict specific periods when collision risk might be highest. Developments in collision detection technology will also likely provide a mechanism for smart curtailment based on the proximity of individual birds and bats to the turbines.

 <sup>&</sup>lt;sup>64</sup> McClure et. al. 2021. Eagle fatalities are reduced by automated curtailment of wind turbines, J. Applied Ecology.
<sup>65</sup> Victoria J. Bennett & Amanda M. Hale, Texturizing Wind Turbine Towers to Reduce Bat Mortality: DE EE0007033 (PowerPoint presentation), U.S. Department of Energy (DOE) (last visited Feb. 9, 2022),

<sup>&</sup>lt;sup>66</sup> National Renewable Energy Lab., Technology Development and Innovation Research Projects (last visited Aug. 30, 2021), https://www.nrel.gov/wind/technology-development-innovation-projects.html.

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radars and make wind facilities unappealing to bats)..<sup>67</sup> One of the ultrasonic deterrent technologies, NRG Systems, has been commercially deployed at land-based wind facilities..<sup>68</sup> These technologies need to be assessed for use in the offshore environment, especially on turbines with large swept areas.

#### **Condition to Reduce the Introduction of Species**

As the staff report notes, the future development activities may lead to an increase in introduced/invasive species due to the presence of floating foundations, mooring lines, and anchors. However, site assessment activities may also lead to the introduction of species that may travel on survey boats' hulls, anchor chains, etc. We recommend the Commission adopt a condition to reduce the likelihood of the introduction of species during site assessment and characterization, as well as future development activities.

#### **Conditions for Adaptive Management**

I. Monitoring and Adaptive Management Plans

We agree with the staff report that "comprehensive monitoring plans and adaptive management strategies for all offshore wind projects will be key to ensuring that coastal resources are protected and restored," and that "[t]he efforts made to understand, avoid, and minimize impacts now will also help inform future floating wind project design."69 The staff report also notes, "the Commission anticipates that future proposed projects would not likely experience simultaneous review and approval, and construction of future projects would take place incrementally, and to some extent, sequentially...This likely phased approach to construction would allow for observation and monitoring of impacts that would be applied, if necessary, to address unforeseen or even underestimated impacts"<sup>70</sup> However, without clear requirements for robust monitoring and adaptive management plans, there is no guarantee that such a phased approach would result in improvements and effective mitigation both as individual projects proceed and as others follow. To achieve outcomes based on these statements and to ensure development in the Morro Bay WEA is consistent with the CCMP, we recommend that the CCC require lessees to provide plans for adaptive management strategies and compensatory mitigation for project development, as needed, based on monitoring outcomes. We also recommend that the CCC require lessees to have an adaptive management advisory committee that includes a liaison for environmental nongovernmental organizations.

II. Publicly Accessible Data

<sup>&</sup>lt;sup>67</sup> Kinzie, K., et al., 2011. Ultrasonic bat deterrent technology, U.S. DOE.; Weaver, S.P. et al. 2020. Ultrasonic acoustic deterrents significantly reduce bat fatalities at wind turbines. Glob. Ecology & Conservation; Arnett, E.B., et al. 2013. Evaluating the effectiveness of an ultrasonic acoustic deterrent for reducing bat fatalities at wind turbines. PLoS One.

<sup>&</sup>lt;sup>68</sup> Duke Energy, Duke Energy Renewables to Use New Technology to Help Protect Bats at its Wind Sites (June 26, 2019), https://news.duke-energy.com/releases/duke-energy-renewables-to-use-new-technology-to-help-protect-bats-at-its-wind-sites.

<sup>&</sup>lt;sup>69</sup> Staff report at 70, 21.

<sup>&</sup>lt;sup>70</sup> Staff report at 31-32.

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Publicly accessible data on impacts of offshore wind developments are the foundation of effective adaptive management. Concerns about the transparency of project data are addressed elsewhere in this letter. Effective adaptive management also requires clear, objective standards or "triggers" that are biologically meaningful. Given the uncertainty of some impacts of construction and operations of floating offshore wind developments, adaptive management is especially important to protect the marine environment in Morro Bay.

In the case of avian species, there are potential population-level impacts of displacing birds from important foraging areas or migratory routes.<sup>71</sup> Underwater noise from increased vessel traffic as well as turbine installation and operation poses a potential threat to diving birds occurring within and around the Morro Bay WEA.<sup>72</sup> Species that may be particularly impacted are modeled in a recent study designed to characterize avian distribution along the California Current System and inform responsible offshore wind development, which is critical to consider in adaptive management and monitoring.<sup>73</sup>

#### III. Monitoring for Changes to Physical Oceanographic Conditions

As offshore wind development occurs, It is critical to understand how offshore wind projects may impact physical oceanographic conditions (e.g., upwelling) near or within the Morro Bay WEA and whether that has population-level impacts on wildlife and other consequences for the CCE.<sup>74</sup> BOEM should require lessees to provide funding for independent modeling studies and a comprehensive monitoring and physical oceanographic data collection plan, independently or in collaboration with existing observation networks.<sup>75</sup> In addition to upwelling, other water quality changes may impact species and habitats. While meteorological buoys measure wind speed/direction, relative humidity, air temperature, pressure, and solar radiation, etc., the impacts that

<sup>&</sup>lt;sup>71</sup> Mendel B, Schwemmer P, Peschko V, Müller S, Schwemmer H, Mercker M, Garthe S. 2019. Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). Journal of Environmental Management 231:429–438; Peschko V, Mendel B, Müller S, Markones N, Mercker M, Garthe S. 2020. Effects of offshore windfarms on seabird abundance: Strong effects in spring and in the breeding season. Marine Environmental Research:105157.

<sup>&</sup>lt;sup>72</sup> Anderson Hansen K, Hernandez A, Mooney TA, Rasmussen MH, Sørensen K, Wahlberg M. 2020. The common murre (Uria aalge), an auk seabird, reacts to underwater sound. The Journal of the Acoustical Society of America 147:4069–4074.

<sup>&</sup>lt;sup>73</sup> Leirness JB, Adams J, Ballance LT, Coyne M, Felis JJ, Joyce T, Pereksta DM, Winship AJ, Jeffrey CFG, Ainley D, Croll D, Evenson J, Jahncke J, McIver W, Miller PI, Pearson S, Strong C, Sydeman W, Waddell JE, Zamon JE, Christensen J. 2021. Modeling at-sea density of marine birds to support renewable energy planning on the Pacific Outer Continental Shelf of the contiguous United States. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-014. 385 p.

<sup>&</sup>lt;sup>74</sup> Modeling found modest changes to wind speeds are found in the lee of wind farms (approximately 5% reduction), which leads to an approximately 10-15% decrease in upwelled volume transport and resulting nutrient supply to the coastal zone in the vicinity of the Morro Bay and Diablo Canyon call areas. Integral Consulting, 2021. An Assessment of the Cumulative Impacts of Floating Offshore Wind Farms, Agreement Number C0210404. Prepared for the Ocean Protection Council.

<sup>&</sup>lt;sup>75</sup> As stated elsewhere, we recommend establishing this requirement at the outset. From the staff report (68-69): "The Commission expects that BOEM's lessees will submit modeling studies with their COPs assessing potential impacts to upwelling, both of their individual project and cumulatively with other projects and the buildout of BOEM's WEAs."

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offshore wind developments have on water quality—such as O2 saturation, pH, turbidity, nutrient load and upwelling characteristics—will be missed unless they are measured.

#### **Conditions to Address Cumulative Impacts**

We are concerned that BOEM's submitted CD fails to assess cumulative impacts. The analysis of cumulative impacts is crucial to a robust assessment of leasing and development, and as noted in the staff report: "Consistency determinations must consider both the direct effects of project-related activities as well as the "indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable."<sup>76</sup> CZMA regulations describe indirect effects as "effects resulting from the incremental impact of the federal action when added to other past, present, and reasonably foreseeable actions, regardless of what person(s) undertake(s) such actions."<sup>77</sup> The Coastal Act also requires that new industrial development shall be sited "where it will not have significant adverse effects, either individually *or cumulatively*, on coastal resources."<sup>78</sup>

We appreciate the discussion of cumulative impacts that is included in the staff report, and agree that comprehensive baseline and post-project monitoring and implementation of an adaptive management framework are critical to understanding cumulative impacts and minimizing them. We urge the Commission to consider cumulative impacts during this consistency review, specifically by adopting a condition requiring an analysis of reasonably foreseeable actions, including development and operations, and resulting cumulative impacts. This analysis should be completed prior to lease issuance.

Importantly, the staff report notes that "[b]ecause habitat displacement and avoidance could occur on a scale that significantly exceeds a specific lease area, limiting baseline data collection and post-project monitoring activities to an individual lease area is not likely to be sufficient to assess this type of an impact. Regional-scale monitoring and coordinated project-specific monitoring across multiple lease areas will be necessary to understand how future offshore wind development affects pelagic and benthic environments offshore of California."<sup>79</sup> We agree that coordinated regional monitoring will be critical for understanding cumulative impacts, particularly to monitor and account for population level effects resulting from all phases of development.

Lastly, any coastal development, port upgrades, or related infrastructure that is required for project development would contribute to cumulative impacts on coastal species, including migratory shorebirds and others that depend on eelgrass and other biologically significant nearshore and coastal habitats. While specific sites for cable landings and specific port facilities have not yet been identified, it is critical to protect the state's remaining eelgrass and avoid impacts to other sensitive habitats, as well as to assess the cumulative impacts of offshore wind development and associated infrastructure in Morro Bay and other WEAs in California.<sup>80</sup> Further, as noted in the staff report, installation of electrical export cables to bring power from the Morro Bay WEA to shore is expected to be allowed to run through National Marine

<sup>&</sup>lt;sup>76</sup> 15 C.F.R. § 930.11(g); Staff report at 32.

<sup>&</sup>lt;sup>77</sup> 15 C.F.R. § 930.11(g).

<sup>&</sup>lt;sup>78</sup> California Public Resources Code § 30250(a), emphasis added.

<sup>&</sup>lt;sup>79</sup> Staff report at 64-65.

<sup>&</sup>lt;sup>80</sup> These areas are afforded special protection under the Coastal Act.

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Sanctuary boundaries.<sup>81</sup> National Marine Sanctuaries are designated because they are of national significance, and one of the purposes of the Sanctuary system is to protect biodiversity in these special areas. While allowable activities in each sanctuary near or adjacent to the Morro Bay WEA are guided by their respective management plans, development should move forward in a way that ensures these biologically significant areas are protected. The installation of cables through these areas would likely further impact the marine ecosystem in the Morro Bay area and it is crucial to review leasing in the context of these and other cumulative impacts during all phases of offshore wind development.

#### 5. Conclusion

We urge the Commission to build upon its leadership in advancing offshore wind development by expanding this consistency review and adopting our recommendations for additional conditions. We thank Coastal Commission staff and the Commission for their work to ensure that offshore wind development off California's coast is fully consistent with the CCMP, and we appreciate the Commission's engagement with stakeholders and consideration of our comments. California is a leader in its efforts to tackle the climate crisis and in its history of protecting invaluable ocean and coastal resources - this is a critical opportunity to move forward responsibly and to further demonstrate the state's leadership on both priorities.

Sincerely,

Irene Gutierrez, Senior Attorney Colleen Wieler, Jessica Rekos Fellow for Sandy Aylesworth, Senior Oceans Advocate Orca Conservation Whale and Dolphin Conservation Linda Krop, Chief Counsel Kristen Hislop, Senior Director, Marine Jennifer Davis, Northwest Regional Director American Bird Conservancy Program Environmental Defense Center Delia Bense-Kang, Northern and Central CA Lisa T. Belenky, Senior Attorney **Regional Coordinator** Center for Biological Diversity Surfrider Foundation Garry George, Director, Clean Energy Michael Stocker, Director Initiative Ocean Conservation Research National Audubon Society Katherine Emery, Ph.D., Executive Director Pamela Flick, California Program Director Santa Barbara Audubon Society Defenders of Wildlife Judy Neuhauser, President Morro Coast Audubon Society

<sup>&</sup>lt;sup>81</sup> Staff report at 33.



886 CANNERY ROW Monterey, CA 93940 831.648.4800

June 3, 2022

Chair Donne Brownsey California Coastal Commission 455 Market Street, Suite 300 San Francisco, CA 94105

#### Re: Coastal Commission Hearing – June 8, 2022 - Item W7a Comment on Staff Report for the Federal Consistency Review for leasing and lease activities within the Morro Bay Wind Energy Area (CD-0004-22)

Dear Chair Brownsey:

Thank you for the opportunity to comment regarding the California Coastal Commission's (Commission) review of the Consistency Determination (CD) submitted by the Bureau of Ocean Energy Management (BOEM) for its proposal to issue up to three commercial wind energy leases and allow site assessment and site characterization activities on leases, grants, and other easements in the Morro Bay wind energy area (WEA). The purpose of the Commission's review is to determine whether the proposal is consistent, to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).

Monterey Bay Aquarium (the Aquarium) has long been clear about its position that climate change is the biggest threat to ocean health and to our planet. The <u>latest IPCC report</u> showed that without immediate and deep emissions reductions across all sectors, it will be impossible to limit global warming to 1.5°C and prevent the worst impacts of climate change. The Aquarium has championed actions by the Biden Administration, California Governor Newsom, and the State Legislature to meet the global emissions reduction goals established in the Paris Agreement. This includes setting ambitious federal and state targets for reducing emissions and increasing the proportion of energy we generate from renewable sources.

While we consider climate action paramount to protecting the long-term health of our ocean and planet, the Aquarium also serves as a steward of California ocean wildlife and ecosystems. For this reason, we believe that a transition to renewable energy in offshore areas, including wind energy development, like any major industrial activity in the ocean, requires the highest possible level of scrutiny regarding its impacts on the environment, other ocean uses, and California coastal communities. This includes environmental review and precautionary decision making that is comprehensive and based on the best science. We also see an ongoing need to ensure that potential cumulative impacts on ocean health are adequately understood and addressed. The Morro Bay WEA is situated in the California Current Ecosystem (CCE) and located adjacent to the coastal Davidson Current which carries warmer, more saline water from the south into the cooler, fresher water from the north in the CCE. The mixing of these different water masses makes the California Central Coast one of the richest bioregions in the world, supporting some of the highest levels of biodiversity in the United States' mainland EEZ. The Morro Bay WEA and surrounding area's ecological value is underscored by proximity to numerous federal and state protected areas and federally managed fisheries in the area. The Morro Bay WEA is near to or bordering the Monterey Bay National Marine Sanctuary (MBNMS) and the proposed Chumash Heritage National Marine Sanctuary.

The Aquarium is located in the Central Coast region. While our facility sits on the shores of the MBNMS, we also study and explore the connectivity, uniqueness, and biological importance of the CCE and the Central Coast's coastal waters, canyons, seamounts, wildlife, and cultural uses and share their importance with two million Aquarium guests from around the world every year. We are also the leading experts in the rescue, rehabilitation, and recovery of the iconic southern sea otter, a species listed as threatened under the U.S. Endangered Species Act. Our current efforts to release rescued and rehabilitated animals of this keystone species into habitats where they can thrive are largely focused on nearshore habitats along Morro Bay.

The Aquarium supports the Commission report's approach of looking at offshore wind development holistically, especially when it comes to potential impacts on ocean wildlife, ecosystems and other ocean uses. In general, we support the conditions in the staff report and appreciate that the report sets expectations for future development activities. However, we again urge the Commission to go beyond these expectations and include conditions for offshore wind development activities, monitoring and adaptive management, and a cumulative impact assessment in this consistency determination.

#### Include conditions for offshore wind development activities.

As noted in the staff report, federal consistency determinations must consider not only direct effects of federal agency actions, such as leasing, but also indirect effects that are reasonably foreseeable. The staff report describes future development activities that will likely occur on the proposed leases, as well as the reasonably foreseeable effects of such activities. The staff report also suggests specific measures that would avoid or minimize effects on the state's coastal uses and resources. The staff report acknowledges the Commission's broad scope of review under the Coastal Zone Management Act (CZMA) and notes that the CZMA requires review of "any related, reasonably foreseeable activities and effects with California's coastal program..." and that "CDs must consider both the direct effects of project-related activities as well as the 'indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance but are still reasonably foreseeable.' C.F.R. §

930.11(g)."<sup>1</sup> The report notes that "it is reasonably foreseeable that the leases will lead to construction and operation of at least some offshore wind facilities, and it is feasible to describe, at least at a high level, the types of impacts that such facilities could have on coastal resources."<sup>2</sup>

Given that this is California's sole opportunity to evaluate the potential impacts associated with three lease sales in the Morro Bay WEA at the programmatic scale, we strongly urge the Commission to include conditions associated with development activities, which are reasonably foreseeable, as part of its conditional concurrence with the Morro Bay CD.

#### Include a condition that results in meaningful and timely cumulative impact assessment.

We are concerned that BOEM's submitted CD fails to assess cumulative impacts. Analysis of cumulative impacts is crucial to a robust assessment of leasing and development, and as noted in the staff report: "Consistency determinations must consider both the direct effects of project-related activities as well as the 'indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable."<sup>3,4</sup> The Coastal Act also requires that new industrial development shall be sited "where it will not have significant adverse effects, either individually or cumulatively, on coastal resources."<sup>5</sup>

Importantly, the staff report notes that "regional-scale monitoring and coordinated projectspecific monitoring across multiple lease areas will be necessary to understand how future offshore wind development affects pelagic and benthic environments offshore of California."<sup>6</sup> We agree that coordinated regional monitoring will be crucial for understanding cumulative impacts, particularly to monitor and account for population level effects resulting from all phases of development.

We urge the Commission to address the need to establish clear and robust monitoring requirements and to ensure a cumulative impacts assessment is conducted by including these priorities in its conditions now. The Commission should specifically stand up a body to establish a monitoring regime with clear requirements for both developers and agencies that will result in adequate site assessment and inform a cumulative impacts analysis process.

<sup>&</sup>lt;sup>1</sup> California Coastal Commission, Staff Report: Regular Calendar - Consistency Determination No.: CD-0004-22 for the Bureau of Ocean Energy Management, 2022. <u>https://documents.coastal.ca.gov/reports/2022/6/W7a/W7a-6-2022-Report.pdf</u> (May 27, 2022), 23, 32.

<sup>&</sup>lt;sup>2</sup> Staff Report, 24.

<sup>&</sup>lt;sup>3</sup> Staff Report, 32.

<sup>&</sup>lt;sup>4</sup> CZMA regulations describe indirect effects as "effects resulting from the incremental impact of the federal action when added to other past, present, and reasonably foreseeable actions, regardless of what person(s) undertake(s) such actions." CFR § 930.11 (g).

<sup>&</sup>lt;sup>5</sup> Pub. Res. Code & 30250 (a), emphasis added.

<sup>&</sup>lt;sup>6</sup> Staff Report, 64-65.

The Aquarium urges the Commission to adopt a condition that will ensure that, between leasing and Construction and Operations Plan (COP) review, progress is continually made toward effective cumulative impact analysis and that such analysis will be utilized in future decision making, including permitting. The Aquarium urges the commission amend condition 1 by adding a section (g) as follows:

1(g). BOEM will ensure that a cumulative impacts assessment is conducted of all current and reasonably foreseeable offshore wind development along the coast of California, including but not limited to any active leases in state and federal waters off California, prior to and in conjunction with any COP submittal, review, or approval. Such assessments will consider potential cumulative impacts to marine wildlife, upwelling, fisheries, environmental justice and other socio-economic impacts, and other coastal resources as may be identified. Assessments will be available for public review six months prior to submittal of a COP consistency certification to the Coastal Commission.

This would serve as an important step to ensure that potential impacts as informed by best science are assessed at an instructive point in the decision-making process – ahead of and during the permitting of COPs. Undertaking such a synthetic analysis of reasonably foreseeable scenarios, as they begin to become clearer post lease-sale, would be beneficial. Known and potential environmental and social impacts of concern could be folded into such an assessment. Additionally, studies identified by both the Commission report and by some of our partners in the NGO community would be logical components of a required cumulative assessment process. Further, there is opportunity for this cumulative impacts assessment process to be co-designed with or take into consideration additional needs identified by the state agencies leading the AB 525 Strategic Plan. Given there are potentially 4-6 years in between the expected lease sale recently announced in a proposed sale notice by BOEM in the Federal Register for both the Humboldt Bay and Morro Bay WEAs and the submission of COPs for permitting, we believe this time should be utilized to advance a cumulative impact assessment initiative. Requiring such a condition could be the catalyst for such a coordinated initiative.

The Aquarium urges the Commission to establish an independent scientific review panel<sup>7</sup>, to include representatives from the academic, research, Tribal, NGO, industry, and government agency sectors, to scope regional monitoring needs, recommend research (baseline assessment surveys, modeling, and more specific needs), and review a cumulative impact analysis <u>prior to and to inform</u> COP review by BOEM.

#### Require adaptive management and mitigation planning.

We agree with the staff report that establishing a comprehensive baseline and post-project monitoring and implementation of an adaptive management framework are crucial to understanding cumulative impacts and minimizing them. To achieve outcomes that would

<sup>&</sup>lt;sup>7</sup> The Commission has successfully deployed iterations of independent or collaborative science reviews before, including but not limited to desalination proposals and SONGS mitigation (reef mitigation and monitoring).

ensure development in the Morro Bay WEA is consistent with the CCMP, **we recommend that the Commission request that BOEM require lessees to provide plans for adaptive management strategies and compensatory mitigation for project development, as needed, based on monitoring outcomes.** Additionally, publicly accessible data on impacts of offshore wind developments are the foundation of effective adaptive management. Effective adaptive management also requires clear, objective standards or "triggers" that are biologically meaningful. We also recommend that BOEM require lessees to have an adaptive management advisory committee that includes a liaison for environmental non-governmental organizations.

The Aquarium notes that the staff report reads "...comprehensive monitoring plans and adaptive management strategies for all offshore wind projects will be key to ensuring that coastal resources are protected and restored," and that "[t]he efforts made to understand, avoid, and minimize impacts now will also help inform future floating wind project design."<sup>8</sup> The Aquarium agrees. However, without clear requirements for robust monitoring and adaptive management plans, there is no guarantee that such a phased approach would result in improvements and effective mitigation both as individual projects proceed and as others follow.

The Aquarium urges the Commission to expand this consistency review with additional conditions as noted above and continue to build upon its leadership in thoughtfully advancing offshore wind development. We appreciate the Commission's work to ensure that offshore wind development off California's coast is fully consistent with the CCMP, and the Aquarium is grateful for the Commission's engagement with stakeholders. Thank you for the opportunity to comment and for your consideration.

Sincerely,

Eleanore Humphries Senior Manager, Federal Ocean Conservation Policy

Amy Wolfrum Senior Manager, California Ocean Conservation Policy

<sup>&</sup>lt;sup>8</sup> Staff Report, 70, 21.



June 3, 2022

Chair Donne Brownsey California Coastal Commission 455 Market Street, Suite 300 San Francisco, CA 94105

Submitted electronically to osw@coastal.ca.gov

#### Re: Coastal Commission's Federal Consistency Designation for Morro Bay WEA

Dear Chair Brownsey and Commissioners,

On behalf of the members of the Pacific Merchant Shipping Association (PMSA), we appreciate the opportunity to comment on the Morro Bay Wind Energy Area (WEA) Federal Consistency Determination. PMSA represents owners and operators of ocean-going vessels operating at U.S. West Coast ports. As such, our comments focus on potential impacts to maritime navigation and vessel traffic within the Morro Bay WEA, and are similar to our previous concerns regarding the Humboldt WEA.

While fostering investment in renewable wind energy is indeed a laudable goal, it is imperative that the Commission *only select the most feasible locations for deploying WEAs and act in a manner which acknowledges and prioritizes the many shared uses of the sea,* including spatial planning for safe and continuous navigation and vessel routing. This is a requirement of the Outer Continental Shelf Lands Act (OCSLA) and must be adhered to.

While the Coastal Commission Staff Report indicates that BOEM investigated many uses of the WEA area, including vessel traffic, this determination was made prematurely, as the many concerns by the commercial shipping industry have not been accounted for during the process. While the industry unfortunately historically experienced poor outreach by BOEM, PMSA is pleased to share that BOEM, Energy Commission, as well as the Coastal Commission, convened its first vessel stakeholder group<sup>1</sup> meeting on May 23<sup>rd</sup>. While the industry is encouraged by this new rapport and that coordination will only improve throughout the WEA processes, the timing remains that the potential impacts have not yet all been addressed. For instance, in the Coastal Commission Staff Report, Section C includes Cumulative Effects, which are described for fishing and marine resources. Commercial vessels, a major waterway user is blaringly absent in this section. The siting process must be complete and comprehensive prior to moving on with any subsequent steps, including actions by state agencies. Without such a compulsory evaluation, the conclusion that no factors compel the alteration of the size, shape and location of the proposed placement is necessarily deficient.

<sup>&</sup>lt;sup>1</sup> Stakeholders include the American Waterways Operators (AWO), Chamber of Shipping of America (CSA), Western States Petroleum Association (WSPA) and the World Shipping Council (WSC).

PMSA wholly agrees with the Staff Report statement of "efforts made to understand, avoid, and minimize impacts now will also help inform future floating wind project design." It is imperative that, especially as this is only the second WEA proposed, the Coastal Commission precedent on these siting decisions emphasizes and values designations that are made correctly over designations that are made quickly. As the framework and procedural standards are being established with these first-of-their-kind offshore projects on the West Coast, this designation certainly deserves the utmost careful planning and a comprehensive examination.

Given these outstanding issues, it would be appropriate to defer final action on concurrence at this time. However, if the Coastal Commission does choose to move forward at this time with the staff recommendation to conditionally concur with the Federal Consistency Determination, PMSA respectfully requests the Coastal Commission to consider revisions to the conditions for BOEM to account for all of the following:

#### Condition 1(F)2: Site-specific Spill Prevention and Response Plan

Any release should immediately be reported to CDFW's Office of Spill Prevention and Response. The lessee should submit a final report, similar to the other Conditions, summarizing any release events to BOEM, with a copy also sent to the Coastal Commission's Executive Director. The condition makes no stipulation to whom the lessee shall submit the Plan to.

#### Condition 1(F)iv: Anchoring Plan

While it is understood this refers to smaller workboats focused on site evaluation activities, the lessee should submit the Anchoring Plan to the USCG, and the Marine Exchange of Southern California, as appropriate, as well as to BOEM. The USCG is the federal entity tasked with maritime safety and, as such, should be aware of federal projects within waters of their jurisdiction, especially as the Morro Bay WEA will include vessel activity of its own and is directly in the path of commercial vessel lanes (reference Figure 1). The lessee should concentrate anchorages as far west as feasible, and all anchorage decisions should be made in consultation with the USCG, so as to not interfere with ocean-going vessels. This is for safety concerns; safety is an upmost priority for the maritime community, and any potential hazards, conditions, or other state that BOEM intrinsically may not consider, may be supplementary supported by the Coast Guard and Marine Exchanges.

#### Condition 3: Minimizing the risk of vessel strikes

One assumes this condition is based on mammal strike, though not described. This Condition is commendable for WEA site vessels but is incomplete with respect to collisions/allisions with other ocean-going vessels. To be clear, the only impact in relation to vessel routing impacts with the Federal Consistency Review is attributed to project specific site vessels and an increase in strike risk. It is critical that this Condition reference the USCG Pacific Coast Port Access Route Study (PAC-PARS), currently underway and partly initiated due to BOEM activities. This is a vital

study that will survey potential hazards to, or due to, the maritime community. Yet any alterations or additions to shipping lanes will not be formalized for approximately two years, much time after the WEA activities have commenced. PMSA has previously requested of BOEM to suspend the Morro Bay WEA process until the vital study is complete to minimize risk as much as possible. PMSA makes the same request to the Coastal Commission here, and alternatively asks the Commission to further condition the Consistency Determination with a future evaluation of risks by BOEM and the lessee in the context of the completion of the PAC-PARS study and its findings.

It is noted that potential alterations to traditional commercial shipping lanes for this project have the potential to impact marine mammals, positively or negatively. However, as the PAC-PARS study has not been completed nor alterations adequately studied, this is yet another justification for BOEM to complete a more comprehensive analysis in the interim.

#### Condition 4. Safe Navigation:

PMSA is pleased that the maritime industries are listed under this condition. We concur with the requirement for BOEM to coordinate with the USCG for WEA project vessel navigation and we further recommended that the appropriate Marine Exchanges are also included in this coordination. They are an important resource to share information and safety alerts to the greater maritime community.

#### Conditions 5, 6 and 7:

These Conditions discuss coordination with various stakeholders, including the fishing communities, harbors and tribes, which is commendable. However, the shipping industry is omitted. We respectfully request specific inclusion in these coordination requirements. An independent liaison, similar to the fisheries liaison requirement is also appropriate and will ensure efficient communication. Ocean-going vessels are an obvious major waterway stakeholder with interests in projects such as these and must also be included in these engagement activities. The working group described in 7(c) is a perfect platform to engage the shipping industry, there is no justification as to why not all relevant stakeholders are engaged in a similar fashion. PMSA would be pleased to represent our members and the industry as a whole in this working group, perhaps formalizing the industry specific meeting that was recently held.

The omission of the shipping industry is consistent with the unfortunate fact that during the = WEA process BOEM did not previously attempt to meaningfully engage with the maritime commercial shipping industry. While, as described before, a dialogue has recently been established, this does not discount the fact that *efforts to gather information for the various documents, including this Staff Report, have not address the industry concerns and are therefore deficient*. It is clear that not all stakeholders' concerns have been faithfully recorded or appropriately shared with the many state agencies, including the Coastal Commission, that rely on BOEM to make appropriate designations, approvals or issue permits. This is evidenced in

Section D of the Staff Report, which lists the coordination with other agencies, fishing community and tribes only. PMSA believes this should be a real concern by the relevant state agencies; while BOEM is a federal agency, the Commissions are empowered to urge the agency to lawfully engage with all, and attempt to alleviate concerns, of California citizens and stakeholders.

To graphically represent how the ocean-going vessel industry intersects with the proposed WEA, and validating why all stakeholders should be included in these conditions, see the maps below (Figure 1).



Figure 1: Vessel traffic for cargo, tug and tow and tanker vessel traffic within the Morro Bay WEA region. The entire data set is visible, with the purple layer representing the data which BOEM does not publicly exhibit.

PMSA created these maps, as the maps provided by BOEM, and thus included in the Coastal Commission Staff Report Exhibits, do not exhibit all data available. Only tracks receiving a certain number of vessels were made visible in BOEM's maps (reference Exhibit 4-1 AIS Shipping Vessel Traffic 2017). One will also note that the draft summary of vessel routes through the Morro Bay WEA are wholly inaccurate and appear to be copied word for word from the Humboldt EA.

#### Additional Considerations for the Commission

In addition to the preceding comments on the staff recommendation and conditions, we would ask the Commission to consider the following comments during its evaluation.

• The Humboldt WEA is proposed to be located on the continental slope. According to OCSLA, any leases or easements should be carried out in a way that doesn't interfere with mixed uses of the sea, including sea lanes and navigation. The Humboldt WEA will, very likely, cause great interference. OCSLA grants the authority to BOEM to undertake these activities, but *its provisions must also be adhered to*. Citing its authority while not following its obligations is unlawful. Thus, the project must be fully justified regarding the interference of the mixed uses of the sea prior to any formal leases, contracts or permitting, otherwise it is out of compliance with federal law.

• The California Coastal Management Program speaks to the great national interest in the California coastal zone. Further, the Coastal Zone Management Act requires that the state program "provides for adequate consideration of the national interest involved in planning for and in the siting of facilities" and do not "exclude uses of regional benefit." One can easily justify that commercial shipping is of great state, regional, national and international interest and adequate consideration must be provided during the entire WEA process. Almost half of the cargo entering the U.S. arrives through California ports via vessels and nearly 30 percent of the nation's exports flow back out, stimulating the economy.

PMSA sincerely appreciates the opportunity to provide commentary on this Federal Consistency Determination. Again, we highly appreciate the dialogue which has been newly established with the industry. We look forward to working together to ensure feasible and least impactful offshore wind energy areas in the future, and please do not hesitate to contact us at your convenience should there be any questions.

Respectfully,

acqueline M. more

Jacqueline M. Moore Vice President

cc:

Kate Huckelbridge PhD., Deputy Director, North Coast District, California Coastal Commission Sara Guiltinan, Renewable Energy Specialist, BOEM From: Ken Bates <<u>kenbatesironic@gmail.com</u>> Sent: Monday, May 9, 2022 7:44 AM To: Huckelbridge, Kate@Coastal <<u>Kate.Huckelbridge@coastal.ca.gov</u>>; Cousart, Amanda@Coastal <<u>amanda.cousart@coastal.ca.gov</u>> Subject: CFRA Comments to CCC re: WEA's

Dear Kate and Amanda,

This morning we are sending you the CFRA's comments concerning the Morro Bay WEA Federal Consistency Determination. We had initially considered compiling a set of separate comments to be sent to your offices for the purpose of describing fishermen's concerns and how those concerns might be incorporated in some form within the Morro Bay WEA Coastal Commission Staff report; we have been unable to produce a second letter. The reason is that we have been "at sea" since the last week of April, both traveling down the coast and working offshore of Monterey County in really crummy weather conditions. Such is salmon season. We are generally without reliable cell phone or internet signal and earlier this week we had to run six hours to Half Moon Bay to take two calls from East Coast parties with interests in California's OSW projects. We are hoping that the CFRA comments will be included in the public comment section for the Morro Bay WEA and also that you may find our comments helpful in your efforts to produce the upcoming staff report concerning the Morro Bay WEA. We are departing Half Moon Bay this morning by 8am and should have cell phone signal for the next few hours if you have questions.

Thanks for all your great work. Ken and Linda F/V Ironic and CFRA

Sent from my iPad

### CALIFORNIA FISHERMEN'S RESILIENCY ASSOCIATION

1118 6th St. Eureka, CA 95501

May 8, 2022

Re: CFRA Comments on Morro Bay Consistency Determination

Dear Coastal Commissioners and Staff,

The following are the California Fishermen's Resiliency Association's (CFRA) comments on the Coastal Commission Staff and BOEM reports concerning the Morro Bay and Humboldt WEA's and the ongoing process of the Federal Consistency Determination between California and Federal offshore wind energy policy.

1. Consistency Determination Assumptions — "Lowest Common Denominator" — The BOEM reports and "findings" contained in those reports constitute a "level of competence". That is, a direct real time evaluable product of the BOEM staff's abilities to accurately research, understand, and evaluate the impacts of OSW survey development in California waters. For informed California commercial fishermen, BOEM policy and reporting is at a "D-minus" level. It is just barely passable to allow BOEM to move to the next regulatory step and in terms of permitting conditions for wind power developers, the lowest possible compliance level and still obtain a development permit. California fishing communities and the fishing industry as a whole expect to be "thrown under the bus" by the ongoing BOEM process and at least up till now that the bus is right on schedule. This does not have to be the case.

California State Agencies have a long successful history of setting the <u>upper</u> standards for environmental protection in this nation. Just look at the high California standards for automotive tailpipe emissions, fuel mileage requirements, and the conversion to electric vehicles. The California Coastal Commission should not hesitate to continue California's position as a <u>National Leader</u>. The Coastal Commission should continue its work with the fishing industry to establish permit conditions for OSW development that protect Coastal Fishing Communities, moves California towards

realistic renewable energy goals, and sets a high bar for the performance of international developers flocking to bid on California's WEA's.

- 2. Site Survey Impacts The BOEM reports give the reader the false impression that site survey work to be performed by multiple OSW developers and their subcontractors will have little or no negative impacts on fisheries, fishermen, or Coastal Fishing Communities. BOEM proposes that these surveys may take place over a three to five year time period and at latest reports, may require 300 top 500 "vessel" trips. This is not a negligible impact! So, let's look at some actual real world details that are missing in the BOEM data.
  - a. "Vessel Description A vessel, in the case of OSW site survey, is not a 20 foot skiff running out to the WEA on a sunny day. The "vessels" engaged in ocean survey work typically range from 150 feet to 400 feet in length. They carry large crews to deploy side scan sonar, tow acoustical sounding arrays and in some cases, equipment for substrate sampling. These ships are large, unwieldy, and cannot easily maneuver to avoid legally set and operated fishing gear. Survey ships damaged and scattered legally set Dungeness Crab gear in June and July of 2020, (M/V Bold Explorer) while surveying off of Humboldt Bay. Fixed fishing gear damage and loss will occur throughout the period of transit to and from and site survey activities at the WEA. This is not addressed in the BOEM report.
  - b. **Vessel Trips** Vessel survey trips take multiple weeks and even months. These survey vessels work in a given area at the mercy of the weather. Recently, a 200 foot gulf oil supply ship (M/V Cindy Brown Tide) working with a 400 foot long fiber optic cable repair ship (M/V Segro) spent over forty days trying to install only two miles of fiber optic cable from the Samoa Peninsula cable termination site to one and a half nautical miles offshore. The M/V Cindy Brown Tide was on standby, and tied to the dock in Humboldt Bay for 30 days, waiting for workable weather. This vessel then spent eight days "jogging" on station until sea conditions allowed for eight hours of work. The cable repair ship (M/V Segro) had similar experiences: days at sea, jogging in position waiting for decent weather, and a thirty day stint tied to the dock in Humboldt Bay on "standby". All systems and power generation equipment were continuously running 24 hours per day, with both of these vessels moored directly upwind of one of the poorest neighborhoods in the City of Eureka. Nearly every morning at daylight, the Harbor and Pine Hill areas were covered by a pall of diesel particulate and exhaust fumes expelled during the "standby" phase of these two vessels' attempts to work only in the near shore environs of Humboldt County. At one point, the 400 foot long M/V Segro had to travel to San Francisco Bay for more fuel! The above described impacts to "low income" neighborhoods, harbor congestion, and repeated trips attempting to work on the local Dungeness Crab fishing grounds to perform a relatively simple project will be multiplied three to five hundred times over, during site assessment work on the Morro Bay and Humboldt WEA's. Imagine 300-500 more "survey" trips like this! The Coastal Commission should expect major negative impacts to Coastal Fishing
Communities, Environmental Justice Communities, and local commercial fishing activities from site assessment vessels, contrary to the BOEM findings.

3. Data Collection Buoys — To date (April 2022) there is one Lidar Data Collection Buoy anchored in 347 fathoms of water, NNW of the Humboldt WEA. Launched in late September of 2020, this buoy was scheduled to remain in place, on station, for one year. It has been on station only intermittently during a period of one year and seven months. During this time period, the buoy has experienced repeated mechanical failures due to Northern California ocean weather conditions. There have already been six "maintenance" trips to the buoy: one involving a diver, and two trips requiring the use of two "ocean capable" tugs. The buoy has been towed back to Humboldt Bay twice at two miles per hour for the twenty plus mile trip. Each time back in port the buoy underwent repair of wave damage including the replacement of the fuel powered generator which was torn off the buoy by weather. Another "maintenance" trip is scheduled this spring (personal communication, Z&Z Marine, March 15, 2022). The BOEM report clearly states that these data collection buoys will require one trip per year for maintenance. The BOEM report is pure conjecture. A more realistic number for the three planned data collection buoys on either the Humboldt or Morro Bay WEA's is likely to exceed twenty maintenance trips and possibly thirty trips if the buoys are to collect data for 365 days on station. The BOEM report also includes a single day to decommission the buoy. Neither the Northwest National Laboratory, BOEM, wind energy developers, or the commercial marine salvage and construction firms have a plan or any intention to retrieve the 11,000 pound steel anchors and chain holding these buoys in place on the fishing grounds. The "single day" decommissioning plan in the BOEM document is based on abandoning this anchoring system on the fishing grounds. On the U.S. East Coast, the wind energy developer Orsted Inc., conducting BOEM permitted site survey work on a New York WEA, set forty, five hundred pound concrete and steel block anchors on the New York fishing grounds with no intent to retrieve this equipment. The BOEM/Orsted plan is to "decommission" these marine hazards in place. East Coast fishermen are protesting the abandonment of this junk on the fishing grounds with little or no response from BOEM. Nothing should be left on California's Community Fishing Grounds! Here is a link to that article.

https://www.wind-watch.org/news/2022/04/30/wind-farms-fish-monitors-irk-fisherm en/ Expect major disruptions to fishing activities and impacts to coastal fishing communities from WEA site assessments.

4. Permit Condition 7A - Fisheries Liaison Officer — Permit condition 7A requires the employment of a Fisheries Liaison Officer (FLO) to interact between fishermen, fishing communities, and offshore developers. The CFRA requested the following exact language and a justification for permit condition 7A as follows: Fisheries Liaison Officer" — the Developer(s) will be required to fund the position of Fisheries Liaison Officer as per permit condition 7A, while local port fishermen's association will be responsible for the screening, interview and hiring of the Fisheries Liaison Officer. Port Fishermen's Association and the Developer will

#### work collectively to develop protocols for the position of FLO.

Justification— the position of Fisheries Liaison Officer (FLO) needs to be filled by the local fishermen's association impacted by the proposed development, not by the developer. On both the West and East Coasts, the independence and level of community trust in "developer hired" FLO's has been highly problematic. East Coast fishermen have had poor results in communicating their concerns about impacts to the wind power developers through the FLO, when the FLO has been chosen and hired by the Developers (K. Wark, personal communication, 2021). In California, fishermen have directly experienced similarly poor results trying to communicate with FLO's hired by subsea cable installers in Northern California. These poor results included disruption and loss of legally set fixed fishing gear, refusal on the part of survey vessels to terminate survey work during legal fishing seasons and exceedingly bad outreach skills and community connections in notifying fishermen as to schedule and operational changes by developers. In short, when FLO's are hired by the developer these individuals work for the developer to advance the developers needs at the expense of the impacted fishing community. The BOEM response was that BOEM "cannot direct the expenditures of Developer funds" to provide for a non-biased independent FLO. Fishermen have seen clearly over the past four years that BOEM has no intention of protecting coastal fishing communities from non-fishing development challenges. As a national leader, the California Coastal Commission must include this language in California's Consistency Determination Permit Condition 7A (See March 29. 2022, CFRA comment letter).

- Impact to Fishing and Fishing Communities 7C "BOEM will work with the Commission and other state and federal agencies to develop and facilitate a working group consisting of fishing organizations and representatives from different regions/ports of the State.....
  - a. **Comment** the members of the working group should consist of representatives from <u>Commercial Fishing California Port Fishermen's Associations</u>. both within and outside of the potential WEA's. This proposed working group should have been formed at the beginning of the BOEM process which was started years ago. How long should the fishing industry be expected to wait in hopes that BOEM and State Agencies actually form a working group composed of California Commercial Fishing Port Association? There have already been four years of negative impacts to stakeholders just dealing with the BOEM process.
  - b. **Comment** If formed, what will require BOEM to follow any working group recommendations for OSW development?
  - c. Comment Any "Fishing Agreement" template should be directly based on the February 9, 2022 industry letter sent to California State Agencies concerning the specifics for "creating a template and managing entity to address unwanted, adverse impacts on California's Fisheries from offshore wind development". (Note: the CFRA was formed via these fishing industry "templates" and embraces the concepts contained therein.)

- d. **Comment** The Humboldt Consistency Determination conditioned a "Community Benefit Agreement" before OSW construction (COP). The condition should exactly state: "that a **Fishing Community Benefit Agreement** be negotiated and executed between both industries and reviewed by Coastal Commission staff before any lease sales or survey work begins".
- e. **Comment** The State of California must take a long term view of ocean OSW leasing and development. The Coastal Commission should institute a moratorium on additional leases after the initial lease of only one portion of both the Humboldt and Morro Bay WEA's. These initial leases should be considered a "pilot project" to allow state agencies the opportunity to implement real time adjustments to OSW protocols for the avoidance and minimization of OSW impacts to the fishing industry. These pilot projects would allow the documentation of the rate of failure of OSW equipment in the offshore environs.
- Lack of Policy, Lack of Enforcement Neither the Federal Government, (NOAA, NMFS, BOEM) nor the state agencies of California have any coherent policy to direct offshore development and protect coastal fishing communities from said negative impacts of proposed offshore developments. This lack of policy has been evident during the permitting, installation, and operation of fiber optic telecommunication cable projects in the State and Federal waters of California. To date there is no public evidence that there are any draft documents exactly prescribing how, and how not, WEA site survey operations will be allowed to be conducted. Subsequently, like fiber optic cable operations, wind power operators will be given free rein on California's Community Fishing Grounds with no oversight and absolutely no enforceable protocols for said survey activities. The CFRA has been unable to find any evidence that BOEM has the staff, the equipment, or the vessels to enforce compliance by wind power developers as they work at sea. The California Coastal Commission must immediately begin work with port fishermen's associations and non-fishing developers to implement enforceable survey operation protocols. It is clear to the CFRA Board of Directors from examples observed on the East Coast, that BOEM will not proactively and collectively work with coastal fishing associations to avoid and minimize survey conflicts. This is now the job of the California Coastal Commission. Without coherent, enforceable WEA survey protocols, the result will be chaos on California's Community Fishing Grounds.

#### 7. Additional Questions

- a. Will the Coastal Commission have the legal ability and agency motivation to protect the most valuable of California's fishing grounds from loss due to displacement by OSW developments?
- b. Is the Coastal Commission willing to accept responsibility for the alternative burdening coastal fishing communities with the deferred costs caused by OSW developers as their projects remove hundreds of square miles of California's limited fishing grounds from the harvesting of fishing resources for generations to come?
- c. Additionally, can the Humboldt and Morro Bay WEA's be classified as "experimental demonstration projects" and be required to actually produce and

export electrical power at a commercial scale for three years before any additional WEA's are permitted for California offshore waters?

The California Fishermen's Resiliency Association continues to commend the Coastal Commission Staff's work in addressing the concerns of California's Coastal Fishing Communities as those concerns relate to yet another challenge to California Fishermen. The CFRA membership appreciates California's State Agencies engagement with its fishing industry and looks forward to productive and significant cooperation going forward. Thank you.

Sincerely, Ken Bates, President And the CFRA Board of Directors

### Alliance of Communities for Sustainable Fisheries 256 Figueroa Street #1, Monterey, CA 93940 (831) 239-1219 www.alliancefisheries.org

Donne Brownsey, Chair

June 3, 2022

California Coastal Commission

Sent electronically

RE June 8, 2022; CD-0004-22 Bureau of Ocean Energy Management

Dear Chair Brownsey and Commissioners,

The Alliance of Communities for Sustainable Fisheries (ACSF) is a 20year-old 501(c)(3) not-for-profit educational organization, founded for the purposes of connecting fishermen with their communities, and to represent fishing interests in state and federal processes. The ACSF is a regional organization, with commercial fishing leader representatives from Monterey, Moss Landing, Santa Cruz, Morro Bay, and Pillar Point harbors, and Port San Luis, on our Board of Directors. Port communities, the California Wetfish Producers Association, and several recreational fishing organizations also have representatives on our Board. Thus, the ACSF represents a large cross-section of fishing and community interests for the Central Coast of California.

The ACSF Board has reviewed the Coastal Commission's staff report for the Morro Bay Wind Energy Area (WEA) and potential federal consistency determination, with recommended conditions. The ACSF appreciates the opportunity to comment on the content of the staff report and recommended conditions.

The ACSF commends Commission staff in preparing a report that is very thorough. We especially appreciate the Commission's broad view of BOEM's OSW leasing process by recognizing that many impacts beyond site assessment activities are "readily foreseeable" and must be considered, now. One such set of impacts will be from the cumulative

impacts of both multiple leases in a given WEA, as well as impacts from multiple lease sales and OSW development elsewhere in California and the west coast on our coastwide fisheries.

We support the recommended conditions #'s 1-7, with several additional considerations.

# The choices presented to the Coastal Commission are not true choices

The ACSF points out that the analysis of the Humboldt and Morro Bay WEAs for Coastal Zone Management Act consistency determination is predicated on decisions that BOEM made long ago about the location of Call Areas. Whereas BOEM often describes its self-view as having provided "robust stakeholder engagement", that is largely not the experience of commercial fishermen. We have never been asked, "where is the best place to site OSW farms to avoid conflicts with fishing opportunities?"

Since BOEM's process places before the Commission sites that are full of industry conflicts as well as environmental uncertainty and risks, Commission choices are very limited if there is a wish to move forward with clean energy development. The ACSF hopes that the Commission will explore its authority to condition or otherwise encourage BOEM's removal of areas within the WEA's that are deemed highly valuable to fisheries and/or have high ecological value.

Please note that commercial fisheries and their dependent communities stand apart as the stakeholders who will immediately suffer economic loss due to OSW development.

We make this observation and recommendation in part to address the future of OSW in California. The Commission will likely be evaluating consistency determinations well into the future as BOEM and Energy Commission OSW ambitions play out. For the Morro Bay WEA, the fisheries are highly distributed, so the alternative location, had we have been asked by BOEM, would be for a deeper-water location. For the Humboldt WEA, there are distinct areas of high fishery value that could have been avoided if BOEM had asked.

If BOEM continues to develop Call Areas largely based on the desires of the OSW industry and imperfect data, it is not an exaggeration to say that the state's commercial fisheries north of Point Conception will be decimated, with related effects on coastal communities.

# Adaptive management: The table is set but no meal is served

The staff report does a good job of describing the kinds of monitoring and data collection that is needed as OSW moves through site assessment/characterization to project construction and operations. It also correctly describes the opportunities that will exist as phases of project development progress. Importantly, what is missing is discussion of the metrics that might cause adaptive management changes, and the range of actions that might be required of OSW developers. For example, what if the monitoring reveals a marked loss in the strength of upwelling downwind of these large wind farms? Upwelling, of course, is a main driver of ocean productivity on the west coast. There is already peer-reviewed science that tells us that wind speeds will be diminished down-wind of windfarms, and warn of reductions to upwelling. What if the floating turbines, which are very likely to become fish aggregating locations for bait fishes, attract and kill large numbers of seabirds? We could give many more examples of environmental uncertainties, in addition to the consequences of fisheries displacement.

It would seem prudent for monitoring plans to also to establish some thresholds, or stop-lights, for environmental and fisheries harm. What can and should the Commission do about such harm if it occurs?

The ACSF submits that the only way for the Commission to ensure that California's Coastal Act is upheld is to create real, enforceable standards, informed by monitoring plans. These should be conditions for a consistency certification.

# Scientific Survey routes; A suggestion to maximize benefits

The staff report correctly discusses the importance of the several longrunning scientific stock-assessment surveys that occur in the Morro Bay WEA. Quoting, in part,

"NMFS has recommended continued consultation on the issue to help inform appropriate mitigation strategies on the West Coast that may include appropriate spacing of future infrastructure within wind farms to allow for survey continuance."

The ACSF has previously written to BOEM and the US Coast Guard as to the need for a navigation/safety corridor through the WEA, running approximately north-south. Additionally, the ACSF has written to BOEM requesting a scientific control area within the WEA to study before/during/after OSW effects on fish and invertebrates. Sixteen square miles was recommended for this area.

The ACSF suggests that these three objectives could be combined into a single area approximately five miles wide, running approximately south-north through the WEA and located in consultation with NMFS.

Noting that the just-released BOEM Proposed Sale Notice does not show any accommodation for safety/navigation/survey/study corridors in the proposed lease boundaries, the ACSF requests that Condition #4 be amended to be more explicit in serving multiple objectives.

# Site Assessment and Characterization activities will have immediate economic costs to fisheries

The staff report includes condition #7 requiring OSW companies to fund an "independent fisheries liaison" to coordinate between OSW developers and fishermen to minimize disruption. The ACSF requests meaningful input into the selection of the liaison. Further, we point out that despite the best communication, displacement and disruption of fisheries will occur, as will the potential for loss of fishing gear. The ACSF further requests that the consistency determination be conditioned on a Fishing Community Benefit Agreement (FCBA) being in place between OSW developers and the regional commercial fishing associations. Such an agreement would create a process for determining and compensating for losses.

Finally on this point, BOEM should be required to actually study the effects of site characterization activities. We believe that BOEM's assertion that these effects will be "minimal" on fishermen is made without facts in hand.

#### **New Working Group**

Condition #7 "requires BOEM to work with state agencies, fishermen, and offshore wind developers to develop a statewide strategy for avoidance, minimization and mitigation of impacts to fishing and fisheries".

The ACSF supports this condition with the following thoughts:

It is noteworthy and appreciated that BOEM has agreed to participate in such a new working group. This said, we wonder whether BOEM will commit to group recommendations that they don't want to abide. Please see our earlier discussion about selecting Call Area locations. It is easy to imagine locations that fishermen want BOEM to AVOID but that BOEM wants to include for OSW development.

Further, regarding mitigation concepts, the ACSF points out that an "industry letter" has been sent to the Commission along with a Fishing Community Benefit Agreement template (both attached), which are intended to inform the Commission, BOEM, and OSW developers what principles compensation-mitigation agreements should contain. The ACSF requests that the industry-agreed to FCBA template serve as the foundation for compensation-mitigation discussion in the new working group.

The just-published Proposed Sale Notice for five leases in the Humboldt and Morro Bay WEAs contain these stipulations:

- A 2.5% bidding credit to bidders who have executed or commit to executing a community benefit agreement with a community or ocean users (e.g., commercial fisheries) whose use of a lease area, or whose use of resources harvested from a lease area, is directly impacted by the lessee's potential offshore wind energy development.
- A 20% bidding credit to bidders who commit to invest in programs that will advance U.S. offshore wind energy workforce training, supply chain development, or both.

The ACSF sees the 2.5% vs 20% credit difference to be highly insulting to those of us who will suffer significant socioeconomic costs due to the displacement and disruption of our fisheries, not to mention the loss of seafood to the nation. We believe equal credits of 20% would be more appropriate. While this may be a matter in which the Commission has little say, the ACSF wants to be on public record with our perception.

Thank you for considering comments and requests from the Alliance of Communities for Sustainable Fisheries.

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Frak Cast

Frank Emerson

Alan Alward

Co-Chair

Co-Chair

СС

ACSF Board of Directors

February 9, 2022

California Coastal Commission State Lands Commission California Energy Commission

Sent electronically

RE Creating a template and managing Entity to address unwanted, adverse impacts on California's fisheries from Offshore Wind Development

Dear Commissioners,

We the undersigned commercial fishing organizations (CFO's) support the concepts found in the attached Fishing Community Benefit Agreement (FCBA) template. While we do not claim to represent the interests of *every* commercial fishing (CF) man and woman in the state, we do feel that our collective view represents the great majority of the State's CFO's which will be impacted by offshore wind (OSW) development. The term "fisherman" is used herein to be inclusive of our fishing men and women.

Fishermen have (and will continue to) press BOEM to effectively AVOID, MINIMIZE, and MITIGATE the impacts of offshore wind (OSW) development to commercial fisheries and seafood supply from the size and location of Wind Energy Areas (WEA's). These efforts have been frustrating and largely unproductive. The two California WEA's portend BOEM lease awards, soon, with the high likelihood that more California Call Areas will be identified in the months to years to come.

This letter and attached draft template discuss compensation-mitigation for the effects of losing fishing grounds. Please know that we would rather be allowed to continue to have access to our traditional fishing grounds than to have monetary compensation. This effort could be likened to taking out an insurance policy: no one wants losses from OSW, but if/when there is a loss, there should be a mechanism to make a claim.

Efforts have already begun to form the "Entities", legally organized under California and federal law, referenced in the template, to help manage impacts to

fisheries from OSW development. These new Entities will be founded on principles of inclusion and represented democracy for our fishing interests aimed at creating fleet and community resilience. The Entity will be the CF negotiator with OSW companies for financial compensation, as well as other types of mitigation and communications, and will distribute both initial one-time funding that may be provided as well as funding that continues through the term of the lease. The main purpose of the Entity and funding is to preserve and enhance fleet resilience in the face of lost fishing opportunity. We seek to keep people fishing and keep seafood products being delivered to our communities and the state, despite obstacles.

There may be more than one Entity in California to address regional needs and differences. However, it is envisioned that the purpose and governance structure of each of these will be similar. Varying levels of benefits will be available to those who fish in the region. It is also hoped that this template may also be useful for future offshore aquaculture projects that, if permitted for development, disrupt and displace fisheries.

Included in the FCBA template is a list of impacts to commercial fishermen and our communities from OSW development. This list represents known impacts, but there may be other impacts that become known when the OSW developers submit Construction and Operations Plans, as well as once operations begin; therefore, any FCBA's that are negotiated in advance must have the ability to be amended.

We ask that the California Coastal Commission, the State Lands Commission, and the California Energy Commission, use all available authorities to support the state's commercial fishing men and women by requiring OSW developers to negotiate FCBA's in good faith with the Entities. The principles set forth in the FCBA template should guide the negotiation. Such state authorities could include those found under the Coastal Zone Management Act's consistency determinations and certifications, as well as direct project permit conditions, and/or State Lands leases. We believe such support is consistent with the language of California's Coastal Act.

We hope that it is helpful to the Coastal, State Lands, and Energy Commissions to hear the consensus voice of California's commercial fishing men and women on

how compensation and other mitigation should occur if OSW takes over large sections of our traditional fishing grounds. Please note that the State's Association of Harbormasters is also supporting our effort, benefits to our small craft harbors being clear.

On behalf of:

# Supporting organizations

Alliance of Communities for Sustainable Fisheries Alan Alward, Co-Chair Crescent City Commercial Fishermen's Association **Rick Shepard, President** Trinidad Bay Fishermen's Association John Provolt, President Humboldt Fishermen's Marketing Association Harrison Ibach, President Shelter Cove Fishing Preservation Association, Inc. Jake Mitchell, President Salmon Trollers Marketing Association of Noyo Tony Cannia, President Bodega Bay Fishermen's Marketing Association Lorne Edwards, President San Francisco Crab Boat Owners Association John Barnett, President Santa Cruz Commercial Fishermen's Marketing Association Mike Hubbell, President Moss Landing Commercial Fishermen's Association

Tom Hart, President

Monterey Commercial Fishermen's Association

Mike Ricketts, President

Morro Bay Commercial Fishermen's Organization

Tom Hafer, President

Port San Luis Commercial Fishermen's Association

Chris Pavone, President

Commercial Fishermen of Santa Barbara

Christopher Voss, President

San Diego Fishermen's Working Group

Pete Halmay, President

California Association of Harbormasters and Port Captains

Andrea Lueker, President

#### CC

BOEM

CA Department of Fish and Wildlife

# **Fisheries Community Benefit Agreements**

# What is a Fisheries Community Benefit Agreement (FCBA)?

A FCBA is a legally binding agreement made between an OSW company which is bidding on a BOEM-advertised lease (or which has been awarded a lease) for the opportunity to build a wind farm, and one or more commercial fishing organizations (CFO's) whose members regularly fish the waters of the project area, including electrical cable routes to shore and security/safety zones which may surround these projects. If the OSW company is not awarded a lease, the FCBA with that company is void. The term of the FCBA shall be equal to the term of the OSW lease and any extensions or transference thereto.

FCBA and the resulting management "Entity" are proposed to be structured similar to the best features of other successful industry-to-industry models such as the Central Coast and South Bay Joint Cable/Fisheries Liaison Committees and the Joint Oil/Fisheries Committee of Southern/Central California. The Entity must have legal stature as a 501-c-3, c-6, or similar organization.

#### **Summary Principles for a FCBA**

- FCBA's apply to regions of one or more CFO's, within an identified distance to the cable landing location or other geographic points
- OSW to fund contributions to create continuing economic and community resilience in fisheries to compensate for losses due to OSW development; funding could come from a percentage of the annual OSW operator lease fee, or through a similar formula.
- FCBA's are inclusive of all fisheries and participants who operate in waters used by OSW, whether they home-port or land products in the region, or not

- FCBA's should address both initial impacts and long-term resilience funding
- Legal "Entities" (ie a 501-c-3 or c-6 type organization) with a board of directors founded on democratic representation of fishing interests to be formed to negotiate with OSW the terms of a FCBA. This Entity will also be the managing body to receive and distribute both one-time impact and annual funds. The Entity may include CFO's outside the immediate project area but which have members who have a history of fishing in the OSW project area; however, the CFO's most impacted by the OSW development shall form the majority of voting directors of the board. The Entity will be created prior to any FCBA negotiation.
- FCBA's are Fishing industry-to-OSW industry agreements, with the managing Entity led by fishing representatives.
- Compensation-mitigation shall be negotiated between the industries in good faith. While various data sets and other sources of fishing history and economic information should be used to determine levels of compensation, it is recognized that impacts to commercial fisheries and related communities are highly complex, with a deep reach.
- The FCBA will include communication protocols between industries to ensure a constructive long-term relationship.
- FCBA's may address the phases of OSW development and must allow for amendments to take into account new impacts as they become known.
- OSW developers may need to negotiate more than one benefit agreement to cover *various* impacts that will occur to other types of stakeholders and communities.

#### When is a FCBA Needed?

The principals of impact avoidance, minimization, and non-monetary mitigations should be considered for all aspects of an OSW project prior to compensationmitigation discussions. Make no mistake: fishermen would rather have their areas of opportunity preserved than have financial compensation for the loss. However, with the siting, size, and scope of proposed OSW developments there will be unavoidable impacts to the commercial fishing industry. Thus, a FCBA should be required as part of a Coastal Zone Management Act consistency determination or certification, and/or state or federal development permits, or state leases. FCBA discussions are most fully informed when an OSW project's Construction and Operating Plan is known. This said, many impacts will be known prior to that phase, allowing for the basic outline of an agreement to be set earlier, subject to amendment as more is known. A FCBA should be in place prior to a lease being executed as impacts to commercial fishing will occur immediately during the Site Assessment. Fish Surveys required by the FCBA should begin before and during the Site Assessment.

The types of impacts to fisheries from OSW are found below.

Economic modeling to determine impact fees should consider the following known impacts, risks, and uncertainties:

1. Direct/indirect loss of historically important fishing grounds and predicted important future fishing grounds including projections related to changing ocean conditions

2) Induced risk to safety at sea, including turbines creating distorted radar contacts and the great distance for USCG or other rescue help to arrive considering aircraft may not be able to operate near turbines.

3) Direct/indirect loss of harbor space and infrastructure serving the fishing industry

4. Potential for interactions with fishing gear and/or loss of gear in the find farms and service vessel traffic lanes during survey work and both construction and operational phases.

5. Increased costs and time at sea to avoid wind farms, including impacts to boats drifting at night which will have to run 1-2 hours upwind from wind farms not to drift into them. Additionally, west coast WEAs located northwest of ports will force fishing to the south which will make returning to Port more difficult when facing prevailing headwinds. Increased time at sea is always a safety concern.

6) Direct/indirect losses to dependent businesses/communities (such as marine supply stores, processors, restaurants, and tourism generally).

7) Loss of community identity as fishing culture is replaced by a large industrial presence.

8) Impacts to long-running scientific datasets which inform stock assessments or other aspects of the fisheries management process(es). This impact will create scientific uncertainty about the status of stocks which can only lead to reduced harvest quotas.

9) Impacts on special management areas such as habitat closures, spawning closures, and other restricted areas, including Essential Fish Habitat.

10) Adverse impacts to fish stocks, fish stock migratory patterns, and fish distribution, including concerns around any diminishment of ocean upwelling due to reduced wind speeds caused by wind farms, and from impacts from the potential for noise pollution.

11) Adverse impacts to migratory patterns and critical habitat of Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) protected species that interact with fisheries.

12) Negative economic, social, and environmental effects of fishery displacement and compaction into remaining open habitats.

13) Loss of fishable area to certain gears due to submarine cable routes to shore, impacts from the process of burying cables, with the uncertainty of EMF disturbance to sea life.

14) Impacts to fishermen from-time consuming public and private processes required to avoid, minimize and mitigate harmful OSW developments which cause a loss of fishing time and production.

15) Costs incurred from the necessity of hiring legal counsel and consultants to represent fishermen's interests.

16) Uncertainty exists around insurance coverage for commercial fishing vessels which transit or attempt to fish inside a wind farm

17. Loss of fishable area due to shipping and barge traffic patterns changing in response to wind farms

18. Loss of fishable area which may incur due to safety/security zones being imposed around wind farms by the USCG

19. There will be distinct impacts from site surveys on fishing activity

20. Reduced value of fishing permits as opportunity is lost or quotas are reduced

21. Unforeseen impacts due to the experimental nature of very deep water floating turbines

22. Cumulative impacts of individual impacts will likely exceed the simple sum of the parts. This is especially so when considering that many fisheries are coast-wide. Thus, closing other areas of the west coast for large wind farms can affect other regions through fishery displacement, and/or depression of the industry as a whole. Likewise, cumulative impacts must be measured from the combination of leases that may occur in a single WEA.

23. OSW ambitions for coastal waters creates enormous uncertainty within fisheries, creating difficulty in business planning and in attracting future generations of fishermen

Other impacts will likely be identified. There may also be a few benefits which stem from OSW development, such as improvements to harbor facilities and reduced fuel costs (from higher volumes of fuel used) which fishermen may appreciate.

Addressing these impacts will involve a complex negotiation and may be more an artform than science in achieving a fair deal for both industries.

It is also important to understand the lop-sided nature of this issue. The OSW industry, Federal and State government, and many ENGO's trumpet the benefits of OSW while fishermen have virtually no resources and are uniquely unsuited to defending themselves in the political arena.

#### **Purpose of a Fisheries Community Benefit Agreement**

Potential purposes of a FCBA are many, and likely to be more fully informed when potential impacts are better understood. At minimum, the FCBA would:

1) Provide *one-time* compensatory-mitigation to all regional fishermen as well as additional compensation for all fishermen directly impacted by the Wind Energy Area and cable route(s); and,

2) Provide an *annual* community fund based on a percentage of the OSW lease (or another formula to be determined) that will enable local-level projects and programs providing resilience and sustainability to the region's fisheries and related businesses; and,

3) The community fund will also support larger State-wide industry-led organizations which work to benefit and sustain in-State wild-capture fishing communities and seafood. This work is essential to the State's food security, thereby benefitting all California fishermen and related businesses.

Funding to be adjusted for inflation annually.

**Examples of uses of annual funding may include**: lower costs of mooring, fuel, and ice for active fishermen; assist local cities or port/harbor districts in acquiring and maintaining fisheries-related infrastructure (ie, ice machines, hoists, dock repairs, etc); provide training programs to develop new entrants to the fisheries; local promotion of seafood via seafood markets and festivals; provide vessel safety equipment; support for

participation in fisheries management; provide cold storage facilities; retain consultants and legal services as needed; create strong communication tools among the fishing community for information-sharing; provide community outreach on the sustainability of California fisheries; commission science products, economic impact reports, public opinion polls; and, support development of innovative gears and/or experimental fishing permits.

The FCBA should also define key relationships between the developer and fishermen. This can include: Industry to industry communication protocols; a consultation requirement; agreed upon traffic corridors; first right of refusal for certain job opportunities; coordinated safety/emergency response; job training; 24 hour problem/emergency hotline; gear replacement if conflicts with OSW hardware or operations occur; collaborative fish stock surveys; biological assessments; and a bond held for unforeseen impacts.

All of these programs are meant to create **resilience** in the fleet by lowering fishing costs, increasing profitability, and in other ways to keep people fishing despite a loss of fishing opportunity caused by OSW development. Should both the MB376 and Humboldt areas be fully developed, nearly 600 square miles of productive ocean will be removed from seafood supply. We are aware of other areas of interest to BOEM being considered north of San Francisco. Should these areas result in OSW leases, California will suffer a further loss of fishing opportunity.

When FCBA yearly fund contributions sustain seafood production, other elements of the seafood supply chain (deckhands, processors, retailers, restaurants, etc) will benefit. These programs will help keep up seafood deliveries to the communities; however, make no mistake, removing 600 square miles from production will lessen seafood production.

#### Hypothetical FCBA Implementation-Governance Structure of Administering Entity

California's commercial fishing industry can look to existing successful FCBA-like agreements to inform the governance structure of an entity (Entity) formed to administer the terms of a FCBA. These industry-to-industry agreements should be negotiated

between the local port fishing associations as represented by the Entity, and the OSW company, not by any State Agency; however, both BOEM and State agencies can be helpful by requiring that OSW lessees enter into FCBA's following the principles listed above.

Such an Entity could have the following features:

- The Entity is guided by a Board of Directors (Board). The composition of the Board and its responsibilities are to be determined. For discussion purposes, the board of directors would be founded on democratic representation of fishing organizations formed to negotiate with OSW the terms of a FCBA. This Entity will also be the managing body to receive and distribute both one-time impact and annual funds. The Entity may include CFO's outside the immediate project area but which have members who have a history of fishing in the OSW project area; however, the CFO's most impacted by the OSW development shall form the majority of voting directors of the board. The OSW company(s) funding the FCBA could have one or more non-voting representatives on the board, as well as one non-voting representative of each harbor/port administration(s).
- The FCBA would provide for funding in phases as negotiated between the parties, for the duration of the lease. As described, above, there shall be an initial one-time mitigation-compensation fund, as well as an annual fund. Impacts are expected to be felt by fishermen beginning with the initiation of the Site Assessment and Surveys. Initial mitigation-compensation will be for anticipated future losses due to OSW displacement for active fishermen.
- The Entity to hire a manager or executive director to manage its day-to-day affairs, under the direction of the Board.
- The Entity will be the communication liaison between the OSW and commercial fishing industries. Good relations are desired.

- The Entity and OSW lessee shall provide a first right-of refusal for well-defined employment or contracting opportunities for fishermen to use their mariner skills and vessels in support of OSW construction, research, and operations.
- The FCBA shall describe a process to provide for initial, one-time direct
  payments to fishery participants via the local port CFO's operating through the
  Entity's Board of Directors. Any such payments will be negotiated between the
  Entity Board and OSW company representatives. Fishermen who do not homeport in the directly affected ports shall be able to make claims provided they show
  income losses to the Board due to displacement by the OSW development.
- The past window of time to show fishing activity inside the WEA and cable route(s) shall begin ten (10) years prior to the signing of the FCBA, and take into account interference in fishing activity due to the pandemic.
- A percentage, to be determined, of an annual FCBA fund shall be directed in support of local, State, regional, and/or national commercial fishing and/or seafood promotion, conducted by recognized non-profit industry organizations, supplied on a grant-request basis. Priority shall be given to local/State organizations.
- The Board shall manage the fund by creating programs such as described above, and through considering grant requests initiated by fishery participants and/or community requests for additional, worthy programs or projects that have a supportable connection to commercial fishing.
- Since FCBA's may be negotiated prior to the completion of a construction and operations plan (COP), the FCBA should provide a mechanism for amendment when new information and/or impacts to commercial fishing is made available which have impacts to commercial fishermen that need to be accounted for.
- In the event that there is more than one OSW lease and FCBA in the region, the Entity can either administer all FCBA's concurrently, or by separate processes.

 The Entity shall provide an annual informational report on its programs and expenditures to OSW company(s) funding the FCBA(s) and to the California Coastal Commission.

#### The California Coastal Commission's Role

The Coastal Commission should prioritize *avoidance* of conflicts between OSW and the State's seafood harvesters. Only those conflicts which are unavoidable should be allowed, and those *minimized* to the extent practicable. *Mitigation* measures should then be required. One mitigation measure which should be required are fish stock surveys done as part of the Site Assessment using the BACI (Before After Control Impact) research format, conducted by an independent academic institution but funded by the OSW developer.

For the conflicts which remain, which are likely to be significant for fishermen, the Coastal Commission should require compensatory-mitigation agreements with commercial fishermen's port associations as a condition for its approval of BOEM's consistency determination/certification under the Coastal Zone Management Act (CZMA). As such, it would be appropriate for BOEM to indicate in the proposed sale notice that such an agreement will be *required*. The Coastal Commission has broad authority under the California Coastal Act and the CZMA to protect economic as well as environmental and biological interests in the ocean, and has a responsibility to express this expectation clearly to developers and the industry as a whole.

The Coastal Commission will have a second opportunity to require FCBA's when Coastal Development Permit approval is sought by individual developers. Claudia Harmon Worthen <u>claudia@beautifycambria.org</u> 805. 927.1934

June 3, 2022

California Coastal Commission, Central Coast 725 Front Street Suite 300 Santa Cruz, CA Comments regarding the Cambria to Big Sur offshore wind turbines. Federal Consistency. CD-0004-22 (Bureau of Ocean Energy Management, San Luis Obispo County). June 8, 2022

Honorable Commissioners,

Ocean tethered floating wind turbines with many hundreds of lights and extremely loud mechanisms disorients, kills and deafens ocean life. Machinery alters the natural order of crustaceans & mollusks and mars the visual beauty of our God given right to enjoy the majesty, ferocity and peace of our pristine coastline. If you've every witnessed a beautiful moonset over the ocean, you know of what I speak. Gone will be the "green flash" so exciting to see, a vision that never leaves your memory.

A report in Science Focus points out that, *in addition to other threats such as disease and plastic pollution, cetaceans are highly susceptible to environmental noise pollution, suggesting that "chronic noise from shipping and off-shore wind farms can drive animals away from their usual habitats and into dangerous environments"*. Stop These Things 9.9.21

According to research by the CSIP (Cetacean Strandings Investigation Programme), whale beachings in the UK rose by 15% in the period 2011 to 2017, a total of 4,896 whales, dolphins and porpoises died. The actual number of deaths is likely to be much higher as not all carcasses are washed ashore.

Beautify Cambria Association, beautifycambria.org. We are a collaborative nonprofit association whose mission is to create an attractive, economically viable, resident and visitor friendly village atmosphere that builds on our community history and enhances our unique natural environment. As such have several issues to be studied and mitigated that may not have been considered that affect our quality of life.

# • Lights:

In the past five years, the non-profit Beautify Cambria, <u>beautifycambria.org</u>, has hosted seminars, stargazing educational events and community outreach. We are deeply committed to becoming an International Dark Sky Community, codified by the International Dark Sky Association. The dark ocean and open space around us gives us the criteria that allow us to apply for certification. We are supported by our County supervisor, advisory council, community service district and other local groups. Plus, other central coast towns are on board to follow our lead.

Red and white turbine lights, on tips of blades, on the horizon will possibly thwart our effort to become certified. It certainly will forever mar our dark ocean with awe inspiring moonsets, meteors and Milkyway. Only 20% of the world can see this awesome cluster of constellations and the numbers are decreasing by 3% a year from more and more light pollution. Cambria and San Simeon may one day be one of very few populated dark space places.

In my research, the turbines must be installed at least 35 miles offshore to avoid most of the negative impacts. At 853' tall—and getting taller— this distance will need to be greater. At a minimum, the amount of lights need to be reduced from five to two and need to be red to not jeopardize health of aquatic and avian life. Lights shall be shielded and aimed away from the coast and aimed down not up into the sky.

The lights will disorient aquatic life and possibly cause them to think the turbine lights are the California shore line. This will cause a change in migration, mating and feeding habits and may likely cause the death of whales, porpoises and other sea life.

# • Fog:

Because Monterey Pines are a source of lumber around the world, the United Nations named them a world genetic resource. The Cambria species, Pinus Radiata, is also listed as endangered on the International Union for Conservation of Nature's Red List. Wind turbines produce both heat and cold. This fact along with the additional wind production will affect our coastal fog. Our moist coastal atmosphere is critical to the health of our threatened Monterey Pines, only found in three other places in the world. Our forest is in already jeopardy from climate change. The reduction of summer fog could possibly propel our forest into extinction. Fog studies must be conducted to simulate the negative impacts on ESHA (environmentally sensitive habitat) and mitigation measures must be required.

Lee M. Miller (author), David W. Keith (award winning Harvard physicist). **Climatic Impacts of Wind Power**. 2018; DOI: <u>10.1016/j.joule.2018.09.009</u> *Researchers [Miller & Keith] report the most accurate modeling yet of how increasing wind power would affect climate, finding that large-scale wind power generation would warm the Continental United States* **0.24 degrees Celsius**  *because wind turbines redistribute heat in the atmosphere.* "The direct climate *impacts of wind power are instant, while the benefits accumulate slowly,*" says [David] Keith. "If your perspective is the next 10 years, wind power actually has - *in some respects -- more climate impact than coal or gas. If your perspective is the next thousand years, then wind power is enormously cleaner than coal or gas.*" **The influence of large-scale wind power on global climate** 

# ...the climatic response is constrained by our use of prescribed climatological seasurface temperatures. The magnitude of the wind-power-induced changes will be different, and possibly larger, when models are run with an interactive ocean in which this constraint is relaxed. *November 16, 2004. National Academy of Sciences report*

The blades cause radar interference for miles. They are placing them in navigation lanes, causing shipping vessels to travel around them. They need repair constantly, and if the wind blows over 50 mph, they have to shut them down! They are being federally subsidized by millions of taxpayer dollars to mainly companies from the USA and other countries! It's costing four times the amount it costs them for natural gas-powered electricity. The ocean "is wild and powerful and is not meant for industrialization". Tom Hafer, Atascadero. *Source:* The Tribune | April 18, 2017 National Wind Watch

During the BOEM presentation at the Sept. 9th at the Coastal Commission hearing, a drawing was shown with all the activity in and on our Pacific Ocean. The mitigation of these issues is beyond the scope of possibility and prompted me to include additional issues to my comments.

1. **Simulations** have have not been performed 17/20 miles off the the Cambria/San Simeon coast on a <u>clear</u> day and night. As such are not in evidence for this project and must be before leases are awarded.

2. **Visual impacts** 900,000 visitors usually visit Hearst Castle each year. The visual impacts for visitors will be substantial and have not been simulated or addressed.

3. **Commercial and pleasure fishing** areas must be avoided, placing the turbines 35-40 miles off shore will allow commercial fishermen to not pollute the air by traveling further out of turbine range. Mitigation by payoffs to fishermen should not be considered.

4. Alternative energy sources should be exhausted before offshore wind is considered for the Central Coast. Residential solar will make users responsible for their use. Thorian should be seriously considered for the Diablo Canyon power plant area.

5. **EMF's** resonating from cables must be mitigated and method of mitigation must not be toxic.

6. **Turbines connecting to land in Long Beach** will require 250 miles of cables, an unacceptable negative impact on ocean life.

7. **Coastal home values.** The government and/or the builders should be required to compensate for loss of value.

8. **Spinning blades** create an electromagnetic field that interferes with how each turbine appears on radar. Instead of showing up as points, they appear as horizontal lines that also obscure other vessels in the array, regardless of their size.

9. **The accuracy of radar** is vitally important. If a fisherman cannot tell where they are in relation to fixed turbines or other vessels, the chance of an *allision* (nautical term for collision) is likely.

10. **BOEM fast-tracking** is an untested project of this magnitude. Mistakes and miscalculations are made and often fall short of legal obligations. This has already resulted in legal challenges, such as the August 2021 Martha's Vinyard lawsuit.

11. **Testing** The fact that testing, studies and surveys were not complete makes leasing premature. No leases should even be considered until all negative impacts are thoroughly researched from existing projects, such as the China floating turbines. Guessing is not good enough. If it's not done right, BOEM is failing the people and the environment. The Central Coast should not be a testing ground for unknown massive project that will forever change the beauty and peacefulness of our communities.

12. **Construction** is the most damaging to sea life. The loud sound pulses during construction and the affect on some species can be felt from 12 to 20 miles away.

13. Ocean Noise: We enjoy an abundance of ocean life because there are vry little homes and human disturbances. Harbor porpoises and sea otters are especially sensitive to the frequencies generated by pile driving — long term studies need to be verified and mitigation mandates in place *before* releasing offshore wind turbine permits. ..."how the observed behavioral [bird, bat, underwater sound] changes impact individual fitness, reproductive success and survival of animals remains yet unknown. In addition, it is also important to further extend the time series of all variables that we have monitored to see if the patterns that we have seen so far are perpetuated".

The Monitoring Programme WinMon.BE is a cooperation between the Royal Belgian Institute of Natural Sciences (RBINS), the Research Institute Nature and Forest (INBO), the Research Institute for Agriculture, Fisheries and Food (ILVO) and the Marine Biology Research Group of Ghent University.

# 14. Socioeconomic

The Cambria, San Simeon area is unable to accommodate an influx of wind turbine and associated workers. We have no rental housing because most housing is taken up by vacation rentals and second homes. We do not have water for more housing. All new homes have been denied for lack of sustainable water source.

15. Used turbines. Where will used turbines be stored? They will be adding to pollution as they are not biodegradable.

# 16. Affects on upwelling

Offshore waters key energy resources the natural winds drive upwelling, creating one of four richest seas in the world. Must study impacts before leasing. El Niño will be further stressed by wind turbines. NEPA. EIS studies need to be real life not just computer estimates.

# 17. **Oxygen**:

More oxygen comes from the ocean than the trees on land. Seaweed is in peril as indicated by the recent die off in Northern CA The installation and operation of hundreds of turbines over 399 square miles may negatively impact Central Coast aquatic vegetation and kelp beds, affecting the threatened sea otters. Scientific studies must be performed to determine the imbalance of the ecosystem and reduction in oxygen.

# 18. Design & Maintenance:

The design and manufacture of offshore wind turbines shall guarantee a maintenace policy that includes: corrosion, fatigue, erosion, lightning strikes and biofouling by preventing accidents and capturing and controlling pollutants by using biodegradable oil, cleaning fluids and paints. No petrochemical based plastics are to be used in manufacturing or installation. Maintenace boats must not use toxic propellant fuels.

19. **Infrastructure**. Widening highways, enlarging harbor, will forever change our coastal terrain and habitats.

20. **Fast tracking** is a plan for disaster especially on an untested floating system with cables under ocean 20-50 miles, Morro Bay/Diablo, at the least and 250 miles to Long Beach Harbor.

Thank you for reading my comments. I look forward to speaking at the hearing next week and following the progress from my seaside home.

Claudia Harmon Worthen, LEED AP President Beautify Cambria Association

#### **Morro Bay Wind Farm Proposal**

Dear California Coastal Commission:

Thank you for the opportunity to comment on Item 7a, June 8,2022 CCC meeting.

The United Nations Sustainable Development Goals serve as a guide to the world's most important sustainability priorities. Included as goals are education, energy and the oceans. California has set bold decarbonatization goals and Offshore Wind Farms (OWF) are an integral part of achieving those goals. OWF technology has been advancing globally opening and creating commercial investment opportunities that directly address Climate Change. With these commercial opportunities comes a responsibility and an accountability to advance the understanding of current climate challenges that we as a humanity find ourselves in.

In an effort to catalyze the merits that good science brings forth, Home Front EJ takes the position that any commercial OWF in the 399 area, must fund Climate Science research as part of the permitting process. A permit condition for a commercial entity profiting from Wind Energy production must be held fiscally accountable to advance marine science, education along with affordable housing for local student and citizen science groups supporting climate science. Other funding sources to support Climate Science Research and Development (R&D) and education rest in the sub-aquatic transmission line easements that will be necessary to establish through the sanctuary waters. Easement Use Permit fees could help San Luis Obispo County subsidize rental housing cost for Citizen Science groups advancing climate science and cultural educational programs.

In order to fill data gaps and advance climate science, Home Front EJ suggests that interested investors in the OWF development fund a NOAA Pacific Marine Environmental Laboratory (PMEL) observation buoy system in the 399 area as soon as possible. This will open data share and collaboration avenues between NOAA and the California Polytechnic University of San Luis Obispo's (Cal Poly), Marine Science Department studying Ocean Acidification (OA) and other oceanic climate science issues. In turn, Cal Poly could continue to advances their 'learn by doing' methodology and collaborating with local Citizen Science groups in educating the local citizenry on Ocean Acidification (OA), Harmful Algal Blooms (HAB's) and other climate change issues. Furthermore, recent UN scientific research show that "concepts that integrate the development of offshore multi-purpose platforms (MPPs) – which exploit the synergies and are designed to manage the tensions arising from the co-location of offshore renewable and aquaculture systems - have become increasingly popular in the last decade; however, studies note, these have not yet progressed beyond, at best, the pilot stage. Potential advantages of such projects, should they succeed, include a significant cost reduction - by allowing multiple use of space and infrastructure, through co-located and shared technologies – and an optimization of marine spatial planning." Promoting multi-uses methodology help stimulate innovative solutions and practices that merge climate change challenges. According to a recent United Nations report, 'climate change is putting food production at risk, in the absence of effective adaptation, global yields could decline by up to 30 percent by 2050. In the future, seafood and aquaculture must participate in the development of food systems from both sea and land with lower greenhouse gas emissions and less food waste.

In recent years the California Dungeness Crab fishing industry experienced the effects of HAB's when the Public Health officials shut down the crab fishing seasons due to elevated levels of domoic acid in the catch. Millions of dollars from Federal and State agencies were given to those

affected by the ill-fated commercial Dungeness crab seasons in the North Coast. In order to close the knowledge gaps and prevent commercial fisherman from falling victim to structural unemployment with a reliance on governmental subsidies, opportunities for education and collaboration with climate science researchers can be made with a pilot aquaculture program utilizing 'Multifunctional Offshore Installations' (MOI). Utilizing the OWF platforms to create aquaculture opportunities could create jobs for the local fishing community that could potentially be affected by the proposed Wind Farm area. With a well-funded Climate Science program local commercial fisherman, citizen science groups and academia could pull their respective resources together in a united effort to fill climate science data gaps and help educate the public of the dire state of our oceans and planet.

Richard E.T. Sadowski Home-Front EJ, Morro Bay From: Christine Heinrichs <<u>christine.heinrichs@gmail.com</u>>
Sent: Friday, June 3, 2022 1:32 PM
To: Energy@Coastal <<u>EORFC@coastal.ca.gov</u>>
Subject: Public Comment on June 2022 Agenda Item Wednesday 7a - CD-0004-22 (Bureau of Ocean
Energy Management, San Luis Obispo County)

June 3, 2022

Consistency Determination CD-0004-22

To the Commissioners:

Please defer a finding of consistency for the Bureau of Ocean Energy Management's proposed lease sale for the future development of offshore wind energy facilities until the Commission can consider onshore and other impacts of this project.

Thank you for the thoughtful conditions that your staff has recommended. However, this first step toward offshore floating wind development should not be considered in isolation from the required onshore development that will accompany it.

Although details of the project have not been decided, the general outline and scope is clear. As outlined in Mackenzie Shuman's article in the May 27, 2022 San Luis Obispo Tribune, <u>https://www.sanluisobispo.com/news/local/environment/article261823820.html</u>, substantial port and onshore infrastructure will be required to assemble and maintain offshore floating wind turbines. These facilities will fall within the Commission's purview. It is not possible to consider OSFW energy without these support facilities.

As County Supervisor Dawn Ortiz-Legg says, this will be a "massive development." The study as proposed will be carried out by REACH, a development nonprofit, <u>https://reachcentralcoast.org/</u>. The Commission should arrange for its own evaluation of appropriate locations for port and onshore facilities, as well as the economic impact. REACH is an advocacy organization for economic development. It has no requirement to consider environmental and cultural factors, as the Commission does. This project will affect the entire Central Coast and the California coastline. Both the developers and the public deserve the best possible information as it proceeds

The energy behind this project is pushing it forward, without a clear mandate from the public. While the goal of renewable energy is of the highest importance, this huge project, with so many as yet unevaluated impacts, needs to be understood as fully as possible before giving it approval.

Costs have not been mentioned. Discussion is deferred, since construction is in the future and no project has yet been defined. It's clear that costs will be enormous. Eventual costs may not justify offshore floating wind in comparison to onshore alternatives such as rooftop solar and terrestrial wind. Costs should have some discussion before committing to such a major project.

Thank you for looking out for our precious California coastline.

Christine Heinrichs 1800 Downing Ave. Cambria, CA 93428

--Christine Heinrichs 455 MARKET STREET, SUITE 300 SAN FRANCISCO, CA 94105-2421

VOICE (415) 904-5200 FAX (415) 904-5400

CALIFORNIA COASTAL COMMISSION ENERGY, OCEAN RESOURCES AND FEDERAL CONSISTENCY

# W7a

# CD-0004-22 (BOEM)

**JUNE 8, 2022** 

CORRESPONDENCE Received between June 4, 2022 and June 8, 2022 P: (626) 381-9248 F: (626) 389-5414 E: info@mitchtsailaw.com



# VIA E-MAIL

June 06, 2022

California Coastal Commission Energy, Ocean Resources and Federal Consistency 455 Market Street, Suite 300 San Francisco, CA 94105-2421 Em: <u>EORFC@coastal.ca.gov</u>

# RE: <u>Public Comment on June 2022 Agenda Item Wednesday 7a-CD-</u> 0004-22 (Bureau Of Ocean Energy Management, San Luis Obispo <u>County</u>)

Dear California Coastal Commission,

On behalf of the Southwest Regional Council of Carpenters ("**Southwest Carpenter**" or "**SWRCC**"), my Office is submitting these comments for the California Coastal Commission's ("**CCC**") June 2022, Meeting for the CD-0004-22 (Bureau of Ocean Energy Management, San Luis Obispo County) ("**Project**").

The Southwest Carpenters is a labor union representing 50,000 union carpenters in six states, including California, 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 CCC and surrounding communities and would be directly affected by the Project's environmental impacts.

SWRCC 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.

SWRCC 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
California Coastal Commission – 7a-CD-0004-22 (Bureau of Ocean Energy Management) June 06, 2022 Page 2 of 5

to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, SWRCC requests that the CCC 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 CCC should require the use of a local skilled and trained workforce to benefit the community's economic development and environment. The CCC 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 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.

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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.<sup>1</sup>

Local skilled and trained workforce requirements and policies have significant environmental benefits since they improve an area's jobs-housing balance, decreasing the amount of and length of job commutes and their associated greenhouse gas emissions. Recently, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.<sup>2</sup>

Cities are increasingly adopting local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward 2040 General Plan requires the City to "promote local hiring . . . to help achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."<sup>3</sup>

In fact, the City of Hayward has gone as far as to adopt a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its Downtown area to requiring that the City "c]ontribute to the stabilization of regional construction markets by spurring applicants of

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

<sup>&</sup>lt;sup>2</sup> South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* <u>http://www.aqmd.gov/docs/default-</u> <u>source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10</u>

<sup>&</sup>lt;sup>3</sup> City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* <u>https://www.hayward-ca.gov/sites/default/files/documents/General Plan FINAL.pdf</u>.

California Coastal Commission – 7a-CD-0004-22 (Bureau of Ocean Energy Management) June 06, 2022 Page 4 of 5

housing and nonresidential developments to require contractors to utilize apprentices from state-approved, joint labor-management training programs, . . .<sup>4</sup> In addition, the City of Hayward requires all projects 30,000 square feet or larger to "utilize apprentices from state-approved, joint labor-management training programs.<sup>5</sup>

Locating jobs closer to residential areas can have significant environmental benefits. . As the California Planning Roundtable noted in 2008:

People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.<sup>6</sup>

In addition, local hire mandates as well as skill training are critical facets of a strategy to reduce vehicle miles traveled. As planning experts Robert Cervero and Michael Duncan noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions since the skill requirements of available local jobs must be matched to those held by local residents.<sup>7</sup> Some municipalities have tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. As Cervero and Duncan note:

In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing." The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than

<sup>&</sup>lt;sup>4</sup> City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* <u>https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%</u> 20Specific%20Plan.pdf.

<sup>&</sup>lt;sup>5</sup> City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).

<sup>&</sup>lt;sup>6</sup> California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* <u>https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf</u>

<sup>&</sup>lt;sup>7</sup> Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* <u>http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf</u>.

3,000 city residents in local jobs since it was launched in 1986. When needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

The CCC should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and mitigate greenhouse gas, air quality and transportation impacts.

Sincerely, Mitchell M. Tsai

Attorneys for Southwest Regional Council of Carpenters

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**



2656 29<sup>th</sup> Street, Suite 201 Santa Monica, CA 90405

Matt Hagemann, P.G, C.Hg. (949) 887-9013 <u>mhagemann@swape.com</u>

> Paul E. Rosenfeld, PhD (310) 795-2335 prosenfeld@swape.com

March 8, 2021

Mitchell M. Tsai 155 South El Molino, Suite 104 Pasadena, CA 91101

#### 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."<sup>1</sup> 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.<sup>2</sup>

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.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> "California Emissions Estimator Model." CAPCOA, 2017, available at: http://www.aqmd.gov/caleemod/home.

 <sup>&</sup>lt;sup>2</sup> "California Emissions Estimator Model." CAPCOA, 2017, available at: http://www.aqmd.gov/caleemod/home.
<sup>3</sup> "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.<sup>4</sup>

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

"VMT<sub>d</sub> =  $\Sigma$ (Average Daily Trip Rate i \* 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<sub>pollutant</sub> = VMT \* EF<sub>running,pollutant</sub>

Where:

Emissions<sub>pollutant</sub> = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

EF<sub>running,pollutant</sub> = emission factor for running emissions."<sup>6</sup>

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.<sup>7</sup> 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.<sup>8</sup> The default number of construction-related worker trips is calculated by multiplying the

<sup>&</sup>lt;sup>4</sup> "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* <u>http://www.aqmd.gov/docs/default-source/caleemod/02\_appendix-a2016-3-2.pdf?sfvrsn=6</u>, p. 14-15.

<sup>&</sup>lt;sup>5</sup> "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* <u>http://www.aqmd.gov/docs/default-source/caleemod/02\_appendix-a2016-3-2.pdf?sfvrsn=6</u>, p. 23.

<sup>&</sup>lt;sup>6</sup> "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* <u>http://www.aqmd.gov/docs/default-source/caleemod/02\_appendix-a2016-3-2.pdf?sfvrsn=6</u>, p. 15.

<sup>&</sup>lt;sup>7</sup> "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* <u>http://www.aqmd.gov/docs/default-</u> source/caleemod/01 user-39-s-guide2016-3-2 15november2017.pdf?sfvrsn=4, p. 34.

<sup>&</sup>lt;sup>8</sup> CalEEMod User Guide, *available at:* <u>http://www.caleemod.com/</u>, 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.<sup>9</sup> 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."<sup>10</sup> Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.<sup>11</sup> The operational home-to-work vehicle trip lengths are:

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

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).<sup>13</sup>

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								

<sup>&</sup>lt;sup>9</sup> "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* <u>http://www.aqmd.gov/docs/default-</u> <u>source/caleemod/01</u> user-39-s-guide2016-3-2 15november2017.pdf?sfvrsn=4, p. 34.

<sup>&</sup>lt;sup>10</sup> "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. <sup>11</sup> "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.

<sup>&</sup>lt;sup>12</sup> "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. <sup>13</sup> "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* <u>http://www.aqmd.gov/docs/default-</u>

<sup>&</sup>lt;u>source/caleemod/05\_appendix-d2016-3-2.pdf?sfvrsn=4</u>, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7miles, 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.<sup>14</sup> 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 <sub>2</sub> e)	3,623								
Amortized Construction GHG Emissions (MT CO <sub>2</sub> e/year)	120.77								
With Local Hire Provision									
Total Construction GHG Emissions (MT CO2e)	3,024								
Amortized Construction GHG Emissions (MT CO <sub>2</sub> e/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.

<sup>&</sup>lt;sup>14</sup> "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* <u>http://www.aqmd.gov/docs/default-source/caleemod/05\_appendix-d2016-3-2.pdf?sfvrsn=4</u>, 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,

MHaran

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

Paul Rosupeld

Paul E. Rosenfeld, Ph.D.

# Attachment A

Location Type	Location Name	Rural H-W (miles)	Urban H-W (miles)
Air Basin	Great Basin	16.8	10.8
Air Basin	Lake County	16.8	10.8
Air Basin	Lake Tahoe	16.8	10.8
Air Basin	Mojave Desert	16.8	10.8
Air Basin	Mountain	16.8	10.8
Air Basin	North Central	17.1	12.3
Air Basin	North Coast	16.8	10.8
Air Basin	Northeast	16.8	10.8
Air Basin	Sacramento	16.8	10.8
Air Basin	Salton Sea	14.6	11
Air Basin	San Diego	16.8	10.8
Air Basin	San Francisco	10.8	10.8
Air Basin	San Joaquin	16.8	10.8
Air Basin	South Central	16.8	10.8
Air Basin	South Coast	19.8	14.7
Air District	Amador County	16.8	10.8
Air District	Antelope Valley	16.8	10.8
Air District	Bay Area AQMD	10.8	10.8
Air District	Butte County	12.54	12.54
Air District	Calaveras	16.8	10.8
Air District	Colusa County	16.8	10.8
Air District	El Dorado	16.8	10.8
Air District	Feather River	16.8	10.8
Air District	Glenn County	16.8	10.8
Air District	Great Basin	16.8	10.8
Air District	Imperial County	10.2	7.3
Air District	Kern County	16.8	10.8
Air District	Lake County	16.8	10.8
Air District	Lassen County	16.8	10.8
Air District	Mariposa	16.8	10.8
Air District	Mendocino	16.8	10.8
Air District	Modoc County	16.8	10.8
Air District	Mojave Desert	16.8	10.8
Air District	Monterey Bay	16.8	10.8
Air District	North Coast	16.8	10.8
Air District	Northern Sierra	16.8	10.8
Air District	Northern	16.8	10.8
Air District	Placer County	16.8	10.8
Air District	Sacramento	15	10

Air District	San Diego	16.8	10.8
Air District	San Joaquin	16.8	10.8
Air District	San Luis Obispo	13	13
Air District	Santa Barbara	8.3	8.3
Air District	Shasta County	16.8	10.8
Air District	Siskiyou County	16.8	10.8
Air District	South Coast	19.8	14.7
Air District	Tehama County	16.8	10.8
Air District	Tuolumne	16.8	10.8
Air District	Ventura County	16.8	10.8
Air District	Yolo/Solano	15	10
County	Alameda	10.8	10.8
County	Alpine	16.8	10.8
County	Amador	16.8	10.8
County	Butte	12.54	12.54
County	Calaveras	16.8	10.8
County	Colusa	16.8	10.8
County	Contra Costa	10.8	10.8
County	Del Norte	16.8	10.8
County	El Dorado-Lake	16.8	10.8
County	El Dorado-	16.8	10.8
County	Fresno	16.8	10.8
County	Glenn	16.8	10.8
County	Humboldt	16.8	10.8
County	Imperial	10.2	7.3
County	Inyo	16.8	10.8
County	Kern-Mojave	16.8	10.8
County	Kern-San	16.8	10.8
County	Kings	16.8	10.8
County	Lake	16.8	10.8
County	Lassen	16.8	10.8
County	Los Angeles-	16.8	10.8
County	Los Angeles-	19.8	14.7
County	Madera	16.8	10.8
County	Marin	10.8	10.8
County	Mariposa	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Merced	16.8	10.8
County	Modoc	16.8	10.8
County	Mono	16.8	10.8
County	Monterey	16.8	10.8
County	Napa	10.8	10.8

County	Nevada	16.8	10.8	
County	Orange	19.8	14.7	
County	Placer-Lake	16.8	10.8	
County	Placer-Mountain	16.8	10.8	
County	Placer-	16.8	10.8	
County	Plumas	16.8	10.8	
County	Riverside-	16.8	10.8	
County	Riverside-	19.8	14.7	
County	<b>Riverside-Salton</b>	14.6	11	
County	<b>Riverside-South</b>	19.8	14.7	
County	Sacramento	15	10	
County	San Benito	16.8	10.8	
County	San Bernardino-	16.8	10.8	
County	San Bernardino-	19.8	14.7	
County	San Diego	16.8	10.8	
County	San Francisco	10.8	10.8	
County	San Joaquin	16.8	10.8	
County	San Luis Obispo	13	13	
County	San Mateo	10.8	10.8	
County	Santa Barbara-	8.3	8.3	
County	Santa Barbara-	8.3	8.3	
County	Santa Clara	10.8	10.8	
County	Santa Cruz	16.8	10.8	
County	Shasta	16.8	10.8	
County	Sierra	16.8	10.8	
County	Siskiyou	16.8	10.8	
County	Solano-	15	10	
County	Solano-San	16.8	10.8	
County	Sonoma-North	16.8	10.8	
County	Sonoma-San	10.8	10.8	
County	Stanislaus	16.8	10.8	
County	Sutter	16.8	10.8	
County	Tehama	16.8	10.8	
County	Trinity	16.8	10.8	
County	Tulare	16.8	10.8	
County	Tuolumne	16.8	10.8	
County	Ventura	16.8	10.8	
County	Yolo	15	10	
County	Yuba	16.8	10.8	
Statewide	Statewide	16.8	10.8	

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								
Mininum	10.80	10.80								
Maximum	19.80	14.70								
Range	9.00	3.90								

Attachment B

Page 1 of 44

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

#### **1.0 Project Characteristics**

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

# **1.2 Other Project Characteristics**

Urbanization	Urban Wind Speed (m/s)		2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

#### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

#### 2.1 Overall Construction

#### **Unmitigated Construction**

	ROG	NOx	СО	SO2	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											МТ	/yr			
2021	0.1713	1.8242	1.1662	2.4000e- 003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1969	213.1969	0.0601	0.0000	214.6993
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.682 6	1,721.682 6	0.1294	0.0000	1,724.918 7
2023	0.6148	3.3649	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.529 5	1,627.529 5	0.1185	0.0000	1,630.492 5
2024	4.1619	0.1335	0.2810	5.9000e- 004	0.0325	6.4700e- 003	0.0390	8.6300e- 003	6.0400e- 003	0.0147	0.0000	52.9078	52.9078	8.0200e- 003	0.0000	53.1082
Maximum	4.1619	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.682 6	1,721.682 6	0.1294	0.0000	1,724.918 7

#### 2.1 Overall Construction

#### 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	2 Total CO2	CH4	N2O	CO2e		
Year					tor	tons/yr							MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e- 003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1967	213.1967	0.0601	0.0000	214.699		
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.682 3	1,721.682 3	0.1294	0.0000	1,724.91 3		
2023	0.6148	3.3648	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.529 1	1,627.529 1	0.1185	0.0000	1,630.49 1		
2024	4.1619	0.1335	0.2810	5.9000e- 004	0.0325	6.4700e- 003	0.0390	8.6300e- 003	6.0400e- 003	0.0147	0.0000	52.9077	52.9077	8.0200e- 003	0.0000	53.1082		
Maximum	4.1619	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.682 3	1,721.682 3	0.1294	0.0000	1,724.91 3		
	ROG	NOx	со	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	Sta	art Date	End	I Date	Maxim	um Unmitig	ated ROG +	NOX (tons/	quarter)	Maxi	mum Mitiga	ted ROG + N	IOX (tons/qu	arter)				
1	9-	1-2021	11-3	0-2021			1.4103					1.4103						
2	12	-1-2021	2-28	3-2022			1.3613					1.3613						
3	3-	1-2022	5-31	-2022			1.1985					1.1985						
4	6-	1-2022	8-31	-2022			1.1921					1.1921						
5	9-	1-2022	11-3	0-2022			1.1918					1.1918						
6	12	-1-2022	2-28	3-2023			1.0774					1.0774						
7	3-	1-2023	5-31	-2023			1.0320					1.0320						
8	6-	1-2023	8-31	-2023			1.0260					1.0260						

9	9-1-2023	11-30-2023	1.0265	1.0265
10	12-1-2023	2-29-2024	2.8857	2.8857
11	3-1-2024	5-31-2024	1.6207	1.6207
		Highest	2.8857	2.8857

#### 2.2 Overall Operational

#### Unmitigated Operational

	ROG	NOx	СО	SO2	Fugitive 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 5.1437 0.2950 10.3804 1.6700e- 0.0714 0.0714 0.0714												МТ	/yr		
Area	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.073 2	3,896.073 2	0.1303	0.0468	3,913.283 3
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	6.8692	9.5223	30.3407	0.0914	7.7979	0.2260	8.0240	2.0895	0.2219	2.3114	236.9712	12,294.18 07	12,531.15 19	15.7904	0.1260	12,963.47 51

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#### 2.2 Overall Operational

#### Mitigated Operational

	ROG	NC	)x	CO	SO2	Fugi PN	itive 110	Exhaust PM10	PM10 Total	Fugi PM	itive Ex 12.5 F	haust M2.5	PM2.5 Total	Bio	o- CO2	NBio- CO2	Total	CO2	CH4	N2C	0	CO2e
Category							tons	s/yr										MT/yr				
Area	5.1437	0.29	50	10.3804	1.6700e 003			0.0714	0.0714		0	.0714	0.0714	0	.0000	220.9670	220.	9670 (	0.0201	3.7400 003	e- 22	2.5835
Energy	0.1398	1.23	12	0.7770	7.6200e 003			0.0966	0.0966	; ; ;	0	.0966	0.0966	0	.0000	3,896.073 2	3,89	6.073 ( 2	0.1303	0.046	в 3,9	13.283 3
Mobile	1.5857	7.99	)62 <sup>-</sup>	19.1834	0.0821	7.79	979	0.0580	7.8559	2.0	895 0	.0539	2.1434	0	.0000	7,620.498 6	7,62	0.498 ( 6	0.3407	0.000	7,6	29.016 2
Waste	7,	,						0.0000	0.0000	)	0	.0000	0.0000	20	7.8079	0.0000	207.	8079 1	2.2811	0.000	D 51	4.8354
Water	Fr	,			,			0.0000	0.0000	)	0	.0000	0.0000	29	9.1632	556.6420	585.	8052 3	3.0183	0.075	5 68	3.7567
Total	6.8692	9.52	23 3	30.3407	0.0914	7.79	979	0.2260	8.0240	2.0	895 0	.2219	2.3114	23	6.9712	12,294.18 07	12,5: 1	31.15 1 9	5.7904	0.126	0 12,	963.47 51
	ROG		NOx	C	0	SO2	Fugit PM	tive Exh 10 Pl	aust M10	PM10 Total	Fugitive PM2.5	Exh PM	aust P 12.5 1	M2.5 otal	Bio- C	O2 NBio	-CO2	Total CO	02 C	H4	N20	CO2e
Percent Reduction	0.00		0.00	0.	00	0.00	0.0	0 00	.00	0.00	0.00	0.	00	0.00	0.0	0.0	00	0.00	0	.00	0.00	0.00

# 3.0 Construction Detail

**Construction Phase** 

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

#### Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	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	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	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	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

#### **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e- 003	0.0000	7.5100e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e- 004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	0.0475	0.4716	0.3235	5.8000e- 004	0.0496	0.0233	0.0729	7.5100e- 003	0.0216	0.0291	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601

#### 3.2 Demolition - 2021

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	1.9300e- 003	0.0634	0.0148	1.8000e- 004	3.9400e- 003	1.9000e- 004	4.1300e- 003	1.0800e- 003	1.8000e- 004	1.2600e- 003	0.0000	17.4566	17.4566	1.2100e- 003	0.0000	17.4869
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	9.7000e- 004	7.5000e- 004	8.5100e- 003	2.0000e- 005	2.4700e- 003	2.0000e- 005	2.4900e- 003	6.5000e- 004	2.0000e- 005	6.7000e- 004	0.0000	2.2251	2.2251	7.0000e- 005	0.0000	2.2267
Total	2.9000e- 003	0.0641	0.0233	2.0000e- 004	6.4100e- 003	2.1000e- 004	6.6200e- 003	1.7300e- 003	2.0000e- 004	1.9300e- 003	0.0000	19.6816	19.6816	1.2800e- 003	0.0000	19.7136

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust			1 1 1		0.0496	0.0000	0.0496	7.5100e- 003	0.0000	7.5100e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e- 004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	0.0475	0.4716	0.3235	5.8000e- 004	0.0496	0.0233	0.0729	7.5100e- 003	0.0216	0.0291	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600

#### 3.2 Demolition - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	1.9300e- 003	0.0634	0.0148	1.8000e- 004	3.9400e- 003	1.9000e- 004	4.1300e- 003	1.0800e- 003	1.8000e- 004	1.2600e- 003	0.0000	17.4566	17.4566	1.2100e- 003	0.0000	17.4869
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	9.7000e- 004	7.5000e- 004	8.5100e- 003	2.0000e- 005	2.4700e- 003	2.0000e- 005	2.4900e- 003	6.5000e- 004	2.0000e- 005	6.7000e- 004	0.0000	2.2251	2.2251	7.0000e- 005	0.0000	2.2267
Total	2.9000e- 003	0.0641	0.0233	2.0000e- 004	6.4100e- 003	2.1000e- 004	6.6200e- 003	1.7300e- 003	2.0000e- 004	1.9300e- 003	0.0000	19.6816	19.6816	1.2800e- 003	0.0000	19.7136

3.3 Site Preparation - 2021

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e- 004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	0.0389	0.4050	0.2115	3.8000e- 004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061

#### 3.3 Site Preparation - 2021

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	7.7000e- 004	6.0000e- 004	6.8100e- 003	2.0000e- 005	1.9700e- 003	2.0000e- 005	1.9900e- 003	5.2000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.7801	1.7801	5.0000e- 005	0.0000	1.7814
Total	7.7000e- 004	6.0000e- 004	6.8100e- 003	2.0000e- 005	1.9700e- 003	2.0000e- 005	1.9900e- 003	5.2000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.7801	1.7801	5.0000e- 005	0.0000	1.7814

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust		1 1 1	1		0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e- 004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	0.0389	0.4050	0.2115	3.8000e- 004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060

#### 3.3 Site Preparation - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	7.7000e- 004	6.0000e- 004	6.8100e- 003	2.0000e- 005	1.9700e- 003	2.0000e- 005	1.9900e- 003	5.2000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.7801	1.7801	5.0000e- 005	0.0000	1.7814
Total	7.7000e- 004	6.0000e- 004	6.8100e- 003	2.0000e- 005	1.9700e- 003	2.0000e- 005	1.9900e- 003	5.2000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.7801	1.7801	5.0000e- 005	0.0000	1.7814

3.4 Grading - 2021

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e- 003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	0.0796	0.8816	0.5867	1.1800e- 003	0.1741	0.0377	0.2118	0.0693	0.0347	0.1040	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776

## 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					ton	s/yr							МТ	/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	1.6400e- 003	1.2700e- 003	0.0144	4.0000e- 005	4.1600e- 003	3.0000e- 005	4.2000e- 003	1.1100e- 003	3.0000e- 005	1.1400e- 003	0.0000	3.7579	3.7579	1.1000e- 004	0.0000	3.7607
Total	1.6400e- 003	1.2700e- 003	0.0144	4.0000e- 005	4.1600e- 003	3.0000e- 005	4.2000e- 003	1.1100e- 003	3.0000e- 005	1.1400e- 003	0.0000	3.7579	3.7579	1.1000e- 004	0.0000	3.7607

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	'/yr		
Fugitive Dust			1 1 1		0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e- 003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	0.0796	0.8816	0.5867	1.1800e- 003	0.1741	0.0377	0.2118	0.0693	0.0347	0.1040	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775

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## 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					ton	s/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	1.6400e- 003	1.2700e- 003	0.0144	4.0000e- 005	4.1600e- 003	3.0000e- 005	4.2000e- 003	1.1100e- 003	3.0000e- 005	1.1400e- 003	0.0000	3.7579	3.7579	1.1000e- 004	0.0000	3.7607
Total	1.6400e- 003	1.2700e- 003	0.0144	4.0000e- 005	4.1600e- 003	3.0000e- 005	4.2000e- 003	1.1100e- 003	3.0000e- 005	1.1400e- 003	0.0000	3.7579	3.7579	1.1000e- 004	0.0000	3.7607

3.4 Grading - 2022

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e- 004		5.7200e- 003	5.7200e- 003		5.2600e- 003	5.2600e- 003	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414
Total	0.0127	0.1360	0.1017	2.2000e- 004	0.0807	5.7200e- 003	0.0865	0.0180	5.2600e- 003	0.0233	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

## 3.4 Grading - 2022

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e- 004	2.1000e- 004	2.4400e- 003	1.0000e- 005	7.7000e- 004	1.0000e- 005	7.7000e- 004	2.0000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.6679	0.6679	2.0000e- 005	0.0000	0.6684
Total	2.8000e- 004	2.1000e- 004	2.4400e- 003	1.0000e- 005	7.7000e- 004	1.0000e- 005	7.7000e- 004	2.0000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.6679	0.6679	2.0000e- 005	0.0000	0.6684

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust			1		0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e- 004		5.7200e- 003	5.7200e- 003		5.2600e- 003	5.2600e- 003	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414
Total	0.0127	0.1360	0.1017	2.2000e- 004	0.0807	5.7200e- 003	0.0865	0.0180	5.2600e- 003	0.0233	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414

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## 3.4 Grading - 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					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e- 004	2.1000e- 004	2.4400e- 003	1.0000e- 005	7.7000e- 004	1.0000e- 005	7.7000e- 004	2.0000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.6679	0.6679	2.0000e- 005	0.0000	0.6684
Total	2.8000e- 004	2.1000e- 004	2.4400e- 003	1.0000e- 005	7.7000e- 004	1.0000e- 005	7.7000e- 004	2.0000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.6679	0.6679	2.0000e- 005	0.0000	0.6684

3.5 Building Construction - 2022

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023	1 1	0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881

#### 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					ton	s/yr							МТ	/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	0.0527	1.6961	0.4580	4.5500e- 003	0.1140	3.1800e- 003	0.1171	0.0329	3.0400e- 003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e- 003	1.1192	0.2949	8.1700e- 003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	0.4616	2.0027	3.9885	0.0152	1.2243	0.0121	1.2363	0.3278	0.0112	0.3390	0.0000	1,408.795 2	1,408.795 2	0.0530	0.0000	1,410.120 8

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	'/yr		
Off-Road	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877

#### 3.5 Building Construction - 2022

#### Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	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	0.0527	1.6961	0.4580	4.5500e- 003	0.1140	3.1800e- 003	0.1171	0.0329	3.0400e- 003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e- 003	1.1192	0.2949	8.1700e- 003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	0.4616	2.0027	3.9885	0.0152	1.2243	0.0121	1.2363	0.3278	0.0112	0.3390	0.0000	1,408.795 2	1,408.795 2	0.0530	0.0000	1,410.120 8

3.5 Building Construction - 2023

	ROG	NOx	СО	SO2	Fugitive 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	0.1942	1.7765	2.0061	3.3300e- 003	J	0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814		
Total	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814		

#### 3.5 Building Construction - 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					ton	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	0.0382	1.2511	0.4011	4.3000e- 003	0.1113	1.4600e- 003	0.1127	0.0321	1.4000e- 003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e- 003	1.0924	0.2879	7.7400e- 003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	0.4135	1.5218	3.5707	0.0144	1.1953	9.8700e- 003	1.2051	0.3200	9.1400e- 003	0.3292	0.0000	1,327.336 9	1,327.336 9	0.0462	0.0000	1,328.491 6

	ROG	NOx	CO	SO2	Fugitive 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	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811			
Total	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811			

#### 3.5 Building Construction - 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					ton	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	0.0382	1.2511	0.4011	4.3000e- 003	0.1113	1.4600e- 003	0.1127	0.0321	1.4000e- 003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e- 003	1.0924	0.2879	7.7400e- 003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	0.4135	1.5218	3.5707	0.0144	1.1953	9.8700e- 003	1.2051	0.3200	9.1400e- 003	0.3292	0.0000	1,327.336 9	1,327.336 9	0.0462	0.0000	1,328.491 6

3.6 Paving - 2023

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e			
Category	tons/yr											MT/yr							
Off-Road	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227			
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
Total	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227			
# 3.6 Paving - 2023

# Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	3.7000e- 004	2.7000e- 004	3.1200e- 003	1.0000e- 005	1.0700e- 003	1.0000e- 005	1.0800e- 003	2.8000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8963	0.8963	2.0000e- 005	0.0000	0.8968
Total	3.7000e- 004	2.7000e- 004	3.1200e- 003	1.0000e- 005	1.0700e- 003	1.0000e- 005	1.0800e- 003	2.8000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8963	0.8963	2.0000e- 005	0.0000	0.8968

# 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					ton	s/yr							МТ	/yr		
Off-Road	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227

# 3.6 Paving - 2023

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	3.7000e- 004	2.7000e- 004	3.1200e- 003	1.0000e- 005	1.0700e- 003	1.0000e- 005	1.0800e- 003	2.8000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8963	0.8963	2.0000e- 005	0.0000	0.8968
Total	3.7000e- 004	2.7000e- 004	3.1200e- 003	1.0000e- 005	1.0700e- 003	1.0000e- 005	1.0800e- 003	2.8000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8963	0.8963	2.0000e- 005	0.0000	0.8968

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073

# 3.6 Paving - 2024

# 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					ton	s/yr							МТ	/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	5.9000e- 004	4.1000e- 004	4.9200e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.4697	1.4697	4.0000e- 005	0.0000	1.4706
Total	5.9000e- 004	4.1000e- 004	4.9200e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.4697	1.4697	4.0000e- 005	0.0000	1.4706

# 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					ton	s/yr							МТ	/yr		
Off-Road	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073

# 3.6 Paving - 2024

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	'/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	5.9000e- 004	4.1000e- 004	4.9200e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.4697	1.4697	4.0000e- 005	0.0000	1.4706
Total	5.9000e- 004	4.1000e- 004	4.9200e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.4697	1.4697	4.0000e- 005	0.0000	1.4706

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e- 003	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745
Total	4.1404	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745

# 3.7 Architectural Coating - 2024

# 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					ton	s/yr							МТ	/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	0.0101	6.9900e- 003	0.0835	2.8000e- 004	0.0307	2.3000e- 004	0.0309	8.1500e- 003	2.2000e- 004	8.3700e- 003	0.0000	24.9407	24.9407	6.1000e- 004	0.0000	24.9558
Total	0.0101	6.9900e- 003	0.0835	2.8000e- 004	0.0307	2.3000e- 004	0.0309	8.1500e- 003	2.2000e- 004	8.3700e- 003	0.0000	24.9407	24.9407	6.1000e- 004	0.0000	24.9558

# 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					ton	s/yr							МТ	/yr		
Archit. Coating	4.1372		1			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e- 003	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745
Total	4.1404	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745

# 3.7 Architectural Coating - 2024

# 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					ton	s/yr							МТ	/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	0.0101	6.9900e- 003	0.0835	2.8000e- 004	0.0307	2.3000e- 004	0.0309	8.1500e- 003	2.2000e- 004	8.3700e- 003	0.0000	24.9407	24.9407	6.1000e- 004	0.0000	24.9558
Total	0.0101	6.9900e- 003	0.0835	2.8000e- 004	0.0307	2.3000e- 004	0.0309	8.1500e- 003	2.2000e- 004	8.3700e- 003	0.0000	24.9407	24.9407	6.1000e- 004	0.0000	24.9558

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2

# 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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					tor	ns/yr							MT	/yr		
Electricity Mitigated	    		, , ,			0.0000	0.0000	, , ,	0.0000	0.0000	0.0000	2,512.646 5	2,512.646 5	0.1037	0.0215	2,521.635 6
Electricity Unmitigated	F,					0.0000	0.0000		0.0000	0.0000	0.0000	2,512.646 5	2,512.646 5	0.1037	0.0215	2,521.635 6
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e- 003	, , , ,	0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 7	1,383.426 7	0.0265	0.0254	1,391.647 8
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 7	1,383.426 7	0.0265	0.0254	1,391.647 8

# 5.2 Energy by Land Use - NaturalGas

# <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	СО	SO2	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					ton	s/yr							MT	/yr		
Apartments Low Rise	408494	2.2000e- 003	0.0188	8.0100e- 003	1.2000e- 004		1.5200e- 003	1.5200e- 003		1.5200e- 003	1.5200e- 003	0.0000	21.7988	21.7988	4.2000e- 004	4.0000e- 004	21.9284
Apartments Mid Rise	1.30613e +007	0.0704	0.6018	0.2561	3.8400e- 003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e- 003	0.0230	0.0193	1.4000e- 004		1.7500e- 003	1.7500e- 003		1.7500e- 003	1.7500e- 003	0.0000	24.9983	24.9983	4.8000e- 004	4.6000e- 004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e +006	0.0448	0.4072	0.3421	2.4400e- 003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e- 003	8.1300e- 003	445.9468
Hotel	1.74095e +006	9.3900e- 003	0.0853	0.0717	5.1000e- 004		6.4900e- 003	6.4900e- 003		6.4900e- 003	6.4900e- 003	0.0000	92.9036	92.9036	1.7800e- 003	1.7000e- 003	93.4557
Quality Restaurant	1.84608e +006	9.9500e- 003	0.0905	0.0760	5.4000e- 004		6.8800e- 003	6.8800e- 003		6.8800e- 003	6.8800e- 003	0.0000	98.5139	98.5139	1.8900e- 003	1.8100e- 003	99.0993
Regional Shopping Center	91840	5.0000e- 004	4.5000e- 003	3.7800e- 003	3.0000e- 005		3.4000e- 004	3.4000e- 004		3.4000e- 004	3.4000e- 004	0.0000	4.9009	4.9009	9.0000e- 005	9.0000e- 005	4.9301
Total		0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 8	1,383.426 8	0.0265	0.0254	1,391.647 8

# 5.2 Energy by Land Use - NaturalGas

# Mitigated

	NaturalGa s 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					ton	s/yr							MT	/yr		
Apartments Low Rise	408494	2.2000e- 003	0.0188	8.0100e- 003	1.2000e- 004		1.5200e- 003	1.5200e- 003		1.5200e- 003	1.5200e- 003	0.0000	21.7988	21.7988	4.2000e- 004	4.0000e- 004	21.9284
Apartments Mid Rise	1.30613e +007	0.0704	0.6018	0.2561	3.8400e- 003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e- 003	0.0230	0.0193	1.4000e- 004		1.7500e- 003	1.7500e- 003		1.7500e- 003	1.7500e- 003	0.0000	24.9983	24.9983	4.8000e- 004	4.6000e- 004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e +006	0.0448	0.4072	0.3421	2.4400e- 003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e- 003	8.1300e- 003	445.9468
Hotel	1.74095e +006	9.3900e- 003	0.0853	0.0717	5.1000e- 004		6.4900e- 003	6.4900e- 003		6.4900e- 003	6.4900e- 003	0.0000	92.9036	92.9036	1.7800e- 003	1.7000e- 003	93.4557
Quality Restaurant	1.84608e +006	9.9500e- 003	0.0905	0.0760	5.4000e- 004		6.8800e- 003	6.8800e- 003		6.8800e- 003	6.8800e- 003	0.0000	98.5139	98.5139	1.8900e- 003	1.8100e- 003	99.0993
Regional Shopping Center	91840	5.0000e- 004	4.5000e- 003	3.7800e- 003	3.0000e- 005		3.4000e- 004	3.4000e- 004		3.4000e- 004	3.4000e- 004	0.0000	4.9009	4.9009	9.0000e- 005	9.0000e- 005	4.9301
Total		0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 8	1,383.426 8	0.0265	0.0254	1,391.647 8

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# 5.3 Energy by Land Use - Electricity

# <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	/yr	
Apartments Low Rise	106010	33.7770	1.3900e- 003	2.9000e- 004	33.8978
Apartments Mid Rise	3.94697e +006	1,257.587 9	0.0519	0.0107	1,262.086 9
General Office Building	584550	186.2502	7.6900e- 003	1.5900e- 003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e +006	506.3022	0.0209	4.3200e- 003	508.1135
Hotel	550308	175.3399	7.2400e- 003	1.5000e- 003	175.9672
Quality Restaurant	353120	112.5116	4.6500e- 003	9.6000e- 004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e- 003	2.0600e- 003	241.7395
Total		2,512.646 5	0.1037	0.0215	2,521.635 6

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# 5.3 Energy by Land Use - Electricity

# Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	/yr	
Apartments Low Rise	106010	33.7770	1.3900e- 003	2.9000e- 004	33.8978
Apartments Mid Rise	3.94697e +006	1,257.587 9	0.0519	0.0107	1,262.086 9
General Office Building	584550	186.2502	7.6900e- 003	1.5900e- 003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e +006	506.3022	0.0209	4.3200e- 003	508.1135
Hotel	550308	175.3399	7.2400e- 003	1.5000e- 003	175.9672
Quality Restaurant	353120	112.5116	4.6500e- 003	9.6000e- 004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e- 003	2.0600e- 003	241.7395
Total		2,512.646 5	0.1037	0.0215	2,521.635 6

# 6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Mitigated	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

# 6.2 Area by SubCategory

#### <u>Unmitigated</u>

	ROG	NOx	CO	SO2	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	Category tons/yr   itectural 0.4137 0.0000 0.0000 0.0000												МТ	/yr		
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e- 003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e- 003	3.7400e- 003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e- 004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	5.1437	0.2950	10.3804	1.6600e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

# 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					ton	s/yr							МТ	/yr		
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e- 003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e- 003	3.7400e- 003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e- 004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	5.1437	0.2950	10.3804	1.6600e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

# 7.0 Water Detail

7.1 Mitigation Measures Water

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category		MT	ī/yr	
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# 7.2 Water by Land Use

# <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	/yr	
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e- 003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e- 003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e- 003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e- 003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e- 003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e- 003	31.9490
Total		585.8052	3.0183	0.0755	683.7567

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# 7.2 Water by Land Use

# Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	ī/yr	
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e- 003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e- 003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e- 003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e- 003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e- 003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e- 003	31.9490
Total		585.8052	3.0183	0.0755	683.7567

# 8.0 Waste Detail

8.1 Mitigation Measures Waste

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# Category/Year

	Total CO2	CH4	N2O	CO2e		
	MT/yr					
Mitigated	207.8079	12.2811	0.0000	514.8354		
Unmitigated	207.8079	12.2811	0.0000	514.8354		

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# 8.2 Waste by Land Use

# <u>Unmitigated</u>

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	/yr	
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		207.8079	12.2811	0.0000	514.8354

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# 8.2 Waste by Land Use

#### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		MT	/yr	
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		207.8079	12.2811	0.0000	514.8354

# 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
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# Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# **Boilers**

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

# 11.0 Vegetation

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

# **1.0 Project Characteristics**

# 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

# **1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

# 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

# 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction** 

	ROG	NOx	со	SO2	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/d	day							lb/c	lay		
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.797 4	6,234.797 4	1.9495	0.0000	6,283.535 2
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.56 74	15,251.56 74	1.9503	0.0000	15,278.52 88
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.52 69	14,807.52 69	1.0250	0.0000	14,833.15 21
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.398 9	2,361.398 9	0.7177	0.0000	2,379.342 1
Maximum	237.1630	46.4588	49.5629	0.1517	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	15,251.56 74	15,251.56 74	1.9503	0.0000	15,278.52 88

# 2.1 Overall Construction (Maximum Daily Emission)

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/e	day		
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.797 4	6,234.797 4	1.9495	0.0000	6,283.535 2
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.56 74	15,251.56 74	1.9503	0.0000	15,278.52 88
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.52 69	14,807.52 69	1.0250	0.0000	14,833.15 20
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.398 9	2,361.398 9	0.7177	0.0000	2,379.342 1
Maximum	237.1630	46.4588	49.5629	0.1517	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	15,251.56 74	15,251.56 74	1.9503	0.0000	15,278.52 88
	ROG	NOx	СО	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

	ROG	NOx	со	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	со	SO2	Fugitive 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/c	lay							lb/c	lay		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08
Total	41.1168	67.2262	207.5497	0.6278	45.9592	2.4626	48.4217	12.2950	2.4385	14.7336	0.0000	76,811.18 16	76,811.18 16	2.8282	0.4832	77,025.87 86

# Mitigated Operational

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/d	lay		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974	1 1 1	1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08
Total	41.1168	67.2262	207.5497	0.6278	45.9592	2.4626	48.4217	12.2950	2.4385	14.7336	0.0000	76,811.18 16	76,811.18 16	2.8282	0.4832	77,025.87 86

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

# **3.0 Construction Detail**

#### **Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	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	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	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	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

# **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,			3.3074	0.0000	3.3074	0.5008	0.0000	0.5008		1 1 1	0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419		3,747.944 9	3,747.944 9	1.0549		3,774.317 4

# 3.2 Demolition - 2021

# Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	day		
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.241 3	1,292.241 3	0.0877		1,294.433 7
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	0.0643	0.0442	0.6042	1.7100e- 003	0.1677	1.3500e- 003	0.1690	0.0445	1.2500e- 003	0.0457		170.8155	170.8155	5.0300e- 003		170.9413
Total	0.1916	4.1394	1.5644	0.0136	0.4346	0.0139	0.4485	0.1176	0.0133	0.1309		1,463.056 8	1,463.056 8	0.0927		1,465.375 0

# Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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/d	day		
Fugitive Dust		1 1 1	, , ,		3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4

# 3.2 Demolition - 2021

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	Jay							lb/c	day		
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.241 3	1,292.241 3	0.0877		1,294.433 7
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	0.0643	0.0442	0.6042	1.7100e- 003	0.1677	1.3500e- 003	0.1690	0.0445	1.2500e- 003	0.0457		170.8155	170.8155	5.0300e- 003		170.9413
Total	0.1916	4.1394	1.5644	0.0136	0.4346	0.0139	0.4485	0.1176	0.0133	0.1309		1,463.056 8	1,463.056 8	0.0927		1,465.375 0

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307		1 1 1	0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.656 9	3,685.656 9	1.1920		3,715.457 3

# 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/e	day							lb/c	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	0.0772	0.0530	0.7250	2.0600e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		204.9786	204.9786	6.0400e- 003		205.1296
Total	0.0772	0.0530	0.7250	2.0600e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		204.9786	204.9786	6.0400e- 003		205.1296

# Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust			1 1 1		18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3

# 3.3 Site Preparation - 2021

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	Jay							lb/c	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	0.0772	0.0530	0.7250	2.0600e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		204.9786	204.9786	6.0400e- 003		205.1296
Total	0.0772	0.0530	0.7250	2.0600e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		204.9786	204.9786	6.0400e- 003		205.1296

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/e	day							lb/c	lay		
Fugitive Dust		1 1 1 1			8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 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/e	day							lb/c	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	0.0857	0.0589	0.8056	2.2900e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		227.7540	227.7540	6.7100e- 003		227.9217
Total	0.0857	0.0589	0.8056	2.2900e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		227.7540	227.7540	6.7100e- 003		227.9217

# Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	lay		
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
# 3.4 Grading - 2021

### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0857	0.0589	0.8056	2.2900e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		227.7540	227.7540	6.7100e- 003		227.9217
Total	0.0857	0.0589	0.8056	2.2900e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		227.7540	227.7540	6.7100e- 003		227.9217

3.4 Grading - 2022

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006		6,011.410 5	6,011.410 5	1.9442		6,060.015 8

# 3.4 Grading - 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/e	day							lb/c	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	0.0803	0.0532	0.7432	2.2100e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		219.7425	219.7425	6.0600e- 003		219.8941
Total	0.0803	0.0532	0.7432	2.2100e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		219.7425	219.7425	6.0600e- 003		219.8941

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/d	day		
Fugitive Dust			1		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8

# 3.4 Grading - 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/c	day							lb/c	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	0.0803	0.0532	0.7432	2.2100e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		219.7425	219.7425	6.0600e- 003		219.8941
Total	0.0803	0.0532	0.7432	2.2100e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		219.7425	219.7425	6.0600e- 003		219.8941

3.5 Building Construction - 2022

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/d	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090	;	0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2

### 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/d	day							lb/c	lay		
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	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.548 2	3,896.548 2	0.2236		3,902.138 4
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.685 7	8,800.685 7	0.2429		8,806.758 2
Total	3.6242	15.3350	33.1995	0.1247	9.8688	0.0949	9.9637	2.6381	0.0883	2.7263		12,697.23 39	12,697.23 39	0.4665		12,708.89 66

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/c	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2

### 3.5 Building Construction - 2022

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.548 2	3,896.548 2	0.2236		3,902.138 4
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.685 7	8,800.685 7	0.2429		8,806.758 2
Total	3.6242	15.3350	33.1995	0.1247	9.8688	0.0949	9.9637	2.6381	0.0883	2.7263		12,697.23 39	12,697.23 39	0.4665		12,708.89 66

3.5 Building Construction - 2023

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/d	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997	1 1	0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1

### 3.5 Building Construction - 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/o	day							lb/c	lay		
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	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.876 2	3,773.876 2	0.1982		3,778.830 0
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.440 8	8,478.440 8	0.2190		8,483.916 0
Total	3.3229	11.9468	30.5127	0.1203	9.8688	0.0797	9.9485	2.6381	0.0738	2.7118		12,252.31 70	12,252.31 70	0.4172		12,262.74 60

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1

### 3.5 Building Construction - 2023

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.876 2	3,773.876 2	0.1982		3,778.830 0
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.440 8	8,478.440 8	0.2190		8,483.916 0
Total	3.3229	11.9468	30.5127	0.1203	9.8688	0.0797	9.9485	2.6381	0.0738	2.7118		12,252.31 70	12,252.31 70	0.4172		12,262.74 60

3.6 Paving - 2023

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 2023

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.0566	0.0361	0.5133	1.5900e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		158.7723	158.7723	4.1000e- 003		158.8748
Total	0.0566	0.0361	0.5133	1.5900e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		158.7723	158.7723	4.1000e- 003		158.8748

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000		 - - - -	0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 2023

### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0566	0.0361	0.5133	1.5900e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		158.7723	158.7723	4.1000e- 003		158.8748
Total	0.0566	0.0361	0.5133	1.5900e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		158.7723	158.7723	4.1000e- 003		158.8748

3.6 Paving - 2024

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.0535	0.0329	0.4785	1.5400e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		153.8517	153.8517	3.7600e- 003		153.9458
Total	0.0535	0.0329	0.4785	1.5400e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		153.8517	153.8517	3.7600e- 003		153.9458

	ROG	NOx	СО	SO2	Fugitive 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/d	day		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0535	0.0329	0.4785	1.5400e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		153.8517	153.8517	3.7600e- 003		153.9458
Total	0.0535	0.0329	0.4785	1.5400e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		153.8517	153.8517	3.7600e- 003		153.9458

3.7 Architectural Coating - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

### 3.7 Architectural Coating - 2024

### 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/o	day							lb/c	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	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.085 2	1,641.085 2	0.0401		1,642.088 6
Total	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.085 2	1,641.085 2	0.0401		1,642.088 6

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000		1 1 1	0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

### 3.7 Architectural Coating - 2024

### Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	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	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.085 2	1,641.085 2	0.0401		1,642.088 6
Total	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.085 2	1,641.085 2	0.0401		1,642.088 6

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	day		
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08

### 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	se %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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/d	day		
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

### 5.2 Energy by Land Use - NaturalGas

## <u>Unmitigated</u>

	NaturalGa s 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/o	day							lb/d	day		
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003	1 1 1	8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003		1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

### 5.2 Energy by Land Use - NaturalGas

## Mitigated

	NaturalGa s 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/e	day							lb/c	day		
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003		8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003		1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

# 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/c	lay		
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 6.2 Area by SubCategory

### <u>Unmitigated</u>

	ROG	NOx	со	SO2	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/d	day							lb/c	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

### 6.2 Area by SubCategory

### **Mitigated**

	ROG	NOx	СО	SO2	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/e	day							lb/o	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 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
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# **10.0 Stationary Equipment**

### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
<u>Boilers</u>						
Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type	
User Defined Equipment						
Equipment Type	Number					
11.0 Vagatation						

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

## **1.0 Project Characteristics**

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

### **1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

## 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction** 

	ROG	NOx	со	SO2	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/o	day							lb/d	day		
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.493 7	6,221.493 7	1.9491	0.0000	6,270.221 4
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.30 99	14,630.30 99	1.9499	0.0000	14,657.26 63
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.34 24	14,210.34 24	1.0230	0.0000	14,235.91 60
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.417 8	2,352.417 8	0.7175	0.0000	2,370.355 0
Maximum	237.2328	46.4651	47.3319	0.1455	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	14,630.30 99	14,630.30 99	1.9499	0.0000	14,657.26 63

### 2.1 Overall Construction (Maximum Daily Emission)

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/o	day		
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.493 7	6,221.493 7	1.9491	0.0000	6,270.221 4
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.30 99	14,630.30 99	1.9499	0.0000	14,657.26 63
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.34 24	14,210.34 24	1.0230	0.0000	14,235.91 60
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.417 8	2,352.417 8	0.7175	0.0000	2,370.355 0
Maximum	237.2328	46.4651	47.3319	0.1455	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	14,630.30 99	14,630.30 99	1.9499	0.0000	14,657.26 63
	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

	ROG	NOx	со	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	со	SO2	Fugitive 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/o	day							lb/c	day		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39
Total	40.7912	67.7872	202.7424	0.6043	45.9592	2.4640	48.4231	12.2950	2.4399	14.7349	0.0000	74,422.37 87	74,422.37 87	2.8429	0.4832	74,637.44 17

### 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/c	lay		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39
Total	40.7912	67.7872	202.7424	0.6043	45.9592	2.4640	48.4231	12.2950	2.4399	14.7349	0.0000	74,422.37 87	74,422.37 87	2.8429	0.4832	74,637.44 17

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

# **3.0 Construction Detail**

#### **Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	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	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	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	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

### **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,			3.3074	0.0000	3.3074	0.5008	0.0000	0.5008		1 1 1	0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419		3,747.944 9	3,747.944 9	1.0549		3,774.317 4

### 3.2 Demolition - 2021

## Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/e	day							lb/c	day		
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.855 5	1,269.855 5	0.0908		1,272.125 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e- 003	0.1677	1.3500e- 003	0.1690	0.0445	1.2500e- 003	0.0457		160.8377	160.8377	4.7300e- 003		160.9560
Total	0.2019	4.1943	1.5706	0.0133	0.4346	0.0141	0.4487	0.1176	0.0135	0.1311		1,430.693 2	1,430.693 2	0.0955		1,433.081 2

	ROG	NOx	CO	SO2	Fugitive 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/d	day		
Fugitive Dust		1 1 1	, , ,		3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4

### 3.2 Demolition - 2021

### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	lay							lb/c	lay		
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.855 5	1,269.855 5	0.0908		1,272.125 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	,	0.0000
Worker	0.0715	0.0489	0.5524	1.6100e- 003	0.1677	1.3500e- 003	0.1690	0.0445	1.2500e- 003	0.0457		160.8377	160.8377	4.7300e- 003	,	160.9560
Total	0.2019	4.1943	1.5706	0.0133	0.4346	0.0141	0.4487	0.1176	0.0135	0.1311		1,430.693 2	1,430.693 2	0.0955		1,433.081 2

3.3 Site Preparation - 2021

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307		1 1 1	0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.656 9	3,685.656 9	1.1920		3,715.457 3

### 3.3 Site Preparation - 2021

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.0858	0.0587	0.6629	1.9400e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		193.0052	193.0052	5.6800e- 003		193.1472
Total	0.0858	0.0587	0.6629	1.9400e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		193.0052	193.0052	5.6800e- 003		193.1472

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	day		
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3

### 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/d	day							lb/c	lay		
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	0.0858	0.0587	0.6629	1.9400e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		193.0052	193.0052	5.6800e- 003		193.1472
Total	0.0858	0.0587	0.6629	1.9400e- 003	0.2012	1.6300e- 003	0.2028	0.0534	1.5000e- 003	0.0549		193.0052	193.0052	5.6800e- 003		193.1472

3.4 Grading - 2021

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,	, , ,		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 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/e	day							lb/c	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	0.0954	0.0652	0.7365	2.1500e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		214.4502	214.4502	6.3100e- 003		214.6080
Total	0.0954	0.0652	0.7365	2.1500e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		214.4502	214.4502	6.3100e- 003		214.6080

	ROG	NOx	СО	SO2	Fugitive 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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000	
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4	
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4	

# 3.4 Grading - 2021

# Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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	0.0954	0.0652	0.7365	2.1500e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		214.4502	214.4502	6.3100e- 003		214.6080	
Total	0.0954	0.0652	0.7365	2.1500e- 003	0.2236	1.8100e- 003	0.2254	0.0593	1.6600e- 003	0.0610		214.4502	214.4502	6.3100e- 003		214.6080	

3.4 Grading - 2022

	ROG	NOx	со	SO2	Fugitive 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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006		6,011.410 5	6,011.410 5	1.9442		6,060.015 8
# 3.4 Grading - 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/e	day							lb/c	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	0.0896	0.0589	0.6784	2.0800e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		206.9139	206.9139	5.7000e- 003		207.0563
Total	0.0896	0.0589	0.6784	2.0800e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		206.9139	206.9139	5.7000e- 003		207.0563

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/d	day		
Fugitive Dust			1		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

# 3.4 Grading - 2022

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	lay							lb/c	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	0.0896	0.0589	0.6784	2.0800e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		206.9139	206.9139	5.7000e- 003		207.0563
Total	0.0896	0.0589	0.6784	2.0800e- 003	0.2236	1.7500e- 003	0.2253	0.0593	1.6100e- 003	0.0609		206.9139	206.9139	5.7000e- 003		207.0563

3.5 Building Construction - 2022

	ROG	NOx	со	SO2	Fugitive 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/c	lay							lb/c	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2

## 3.5 Building Construction - 2022

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.075 0	3,789.075 0	0.2381		3,795.028 3
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.901 3	8,286.901 3	0.2282		8,292.605 8
Total	4.0156	15.5266	30.9685	0.1186	9.8688	0.0957	9.9645	2.6381	0.0891	2.7271		12,075.97 63	12,075.97 63	0.4663		12,087.63 41

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	Jay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090	;	0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120	ļ	2,569.632 2

## 3.5 Building Construction - 2022

## Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.075 0	3,789.075 0	0.2381		3,795.028 3
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.901 3	8,286.901 3	0.2282		8,292.605 8
Total	4.0156	15.5266	30.9685	0.1186	9.8688	0.0957	9.9645	2.6381	0.0891	2.7271		12,075.97 63	12,075.97 63	0.4663		12,087.63 41

3.5 Building Construction - 2023

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/d	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997	1 1	0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1

## 3.5 Building Construction - 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/d	day							lb/c	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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.400 7	3,671.400 7	0.2096		3,676.641 7
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.731 8	7,983.731 8	0.2055		7,988.868 3
Total	3.6978	12.1065	28.3496	0.1144	9.8688	0.0803	9.9491	2.6381	0.0743	2.7124		11,655.13 25	11,655.13 25	0.4151		11,665.50 99

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1

## 3.5 Building Construction - 2023

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/d	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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.400 7	3,671.400 7	0.2096		3,676.641 7
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.731 8	7,983.731 8	0.2055		7,988.868 3
Total	3.6978	12.1065	28.3496	0.1144	9.8688	0.0803	9.9491	2.6381	0.0743	2.7124		11,655.13 25	11,655.13 25	0.4151		11,665.50 99

3.6 Paving - 2023

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 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/e	day							lb/c	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		149.5081	149.5081	3.8500e- 003		149.6043
Total	0.0633	0.0400	0.4677	1.5000e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		149.5081	149.5081	3.8500e- 003		149.6043

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 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/o	day							lb/c	lay		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		149.5081	149.5081	3.8500e- 003		149.6043
Total	0.0633	0.0400	0.4677	1.5000e- 003	0.1677	1.2800e- 003	0.1689	0.0445	1.1700e- 003	0.0456		149.5081	149.5081	3.8500e- 003		149.6043

3.6 Paving - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.0601	0.0364	0.4354	1.4500e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		144.8706	144.8706	3.5300e- 003		144.9587
Total	0.0601	0.0364	0.4354	1.4500e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		144.8706	144.8706	3.5300e- 003		144.9587

	ROG	NOx	СО	SO2	Fugitive 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/d	day		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000		1 1 1 1			0.0000	0.0000		0.0000	0.0000		       	0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.0601	0.0364	0.4354	1.4500e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		144.8706	144.8706	3.5300e- 003		144.9587
Total	0.0601	0.0364	0.4354	1.4500e- 003	0.1677	1.2600e- 003	0.1689	0.0445	1.1600e- 003	0.0456		144.8706	144.8706	3.5300e- 003		144.9587

3.7 Architectural Coating - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

## 3.7 Architectural Coating - 2024

## 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/o	day							lb/c	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	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.286 0	1,545.286 0	0.0376		1,546.226 2
Total	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.286 0	1,545.286 0	0.0376		1,546.226 2

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000		1 1 1	0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

## 3.7 Architectural Coating - 2024

## 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/o	day							lb/c	lay		
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	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.286 0	1,545.286 0	0.0376		1,546.226 2
Total	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.286 0	1,545.286 0	0.0376		1,546.226 2

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953	· · · · · · · · · · · · · · · · · · ·	47,972.68 39

## 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	је %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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/d	day		
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418	<b></b> - - -	0.5292	0.5292	<b></b>     	0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

## 5.2 Energy by Land Use - NaturalGas

# <u>Unmitigated</u>

	NaturalGa s 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/o	day							lb/d	day		
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003	1 1 1	8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003	1 1 1 1 1	1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

## 5.2 Energy by Land Use - NaturalGas

# Mitigated

	NaturalGa s 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/e	day							lb/d	day		
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003		8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003	1 1 1 1 1	1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

# 6.0 Area Detail

6.1 Mitigation Measures Area

Page 33 of 35

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/e	day							lb/c	lay		
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 6.2 Area by SubCategory

## <u>Unmitigated</u>

	ROG	NOx	CO	SO2	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/e	day							lb/c	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

## 6.2 Area by SubCategory

#### **Mitigated**

	ROG	NOx	СО	SO2	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/e	day							lb/o	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 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
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# **10.0 Stationary Equipment**

#### Fire Pumps and Emergency Generators

			riours/real	Horse Power	Load Factor	Fuel Type
Boilers						
Equipment Type N	umber	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type	
User Defined Equipment						
Equipment Type No	ımber					
11.0 Vogotation						

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

## **1.0 Project Characteristics**

## 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

## **1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

## **1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

Village South	Specific Plan	(Proposed)	) - Los Anaeles-South	Coast County, Annual
		· · · · · · · ·		

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

# 2.1 Overall Construction

# **Unmitigated Construction**

	ROG	NOx	СО	SO2	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	0.1704	1.8234	1.1577	2.3800e- 003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7654	210.7654	0.0600	0.0000	212.2661	
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.655 4	1,418.655 4	0.1215	0.0000	1,421.692 5	
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.441 2	1,342.441 2	0.1115	0.0000	1,345.229 1	
2024	4.1592	0.1313	0.2557	5.0000e- 004	0.0221	6.3900e- 003	0.0285	5.8700e- 003	5.9700e- 003	0.0118	0.0000	44.6355	44.6355	7.8300e- 003	0.0000	44.8311	
Maximum	4.1592	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.655 4	1,418.655 4	0.1215	0.0000	1,421.692 5	

# 2.1 Overall Construction

# 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					tor	ns/yr							M	T/yr		
2021	0.1704	1.8234	1.1577	2.3800e- 003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7651	210.7651	0.0600	0.0000	212.2658
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.655 0	1,418.655 0	0.1215	0.0000	1,421.692 1
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.440 9	1,342.440 9	0.1115	0.0000	1,345.228 7
2024	4.1592	0.1313	0.2557	5.0000e- 004	0.0221	6.3900e- 003	0.0285	5.8700e- 003	5.9700e- 003	0.0118	0.0000	44.6354	44.6354	7.8300e- 003	0.0000	44.8311
Maximum	4.1592	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.655 0	1,418.655 0	0.1215	0.0000	1,421.692 1
	ROG	NOx	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	Sta	art Date	End	I Date	Maxim	um Unmitig	ated ROG +	NOX (tons/	quarter)	Maxi	mum Mitigat	ted ROG + N	IOX (tons/qu	iarter)		
1	9-	-1-2021	11-3	0-2021			1.4091					1.4091				
2	12	-1-2021	2-28	3-2022			1.3329					1.3329				
3	3-	1-2022	5-31	-2022			1.1499					1.1499				
4	6-	1-2022	8-31	-2022	1.1457						1.1457					
5	9-	1-2022	11-3	0-2022	1.1415						1.1415					
6	12	-1-2022	2-28	3-2023	1.0278						1.0278					
7	3-	1-2023	5-31	-2023	0.9868				0.9868							

9	9-1-2023	11-30-2023	0.9798	0.9798
10	12-1-2023	2-29-2024	2.8757	2.8757
11	3-1-2024	5-31-2024	1.6188	1.6188
		Highest	2.8757	2.8757

## 2.2 Overall Operational

# Unmitigated Operational

	ROG	NOx	СО	SO2	Fugitive 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	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835		
Energy	0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.073 2	3,896.073 2	0.1303	0.0468	3,913.283 3		
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2		
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354		
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567		
Total	6.8692	9.5223	30.3407	0.0914	7.7979	0.2260	8.0240	2.0895	0.2219	2.3114	236.9712	12,294.18 07	12,531.15 19	15.7904	0.1260	12,963.47 51		

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## 2.2 Overall Operational

# Mitigated Operational

	ROG	NC	X	СО	SO2	Fugi PN	itive 110	Exhaust PM10	PM10 Total	) Fug I PN	itive Ex 12.5 F	khaust PM2.5	PM2.5 Total	Bio	o- CO2	NBio- CO2	Tota	I CO2	CH4	N2O	C	)2e
Category							tons	s/yr										MT/yr				
Area	5.1437	0.29	50 10	0.3804	1.6700e- 003			0.0714	0.071	4	0	.0714	0.0714	0.	.0000	220.9670	220.	.9670 0	).0201	3.7400e 003	- 222.	5835
Energy	0.1398	1.23	12 0	).7770	7.6200e- 003			0.0966	0.096	6	0	.0966	0.0966	0.	.0000	3,896.073 2	3,89	6.073 ( 2	0.1303	0.0468	3,91	3.283 3
Mobile	1.5857	7.99	62 19	9.1834	0.0821	7.7	979	0.0580	7.855	9 2.0	895 0	.0539	2.1434	0.	.0000	7,620.498 6	7,62	0.498 ( 6	0.3407	0.0000	7,62	9.016 2
Waste	r,							0.0000	0.000	0	0	.0000	0.0000	20	7.8079	0.0000	207.	.8079 1	2.2811	0.0000	514	8354
Water	r,							0.0000	0.000	0	0	.0000	0.0000	29	.1632	556.6420	585.	.8052 3	3.0183	0.0755	683.	7567
Total	6.8692	9.52	23 30	0.3407	0.0914	7.7	979	0.2260	8.024	0 2.0	895 0	.2219	2.3114	23	6.9712	12,294.18 07	12,5 1	31.15 1: 19	5.7904	0.1260	12,9 t	63.47 51
	ROG		NOx	С	0	SO2	Fugi PM	itive Exh 110 P	naust M10	PM10 Total	Fugitive PM2.5	Exh PN	aust P 12.5	M2.5 otal	Bio- C	O2 NBio	-CO2	Total CO	2 C	H4	N20	CO2e
Percent Reduction	0.00		0.00	0.	00	0.00	0.0	00 0	.00	0.00	0.00	0.	00	D.00	0.00	) 0.	00	0.00	0.	00	0.00	0.00

# 3.0 Construction Detail

**Construction Phase** 

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

#### Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

## **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e- 003	0.0000	7.5100e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e- 004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	0.0475	0.4716	0.3235	5.8000e- 004	0.0496	0.0233	0.0729	7.5100e- 003	0.0216	0.0291	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601

## 3.2 Demolition - 2021

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	1.9300e- 003	0.0634	0.0148	1.8000e- 004	3.9400e- 003	1.9000e- 004	4.1300e- 003	1.0800e- 003	1.8000e- 004	1.2600e- 003	0.0000	17.4566	17.4566	1.2100e- 003	0.0000	17.4869
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	7.2000e- 004	5.3000e- 004	6.0900e- 003	2.0000e- 005	1.6800e- 003	1.0000e- 005	1.6900e- 003	4.5000e- 004	1.0000e- 005	4.6000e- 004	0.0000	1.5281	1.5281	5.0000e- 005	0.0000	1.5293
Total	2.6500e- 003	0.0639	0.0209	2.0000e- 004	5.6200e- 003	2.0000e- 004	5.8200e- 003	1.5300e- 003	1.9000e- 004	1.7200e- 003	0.0000	18.9847	18.9847	1.2600e- 003	0.0000	19.0161

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust			1 1 1		0.0496	0.0000	0.0496	7.5100e- 003	0.0000	7.5100e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e- 004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	0.0475	0.4716	0.3235	5.8000e- 004	0.0496	0.0233	0.0729	7.5100e- 003	0.0216	0.0291	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600

## 3.2 Demolition - 2021

## Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	1.9300e- 003	0.0634	0.0148	1.8000e- 004	3.9400e- 003	1.9000e- 004	4.1300e- 003	1.0800e- 003	1.8000e- 004	1.2600e- 003	0.0000	17.4566	17.4566	1.2100e- 003	0.0000	17.4869
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	7.2000e- 004	5.3000e- 004	6.0900e- 003	2.0000e- 005	1.6800e- 003	1.0000e- 005	1.6900e- 003	4.5000e- 004	1.0000e- 005	4.6000e- 004	0.0000	1.5281	1.5281	5.0000e- 005	0.0000	1.5293
Total	2.6500e- 003	0.0639	0.0209	2.0000e- 004	5.6200e- 003	2.0000e- 004	5.8200e- 003	1.5300e- 003	1.9000e- 004	1.7200e- 003	0.0000	18.9847	18.9847	1.2600e- 003	0.0000	19.0161

3.3 Site Preparation - 2021

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e- 004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	0.0389	0.4050	0.2115	3.8000e- 004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061

## 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					ton	s/yr							МТ	/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	5.8000e- 004	4.3000e- 004	4.8700e- 003	1.0000e- 005	1.3400e- 003	1.0000e- 005	1.3500e- 003	3.6000e- 004	1.0000e- 005	3.7000e- 004	0.0000	1.2225	1.2225	4.0000e- 005	0.0000	1.2234
Total	5.8000e- 004	4.3000e- 004	4.8700e- 003	1.0000e- 005	1.3400e- 003	1.0000e- 005	1.3500e- 003	3.6000e- 004	1.0000e- 005	3.7000e- 004	0.0000	1.2225	1.2225	4.0000e- 005	0.0000	1.2234

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e- 004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	0.0389	0.4050	0.2115	3.8000e- 004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060

## 3.3 Site Preparation - 2021

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	5.8000e- 004	4.3000e- 004	4.8700e- 003	1.0000e- 005	1.3400e- 003	1.0000e- 005	1.3500e- 003	3.6000e- 004	1.0000e- 005	3.7000e- 004	0.0000	1.2225	1.2225	4.0000e- 005	0.0000	1.2234
Total	5.8000e- 004	4.3000e- 004	4.8700e- 003	1.0000e- 005	1.3400e- 003	1.0000e- 005	1.3500e- 003	3.6000e- 004	1.0000e- 005	3.7000e- 004	0.0000	1.2225	1.2225	4.0000e- 005	0.0000	1.2234

3.4 Grading - 2021

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e- 003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	0.0796	0.8816	0.5867	1.1800e- 003	0.1741	0.0377	0.2118	0.0693	0.0347	0.1040	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776

# 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					ton	s/yr							МТ	/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	1.2200e- 003	9.0000e- 004	0.0103	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8600e- 003	7.5000e- 004	2.0000e- 005	7.8000e- 004	0.0000	2.5808	2.5808	8.0000e- 005	0.0000	2.5828
Total	1.2200e- 003	9.0000e- 004	0.0103	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8600e- 003	7.5000e- 004	2.0000e- 005	7.8000e- 004	0.0000	2.5808	2.5808	8.0000e- 005	0.0000	2.5828

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust			1		0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e- 003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	0.0796	0.8816	0.5867	1.1800e- 003	0.1741	0.0377	0.2118	0.0693	0.0347	0.1040	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775

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# 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					ton	s/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	1.2200e- 003	9.0000e- 004	0.0103	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8600e- 003	7.5000e- 004	2.0000e- 005	7.8000e- 004	0.0000	2.5808	2.5808	8.0000e- 005	0.0000	2.5828
Total	1.2200e- 003	9.0000e- 004	0.0103	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8600e- 003	7.5000e- 004	2.0000e- 005	7.8000e- 004	0.0000	2.5808	2.5808	8.0000e- 005	0.0000	2.5828

3.4 Grading - 2022

	ROG	NOx	СО	SO2	Fugitive 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					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e- 004		5.7200e- 003	5.7200e- 003		5.2600e- 003	5.2600e- 003	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414
Total	0.0127	0.1360	0.1017	2.2000e- 004	0.0807	5.7200e- 003	0.0865	0.0180	5.2600e- 003	0.0233	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414
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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# 3.4 Grading - 2022

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e- 004	1.5000e- 004	1.7400e- 003	1.0000e- 005	5.2000e- 004	0.0000	5.3000e- 004	1.4000e- 004	0.0000	1.4000e- 004	0.0000	0.4587	0.4587	1.0000e- 005	0.0000	0.4590
Total	2.1000e- 004	1.5000e- 004	1.7400e- 003	1.0000e- 005	5.2000e- 004	0.0000	5.3000e- 004	1.4000e- 004	0.0000	1.4000e- 004	0.0000	0.4587	0.4587	1.0000e- 005	0.0000	0.4590

### 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					ton	s/yr							МТ	/yr		
Fugitive Dust			1		0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e- 004		5.7200e- 003	5.7200e- 003		5.2600e- 003	5.2600e- 003	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414
Total	0.0127	0.1360	0.1017	2.2000e- 004	0.0807	5.7200e- 003	0.0865	0.0180	5.2600e- 003	0.0233	0.0000	19.0871	19.0871	6.1700e- 003	0.0000	19.2414

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# 3.4 Grading - 2022

### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e- 004	1.5000e- 004	1.7400e- 003	1.0000e- 005	5.2000e- 004	0.0000	5.3000e- 004	1.4000e- 004	0.0000	1.4000e- 004	0.0000	0.4587	0.4587	1.0000e- 005	0.0000	0.4590
Total	2.1000e- 004	1.5000e- 004	1.7400e- 003	1.0000e- 005	5.2000e- 004	0.0000	5.3000e- 004	1.4000e- 004	0.0000	1.4000e- 004	0.0000	0.4587	0.4587	1.0000e- 005	0.0000	0.4590

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023	1 1	0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881

### 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					ton	s/yr							МТ	/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	0.0527	1.6961	0.4580	4.5500e- 003	0.1140	3.1800e- 003	0.1171	0.0329	3.0400e- 003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e- 003	0.7557	6.2300e- 003	0.7619	0.2007	5.7400e- 003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	0.3578	1.9125	2.9812	0.0119	0.8696	9.4100e- 003	0.8790	0.2336	8.7800e- 003	0.2424	0.0000	1,105.977 1	1,105.977 1	0.0451	0.0000	1,107.103 9

### 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					ton	s/yr							MT	/yr		
Off-Road	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	0.2158	1.9754	2.0700	3.4100e- 003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877

### 3.5 Building Construction - 2022

## Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	'/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	0.0527	1.6961	0.4580	4.5500e- 003	0.1140	3.1800e- 003	0.1171	0.0329	3.0400e- 003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e- 003	0.7557	6.2300e- 003	0.7619	0.2007	5.7400e- 003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	0.3578	1.9125	2.9812	0.0119	0.8696	9.4100e- 003	0.8790	0.2336	8.7800e- 003	0.2424	0.0000	1,105.977 1	1,105.977 1	0.0451	0.0000	1,107.103 9

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive 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	s/yr							MT	'/yr		
Off-Road	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864	;	0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814

### 3.5 Building Construction - 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					ton	s/yr							МТ	/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	0.0382	1.2511	0.4011	4.3000e- 003	0.1113	1.4600e- 003	0.1127	0.0321	1.4000e- 003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e- 003	0.7377	5.9100e- 003	0.7436	0.1960	5.4500e- 003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	0.3177	1.4420	2.6646	0.0112	0.8490	7.3700e- 003	0.8564	0.2281	6.8500e- 003	0.2349	0.0000	1,042.529 4	1,042.529 4	0.0392	0.0000	1,043.509 0

### Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Off-Road	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	0.1942	1.7765	2.0061	3.3300e- 003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811

### 3.5 Building Construction - 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					ton	s/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	0.0382	1.2511	0.4011	4.3000e- 003	0.1113	1.4600e- 003	0.1127	0.0321	1.4000e- 003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e- 003	0.7377	5.9100e- 003	0.7436	0.1960	5.4500e- 003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	0.3177	1.4420	2.6646	0.0112	0.8490	7.3700e- 003	0.8564	0.2281	6.8500e- 003	0.2349	0.0000	1,042.529 4	1,042.529 4	0.0392	0.0000	1,043.509 0

3.6 Paving - 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					ton	s/yr							МТ	/yr		
Off-Road	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227

# 3.6 Paving - 2023

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e- 004	1.9000e- 004	2.2300e- 003	1.0000e- 005	7.3000e- 004	1.0000e- 005	7.3000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	0.6156	0.6156	2.0000e- 005	0.0000	0.6160
Total	2.8000e- 004	1.9000e- 004	2.2300e- 003	1.0000e- 005	7.3000e- 004	1.0000e- 005	7.3000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	0.6156	0.6156	2.0000e- 005	0.0000	0.6160

### 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					ton	s/yr							МТ	/yr		
Off-Road	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.7100e- 003	0.0663	0.0948	1.5000e- 004		3.3200e- 003	3.3200e- 003		3.0500e- 003	3.0500e- 003	0.0000	13.0175	13.0175	4.2100e- 003	0.0000	13.1227

# 3.6 Paving - 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					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e- 004	1.9000e- 004	2.2300e- 003	1.0000e- 005	7.3000e- 004	1.0000e- 005	7.3000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	0.6156	0.6156	2.0000e- 005	0.0000	0.6160
Total	2.8000e- 004	1.9000e- 004	2.2300e- 003	1.0000e- 005	7.3000e- 004	1.0000e- 005	7.3000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	0.6156	0.6156	2.0000e- 005	0.0000	0.6160

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073

# 3.6 Paving - 2024

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/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	4.4000e- 004	2.9000e- 004	3.5100e- 003	1.0000e- 005	1.2300e- 003	1.0000e- 005	1.2400e- 003	3.3000e- 004	1.0000e- 005	3.4000e- 004	0.0000	1.0094	1.0094	3.0000e- 005	0.0000	1.0100
Total	4.4000e- 004	2.9000e- 004	3.5100e- 003	1.0000e- 005	1.2300e- 003	1.0000e- 005	1.2400e- 003	3.3000e- 004	1.0000e- 005	3.4000e- 004	0.0000	1.0094	1.0094	3.0000e- 005	0.0000	1.0100

### 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					ton	s/yr							МТ	/yr		
Off-Road	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0109	0.1048	0.1609	2.5000e- 004		5.1500e- 003	5.1500e- 003		4.7400e- 003	4.7400e- 003	0.0000	22.0292	22.0292	7.1200e- 003	0.0000	22.2073

# 3.6 Paving - 2024

### 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					ton	s/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	4.4000e- 004	2.9000e- 004	3.5100e- 003	1.0000e- 005	1.2300e- 003	1.0000e- 005	1.2400e- 003	3.3000e- 004	1.0000e- 005	3.4000e- 004	0.0000	1.0094	1.0094	3.0000e- 005	0.0000	1.0100
Total	4.4000e- 004	2.9000e- 004	3.5100e- 003	1.0000e- 005	1.2300e- 003	1.0000e- 005	1.2400e- 003	3.3000e- 004	1.0000e- 005	3.4000e- 004	0.0000	1.0094	1.0094	3.0000e- 005	0.0000	1.0100

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e- 003	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745
Total	4.1404	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745

### 3.7 Architectural Coating - 2024

## 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					ton	s/yr							МТ	'/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	7.4800e- 003	4.9300e- 003	0.0596	1.9000e- 004	0.0209	1.6000e- 004	0.0211	5.5500e- 003	1.5000e- 004	5.7000e- 003	0.0000	17.1287	17.1287	4.3000e- 004	0.0000	17.1394
Total	7.4800e- 003	4.9300e- 003	0.0596	1.9000e- 004	0.0209	1.6000e- 004	0.0211	5.5500e- 003	1.5000e- 004	5.7000e- 003	0.0000	17.1287	17.1287	4.3000e- 004	0.0000	17.1394

### 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					ton	s/yr							МТ	/yr		
Archit. Coating	4.1372		1			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e- 003	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745
Total	4.1404	0.0213	0.0317	5.0000e- 005		1.0700e- 003	1.0700e- 003		1.0700e- 003	1.0700e- 003	0.0000	4.4682	4.4682	2.5000e- 004	0.0000	4.4745

### 3.7 Architectural Coating - 2024

### 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					ton	s/yr							МТ	/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	7.4800e- 003	4.9300e- 003	0.0596	1.9000e- 004	0.0209	1.6000e- 004	0.0211	5.5500e- 003	1.5000e- 004	5.7000e- 003	0.0000	17.1287	17.1287	4.3000e- 004	0.0000	17.1394
Total	7.4800e- 003	4.9300e- 003	0.0596	1.9000e- 004	0.0209	1.6000e- 004	0.0211	5.5500e- 003	1.5000e- 004	5.7000e- 003	0.0000	17.1287	17.1287	4.3000e- 004	0.0000	17.1394

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.498 6	7,620.498 6	0.3407	0.0000	7,629.016 2

### 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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					ton	ıs/yr							MT	/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.646 5	2,512.646 5	0.1037	0.0215	2,521.635 6
Electricity Unmitigated	Fr		, , , , ,	,		0.0000	0.0000		0.0000	0.0000	0.0000	2,512.646 5	2,512.646 5	0.1037	0.0215	2,521.635 6
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e- 003	   	0.0966	0.0966	, , , ,	0.0966	0.0966	0.0000	1,383.426 7	1,383.426 7	0.0265	0.0254	1,391.647 8
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 7	1,383.426 7	0.0265	0.0254	1,391.647 8

### 5.2 Energy by Land Use - NaturalGas

# <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	СО	SO2	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					ton	s/yr							MT	/yr		
Apartments Low Rise	408494	2.2000e- 003	0.0188	8.0100e- 003	1.2000e- 004		1.5200e- 003	1.5200e- 003		1.5200e- 003	1.5200e- 003	0.0000	21.7988	21.7988	4.2000e- 004	4.0000e- 004	21.9284
Apartments Mid Rise	1.30613e +007	0.0704	0.6018	0.2561	3.8400e- 003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e- 003	0.0230	0.0193	1.4000e- 004		1.7500e- 003	1.7500e- 003		1.7500e- 003	1.7500e- 003	0.0000	24.9983	24.9983	4.8000e- 004	4.6000e- 004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e +006	0.0448	0.4072	0.3421	2.4400e- 003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e- 003	8.1300e- 003	445.9468
Hotel	1.74095e +006	9.3900e- 003	0.0853	0.0717	5.1000e- 004		6.4900e- 003	6.4900e- 003		6.4900e- 003	6.4900e- 003	0.0000	92.9036	92.9036	1.7800e- 003	1.7000e- 003	93.4557
Quality Restaurant	1.84608e +006	9.9500e- 003	0.0905	0.0760	5.4000e- 004		6.8800e- 003	6.8800e- 003		6.8800e- 003	6.8800e- 003	0.0000	98.5139	98.5139	1.8900e- 003	1.8100e- 003	99.0993
Regional Shopping Center	91840	5.0000e- 004	4.5000e- 003	3.7800e- 003	3.0000e- 005		3.4000e- 004	3.4000e- 004		3.4000e- 004	3.4000e- 004	0.0000	4.9009	4.9009	9.0000e- 005	9.0000e- 005	4.9301
Total		0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 8	1,383.426 8	0.0265	0.0254	1,391.647 8

### 5.2 Energy by Land Use - NaturalGas

## Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	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					ton	s/yr							MT	/yr		
Apartments Low Rise	408494	2.2000e- 003	0.0188	8.0100e- 003	1.2000e- 004		1.5200e- 003	1.5200e- 003		1.5200e- 003	1.5200e- 003	0.0000	21.7988	21.7988	4.2000e- 004	4.0000e- 004	21.9284
Apartments Mid Rise	1.30613e +007	0.0704	0.6018	0.2561	3.8400e- 003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e- 003	0.0230	0.0193	1.4000e- 004		1.7500e- 003	1.7500e- 003		1.7500e- 003	1.7500e- 003	0.0000	24.9983	24.9983	4.8000e- 004	4.6000e- 004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e +006	0.0448	0.4072	0.3421	2.4400e- 003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e- 003	8.1300e- 003	445.9468
Hotel	1.74095e +006	9.3900e- 003	0.0853	0.0717	5.1000e- 004		6.4900e- 003	6.4900e- 003		6.4900e- 003	6.4900e- 003	0.0000	92.9036	92.9036	1.7800e- 003	1.7000e- 003	93.4557
Quality Restaurant	1.84608e +006	9.9500e- 003	0.0905	0.0760	5.4000e- 004		6.8800e- 003	6.8800e- 003		6.8800e- 003	6.8800e- 003	0.0000	98.5139	98.5139	1.8900e- 003	1.8100e- 003	99.0993
Regional Shopping Center	91840	5.0000e- 004	4.5000e- 003	3.7800e- 003	3.0000e- 005		3.4000e- 004	3.4000e- 004		3.4000e- 004	3.4000e- 004	0.0000	4.9009	4.9009	9.0000e- 005	9.0000e- 005	4.9301
Total		0.1398	1.2312	0.7770	7.6200e- 003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.426 8	1,383.426 8	0.0265	0.0254	1,391.647 8

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## 5.3 Energy by Land Use - Electricity

# <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	/yr	
Apartments Low Rise	106010	33.7770	1.3900e- 003	2.9000e- 004	33.8978
Apartments Mid Rise	3.94697e +006	1,257.587 9	0.0519	0.0107	1,262.086 9
General Office Building	584550	186.2502	7.6900e- 003	1.5900e- 003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e +006	506.3022	0.0209	4.3200e- 003	508.1135
Hotel	550308	175.3399	7.2400e- 003	1.5000e- 003	175.9672
Quality Restaurant	353120	112.5116	4.6500e- 003	9.6000e- 004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e- 003	2.0600e- 003	241.7395
Total		2,512.646 5	0.1037	0.0215	2,521.635 6

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### 5.3 Energy by Land Use - Electricity

# Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	/yr	
Apartments Low Rise	106010	33.7770	1.3900e- 003	2.9000e- 004	33.8978
Apartments Mid Rise	3.94697e +006	1,257.587 9	0.0519	0.0107	1,262.086 9
General Office Building	584550	186.2502	7.6900e- 003	1.5900e- 003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e +006	506.3022	0.0209	4.3200e- 003	508.1135
Hotel	550308	175.3399	7.2400e- 003	1.5000e- 003	175.9672
Quality Restaurant	353120	112.5116	4.6500e- 003	9.6000e- 004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e- 003	2.0600e- 003	241.7395
Total		2,512.646 5	0.1037	0.0215	2,521.635 6

# 6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Mitigated	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

# 6.2 Area by SubCategory

#### <u>Unmitigated</u>

	ROG	NOx	CO	SO2	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	tectural 0.4137 0.0000 0.0000 0.0000 0.0000												МТ	/yr		
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e- 003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e- 003	3.7400e- 003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e- 004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	5.1437	0.2950	10.3804	1.6600e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

### 6.2 Area by SubCategory

### Mitigated

	ROG	NOx	СО	SO2	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 .4137 0.0000 0.0000 0.0000 0.0000											МТ	/yr		
Architectural Coating	0.4137		, , ,			0.0000	0.0000	1 1 1 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e- 003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e- 003	3.7400e- 003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e- 004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	5.1437	0.2950	10.3804	1.6600e- 003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e- 003	222.5835

# 7.0 Water Detail

7.1 Mitigation Measures Water

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category		MT	ī/yr	
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

### 7.2 Water by Land Use

# <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e	
Land Use	Mgal	MT/yr				
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e- 003	12.6471	
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363	
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e- 003	61.6019	
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e- 003	62.8482	
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e- 003	7.5079	
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e- 003	13.9663	
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e- 003	31.9490	
Total		585.8052	3.0183	0.0755	683.7567	

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

### 7.2 Water by Land Use

### Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e		
Land Use	Mgal		MT/yr				
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e- 003	12.6471		
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363		
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e- 003	61.6019		
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e- 003	62.8482		
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e- 003	7.5079		
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e- 003	13.9663		
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e- 003	31.9490		
Total		585.8052	3.0183	0.0755	683.7567		

# 8.0 Waste Detail

8.1 Mitigation Measures Waste

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

# Category/Year

	Total CO2	CH4	N2O	CO2e		
	MT/yr					
Mitigated	207.8079	12.2811	0.0000	514.8354		
Unmitigated	207.8079	12.2811	0.0000	514.8354		

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

### 8.2 Waste by Land Use

## <u>Unmitigated</u>

	Waste Disposed	Total CO2	CH4	N2O	CO2e	
Land Use	tons	MT/yr				
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834	
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513	
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464	
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430	
Hotel	27.38	5.5579	0.3285	0.0000	13.7694	
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712	
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706	
Total		207.8079	12.2811	0.0000	514.8354	

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### 8.2 Waste by Land Use

### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e	
Land Use	tons	MT/yr				
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834	
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513	
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464	
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430	
Hotel	27.38	5.5579	0.3285	0.0000	13.7694	
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712	
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706	
Total		207.8079	12.2811	0.0000	514.8354	

# 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	Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

### **Boilers**

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

# 11.0 Vegetation

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

## **1.0 Project Characteristics**

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

### **1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

## 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction** 

	ROG	NOx	со	SO2	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	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.416 6	6,163.416 6	1.9475	0.0000	6,212.103 9		
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.44 03	12,493.44 03	1.9485	0.0000	12,518.57 07		
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.48 90	12,150.48 90	0.9589	0.0000	12,174.46 15		
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.180 8	2,313.180 8	0.7166	0.0000	2,331.095 6		
Maximum	237.0219	46.4415	40.8776	0.1240	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	12,493.44 03	12,493.44 03	1.9485	0.0000	12,518.57 07		

### 2.1 Overall Construction (Maximum Daily Emission)

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	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.416 6	6,163.416 6	1.9475	0.0000	6,212.103 9	
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.44 03	12,493.44 03	1.9485	0.0000	12,518.57 07	
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.48 90	12,150.48 90	0.9589	0.0000	12,174.46 15	
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.180 8	2,313.180 8	0.7166	0.0000	2,331.095 5	
Maximum	237.0219	46.4415	40.8776	0.1240	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	12,493.44 03	12,493.44 03	1.9485	0.0000	12,518.57 07	
	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e	

	ROG	NOx	со	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	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92		
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7		
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08		
Total	41.1168	67.2262	207.5497	0.6278	45.9592	2.4626	48.4217	12.2950	2.4385	14.7336	0.0000	76,811.18 16	76,811.18 16	2.8282	0.4832	77,025.87 86		

#### Mitigated Operational

	ROG	NOx	со	SO2	Fugitive 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	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08
Total	41.1168	67.2262	207.5497	0.6278	45.9592	2.4626	48.4217	12.2950	2.4385	14.7336	0.0000	76,811.18 16	76,811.18 16	2.8282	0.4832	77,025.87 86

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

# **3.0 Construction Detail**

#### **Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT
Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

#### **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,			3.3074	0.0000	3.3074	0.5008	0.0000	0.5008		1 1 1	0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419		3,747.944 9	3,747.944 9	1.0549		3,774.317 4

#### 3.2 Demolition - 2021

### Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	day		
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.241 3	1,292.241 3	0.0877		1,294.433 7
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	0.0487	0.0313	0.4282	1.1800e- 003	0.1141	9.5000e- 004	0.1151	0.0303	8.8000e- 004	0.0311		117.2799	117.2799	3.5200e- 003		117.3678
Total	0.1760	4.1265	1.3884	0.0131	0.3810	0.0135	0.3946	0.1034	0.0129	0.1163		1,409.521 2	1,409.521 2	0.0912		1,411.801 5

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	day		
Fugitive Dust		1 1 1 1			3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4

#### 3.2 Demolition - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/o	day							lb/c	day		
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.241 3	1,292.241 3	0.0877		1,294.433 7
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	0.0487	0.0313	0.4282	1.1800e- 003	0.1141	9.5000e- 004	0.1151	0.0303	8.8000e- 004	0.0311		117.2799	117.2799	3.5200e- 003		117.3678
Total	0.1760	4.1265	1.3884	0.0131	0.3810	0.0135	0.3946	0.1034	0.0129	0.1163		1,409.521 2	1,409.521 2	0.0912		1,411.801 5

3.3 Site Preparation - 2021

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307		1 1 1	0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.656 9	3,685.656 9	1.1920		3,715.457 3

#### 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/e	day							lb/c	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	0.0584	0.0375	0.5139	1.4100e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		140.7359	140.7359	4.2200e- 003		140.8414
Total	0.0584	0.0375	0.5139	1.4100e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		140.7359	140.7359	4.2200e- 003		140.8414

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust			1 1 1		18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3

#### 3.3 Site Preparation - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	lay		
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	0.0584	0.0375	0.5139	1.4100e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		140.7359	140.7359	4.2200e- 003		140.8414
Total	0.0584	0.0375	0.5139	1.4100e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		140.7359	140.7359	4.2200e- 003		140.8414

3.4 Grading - 2021

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,			8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 3.4 Grading - 2021

# Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.0649	0.0417	0.5710	1.5700e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		156.3732	156.3732	4.6900e- 003		156.4904
Total	0.0649	0.0417	0.5710	1.5700e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		156.3732	156.3732	4.6900e- 003		156.4904

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	lay		
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 3.4 Grading - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0649	0.0417	0.5710	1.5700e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		156.3732	156.3732	4.6900e- 003		156.4904
Total	0.0649	0.0417	0.5710	1.5700e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		156.3732	156.3732	4.6900e- 003		156.4904

3.4 Grading - 2022

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006		6,011.410 5	6,011.410 5	1.9442		6,060.015 8

# 3.4 Grading - 2022

# Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	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	0.0607	0.0376	0.5263	1.5100e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		150.8754	150.8754	4.2400e- 003		150.9813
Total	0.0607	0.0376	0.5263	1.5100e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		150.8754	150.8754	4.2400e- 003		150.9813

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	day		
Fugitive Dust			1		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8

# 3.4 Grading - 2022

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0607	0.0376	0.5263	1.5100e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		150.8754	150.8754	4.2400e- 003		150.9813
Total	0.0607	0.0376	0.5263	1.5100e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		150.8754	150.8754	4.2400e- 003		150.9813

3.5 Building Construction - 2022

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/d	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090	,;	0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090	/	0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2

#### 3.5 Building Construction - 2022

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/o	day							lb/d	lay		
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	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.548 2	3,896.548 2	0.2236		3,902.138 4
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.558 5	6,042.558 5	0.1697		6,046.800 0
Total	2.8378	14.7106	24.5142	0.0971	7.0087	0.0741	7.0828	1.8799	0.0691	1.9490		9,939.106 7	9,939.106 7	0.3933		9,948.938 4

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2

#### 3.5 Building Construction - 2022

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.548 2	3,896.548 2	0.2236		3,902.138 4
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.558 5	6,042.558 5	0.1697		6,046.800 0
Total	2.8378	14.7106	24.5142	0.0971	7.0087	0.0741	7.0828	1.8799	0.0691	1.9490		9,939.106 7	9,939.106 7	0.3933		9,948.938 4

3.5 Building Construction - 2023

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/d	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997	1 1	0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1

#### 3.5 Building Construction - 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/e	day							lb/c	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	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.876 2	3,773.876 2	0.1982		3,778.830 0
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.402 8	5,821.402 8	0.1529		5,825.225 4
Total	2.5807	11.3809	22.5017	0.0936	7.0088	0.0595	7.0682	1.8799	0.0552	1.9350		9,595.279 0	9,595.279 0	0.3511		9,604.055 4

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1

#### 3.5 Building Construction - 2023

## Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/d	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	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.876 2	3,773.876 2	0.1982		3,778.830 0
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.402 8	5,821.402 8	0.1529		5,825.225 4
Total	2.5807	11.3809	22.5017	0.0936	7.0088	0.0595	7.0682	1.8799	0.0552	1.9350		9,595.279 0	9,595.279 0	0.3511		9,604.055 4

3.6 Paving - 2023

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 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/d	day							lb/c	lay		
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	0.0427	0.0255	0.3633	1.0900e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		109.0150	109.0150	2.8600e- 003		109.0866
Total	0.0427	0.0255	0.3633	1.0900e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		109.0150	109.0150	2.8600e- 003		109.0866

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 2023

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0427	0.0255	0.3633	1.0900e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		109.0150	109.0150	2.8600e- 003		109.0866
Total	0.0427	0.0255	0.3633	1.0900e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		109.0150	109.0150	2.8600e- 003		109.0866

3.6 Paving - 2024

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

## Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.0403	0.0233	0.3384	1.0600e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		105.6336	105.6336	2.6300e- 003		105.6992
Total	0.0403	0.0233	0.3384	1.0600e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		105.6336	105.6336	2.6300e- 003		105.6992

	ROG	NOx	СО	SO2	Fugitive 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/d	day		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	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	0.0403	0.0233	0.3384	1.0600e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		105.6336	105.6336	2.6300e- 003		105.6992
Total	0.0403	0.0233	0.3384	1.0600e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		105.6336	105.6336	2.6300e- 003		105.6992

3.7 Architectural Coating - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

#### 3.7 Architectural Coating - 2024

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,126.758 3	1,126.758 3	0.0280		1,127.458 3
Total	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,126.758 3	1,126.758 3	0.0280		1,127.458 3

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000		1 1 1	0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

#### 3.7 Architectural Coating - 2024

#### Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	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	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,126.758 3	1,126.758 3	0.0280		1,127.458 3
Total	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,126.758 3	1,126.758 3	0.0280		1,127.458 3

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.60 34	50,306.60 34	2.1807		50,361.12 08

#### 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	ie %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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/d	day		
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292	 - - -	0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

#### 5.2 Energy by Land Use - NaturalGas

## <u>Unmitigated</u>

	NaturalGa s 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/e	day							lb/c	day		
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003		8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003		1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

#### 5.2 Energy by Land Use - NaturalGas

## Mitigated

	NaturalGa s 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/e	day							lb/o	day		
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003		8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003		1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

# 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/c	lay		
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 6.2 Area by SubCategory

#### <u>Unmitigated</u>

	ROG	NOx	CO	SO2	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/d	day							lb/c	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

#### 6.2 Area by SubCategory

#### **Mitigated**

	ROG	NOx	СО	SO2	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/e	day							lb/o	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 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
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# **10.0 Stationary Equipment**

#### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
<u>Boilers</u>						
Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type	
User Defined Equipment						
Equipment Type	Number					
11 0 Verstetion						
11.0 vegetation						

# Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

## **1.0 Project Characteristics**

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

# **1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2028
Utility Company	Southern California Edison				
CO2 Intensity (Ib/MWhr)	702.44	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity (Ib/MWhr)	0.006

#### **1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

Village South Specific Plan	(Proposed)	) - Los Anaeles-South	Coast County, Winter
	· · · · · · · ·		

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

# 2.0 Emissions Summary

#### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction** 

	ROG	NOx	со	SO2	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/o	day							lb/c	day		
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.337 7	6,154.337 7	1.9472	0.0000	6,203.018 6
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.34 40	12,035.34 40	1.9482	0.0000	12,060.60 13
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.40 80	11,710.40 80	0.9617	0.0000	11,734.44 97
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.051 7	2,307.051 7	0.7164	0.0000	2,324.962 7
Maximum	237.0656	46.4460	39.6338	0.1195	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	12,035.34 40	12,035.34 40	1.9482	0.0000	12,060.60 13

#### 2.1 Overall Construction (Maximum Daily Emission)

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/d	day		
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.337 7	6,154.337 7	1.9472	0.0000	6,203.018 6
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.34 40	12,035.34 40	1.9482	0.0000	12,060.60 13
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.40 80	11,710.40 80	0.9617	0.0000	11,734.44 97
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.051 7	2,307.051 7	0.7164	0.0000	2,324.962 7
Maximum	237.0656	46.4460	39.6338	0.1195	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	12,035.34 40	12,035.34 40	1.9482	0.0000	12,060.60 13
	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

	ROG	NOx	со	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	со	SO2	Fugitive 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/o	day							lb/c	day		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39
Total	40.7912	67.7872	202.7424	0.6043	45.9592	2.4640	48.4231	12.2950	2.4399	14.7349	0.0000	74,422.37 87	74,422.37 87	2.8429	0.4832	74,637.44 17

#### Mitigated Operational

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/d	lay		
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292	       	0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953	, , , ,	47,972.68 39
Total	40.7912	67.7872	202.7424	0.6043	45.9592	2.4640	48.4231	12.2950	2.4399	14.7349	0.0000	74,422.37 87	74,422.37 87	2.8429	0.4832	74,637.44 17

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

# **3.0 Construction Detail**

#### **Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	021 5		
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

#### **3.1 Mitigation Measures Construction**

#### 3.2 Demolition - 2021

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day							lb/day								
Fugitive Dust		, , ,			3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419		3,747.944 9	3,747.944 9	1.0549		3,774.317 4
#### 3.2 Demolition - 2021

#### Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	day		
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.855 5	1,269.855 5	0.0908		1,272.125 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e- 003	0.1141	9.5000e- 004	0.1151	0.0303	8.8000e- 004	0.0311		110.4707	110.4707	3.3300e- 003		110.5539
Total	0.1835	4.1800	1.4144	0.0128	0.3810	0.0137	0.3948	0.1034	0.0131	0.1165		1,380.326 2	1,380.326 2	0.0941		1,382.679 1

	ROG	NOx	CO	SO2	Fugitive 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/d	day		
Fugitive Dust		1 1 1	, , ,		3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4
Total	3.1651	31.4407	21.5650	0.0388	3.3074	1.5513	4.8588	0.5008	1.4411	1.9419	0.0000	3,747.944 9	3,747.944 9	1.0549		3,774.317 4

#### 3.2 Demolition - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/c	day							lb/c	day		
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.855 5	1,269.855 5	0.0908		1,272.125 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e- 003	0.1141	9.5000e- 004	0.1151	0.0303	8.8000e- 004	0.0311		110.4707	110.4707	3.3300e- 003		110.5539
Total	0.1835	4.1800	1.4144	0.0128	0.3810	0.0137	0.3948	0.1034	0.0131	0.1165		1,380.326 2	1,380.326 2	0.0941		1,382.679 1

3.3 Site Preparation - 2021

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307		1 1 1	0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.656 9	3,685.656 9	1.1920		3,715.457 3

#### 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/d	day							lb/c	lay		
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	0.0638	0.0415	0.4755	1.3300e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		132.5649	132.5649	3.9900e- 003		132.6646
Total	0.0638	0.0415	0.4755	1.3300e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		132.5649	132.5649	3.9900e- 003		132.6646

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust			1 1 1		18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3

#### 3.3 Site Preparation - 2021

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	Jay							lb/c	lay		
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	0.0638	0.0415	0.4755	1.3300e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		132.5649	132.5649	3.9900e- 003		132.6646
Total	0.0638	0.0415	0.4755	1.3300e- 003	0.1369	1.1400e- 003	0.1381	0.0363	1.0500e- 003	0.0374		132.5649	132.5649	3.9900e- 003		132.6646

3.4 Grading - 2021

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Fugitive Dust		, , ,	, , ,		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.0709	0.0462	0.5284	1.4800e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		147.2943	147.2943	4.4300e- 003		147.4051
Total	0.0709	0.0462	0.5284	1.4800e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		147.2943	147.2943	4.4300e- 003		147.4051

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Fugitive Dust		1 1 1 1			8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		, , ,	0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.6733	1.9853	10.6587	3.5965	1.8265	5.4230	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

# 3.4 Grading - 2021

# Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	Jay							lb/c	lay		
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	0.0709	0.0462	0.5284	1.4800e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		147.2943	147.2943	4.4300e- 003		147.4051
Total	0.0709	0.0462	0.5284	1.4800e- 003	0.1521	1.2700e- 003	0.1534	0.0404	1.1700e- 003	0.0415		147.2943	147.2943	4.4300e- 003		147.4051

3.4 Grading - 2022

	ROG	NOx	со	SO2	Fugitive 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/d	day							lb/c	lay		
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006		6,011.410 5	6,011.410 5	1.9442		6,060.015 8

# 3.4 Grading - 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/e	day							lb/c	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	0.0416	0.4861	1.4300e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		142.1207	142.1207	4.0000e- 003		142.2207
Total	0.0665	0.0416	0.4861	1.4300e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		142.1207	142.1207	4.0000e- 003		142.2207

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/d	day		
Fugitive Dust			1		8.6733	0.0000	8.6733	3.5965	0.0000	3.5965		1 1 1	0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8
Total	3.6248	38.8435	29.0415	0.0621	8.6733	1.6349	10.3082	3.5965	1.5041	5.1006	0.0000	6,011.410 5	6,011.410 5	1.9442		6,060.015 8

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

# 3.4 Grading - 2022

#### Mitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/c	day							lb/c	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	0.0416	0.4861	1.4300e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		142.1207	142.1207	4.0000e- 003		142.2207
Total	0.0665	0.0416	0.4861	1.4300e- 003	0.1521	1.2300e- 003	0.1534	0.0404	1.1300e- 003	0.0415		142.1207	142.1207	4.0000e- 003		142.2207

3.5 Building Construction - 2022

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/d	lay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2

#### 3.5 Building Construction - 2022

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	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	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.075 0	3,789.075 0	0.2381		3,795.028 3
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.935 4	5,691.935 4	0.1602		5,695.940 8
Total	3.0904	14.8350	23.2704	0.0926	7.0087	0.0749	7.0836	1.8799	0.0699	1.9498		9,481.010 4	9,481.010 4	0.3984		9,490.969 1

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	Jay		
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090	;	0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120	ļ	2,569.632 2

#### 3.5 Building Construction - 2022

#### **Mitigated Construction Off-Site**

	ROG	NOx	СО	SO2	Fugitive 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/d	day							lb/c	lay		
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	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.075 0	3,789.075 0	0.2381		3,795.028 3
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.935 4	5,691.935 4	0.1602		5,695.940 8
Total	3.0904	14.8350	23.2704	0.0926	7.0087	0.0749	7.0836	1.8799	0.0699	1.9498		9,481.010 4	9,481.010 4	0.3984		9,490.969 1

3.5 Building Construction - 2023

	ROG	NOx	СО	SO2	Fugitive 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/c	Jay							lb/c	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1

#### 3.5 Building Construction - 2023

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/o	day							lb/c	lay		
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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.400 7	3,671.400 7	0.2096		3,676.641 7
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.797 4	5,483.797 4	0.1442		5,487.402 0
Total	2.8211	11.4799	21.2591	0.0893	7.0088	0.0601	7.0688	1.8799	0.0557	1.9356		9,155.198 1	9,155.198 1	0.3538		9,164.043 7

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1

#### 3.5 Building Construction - 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/e	day							lb/c	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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.400 7	3,671.400 7	0.2096		3,676.641 7
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.797 4	5,483.797 4	0.1442		5,487.402 0
Total	2.8211	11.4799	21.2591	0.0893	7.0088	0.0601	7.0688	1.8799	0.0557	1.9356		9,155.198 1	9,155.198 1	0.3538		9,164.043 7

3.6 Paving - 2023

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 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/e	day							lb/d	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	0.0469	0.0282	0.3349	1.0300e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		102.6928	102.6928	2.7000e- 003		102.7603
Total	0.0469	0.0282	0.3349	1.0300e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		102.6928	102.6928	2.7000e- 003		102.7603

	ROG	NOx	СО	SO2	Fugitive 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/e	day							lb/c	lay		
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000		 - - - -	0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6

# 3.6 Paving - 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/d	day							lb/c	lay		
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	0.0469	0.0282	0.3349	1.0300e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		102.6928	102.6928	2.7000e- 003		102.7603
Total	0.0469	0.0282	0.3349	1.0300e- 003	0.1141	9.0000e- 004	0.1150	0.0303	8.3000e- 004	0.0311		102.6928	102.6928	2.7000e- 003		102.7603

3.6 Paving - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

#### 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/e	day							lb/c	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	0.0444	0.0257	0.3114	1.0000e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		99.5045	99.5045	2.4700e- 003		99.5663
Total	0.0444	0.0257	0.3114	1.0000e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		99.5045	99.5045	2.4700e- 003		99.5663

	ROG	NOx	СО	SO2	Fugitive 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/d	day		
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3

# 3.6 Paving - 2024

#### 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/c	day							lb/c	lay		
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	0.0444	0.0257	0.3114	1.0000e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		99.5045	99.5045	2.4700e- 003		99.5663
Total	0.0444	0.0257	0.3114	1.0000e- 003	0.1141	8.8000e- 004	0.1150	0.0303	8.1000e- 004	0.0311		99.5045	99.5045	2.4700e- 003		99.5663

3.7 Architectural Coating - 2024

	ROG	NOx	СО	SO2	Fugitive 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/o	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

#### 3.7 Architectural Coating - 2024

#### Unmitigated Construction Off-Site

	ROG	NOx	со	SO2	Fugitive 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/e	day							lb/c	lay		
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	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,061.381 8	1,061.381 8	0.0264		1,062.041 0
Total	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,061.381 8	1,061.381 8	0.0264		1,062.041 0

	ROG	NOx	CO	SO2	Fugitive 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/e	day							lb/c	lay		
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000		1 1 1	0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	236.5923	1.2188	1.8101	2.9700e- 003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

#### 3.7 Architectural Coating - 2024

#### 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/e	day							lb/c	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	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,061.381 8	1,061.381 8	0.0264		1,062.041 0
Total	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e- 003	1.2266	0.3229	8.6800e- 003	0.3315		1,061.381 8	1,061.381 8	0.0264		1,062.041 0

# 4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	СО	SO2	Fugitive 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/c	day							lb/c	lay		
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.80 05	47,917.80 05	2.1953		47,972.68 39

#### 4.2 Trip Summary Information

	Aver	age Daily Trip Ra	te	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	је %
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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

# 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/d	day		
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

#### 5.2 Energy by Land Use - NaturalGas

#### <u>Unmitigated</u>

	NaturalGa s 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/o	day							lb/d	day		
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003	1 1 1	8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003	1 1 1 1 1	1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

#### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

	NaturalGa s 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/e	day							lb/o	day		
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e- 004		8.3400e- 003	8.3400e- 003		8.3400e- 003	8.3400e- 003		131.6662	131.6662	2.5200e- 003	2.4100e- 003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.916 4	4,209.916 4	0.0807	0.0772	4,234.933 9
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e- 004		9.5600e- 003	9.5600e- 003		9.5600e- 003	9.5600e- 003		150.9911	150.9911	2.8900e- 003	2.7700e- 003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.634 2	2,677.634 2	0.0513	0.0491	2,693.546 0
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e- 003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e- 003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e- 003	0.0247	0.0207	1.5000e- 004		1.8700e- 003	1.8700e- 003	1 1 1 1 1	1.8700e- 003	1.8700e- 003		29.6019	29.6019	5.7000e- 004	5.4000e- 004	29.7778
Total		0.7660	6.7463	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.983 2	8,355.983 2	0.1602	0.1532	8,405.638 7

# 6.0 Area Detail

6.1 Mitigation Measures Area

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Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	/ lb/day												lb/c	lay		
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 6.2 Area by SubCategory

#### <u>Unmitigated</u>

	ROG	NOx	CO	SO2	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/d	day							lb/c	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

#### 6.2 Area by SubCategory

#### **Mitigated**

	ROG	NOx	СО	SO2	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/o	day		
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.00 00	18,000.00 00	0.3450	0.3300	18,106.96 50
Landscaping	2.4766	0.9496	82.4430	4.3600e- 003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.59 50	18,148.59 50	0.4874	0.3300	18,259.11 92

# 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
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# **10.0 Stationary Equipment**

#### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
<u>Boilers</u>						
Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type	
User Defined Equipment						
Equipment Type	Number					
11.0 Vagatation						

# Attachment C

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

# EXHIBIT B



# 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<sub>2</sub>O 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

# **Publications:**

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Tam L. K., Wu C. D., Clark J. J. and **Rosenfeld**, **P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

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Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., Rosenfeld, P.E. (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

**Rosenfeld P. E.,** J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004*. New Orleans, October 2-6, 2004.

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**Rosenfeld, P. E.**, Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

**Rosenfeld, P.E.,** Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

**Rosenfeld**, **P.E.**, and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

**Rosenfeld**, **P.E.**, and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality*. 29, 1662-1668.

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 23<sup>rd</sup> 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 23<sup>rd</sup> 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 23<sup>rd</sup> 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 Conference*. 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, <i>Plaintiffs</i> , vs. United States Metals Refining Company et. al. <i>Defendant</i> . Case No.: 2:17-cv-01624-ES-SCM Rosenfeld Deposition. 6-7-2019	
<ul> <li>In the United States District Court of Southern District of Texas Galveston Division</li> <li>M/T Carla Maersk, <i>Plaintiffs</i>, vs. Conti 168., Schiffahrts-GMBH &amp; Co. Bulker KG MS "Conti Perdic Defendant.</li> <li>Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237</li> <li>Rosenfeld Deposition. 5-9-2019</li> </ul>	ło"
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, 112 <sup>th</sup> 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., <i>Plaintiffs</i> , vs. Meritor Inc., et al., <i>Defendants</i> 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



Technical Consultation, Data Analysis and Litigation Support for the Environment

> 1640 5<sup>th</sup> St., Suite 204 Santa Santa Monica, California 90401 Tel: (949) 887-9013 Email: <u>mhagemann@swape.com</u>

#### 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.

# <u>Hydrogeology:</u>

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.

## <u>Teaching:</u>

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).

**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.

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

**Hagemann, M.F.**, 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

**Hagemann, M.F.**, 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

**Hagemann, M.F**., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

**Hagemann, M.F**., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

**Hagemann, M. F**., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

**Hagemann, M.F.**, 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

**Hagemann, M.**F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

**Hagemann, M.F.**, 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPLcontaminated Groundwater. California Groundwater Resources Association Meeting. **Hagemann, M.F**., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

## **Other Experience:**

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

From: Tara Pierce <<u>tapfineart@gmail.com</u>> Sent: Wednesday, June 8, 2022 10:28 AM To: Energy@Coastal <<u>EORFC@coastal.ca.gov</u>> Subject: Offshore Wind that makes Fishing Industry happy

Dear California Coastal Commission

I fully support offshore floating wind on the California coast. I wanted to contribute the idea that offshore wind farms can be multi-use and environmentally beneficial.

By allowing fishers to engage in Restorative Ocean Farms near/around wind farms, the area can contribute to improving water quality, increasing jobs, and increasing food security. Growing filter-feeders like mussels, oysters, and clams provides the fishing industry with an alternative to "losing" fishing grounds, and reduces pressures on fish populations that are already in peril, if not collapsing. These filter feeders improve water quality and provide a valuable, local protein source for Californians. And they require zero inputs! The fish populations can begin to recover and fishers can keep steady jobs, all the while the water quality will improve and we will be feeding Californians.

Please consider promoting this multi-use idea and giving wind farm applicants with such environmentally beneficial uses (beyond clean energy) a higher priority.

Thank you.

Tara Pierce UC Hastings Class of 2023 Environmental Law Student