Revised Draft 2045 Climate Action Plan and Recirculated Draft Environmental Impact Report

Comment Letters Received
Organizations

1. Abundant Housing LA
2. Acton Town Council
3. Altadena Town Council
4. AltadenaWILD

5a. BizFed – May 9th letter

5b. BizFed – May 15th letter

6. Building Industry Association
7. Center for Biological Diversity
8. Communities for a Better Environment
9. Endangered Habitats League
10. FivePoint
11. LA County Sanitation Districts
12. League of Women Voters
13. Santa Clarita Organization for Planning and the Environment
14. Mitchell Tsai – Southwest Mountain States Regional Council of Carpenters
15. Tejon Ranch
16. The Greenlining Institute

May 15, 2023

Los Angeles County Department of Regional Planning
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

Dear County of Los Angeles,

We at Abundant Housing LA would like to express our gratitude for the work you have done in creating the Revised Draft of the 2045 Climate Action Plan. However, we also see the need to express concerns with housing policy in this Revised Draft. As an organization that advocates for more housing options and sustainable land use policies, we recognize the important connection between climate change and zoning/land use decisions.

The 2045 Climate Action Plan is an important document that has significant implications for housing planning, zoning, and land use policies in Los Angeles County. The plan recognizes the critical connection between climate change and land use decisions, and outlines strategies to reduce greenhouse gas emissions while promoting sustainable development practices. By addressing issues such as affordable housing, transportation, and density near transit areas, the plan seeks to create more equitable and sustainable communities that are better able to withstand the impacts of climate change. As such, it is essential that housing planners, zoning officials, and other stakeholders take this plan into account when making decisions about future development in Los Angeles County.

While we appreciate the efforts made in this plan, there are critical issues in housing policy that need to be addressed in order to achieve a more equitable and sustainable future for all residents of Los Angeles County.

Firstly, we believe that there is a need for more affordable housing options near colleges and universities. We suggest permitting SROs or co-ops near these institutions where possible, as this could help address the housing needs of students and other community members while promoting sustainable transportation options like biking. Additionally, we urge you to consider connecting every college/university with safe, protected bikeways as part of your transportation plan.

Secondly, we believe that there is a need to address the jobs-housing imbalance in job-rich areas. We suggest allowing apartments with reduced or eliminated parking minimums in residential neighborhoods within a 1-2 mile buffer around job centers identified on the SCAG map. This could help reduce vehicle miles traveled and promote more sustainable transportation options.

Finally, we are concerned about the lowering of maximum allowable densities in HQTAs from 50 to 30. While we understand that there is a range of 30-150 mentioned in the plan, it is possible that some areas may end up with lower densities due to community input and other factors. We urge you to consider ways to ensure that high-quality transit areas are able to accommodate higher densities where appropriate.

We hope that you will take these concerns into consideration as you continue to refine and implement this important plan. Thank you again for your hard work on behalf of all residents of Los Angeles County.

Sincerely,

Leonora Camner

Leonora Camner
Executive Director
Abundant Housing LA

Scott Eptein

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Director of Policy and Research
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ACTON TOWN COUNCIL
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May 15, 2023

Subject: Acton Town Council Comments on the Draft Climate Action Plan and the Recirculated Draft Program Environmental Impact Report.

Reference: Solicitation of Public Comment on the Draft Climate Acton Plan and the Recirculated Draft Environmental Impact Report Issued March 29, 2023.

Dear Ms. Hua;

The Acton Town Council appreciates this opportunity to provide comments on the Draft Climate Action Plan ("DCAP") and the Recirculated Draft Environmental Impact Report ("DEIR"). These comments are submitted before the 5:00 PM deadline on May 15, 2023 that was established by the Department of Regional Planning; therefore, they are timely filed.

Unfortunately, the Acton Town Council did not have sufficient time to conduct a proper review the 774 page DEIR or its 610 pages of appendices or the 150 page DCAP with its 234 pages of appendices. Nonetheless, we present the comments that we have been able to prepare over the following pages and respectfully request that they be taken into consideration as DRP moves forward with developing the CAP. For the sake of simplicity, our comments are offered in a list format. Additionally, and to the extent that they continue to be relevant, the ATC hereby incorporates by reference all previous comments that we submitted regarding the Climate Action Plan including, but not limited to, the comments submitted in January 2022 and April, 2022

<u>Decarbonization and Electrification in Areas That Have Unreliable Electrical Service</u>:
The ATC appreciates that the DCAP reflects the content of the motion adopted by the Los Angeles County Board of Supervisors ("Board") on March 15, 2022 which directs that new County policies, ordinances, and code changes pertaining to building decarbonization and electrification in unincorporated areas consider "the varying climate, geography, and

infrastructure challenges that rural communities face"; this motion was a critical step to ensuring that rural communities like Acton (which have unreliable electrical service and therefore depend on propane and natural gas for heating and cooking) are not harmed by the County's march toward full electrification of all unincorporated areas. The motion is reflected in description of DCAP Measure E1 (which transitions existing buildings to "all electric" while taking into consideration the unique challenges that rural communities face) and DCAP Measure E2 (which standardizes electrification of all new development while taking into consideration the unique challenges that rural communities face).

The Acton Town Council is concerned that the criteria which ultimately be used to identify rural communities having "climate, geography, infrastructure, and sole-source dependency challenges" in the ordinances that will implement Measures E1 and E2 will not be sufficiently broad to properly capture the residential areas that will experience life-safety risks if they are required to fully decarbonize. Acton and other rural communities have, since 2019, experienced devastating electrical power shutoffs in the Fall and Winter that have lasted days. Additionally, the climate in Acton and other rural communities is significantly colder than many other regions in Los Angeles County, and we often experience harsh winters with temperatures plummeting below 20 degrees and heavy snowfall accumulations over 1 foot. A considerable amount of energy is required to maintain safe living conditions in such inclement weather which, incidentally, also causes additional electrical power shutoffs. As such, wood-burning and fossil fuel-powered heating systems are not mere conveniences in Acton; they are necessary survival tools which provide a reliable and independent source of warmth. These traditional heating methods are not contingent on the availability of electricity and they provide a lifeline during extended power outages. Accordingly, the ATC respectfully requests that the DCAP be revised to incorporate the following criteria for identifying the unincorporated communities that face climate, geography, and infrastructure challenges pursuant to Measures E1 and E2:

Any rural community at an elevation of 1,800 feet or higher and which has

- experienced two or more "Public Safety Power Shutoff" events lasting more than 24 hours since October, 2019 or
- experienced a loss in electrical service lasting more than 24 hours due to snow or other climate conditions.

The Acton Town Council believes these criteria will provide the flexibility that is called for in the Board motion while contemporaneously achieving the broad decarbonization and building electrification objectives established by the DCAP.

Modifications to Measure E5 are Greatly Appreciated, However the Measure E5 Performance Objectives Can Only Be Achieved in Urban Areas.

The Acton Town Council greatly appreciates the revisions that were made to the Performance Objectives established for Measure E5 which increase recycled graywater and "potable reuse" in unincorporated areas; however, we are struggling to understand how this performance objective will be achieved in rural areas where recycled water does not exist. Moreover, in rural communities where septic systems are used, Action E5.1 (which segregates graywater streams from use in irrigation) will result in the discharge of very high concentrations of nitrified and acidified organic waste into residential septic systems because the graywater streams (which substantially dilute the nitrate and organic content of the blackwater streams) will be removed from the septic system. This in turn will substantially increase nitrate concentrations in the effluent released from the septic dispersal fields. Moreover, it is not clear that septic systems will function properly with high concentrations of nitrified and acidified organic waste; if these concentrated wastes cause a septic system to fail, then there are no alternatives and the resident must replace the entire system. Concerns with implementation of Measure E5 in rural areas were previously identified in the comments submitted by the Acton Town Council in 2022; a few of these concerns (though not all) still persist. A possible solution would be to limit the implementation of Acton E5.1 to only those areas that are served by a municipal sewer system.

A typographical Error noted in the Performance Objectives for Measure E2:
The ATC recommends the following revision:

PERFORMANCE OBJECTIVES

Require all applicable new buildings ~~will~~ to be all-electric. Provide affordable housing set-aside to offset first cost.

A typographical Error noted on page 1.13
The Acton Town Council recommends the following revision:
"The 2045 CAP is intended to be inclusive, accessible, and meaningful and prioritize~~s~~ frontline …."

The New Emphasis on Local Renewable Generation Reflected in the Revised DCAP is Appreciated; However, the DCAP Misrepresents CPA's Utility Scale Renewable Resources and the DEIR Fails to Consider Alternatives in a Manner Consistent with CEQA.
The Acton Town Council has endeavored to inform policymakers, lawmakers, and government agencies that there are two ways to achieve California's renewable energy goals: one way destroys thousands of square miles of unspoiled desert lands with endless seas of black glass, decimates pristine viewsheds with industrial wind turbines and high voltage transmission lines, blights entire rural communities with miles of concentrated, industrial, and dangerous battery storage facilities, reduces energy resiliency, and unnecessarily costs ratepayers billions of dollars; the other way enhances community resiliency, improves electrical reliability, protects the environment, and saves ratepayers billions of dollars. The former relies on the development of remote, utility scale solar "farms" and remote, utility scale battery "farms" to produce power that is then transmitted

via high voltage transmission lines over hundreds of miles to serve urban load pockets; and, because this alternative makes urban communities entirely reliant on a diffuse and fragile network of utility lines and energy nodes to meet all their energy needs, it is intrinsically non-resilient and arguably unreliable. The latter relies on the development of small scale generation and battery storage resources distributed throughout urban load pockets to supply local energy needs; and, because this alternative allows urban communities meet their own electrical demand without relying on remote generation and transmission facilities, it is intrinsically resilient and demonstrably reliable. Powerful utilities like Southern California Edison and powerful corporations like AES have a vested interest in substantially expanding utility-scale renewable generation and ensuring that distributed resources are both marginalized and minimized; as a result, their influence and their "voice" often overshadows our message. However, we are heartened because our message does appear to be "getting out".

In particular, the Acton Town Council is grateful that the revised DCAP includes a number of new provisions which appears to reflect our message that distributed generation increases community resiliency. For instance, Measure ES4 adds new Performance Objectives that will achieve community electricity generation capacity equal to the communitywide 24 hour average and will install microgrids in unincorporated areas. However, what is lacking in the DCAP and the DEIR is an acknowledgement that distributed generation provides specific and intrinsic advantages such as reducing environmental impacts to desert resources, reducing wildfire risks by avoiding transmission lines, and preserving mountain vistas that would otherwise be marred by new transmission lines; furthermore, and frankly, distributed generation is also the ONLY path to achieving the community resiliency that the DCAP claims to support.

The Acton Town Council is also substantially concerned by revisions to the DCAP which incorrectly report the amount of utility scale solar renewable energy that "Clean Power Alliance" ("CPA") supplies. Specifically, page 3-16 asserts that utility-scale solar is a relatively small portion of CPA's renewable energy supply because CPA's projected renewable electricity mix for 2035 is "30 percent utility-scale solar, 45 percent battery storage, 24 percent onshore wind, and 1 percent hydro". What this statement fails to consider is that *the battery storage facilities included in these statistics are charged using energy that comes from utility scale solar farms*; this means that *all* of the renewable power that is supplied by CPA's "45% battery storage" facilities *is actually generated by utility scale solar farms*. Claiming that 45% of CPA's renewable energy comes from batteries is a gross misrepresentation; batteries do not supply renewable energy, they merely store whatever type of energy that is delivered to them and then release it at a later time. The *only* time that energy flowing from a battery farm is designated as "renewable energy" is when that battery farm is connected to a utility scale solar farm and is thereby charged solely with renewable energy. This *fact* is demonstrated in CPA's 2022 Integrated Resource Plan ("IRP") which establishes that only CPA battery facilities which are operated in conjunction with utility-scale solar farms (known as "hybrids") are deemed to provide renewable energy; CPA's standalone battery facilities (which are directly connected to the transmission grid and not to a utility scale solar farm) are *not* deemed to provide renewable energy"[1]. Furthermore, because of SB100, all energy deliveries will be carbon free by 2030 regardless of whether the energy is delivered to the end user or to battery storage; therefore, within a few short years, most of the energy that will be used to charge all the batteries that are assumed in CPA's IRP will come from utility scale solar farms because the long term plan of all utilities (including CPA) is to rely heavily on utility scale solar facilities to meet their power delivery obligations[2]. Additionally, even though the energy resources provided by CPA's standalone battery storage projects are not deemed to be renewable, they are in fact supplied by utility scale solar farms[3]; accordingly, the statement in the DCAP which claim that CPA's utility scale solar projects comprise a relatively small portion of CPA's renewable electricity mix is patently false. The Acton Town Council would be happy to discuss these matters with staff; in the meantime, we recommend the following correction to page 31 of the DCAP:

> ~~According to CPA's 2022 Integrated Resource Plan (a CPUC proceeding to evaluate long-term grid resource needs), the projected 2030 renewable electricity mix is approximately 23 percent utility-scale solar, 53 percent battery storage, 21 percent onshore wind, and 2 percent hydro; the projected 2035 renewable electricity mix is 30 percent utility-scale solar, 45 percent battery storage, 24 percent onshore wind, and 1 percent hydro[31]. This demonstrates that utility-scale solar is a relatively small portion of CPA's renewable energy supply mix through 2035. In addition, because of the large number of 100 percent Green Power customers, CPA expects to meet and exceed the State of California's 30 million MTCO2e GHG targets, even in its lowest renewables case. Note that these projections do not include behind-the-meter distributed energy generation like rooftop solar because DER electricity generation is not supplied by CPA.~~
>
> The County's strategy to shift to a renewables-based electricity supply must ensure equitable access to affordable, local, and reliable energy sources…..

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1 See page 14 of CPA's 2022 Integrated Resource Plan Summary: https://cleanpoweralliance.org/wp-content/uploads/2022/11/cpasc_narrative_public.pdf.

2 As shown on page 19 of CPA's 2022 Integrated Resource Plan Summary, "Solar Resources" will be the primary renewable energy source for all utilities [Id at 19]. These "solar resources" are NOT distributed resources, they are utility scale solar resources.

3 CPA's 100 MW "Luna" battery facility is located in a utility scale solar farm in the Antelope Valley and is charged by the utility scale solar farm that surrounds it [https://www.youtube.com/watch?v=X-MBRhaFN4c]. CPA's 50 MW "High Desert" battery facility is located in a utility scale solar farm in the Antelope Valley and is charged by the surrounding utility scale solar farm [https://cleanpoweralliance.org/2022/03/25/new-solar-plus-storage-clean-energy-facility-now-online/]. CPA's 100 MW "Sanborn" battery facility is located in a utility scale solar farm in the Antelope Valley and it is charged by the surrounding utility scale solar farm [https://cleanpoweralliance.org/wp-content/uploads/2021/11/Sanborn-Release-Final-110821-1.pdf]. Even CPA's 75 MW "Desert Sands" project that was just approved will be charged by utility scale resources because it is connected to an SCE transmission substation (note: transmission substations and transmission lines *only* carry power from utility scale generation facilities).

The claim set forth in the DCAP and the DEIR that it is not possible to "quantify the renewable energy potentially facilitated by the 2045 CAP that would be provided by new utility-scale solar projects" is also incorrect. Information provided in CPA's 2022 IRP, along with accessible data pertaining to CPA's existing and pending "Power Purchase Agreements" ("PPAs"), provide a clear picture of the "mix" of renewable resources that CPA will use to serve its customers through at least 2035; so, the County can easily assess the portion of future CPA energy deliveries that will come from utility scale solar. The County also knows how much electrical energy is currently being used in unincorporated areas now and how much electrical energy will be used in unincorporated areas by 2035 and by 2045 once all of the CAP's electrification and decarbonization measures are implemented. By reconciling this information, the County can easily "quantify the renewable energy potentially facilitated by the 2045 CAP that would be provided by new utility-scale solar projects". Moreover, because the County *can* accurately quantify the renewable energy potentially facilitated by the 2045 CAP that would be provided by new utility-scale solar projects, the EIR that is certified for the DCAP *must* address the cumulative impacts of developing these utility scale solar projects and provide programwide mitigation measures. Such mitigation measures must address dust control (via mulch or gravel) as well as water supply impacts (water is needed to clean all the solar panels), wildlife impacts (hundreds of square miles of habitat will be destroyed and large numbers of migrating birds will be injured and killed when they crash into massive "seas of solar panels because they think they are landing on a lake), heat island impacts of hundreds of square miles of heat trapping surfaces (solar farms create just as much heat in rural urban areas as pavement creates in urban areas), and aesthetic impacts (resulting from the industrialization of hundreds of square miles of desert lands). In other words, the County does not have to know precisely the number utility scale solar farms that will result from CAP implementation in order to broadly assess their effects and develop programwide mitigation measures to address these effects; it does not even need to know precisely where these solar farms are located (although the California Energy Commission has already provided this information – see Attachment 1).

Unfortunately, the DEIR fails to address any of these impacts and it fails to offer any mitigation measures to address these impacts. Instead, it states (incorrectly) that "it would be speculative to quantify the amount of renewable energy that could be facilitated by the Draft 2045 CAP that would be provided by new utility-scale solar projects" [page 3.1-13]. The DEIR then trivializes concerns regarding these impacts by stating that the renewable energy demand that will result from the DCAP "could be met in a variety of additional ways, other than through new utility-scale solar projects"; CPA's 2022 IRP reveals this statement to be false because it clearly and quantitatively demonstrates that CPA will not meet its renewable energy demand in a "variety of ways". Specifically, CPA's IRP shows that *utility scale solar will be **the** primary mechanism that CPA will use to secure 100% renewable energy until at least 2035* and *that the "additional ways" CPA will use to achieve its renewable energy targets account for only 20% of CPA's renewable portfolio*. The DEIR also disingenuously postulates that "a substantial amount of solar energy generation would likely occur on rooftops within the County"; this prediction is patently false for several reasons. First, rooftop solar only provides a small portion of current electrical demand. Second, because of new "net metering" regulations that became effective in April 2023 and which were approved by the CPUC on behalf of the major utilities, there will be very little new rooftop solar development in future. These facts, combined with information from CPA's IRP indicating that rooftop solar provides a negligible portion of CPA's electrical supply, utterly refute the DEIR's claim a substantial amount of solar energy would likely occur on rooftops within the County. For all these reasons, Section 3.1.3.6 of the DEIR must be entirely revised to provide correct information and properly address the new utility-scale solar projects that will be facilitated by the 2045 CAP.

Among other things, a Program EIR is *supposed to* "provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action" and the Lead Agency is *supposed to* use a Program EIR to consider "broad policy alternatives and programwide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts" [CEQA Guidelines 15168. (b)]. Notably, these characteristics are not found in the DEIR's discussion of alternatives for achieving the DCAP's renewable energy targets; instead, the DEIR patronizingly dismisses the concerns raised by the Acton Town Council and others regarding the significant expansion of utility scale solar farms that will result from achieving DCAP targets by declaring that "renewable energy demand could be met in a variety of additional ways, other than through new utility-scale solar projects".

What the Acton Town Council is looking for in the DEIR is: 1) a broad discussion addressing the alternatives available to implement the DCAP's renewable energy policies and achieve its renewable energy targets *and a comparison of their associated impacts*; and 2) a list of programwide mitigation measures that will minimize these effects. For instance, the DCAP recognizes that battery storage is critical to achieving its renewable energy objectives and it actively encourages the substantial expansion of battery storage systems by establishing Implementation Action ES3.6 to "Streamline and prioritize permitting for solar and battery storage projects". Consistent with CEQA Guidelines 15168(b) the DEIR must consider the environmental implications of the battery storage expansion objectives advocated by the DCAP and in particular, address the Implementing Action that "streamlines and prioritizes" battery storage facilities; this is done by first broadly addressing the effects of, and alternatives for, implementing the DCAP's battery storage expansion objectives and then formulating programwide mitigation measures to reduce these impacts. Specifically, what the DEIR *is supposed to do* is address the fact that there are two alternative strategies for expanding and streamlining battery storage: one alternative (distributed storage) is to distribute stored energy resources throughout the load pocket; this substantially increases community resiliency by delivering stored energy directly to load and it decreases transmission grid congestion because it does not put power on the transmission grid during peak hours (which, incidentally, provides the added benefit of substantially reduces ratepayer costs). This alternative also minimizes aesthetic impacts and wildfire risks because the battery facilities are distributed over a wide area and not concentrated in a manner that will cause a catastrophic fire event. The other alternative (utility scale storage) concentrates the battery storage units in remote rural locations and requires high voltage transmission lines to deliver the stored electricity to load. This alternative substantially decreases community resiliency, increases grid congestion (and, by extension, ratepayer costs), results in significant aesthetic impacts (because it converts hundreds of acres of rural open space to industrial use), and poses a significant wildfire risk (particularly if such facilities are located in or adjacent to a Very High Fire Hazard Severity Zone). Based on the results of this alternatives analysis, the DEIR *is supposed to* develop programwide mitigation measures that address the environmental effects of the alternatives. For example, the DEIR *is supposed to* incorporate appropriate measures such as limiting the application of Action ES3.6 to only distributed battery storage projects because utility scale storage projects pose substantial risks and provide no community resiliency benefits and therefore should NEVER be streamlined (instead, they must be carefully evaluated through a discretionary review process). The DEIR is also *supposed to* adopt appropriate mitigation measures to reduce the significant effects posed by utility scale storage facilities such as "utility scale storage projects must be located outside of Very High Fire Hazard Severity Zones" and "utility scale storage projects must be located only in remote areas where there are no residences". Furthermore, and in recognition of the significant community resiliency benefits and energy characteristics provided by distributed storage resources, the DCAP should include policies that prefer distributed storage resources and highly encourage them; it should also discourage utility scale storage unless it is located in remote, unpopulated areas outside VHFHSZs. The latter is particularly important because *environmental documents are supposed to inform and even shape the projects that they consider*; they are not supposed to merely analyze the project in isolation. Correspondingly, LCAP policies should reflect the results and conclusions set forth in the DEIR.

The analysis provided above illustrates the type of "effects and alternatives" that Program EIRs are supposed to consider as they develop "broad policy alternatives and programwide mitigation measures"; unfortunately, the DEIR appears to have "missed the boat" because none of these elements are reflected in the Draft Program EIR. To ensure consistency with CEQA, the DEIR must be revised to properly consider the "effects and alternatives" of key DCAP measures and actions (including, but not limited to, energy storage expansion and renewable resource generation); it must also develop "broad policy alternatives and programwide mitigation measures" to address these effects and alternatives.

<u>Concerns with the DCAP's "Aspirational Goal"</u>
The Acton Town Council continues to be troubled by the DCAP's "aspirational" goal. It is noted that the CAP will be incorporated within the County General Plan, and when that

happens, all CAP goals will become "binding" in that they will direct all future land use and development decisions; accordingly, all future County actions must ensure conformance with all CAP goals regardless of whether they are merely "aspirational" goals. The County is obligated to strive for achieving *all* goals expressed in the General Plan; thus, designating a goal as merely "aspirational" is meaningless in a General Plan context. Moreover, the intent of "goals" in a General Plan is to provide a general direction and express a "future end"; goals are not supposed to be quantified or time dependent[4]. In this sense, all General Plan goals are "aspirational", thus designating one goal as "aspirational" makes little sense. Moreover, Figure ES-2 of the DCAP indicates that achieving "carbon neutrality" by 2045 is impossible, which suggests that the "aspirational goal" set forth in the DCAP cannot be, and will not be, achieved. This too is troubling because General Plan goals are supposed to be meaningful and achievable. Perhaps the DCAP's 2045 Carbon Neutrality goal is designated as "aspirational" because it cannot be achieved in practice; if so, then this should be clarified in the DCAP.

<u>Modifications to Measure E6 are Greatly Appreciated.</u>
The Acton Town Council is very appreciative of the revisions that were made to the Implementing Actions established by Measure E6 for reducing indoor and outdoor water consumption. It is noted however that Implementing Acton E6.1 asserts that a future water conservation ordinance may include a net zero water requirement for new greenfield development. To address the problems that such a requirement would create if it were imposed in rural communities like Acton, the Acton Town Council herein incorporates by reference the comments provided on page 7 and elsewhere in the letter that we submitted to DRP on July 18, 2022 in response to the DCAP.

<u>The Acton Town Council Remains Very Concerned About the Vagueness of Action E4.1.</u>
Implementing Action E4.1 requires "all buildings to perform energy efficiency retrofits at the point of sale". As we commented previously, this Implementing Action is very vague and the DCAP provides no information whatsoever regarding the scope and extent of the "energy efficiency retrofits" that are contemplated. The potential costs of this action are in the hundreds of thousands of dollars: Will homeowners have to replace all their windows with triple glazing and replace all their insulation with material that has a better R factor and replace their roof with "cool roof" materials and replace all their appliances with appliances having the highest energy star rating before they can sell their home? This action could mean all of these things, or it could mean none of them. Page xiii of the DCAP does state that "deep retrofits to existing buildings" will be necessary to achieve carbon neutrality; is that what is anticipated by Acton E4.1? And if so, what are "deep retrofits" anyway? Why isn't there any transparency in this Implementing Action? Page 3-52 of the DCAP states that implementation details for Action E4.1 can be found in "Appendix E", but

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[4] "General Plan Guidelines" issued by the Office of Planning and Research Page 381 [https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf].

there are no implementation details in Appendix E. In fact, Appendix E adds to the confusion because it states that the "tracking metrics" for this Action are "Number of homes or businesses participating"; this suggests that property owners will be able to choose whether or not to "participate" in Implementing Action E4.1. This is in direct conflict with the plain language of Implementing Action E4.1 which clearly and unambiguously makes "participation" mandatory because it requires "all buildings to perform energy efficiency retrofits *at the point of sale*". Equally troubling, Appendix E identifies various funding sources for Implementing Action E4.1; this gives a false impression that the compulsory retrofits mandated by Action E4.1 will be paid for by entities other than the property owner. This is incorrect. Because Implementing Action E4.1 is initiated at the "point of sale", the funds required to comply with Action E4.1 will come solely from the property owner and not some benevolent government agency or non-profit group. The vagueness of, and the lack of transparency in, Implementing Action E4.1 makes it impossible for the Acton Town Council to provide any meaningful comment on its implications. The DCAP *must* be revised to explain what is meant by "energy efficiency retrofits" and identify the specific "energy efficiency retrofits" that are captured by Implementing Action E4.1. The Acton Town Council is confident that the County can provide this information; after all, the DCAP does estimate the GHG emission reductions that will be achieved through Implementing Action E4.1, thus the County has a reasonable knowledge of the various "energy efficiency retrofits" that are needed to achieve these GHG emission reductions.

<u>Action E4.3 Will Result in Significant Impacts that Must be Addressed in the DCAP EIR.</u>
Implementing Action E4.3 appears to require the County to replace *all* the heat-trapping surfaces it owns and operates with cool or green surfaces; this includes all roads and highways and parking lots and hardscapes. Thousands of miles of roadways are owned and operated by the County and according to Action E4.3, they will all have to be replaced. Moreover, various alternatives (each creating its own unique effects) are available to replace roadways with cool or green surfaces; the DEIR is supposed to broadly address these alternatives and their effects and offer appropriate programwide mitigation measures, but it does not. Instead, the DEIR simply sidesteps all of these requirements by simply declaring that the "The Draft 2045 CAP is a policy-level document that does not include any site-specific designs or Proposals". All of this violates CEQA. Any Program EIR developed for any "policy document" which make specific actions mandatory must broadly address the effects of, and alternatives for, these specific mandatory actions and present programwide mitigation measures to address them. The DEIR must be revised to comply with this requirement by considering key mandatory actions like E4.3 that are established by the DCAP and which have the potential to result in significant environmental effects.

<u>The Acton Town Council Remains Troubled by "Strategy 9"</u>
Strategy 9 seeks to preserve agricultural lands from residential uses, but in Acton, residential uses and agricultural uses are one in the same, so the application of Strategy 9 in Acton is self-contradictory. Additionally, Strategy 9 improperly conflates "residential

uses" with "urbanized uses". Residential uses in Acton do not constitute urbanized uses because the Acton CSD ensures that 90% of parcels in Acton remain untouched; the only exception is when a property owner wants to initiate an agricultural or equestrian operation (in which case, the property owner must obtain a conditional use permit). Strategy 9 should be revised to resolve these contradictions in a manner that makes it clear how Strategy 9 will be applied in rural communities like Acton; until this revision is processed, the Acton Town Council is unable to provide meaningful comments on "Strategy 9" and we are unable to support it.

Revisions to Implementation Acton 6.3 are Appreciated

The Acton Town Council greatly appreciates revisions made to Implementation Action 6.3.

Measure T6 Should Include a Prohibition on New Gasoline and Diesel Service Stations.

The purpose of Measure T6 is to "Increase ZEV Market Share and Reduce Gasoline and Diesel Fuel Sales" and according to the description provided by the DCAP, it is supposed to "Set targets for reducing total gasoline and diesel vehicle fuel sales". However, Measure T6 does not include any Implementing Actions or Performance Objectives that address gasoline or diesel vehicle sales. Furthermore, it does not advocate for any process that addresses gasoline and diesel vehicle sales. One obvious Implementing Action that should be adopted by Measure T6 is to prohibit the development of any new commercial gasoline or diesel fueling stations (i.e., gas stations) in unincorporated Los Angeles County.

The Acton Town Council is Concerned that Measure T5 Will Apply to New Commercial Developments in Acton and Thus Substantially Increase Already Significant Traffic Hazards.

The stated purpose of Measure T5 is to "Limit and Remove Parking Minimums" to "help reduce Vehicle Miles Traveled ("VMT")". Measure T5 only identifies parking requirements for new residential development and does not mention new commercial development, but the Acton Town Council presumes that Measure T5 will not be limited to just new residential development and that it will eliminate parking minimums and establish parking maximums for new commercial development. If so, then Measure T5 will substantially exacerbate already existing traffic and safety hazards in the Community of Acton. Specifically, because the County has (unfortunately) already approved many freeway-serving businesses in the vicinity of Crown Valley in Acton, the elimination of parking minimums and the establishment of parking maximums for commercial businesses in Acton will force all the freeway customers who frequent these businesses to illegally park along both sides of Sierra Highway and even in the middle of Sierra Highway. Sierra Highway is a heavily used major highway on which travelers typically drive at speeds exceeding 60 mph; there is also a mapped "truck stop" at this location which causes even more safety problems because of the slow-moving trucks turning onto and off of Sierra Highway. The Department of Public Works has posted "no parking" signs along Sierra Highway, but trucks and cars park there anyway; this makes it very difficult for drivers to see oncoming traffic and it makes turning onto and off of Sierra Highway very dangerous.

If Measure T5 is implemented for new commercial businesses in Acton, then extant traffic and safety hazards will get even worse because it will cause even more freeway travelers to park on Sierra Highway (since they will not have anywhere else to park). Therefore, the Acton Town Council respectfully requests that Measure T5 be revised to clarify that it does not apply to new commercial businesses in rural areas that lack high quality transit.

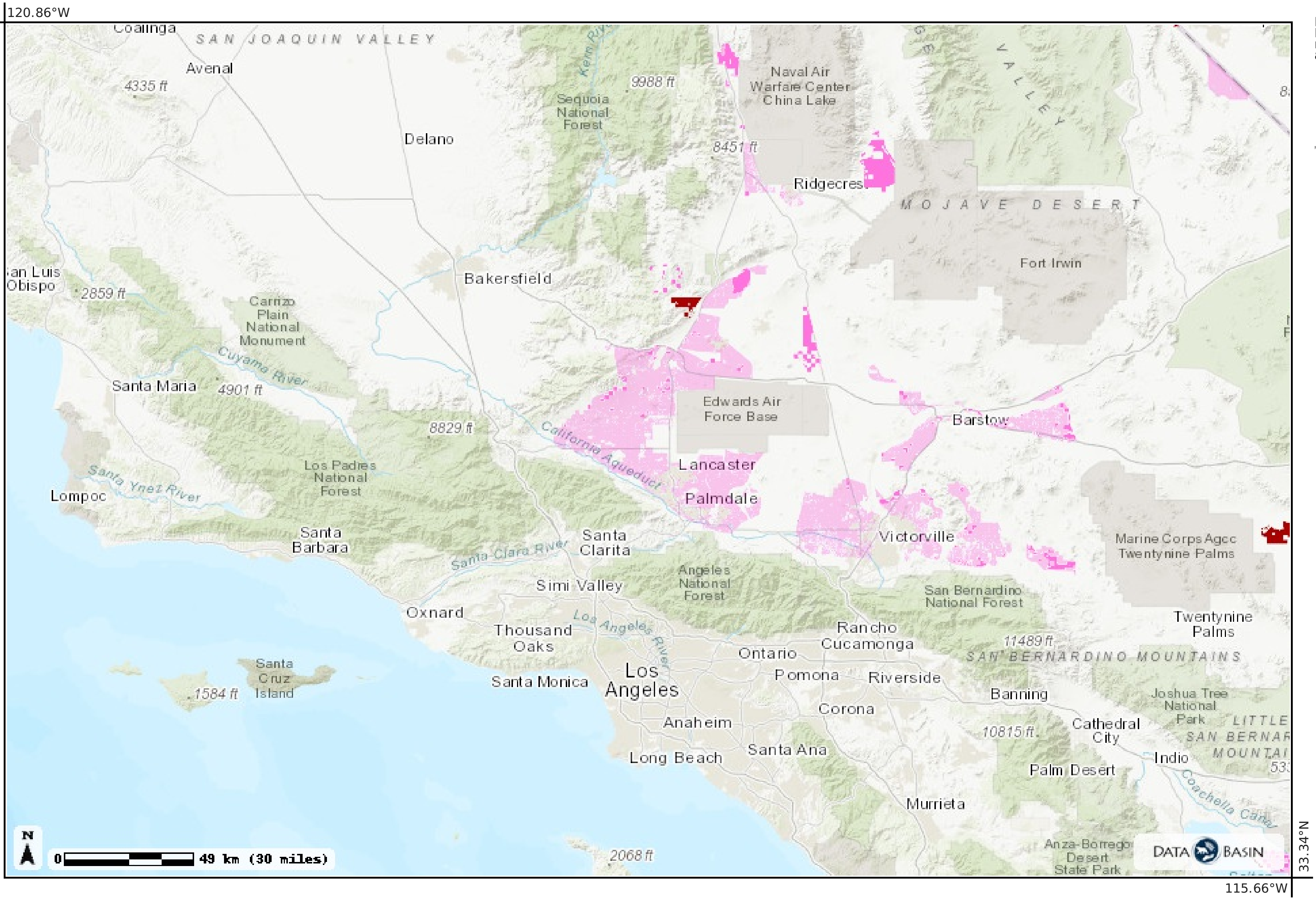
CONCLUSION

The Acton Town Council regrets that we did not have more time to consider the DCAP and review the enormous Draft Environmental Impact Report; it has been very difficult to process all the information that these documents provide in the 45 day review period that was allocated. These difficulties were compounded by the fact that the County is currently processing many new projects and development proposals in Acton; such developments always require immediate attention so they took up time that we would rather have spent on reviewing the DCAP and DEIR. Nonetheless, we have managed to put together the enclosed comments, and we respectfully request that the County incorporate them into the DCAP and the DEIR. If you have any questions or require additional information, please do not hesitate to contact us at atc@actontowncouncil.org.

Sincerely;

Jeremiah Owen, President
The Acton Town Council

cc: The Honorable Kathryn Barger, 5th District Supervisor [Kathryn@bos.lacounty.gov].
Anish Saraiya, 5th District Planning and Public Works Deputy [ASaraiya@bos.lacounty.gov].
Donna Termeer, 5th District Field Deputy [DTermeer@bos.lacounty.gov].
Chuck Bostwick, 5th District Assistant Field Deputy [CBostwick@bos.lacounty.gov].



Legend

Development Focus Areas (DFA) and Variance Process Lands, DRECP Proposed LUPA and Final EIS

Displaying: **AltCategor**

- Development Focus Areas
- Variance Process Lands

- Development Focus Areas, Preferred Alt.

Map Details

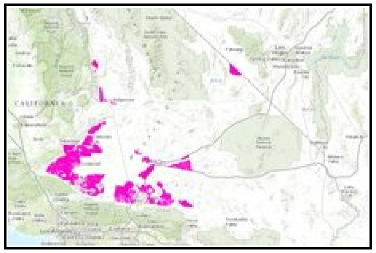
Datasets

Development Focus Areas (DFA) and Variance Process Lands, DRECP Proposed LUPA and Final EIS

https://reti.databasin.org/datasets/15fbd81db7984c22be7fc144fc262c47/

Credits: Dudek

Layers:
- Development Focus Areas (DFA) and Variance Process Lands, DRECP Proposed LUPA and Final EIS



Development Focus Areas, Preferred Alt.

https://reti.databasin.org/datasets/c77425c9badf460b9bbcf80517bcf91f/

Credits: California Energy Commission, U.S. Bureau of Land Management, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Dudek, DRAFT Desert Renewable Energy Conservation Plan (DRECP) and EIR/EIS.

Layers:
- Development Focus Areas, Preferred Alt.

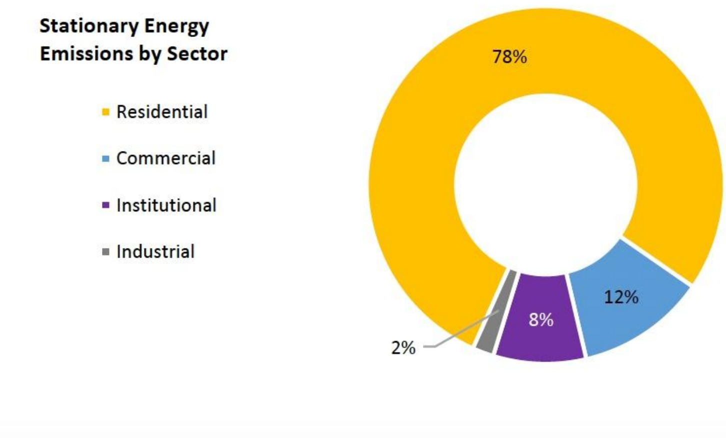
Comment on the Draft 2045 Climate Action Plan
Traffic Safety and Mobility Committee, Altadena Town Council

The Altadena Town Council's Traffic Safety and Mobility Committee advocates for active transportation and traffic safety infrastructure with LA County, as well as providing community feedback on unsafe streets, intersections, and street crossings. The Traffic Safety and Mobility Committee generally supports the 2045 Climate Action Plan to reduce greenhouse gas emissions from transportation as stated in the County's CAP Strategies 3 and 4.

Background on Altadena's Transportation

Fifty-two percent of GHG emissions in Unincorporated LA County come from transportation (reference CAP Executive Summary p.26, Fig ES.1). In West San Gabriel Valley where Altadena is located, the majority of transportation is car use (driving alone at 79%), with transit making up only three percent. Altadena is a suburban community with the majority of its residents living in single-family homes. There is little density even around Metro bus corridors. While many people, especially those over 65+, young people, and low income residents, depend on public transportation, the Metrobus service was reduced in 2022 and Metro micro transit has been experiencing low ridership. Altadena is 8.4 sq miles with 118 miles of roadways that has high potential for a variety of methods for street networks that prioritize active mobility.

SECTOR/SUB-SECTOR	ALL UNINCORPORATED AREAS	WEST SAN GABRIEL VALLEY
Total Population	1,037,227	105,252
Estimated Population in HQTAs	330,000	13,000
Estimated Population in TODs	69,000	2,000
Drive Alone/Carpool/Transit	77% / 10% / 5%	79% / 10% / 3%
$PM_{2.5}$ Percentile	63.6	62.0
Pollution Burden Percentile	62.3	61.5
Asthma Percentile	51.4	32.6
Estimated Population in Disadvantaged Communities	383,000	16,000



Key Climate Actions

- Actions supporting transportation electrification and improved transit service
- Actions to encourage transit for youth and seniors
- Actions to reduce residential emissions
- Actions focused on building decarbonization
- Actions targeting zero carbon energy in wildfire-prone areas

Source: CAP 2045 Appendix D: West San Gabriel Valley

There are many reasons for low ridership of public transportation, including high injury and fatality rates for pedestrians and cyclists. The Traffic Safety and Mobility Committee is focused on advocating for safer streets for every user: pedestrians, cyclists, equestrians, transit users, and those with physical mobility issues in the areas of Altadena that have high rates of pedestrian and cyclist collisions, injuries, and fatalities. These areas tend to be corridors with high traffic, little or incomplete sidewalks, no bike lanes, and poorly designed, from a safety perspective, intersections and crosswalks. These areas also tend to be near schools, parks, businesses, and transit corridors that could be redesigned with transportation equity in mind.

Climate Equity

The 2045 Climate Action Plan puts climate equity at the center of its strategy by prioritizing frontline communities, Indigenous people, BIPOC, low income households, and communities affected by historically high environmental impacts. By digging into the data from the federal Climate and Economic Justice Screening Tool, the Committee found that Altadena is at high risk for building (95th percentile) and population loss (99th percentile) due to natural hazards like wildfires (83rd to 99th percentile); exposure to PM2.5 (88-90th percentile); proximity to

Superfund Sites (70th-90th percentile); and has a significant percentage of its population with linguistic isolation (88th percentile), economically burdened by housing costs (67th percentile); and education below a high school diploma (16th percentile; 10th percentile is considered high risk).

As we consider equity among census tracts, we found that residents in Census Tract 4610, which borders the 210 freeway and Pasadena, are burdened with the most pollution, health disparities, unemployment, lack of education, and linguistic isolation. Given its location, these residents also experience the noise and pollution from traffic as well as experiencing the highest transportation barriers.

Census Tract 4610 - Climate and Economic Justice Screening Tool

48th percentile	Low income
92nd percentile	PM2.5
67th percentile	Diabetes
39th percentile	Low life expectancy
87th percentile	Housing cost
60th percentile	Green space
80th percentile	Lack of indoor plumbing
94th percentile	Lead paint in the home
56th percentile	Proximity to hazardous waste facilities
95th percentile	Proximity to Superfund Site
47th percentile	Diesel particulate matter
61st percentile	Transportation barriers
61st percentile	Traffic volume and proximity
60th percentile	Proximity to leaking underground storage tanks
79th percentile	Linguistic isolation
74th percentile	Unemployment
17th percentile	Less than high school diploma

Source: Climate and Economic Justice Screening Tool (https://screeningtool.geoplatform.gov/en/#12.6/34.20094/-118.13667)

2045 CAP Strategies

The Committee supports the 2045 CAP Strategies 3 and 4 that encourage walking, biking, taking public transportation, and micro transit options along with expanding EV infrastructure. Meeting these goals would both reduce carbon emissions and increase traffic safety.

Strategy 3: Reduce single occupancy vehicle trips

T3 Expand Bicycle and Pedestrian Network to Serve Residential, Employment, and Recreational Trips: Travel options that serve a variety of land uses and trip purposes can help shift some trips away from single-occupancy vehicles.

The Committee supports expanding the bicycle and pedestrian networks to access the many destination points throughout the community. In addition to common destinations such as schools, employment centers, transit hubs and entertainment, Altadena is surrounded by major outdoor recreation destinations including the Arroyo Seco, the Angeles National Forest to the north, and Eaton Canyon Natural Area to the East. However, to implement this strategy, the County will need to invest in sidewalks, protected bike lanes, and make crosswalks and intersections safer for those accessing these destination points.

Some specific needs the Committee has identified to date are:

- Contiguous sidewalks on all Metro Bus routes, including Lincoln Ave, Fair Oaks Ave, Altadena Dr, Mariposa St., Allen Avenue and Lake Ave should be prioritized which would connect Altadena to destinations in Pasadena including Metro L Line stations along the 210 Freeway corridor.

- Incorporating traffic calming principles into roadway prioritizing enhancement of crossings for pedestrians along high speed corridors which often are our transit corridors and rehabilitation projects to make the roadway more conducive to walking and biking. The intersections at Lincoln Ave and Altadena Dr; Fair Oaks and Altadena Dr; Loma Alta and Fair Oaks; Woodbury and its intersections at Lincoln, Fair Oaks, Windsor, as well as Washington and Lake Ave at Altadena Dr and NY Dr especially at Altadena, Allen, Lake Ave will need to be redesigned to reduce crashes and injuries.

- Encourage and promote Safe Routes to Schools in Altadena to those in positions of leadership within the 20+ public, charter, and private schools and child care facilities in Altadena in collaboration with LA County Public Health and Public Works Vision Zero Programs, including the next phase of the Slow Street Program.

- Washington Ave as a key connector route to PUSD schools, business districts, churches, trail access to the planned SGV Greenways, Metro LA and Pasadena Transit, and connecting the elderly to medical services and low income housing, especially near the intersection of Altadena Dr.

- Prioritizing Safe Routes to Parks and Schools including the corridors Loma Alta, Lincoln, Ventura, Fair Oaks, and Lake Ave for multi-benefit projects. |

- Neighborhood active transportation corridors are streets networks that can enhance diverse mobility options. Connector corridors such as Marengo, Fair Oaks, Lincoln Ave, Loma Alta, Mariposa, Windsor, Woodbury, New York Dr, Allen, Santa Anita, Mendocino, Washington can offer complete street opportunities. Installing safety measures on residential streets such as Wapello, Mountain View, Harriet, Ventura, Glenrose, Palm, Las Flores, and Casitas could improve pedestrian and cyclist access.

T3.1 Create a more connected and safer bikeway network by expanding bikeway facilities and implementing protected and separated lanes.

The Committee, along with Pasadena Complete Streets Coalition and Active San Gabriel Valley, is working with the County on updating the LA County Bicycle Master Plan. The LACBMP, last updated in 2012, proposes 27.9 miles of new bikeways, including 5.2 miles of Class II Bike Lanes and 22.6 miles of Class III Bike Routes. To date, only 1.7 miles of Class II facilities have been installed along Woodbury Road and approximately 2.7 miles of bike routes have been designated by placement of bike route signs periodically along two roadways.

County Public Works has informed Committee Members that the current paving project on Altadena Drive and Washington Ave will not include any bicycle infrastructure despite the fact that the LACBMP calls for placement of Class II facilities on these roadway segments. To have any chance of achieving milestones identified in the 2045 Climate Action Plan, County departments responsible for implementing the plan's objectives must be held accountable to implement it in a timely manner.

We are advocating to provide more Class II bike lanes where the plan currently identifies bike routes, as well as creating new bike lanes, including buffered bike lanes wherever feasible, to improve connections between Altadena and Pasadena, transit hubs, the Eaton Canyon Wash Trail (in the design stage), as well as the adjacent communities of Sierra Madre and La Canada-Flintridege. The conversion of existing proposed bike routes to Class II would affect approximately 80% of the planned bike routes, or approximately 18 miles.

In addition, new bike lanes are being considered for East Loma Alta Drive, El Molino Avenue, Lower Fair Oaks Avenue (south of Altadena Drive), Windsor Avenue, Palm Street and Casitas Avenue. The addition of approximately six miles of bike lanes combined with the proposed upgrading of planned Class III bike routes to Class II bike lanes will mean that every resident of Altadena will be within .5 miles of a bike facility.

There is unprecedented federal funding available through the Department of Transportation to counties and cities for active transportation and complete streets planning, demonstration projects, and implementing infrastructure upgrades. Active transportation is specifically supported through County Metro's Measure M Multi-Year Subregional program. This program dedicates funding in excess of 1 million dollars annually to active transportation and first/last mile projects throughout the San Gabriel Valley. The Committee encourages the County to prioritize Altadena when possible for funding through grants such as Federal Safe Streets for All and Measure M programs.

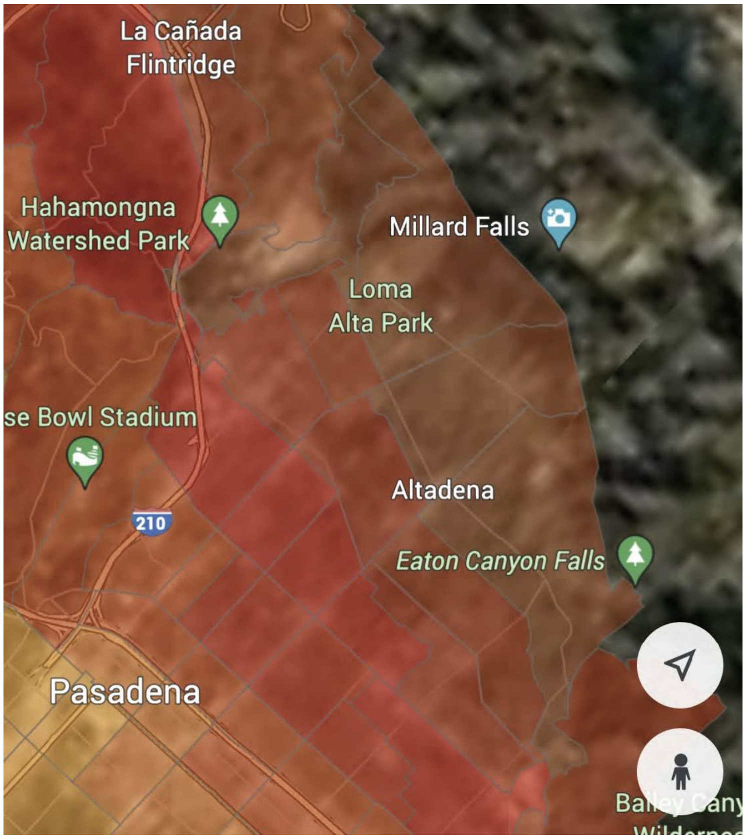
T3.2 Implement and regularly update LA County's Pedestrian Action Plan, Bicycle Master Plan, Active Transportation Plans, and Vision Zero Action Plan.

As previously mentioned, the Committee is working with the County to update the Bicycle Master Plan. The Pedestrian Action Plan, Active Transportation Plans, and Vision Zero Action Plan **do not mention Altadena**. The Committee would like to undertake supplemental planning with the County to create a pedestrian and active transportation plan for Altadena.

Implementation of active transportation improvements that remove barriers to walking and biking throughout the community have received little funding, despite being identified in County Planning Documents. These documents should be required to include preliminary project estimates, rank each project according to its priority, and identify the variety of State, Federal and County-wide funding sources that would best match each project.

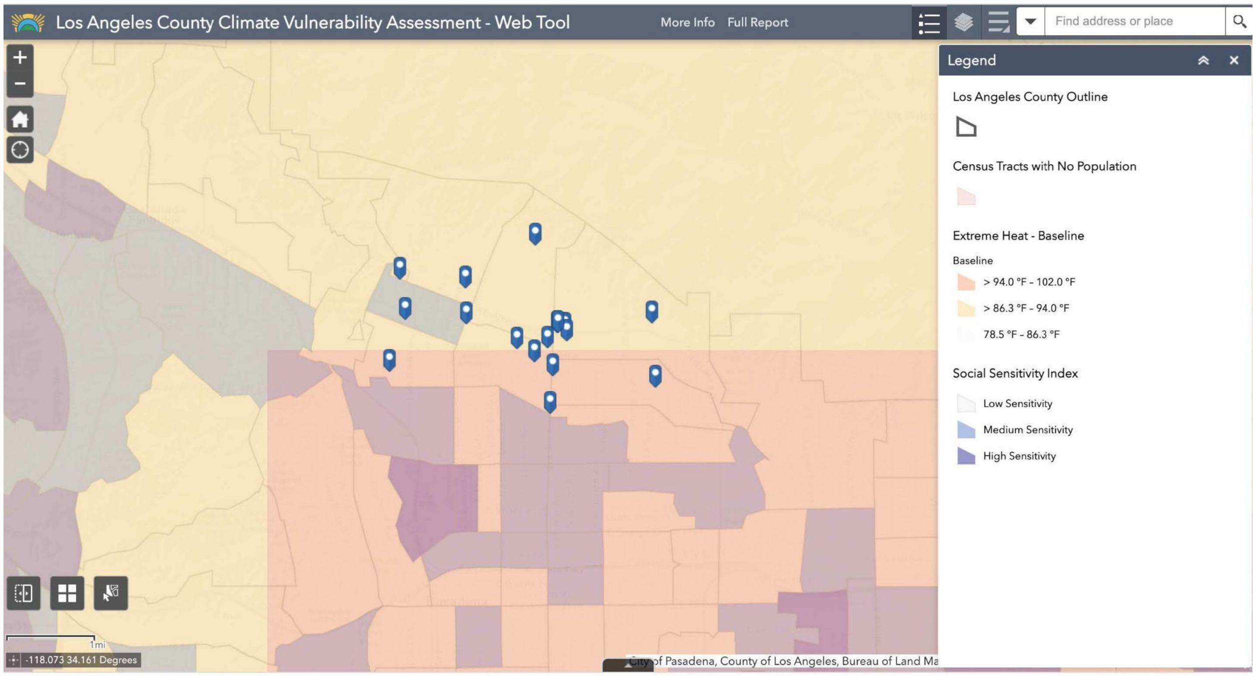
T3.3 Enhance pedestrian and bicycle environments through energy efficient pedestrian-scale lighting and shading to promote active transportation. Build shade structures at major transit stops, such as those identified in Metro's Active Transportation Strategic Plan, prioritizing communities with high heat vulnerability. Develop and implement a Shaded Corridors Program.

There are neighborhoods in Altadena that suffer from a lack of tree canopy resulting in little shade. The image below from CalEPA shows the high heat exposure for Altadena.



Planting more trees on Altadena streets are critical for those waiting for the bus, walking and biking. Greening corridors can bring multi-benefits including improving biodiversity and water capture.

In addition, the LA County Climate Vulnerability Assessment was used to map the vulnerability of Altadena schools. School-age children are particularly at risk for high heat exposure.



While shade and cooling neighborhoods is important, it is equally important to ensure there is adequate night lighting in Altadena. In 2022, an older resident exited a Metrobus and was struck and killed while crossing Fair Oaks Ave on his way home. Street lighting, reflective paint, and raised reflectors should be incorporated into lighting projects.

T4 Broaden Options for Transit, Active Transportation, and Alternative Modes of Transportation: Transit service, micro mobility services (such as bike-share, scooter-share, and drone deliveries), and access to these transportation options can help reduce VMT.

Metrobus and Microbus services are not well used among Altadena residents although these services are essential to our most vulnerable populations. To meet the County's transit goals, further study is needed to address why the transit rates in Altadena are so low and what can be done to increase them. The Committee agrees that active transportation planning and implementation of critical infrastructure is essential to encourage more residents to leave their cars and walk, bike, or ride a bus.

T4.1 Expand and improve the frequency of service of County shuttles and explore new mobility services, such as micro transit, autonomous delivery vehicles, micro mobility, and on-demand autonomous shuttles.

As discussed above, user rates for public transportation, including Metro micro, are low for Altadena. Better planning with the goal of understanding how to connect residents to schools, parks, libraries, trails, and businesses should be prioritized before adding more shuttles and mobility services. Investing in Safe Routes to Schools, Safe Routes to Libraries, Safe Routes to Parks, and Rail to Trails programs are essential.

T4.2 Install bus-only lanes and signal prioritization along major thoroughfares, and work with transit agencies and neighboring jurisdictions to plan and install full bus rapid transit infrastructure along priority corridors, as appropriate.

Most streets in Altadena would not be wide enough to install bus lanes, however, better Metro bus signage, curb painting, and road painting that makes drivers more aware of bus stops and the presence of pedestrians would be beneficial. It is also necessary to ensure there are sidewalks that safely connect residents to bus stops, as well as adequate space on the sidewalk for people to wait for the bus. Encroachment of the public right of way is a major issue in Altadena and should be addressed.

T4.3 Develop a transportation technology strategy to proactively address how evolving tech-enabled mobility options can support public transit.

Technology that helps to reduce Metro transit wait times would be beneficial and may lead to an uptick in transit use. However, ensuring there is a **safe route to reach a bus stop** is a more urgent issue for Altadena.

T4.5 Develop and implement a transportation demand management (TDM) ordinance that requires projects to incorporate measures such as subsidized transit passes and car share.

The Committee supports a transportation demand management ordinance in principle, however, transit infrastructure needs to exist prior to the ordinance. Development projects should be within ½ mile of transit and car share services should be available. Services like Blue LA, BlinkLA, and Getaround are not available in Altadena. Metrobus is only available on Lake Ave, Fair Oaks Ave, Altadena Dr between Lake and Lincoln, Washington Ave, and Allen Ave from Pasadena up to New York Dr in Altadena. Much of Altadena is not serviced by Metrobus within the ½ mile target area and in many cases, there are not safe ways to access a bus stop due to the lack of sidewalks and protected bike lanes.

T4.6 Offer free transit passes for students, youth, seniors, people with disabilities, and low-income populations.

The Committee supports free transit passes for the groups mentioned above. There needs to be better outreach to ensure these groups receive the passes. The passes could be distributed through schools, libraries, and senior centers.

T4.8 Establish temporary and permanent car-free areas.

The Committee supports demonstration projects and temporary car-free areas near surrounding streets at the Altadena Farmers Market, during County Parks programs, Christmas Tree Lane lighting ceremony, Juneteenth, Pride Parade, Mariposa evening shopping events, and in front of schools to improve traffic congestion during drop-off/pick-up times.

T5 Limit and Remove Parking Minimums: Parking strategies such as parking maximums, unbundling parking, or market price parking can help reduce VMT.

T5.1 Implement a comprehensive parking reform strategy, which should include, but not be limited to: elimination of minimum parking requirements for all new residential units, establishment of parking maximums within one-half mile of high-quality transit stops, creation and expansion of parking benefit districts, and incentives for developers to provide less than maximum allowable parking.

Altadena generally has free street parking. There are several unused parking spaces next to or behind buildings that have been vacant for a long time. These spaces could be reclaimed temporarily by the County for parking, reducing the need for street parking which would free up space for cyclists. These spaces could also be shared among businesses reducing the need for parking requirement minimums.

Strategy 4: Institutionalize low-carbon transportation

T6.1 Develop a Zero Emission Vehicle Master Plan.

The Committee supports the creation of a ZEV Master Plan. There is little public ZEV infrastructure in Altadena although some residents drive ZEV.

T6.2 Install EVCSs at existing buildings and right-of-way infrastructure (e.g., lamp poles) throughout unincorporated Los Angeles County.

T6.4 Install EVCSs at LA County facilities and properties for public, employee, and fleet use, prioritizing locations in BIPOC and disadvantaged communities. Complete an assessment of EV charging locations, identifying gaps in publicly accessible stations for BIPOC and disadvantaged communities.

Currently, there are no EVCS in Altadena except at the Community Center. Additional EVCS could be installed at LA Parks, Altadena libraries, grocery stores, churches, schools (coordinate with PUSD), Seniors Center, trailheads like Cobb Estate, and at or near apartment buildings.

T6.6 Expand electric options for active transportation, such as electric scooters and e-bikes.

Active SGV has a pilot “rent to own e-bike and e-cargo bike” program for residents in the San Gabriel Valley. This program could be expanded.

Although an excellent way to complete the last mile or two of a trip, e-scooters can cause conflicts with pedestrians on sidewalks and can clutter up sidewalk space. A program should be designed with best practices from cities that have experience with e-scooter programs. How e-scooters are charged (clean vs dirty grid) should also be taken into account.

T6.7 Increase the use of green hydrogen vehicles. Use biomethane and biogas created from organic waste as a "bridge fuel" to achieve 100% green hydrogen and electric vehicles.

There are few hydrogen stations in unincorporated LA. The closest one to Altadena is located in La Canada Flintridge. The next closest hydrogen fueling station is more than 10 miles away. There needs to be significant infrastructure built.

T7-7.2 Electrify LA County Fleet Vehicles: Electrify the LA County bus, shuttle, and light-duty vehicle fleet and shuttles.

Electrifying the LA County fleet vehicles would improve air quality in Altadena whose residents suffer from high PM2.5 air pollution.

A3 Expand Unincorporated Los Angeles County’s Tree Canopy and Green Spaces: Create an Urban Forest Management Plan to plant trees, increase the unincorporated County’s tree canopy cover, add green space, and convert impervious surfaces.

A3.2 Expand County tree planting both in the public right-of-way and on private property.

According to the UCLA Luskin Center for Innovation Healthy Places Index Heat Edition, all census tracts in Altadena will experience extreme heat (temperatures above 90F) above the state average of 79.9 days by 2035. Census Tract 4612 tops out at 125.3 days of extreme heat. The census tracts where tree canopy falls below the 80th percentile (according to the Healthy Places Index) are 4603.02, 4613, 4611, and 4610.

The lack of shade also corresponds to the major traffic and Metro bus corridors such as Lake Ave between Altadena Dr and Washington Ave, Woodbury Ave, and Fair Oaks between

Washington and Altadena Dr. Expanding the tree canopy along the public right of way would benefit transit users and residents.

Prioritizing a Pedestrian Plan for Altadena that takes into account County storm water drainage plans and increases permeable surfaces in line with a mobility plan can help define multi-benefit planning efforts toward sustainable solutions.

Signed on May 15, 2023 by,

Dorothy Wong, Chair, Traffic Safety & Mobility Committee, Altadena Town Council Member
Sarah Wolf, Committee Member
Seriina Corrubias, Committee Member
Tom Reilly, Committee Member
Sasha Anthome, Committee Member
June Cowgill, Committee Member
Ester Song, Committee Member
Gwen Yeager, Committee Member
Stephen Neptune, Committee Member

AltadenaWILD's Comment on the 2045 Climate Action Plan Chief Sustainability Office, LA County

AltadenaWILD (AW), a public benefit corporation in California (currently moving towards 501(c)(3) federal tax-exempt status) was created in early 2023 to serve as an advocate for the precious Altadena foothills. Its creation was catalyzed by the October 2022 announcement that Polytechnic School in Pasadena seeks to build a sports complex on a portion of the 78 acres being offered by for sale by a family-owned nursery on Chaney Trail. AW represents a large segment of the Altadena community and is writing on behalf of those citizens in support of the County's Draft 2045 Climate Action Plan.

The proposed development in a State-designated Very High Fire Hazard Severity Zone -- even if constrained to the 13 acres of the current nursery -- will inalterably impact the remaining 65 acres of wildlands. AW believes such a development would be inconsistent with the 2045 CAP strategies to:

- A1 - Conserve agricultural and working lands, forest lands, and wildlands
- A1.2 - Employ vegetation management of wildlands to reduce wildfire risk and prevent carbon loss in forest lands

The land represents an opportunity to achieve three County strategies:

- A1.1 -Develop an open space conservation and land acquisition strategy to conserve lands for carbon sequestration
- A3 - Expand Unincorporated Los Angeles County's Tree Canopy and Green Spaces
- A3.1 - Create and implement an equitable Urban Forest Management Plan that prioritizes: (1) tree- and parks-poor communities; (2) climate- and watershed-appropriate and drought/pest-resistant vegetation; (3) appropriate watering, maintenance, and disposal practices; (4) provision of shade; and (5) biodiversity.

The Proposed Sports Complex Plan

While Poly has not yet submitted their plans to the County/DRP (although it is expected sometime in Summer 2023), it has shared its proposed plans with AltadenaWILD, which include:

- A soccer/football/track stadium, with seating for 500
- A baseball stadium, with TBD seating capacity
- Two-story underground parking facility
- Lighting for night games
- Amplified sound systems
- Storage building(s)
- One-story "bungalow style" facility (ies) for classrooms
- Public restrooms
- Interior road

Seventy percent of the Nuccio's property falls within the Hillside Management Area (HMA, Title 22), and 80% falls within the Significant Ecological Area (SEA, Title 22.102), and Natural Open Space Provision (Title 22.102.100). The property transfer is currently in escrow through at least the end of 2023.

Climate Equity

The 2045 Climate Action Plan puts climate equity at the center of its strategy by prioritizing frontline communities, Indigenous people, BIPOC, low-income households, and communities affected by historically high environmental impacts.

Altadena has been affected by historically high environmental impacts due to wildfires and as a wildland-urban interface, will continue to do so into the future. Numerous wildfires have occurred recently in the surrounding areas, including the devastating 2009 Station fire.

According to the federal government's Climate and Economic Justice Screening Tool, Census Tract 4603.1 which includes the land that Poly intends to buy and develop into a sports complex, is in the 98th percentile for wildfire risk and the 90th percentile for expected annual building loss rate. The area also suffers from poor air quality and is in the 91st percentile for PM2.5. The Census Tract is in the 48th percentile for low-income households.

A Conservation Plan in Line with the 2045 CAP

As an alternative to a sports complex, AltadenaWILD favors a plan that would preserve wildlands and support wildfire management, rewild the 13 acres currently used as nursery to expand the tree canopy, improve watershed health, reduce hard-scaped surfaces and act as a carbon sink, and conserve the land for at-risk wildlife and plants.

Such an alternative plan, funded through a consortium of land conservancies, supports the 2045 CAP measures A1, A1.1, A1.2, A3, and A3.1, as well as aligns to additional County and State measures including to:

- Provide critically needed Altadena parkland, in accordance with the goals of LA County's Measure A to increase park space and improve neighborhood access to open space for high park-need communities. Altadena has less than one-third park acres per person than the average for LA County, according to the Los Angeles Countywide Comprehensive Park and Recreation Needs Assessment report.
- Support LA County's initiatives to restore habitat and improve water infrastructure, to green urban interface areas, and to help capture and conserve storm water.
- Provide learning opportunities for the public, inclusive of all adults and children, about environmental sciences and horticulture.
- Build resilience and sustainability in increasingly challenging times for the environment and climate.
- Firmly align with the State of California's mandate to preserve 30 percent of open lands by 2030, also known as the 30X30 initiative.
- Reduce population density in a State-designated Very High Fire Hazard Severity Zone
- Preserve access to the Angeles National Forest (a portion of which is designated a federal Monument)
- Preserve a Significant Ecological Area (80% of property is within Altadena Foothills and Arroys SEA)
- Preserve a County-designated Hillside Management Area (70% of property falls within HMAs)
- Preserve five County-designated Significant Ridgelines
- Preserve wetlands that contain seasonal streams that drain into the Arroyo Seco
- Conserve biodiversity and protect the highly threatened Coastal Sage Scrub and nine rare native plant species; the federally-designated threatened Coastal California Gnatcatcher, as well as an additional 40 rare and sensitive animal species.
- Preserve vital wildlife migration corridors between the San Gabriel Mountains and Altadena Foothills for mountain lions, grey foxes, bobcats, and black bears.

2045 CAP Measures

A1 Conserve Agricultural and Working Lands, Forest Lands, and Wildlands: Preserve, conserve, and restore agricultural lands, working lands, rangelands, forest lands, wetlands, and other wildlands in unincorporated Los Angeles County.

To meet the goal of reducing the amount of natural land converted for urban uses (and a sports complex would qualify as an urban use), the 78 acres owned by the Nuccio's family could be acquired and preserved in line with the 2045 CAP's "25% by 2030" goal.

A1.1 Develop an open space conservation and land acquisition strategy to conserve lands for carbon sequestration.

The 78 acres could be acquired and conserved for carbon sequestration to help meet the goal of "2,000 acres by 2030." An easement on this land where 80% of the property is already an SEA contributes to meeting the County's stated goals and metrics of the 2045 CAP.

A1.2 Employ vegetation management of wildlands to reduce wildfire risk and prevent carbon loss in forest lands.

The alternative conservation plan for Nuccio's would include vegetation management to reduce wildfire risk and carbon stock savings that would help to meet the County's stated goal of managing "10,000 acres by 2030".

A3 Expand Unincorporated Los Angeles County's Tree Canopy and Green Spaces: Create an Urban Forest Management Plan to plant trees, increase the unincorporated County's tree canopy cover, add green space, and convert impervious surfaces.

There is an opportunity to rewild the 13 acres that currently occupy the nursery by removing the buildings, concrete slabs, parking areas, and other impervious surfaces. By planting native trees within the 13 acres, the county tree canopy would increase and contribute to the County's stated goals of planting 5,000 trees by 2030 and increasing the tree canopy cover by 10% by 2030.

A3.1 Create and implement an equitable Urban Forest Management Plan that prioritizes: (1) tree- and parks-poor communities; (2) climate- and watershed-appropriate and drought/pest-resistant vegetation; (3) appropriate watering, maintenance, and disposal practices; (4) provision of shade; and (5) biodiversity.

> Preserving and rewilding the Nuccio's nursery would contribute to the Urban Forest Management Plan priorities 1 (tree- and park-poor communities) as Altadena has less than one-third park acres per person than the average for LA County, and priority 5 (biodiversity) to conserve and protect State Species of Special Concern such as the Burrowing Owl, Black Swift, Coast Range Newt, Coastal Western Whiptail, Two-Striped Garter Snake, San Diego Mountain King Snake, and Coastal Rosy Boa.

In conclusion, the proposed plan to purchase 78 acres in the Altadena foothills and develop a portion of the property into a sports complex is contrary to the stated goals of the 2045 CAP. Instead, AltadenaWILD is proposing a plan that focuses on conservation, rewilding, protecting biodiversity, and increasing the tree canopy, while advancing a more equitable and sustainable vision for unincorporated LA County.

Signed May 15, 2023

Dr. Michael D. Bicay
President, AltadenaWILD

Sarah Wolf
Member, AltadenaWILD

May 9, 2023

Los Angeles County Department of Regional Planning
Attn: Amy Bodek and Thuy Hua
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012
climate@planning.lacounty.gov

RE: LA County Climate Action Plan: Respectfully Requesting Additional Time for Public Review Based on Limited Details and Deferred Proposals

On behalf of the Los Angeles County Business Federation (BizFed), the Building Industry Association of LA/Ventura (BIA), and the Valley and Industry Commerce Association (VICA), we strongly support the County's and California's climate leadership. We remain committed to implementing feasible state and local climate GHG reduction measures while advancing complimentary policies to further equality, employment, infrastructure and housing. As California leads on global climate policies and technologies, any homes and jobs generated in Los Angeles will be among the most sustainable and climate-friendly in the world. Conversely, any unintended consequences that harm housing and job growth in Los Angeles will undercut local and state climate goals.

Our members are deeply concerned about the many unanswered questions raised by the Revised Draft 2045 County Climate Action Plan (Draft CAP) and its potentially far-reaching impact on housing, jobs, mobility and infrastructure. The Draft CAP would create a sweeping, ***mandatory*** regulatory program applicable to any new project triggering the California Environmental Quality Act. Our members and expert environmental consultants have carefully reviewed the lengthy documents and technical appendices, and we continue to have fundamental questions and concerns about the proposal.

- The Draft CAP's wind-ranging measures cause unexpected and adverse consequences to housing, jobs, infrastructure and other County priorities, as highlighted by two examples among many:
    - The Draft CAP creates an effective moratorium on small business, advanced manufacturing, and dozens of other vibrant and high priority economic development priorities that serve as the employment engine by requiring a "jobs density" of 300 jobs per acre. This job density metric can be met only in exceptional circumstances (e.g., high rise, high service employer like a hospital). It cannot be achieved by small business retailers, modern manufacturing facilities, many hybrid workforces with remote employees, entertainment or religious venues, etc.
    - The Draft CAP demands that 90% of all water consumed within the unincorporated County boundaries, and 80% of agricultural irrigation water, be supplied exclusively by local water sources consisting of

reclaimed water, graywater, and potable recycled water by 2045, which is well within the life of new housing, commercial and infrastructure projects. Not only is this CAP Measure legally and technically infeasible, it would hamstring County priorities of expanding housing and economic diversification dependent on reliable water supplies.

- The Draft CAP defers numerous requirements to an unknown future date and does not quantify many other measures. As just one example, the Draft CAP defers a centerpiece "Offsite GHG Reduction Program" that is necessary for compliance when local GHG reduction programs are unavailable or infeasible. Recent precedent demonstrates that very few local GHG reduction programs are viable at scale. Even if available, many local programs are extremely expensive and time consuming to implement—effectively rendering the programs prohibitive for many projects. It is impossible to assess the feasibility and effectiveness of the Draft CAP until this Offsite GHG Reduction Program is adopted by the County and demonstrated feasible.

- The Draft CAP does not quantify GHG emission reductions or the estimated costs and sources of funding for almost all of the myriad mandatory measures. Neither the Draft CAP, its Technical Appendices, nor the 1000+ page PEIR, disclose the quantity, cost, or revenue source for each of CAP measure except for a handful of "core" measures that are largely based on statewide laws and regulations required to be implemented with or without any County CAP. Our members believe that CAP measures, which are fully enforceable General Plan mandates, will impose prohibitively high costs on employers and residents of new housing without any significant GHG reductions beyond those already required by state laws and regulations.

- The Draft CAP includes a web of overlapping documents that are difficult to understand and assess the ramifications on housing, jobs, mobility and infrastructure. For example, the Draft CAP mandates compliance or an infeasibility determination for well over 50 measures that are linked to various "strategies" that may or may not be binding on all projects. What is more, the PEIR includes many Mitigation Measures that further expand the list of mandatory obligations.

- The Draft CAP explains that any project that fails to comply with **all** CAP measures would be inconsistent with the CAP, and under CEQA would accordingly result in a significant adverse GHG impact precluding use of CEQA streamlining tools, and would further need to adopt "all feasible" mitigation measures as well as justify with "substantial evidence in the record" why the project could not comply with each and every CAP measure. Each such substitute measure, and each finding of infeasibility, would invite CEQA litigation known to slow or stop housing and new jobs. The CAP should be revised to include a full assessment of the feasibility of each measure for the myriad of housing, employment, and infrastructure projects required to fulfill other General Plan, economic development, equity and environmental priorities.

- The Draft CAP does not provide meaningful relief through alternative compliance strategies. The limited alternative options are not fully defined or deferred to future development, while the feasibility of achieving "all local" reductions remains unproven.

Given the significant consequences of this mandatory program on housing, jobs, mobility and infrastructure, we respectfully request that the County provide ***at least 60 days more for public review and a series of workshops*** with stakeholders. On March 13, 2023, BizFed previously asked that the County provide at least a 60-day comment period. Given the complexity of the CAP and PEIR (released after the Draft CAP, on March 30), as well as the significant ramifications from this proposal, it is infeasible for the public and business community to review, understand and provide meaningful comments without another 60-day review period and public workshops. We also ask that mandatory compliance with the CAP be delayed until the CAP's implementation programs have been proposed by staff, reviewed by the public, and adopted by the Board (e.g., the Offsite GHG Reduction Program). County staff should involve stakeholders when developing such programs.

We look forward to continuing working with the County on these important issues. Please feel free to reach out to us with any questions. If you have any questions, please contact sarah.wiltfong@bizfed.org.

Best regards,

Tracy Hernandez,
Founding CEO, Los Angeles County Business Federation

Jeff Montejano
Chief Executive Officer, Building Industry Association of Southern California

Maria S. Salinas
President & CEO, Los Angeles Area Chamber of Commerce

Stuart Waldman
President, Valley Industry and Commerce Association

May 15, 2023

Via e-mail at:
climate@planning.lacounty.gov

Thuy Hua
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

Re: Comments on Los Angeles County Revised Draft 2045 Climate Action Plan (Draft CAP)

Dear Ms. Hua,

We are contacting you on behalf of BizFed, the Los Angeles County Business Federation. We are an alliance of over 200 business organizations who represent over 400,000 employers in Los Angeles County, including large and small businesses from a wide range of industries throughout the South Coast Air Basin (SCAB). We are writing to comment on the LA County Revised Draft 2045 Climate Action Plan (Draft CAP).[1] Many of the businesses we represent have or will be writing their own individual comment letters that specifically address the impacts to their industries. Our comments address the impacts to the business community as a whole and include overarching concerns of our diverse membership.

The Draft CAP identifies 10 strategies, 25 measures, and implementing actions to reduce GHG emissions in unincorporated LA County. The Draft CAP requires project applicants to demonstrate compliance with each implementing action. Project applicants that cannot implement these actions would be expected to demonstrate equivalency or participate in the County's proposed Offsite Reduction Program, or their greenhouse gas (GHG) emissions impacts will be determined to be "significant and unavoidable" under the California Environmental Quality Act (CEQA).

Certain actions proposed in the Draft CAP would appear to directly conflict with other significant County priorities, such as economic growth and housing availability, and it is not currently feasible to implement many of the required actions. Additionally, several proposed measures would rely upon State and Federal actions that are outside the County's jurisdiction. The Draft CAP also fails to consider the implementation challenges associated with the proposed Offsite Reduction Plan. As detailed below, the enforceability of the Draft CAP will create significant problems for the County. For these reasons, BizFed recommends that the Draft CAP not be adopted into the General Plan.

We provide the following detailed comments.

[1] LA County Revised Draft 2045 Climate Action Plan. Available at: https://planning.lacounty.gov/long-range-planning/climate-action-plan/documents/. Accessed: May 2023.

1. **The Draft CAP is inconsistent with the County's economic goals, and inconsistent with the goals of the General Plan and Housing Element.**[2,3]

The 2045 CAP Consistency Review Checklist (Checklist) provides a list of measures with which project applicants must comply.[4] These measures are inconsistent with the economic goals and General Plan goals, including those stated in the Housing Element. For example:

- Checklist Item 12, "Achieve a High Jobs/Housing Balance," would require project applicants to describe how their project will achieve a job density of 300 jobs per acre. This creates an effective moratorium on small business, advanced manufacturing, and other businesses that serve as the employment engine of the County. Such a job density metric can only be achieved in exceptional circumstances (e.g., in a high rise, high service employer like a hospital). It cannot be achieved by small businesses, modern manufacturing facilities, businesses that utilize a hybrid workforce, the goods movement sector, entertainment or religious venues, schools, recreational facilities, or on college and university campuses.

  Table 1 provides the average employment densities of common categories of commercial use, none of which come close to the 300 employee per acre requirement in the Draft CAP.[5]

Table 1. Employment Density Measures of Select NAICS Sectors *(Employees per acre)*

Sector (NAICS Codes)	Mean	Median	Interquartile Range	Sample Size
Manufacturing (31, 32, 33)	18.8	11.0	15.7	217
Transportation and Warehousing (48, 49)	11.2	8.0	10.8	34
Construction (23)	19.4	9.9	18.4	122
Wholesale Trade (42)	12.8	8.0	11.1	132
Retail Trade (44,45)	13.0	7.1	11.6	65
Real Estate and Rental and Leasing (53)	5.7	2.2	5.8	24
Administrative Support and Waste Management and Remediation Services (56)	22.5	20.3	22.0	25

  New commercial, manufacturing, infrastructure, tourism, entertainment, church, and educational uses that do not have 300 employees per acre would be inconsistent with the Draft CAP as proposed. The projects would therefore be required to complete a comprehensive GHG analysis which could lead to a costly legal battle about what substitute measure(s) can be implemented to achieve the GHG performance target. The Draft CAP does not include a methodology to demonstrate equivalency with the job density per acre requirement. Therefore, prospective employers would not know how to demonstrate compliance with this CAP mandate.

- The Draft CAP counts GHG emissions that occur within the geographic boundaries of unincorporated Los Angeles county lands in the County's GHG inventory, and then

[2] LA County General Plan. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/gp_final-general-plan.pdf. Accessed: May 2023.
[3] Revised County of Los Angeles Housing Element (2021-2029). Available at: https://planning.lacounty.gov/wp-content/uploads/2022/11/housing-element-20220517.pdf. Accessed: May 2023.
[4] Draft CAP Appendix F: 2045 Climate Action Plan Consistency Review Checklist. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA-County-2045-CAP_Rev_PublicDraft_AppendixF-Checklist.pdf. Accessed: May 2023.
[5] Rohan, Catherine. Industrial Zoning & Employment Density: A Missed Connection? June 2020. Available at: https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/26252/CRohan_ExitProj_Final.pdf?sequence=1&isAllowed=y . Accessed: May 2023.

demands that these GHG emissions become net-zero by 2045. When jobs or families move out of the County, the reduction in GHG emissions counts toward meeting the net zero targets. The County's GHG inventory methodology rewards the de-growth of the county, penalizes growth in housing, jobs, and population. This is inconsistent with the County's General Plan, which includes a guiding principle to provide the foundation for a strong and diverse economy. It is also inconsistent with the Housing Element, which includes goals to ensure housing availability, ensure housing affordability, and stabilize the housing supply.

2. The Draft CAP would require project applicants to comply with measures that are infeasible and conflict with other County mandates and policies.

The development of Los Angeles County was and remains dependent on a diverse, resilient water supply that includes imported water. Draft CAP Measure E5, "Increase Use of Recycled Water and Graywater Systems" includes a performance objective that 90% of the water demands of Unincorporated Los Angeles County must be met by recycled water, graywater, or potable reuse, and that 80% of water for agricultural irrigation or and industrial uses must be supplied exclusively by recycled or graywater by 2045. Under this CAP Measure, no imported water source – including water delivered directly to the County, and water purchased and stored for use in the County, and no de-salinization technology or other technology falling outside the three designated technologies, can supply more than 10% of the County's total water demand.

This measure is legally infeasible. The County has and is party to numerous water infrastructure, supply, and management contracts that govern imported water, which is by far the largest source of water to the County and cities within the County. This measure is also technically infeasible. While all three of the exclusively-sanctioned water treatment technologies have already been invented and implemented on a very small scale in limited areas, all of these treatment technologies effectively concentrate nitrate and other residual chemicals in the treated water supply, and these treated waters must be blended with fresh water to be potable.

Finally, this measure conflicts with other County General Plan, policy, and state law legal mandates. The County is required by its own General Plan as well as state law to implement its approved Housing Element, and plan for and approve plan-compliant housing for many thousands of new homes. New homes cannot be built without adequate water supplies. The Draft CAP would cause the County to violate housing laws by disapproving new housing that are not supplied by a minimum of 90% recycled, grey water, and potable recycled water, none of which are currently available to meet the potable drinking water needs of housing built today. The County also cannot achieve its economic diversification goals, including attracting additional advanced manufacturing, battery and climate-tech, aerospace, research, medical, and technology employers, without providing an adequate, secure, and high-quality water supply.

The Draft CAP, if adopted into the General Plan as proposed, applies directly and immediately to the County's own projects, and to the County's approval of project applications. The legal risks and compliance costs of the water mandate will result in immediate challenges to County funded projects (e.g., infrastructure, arts, parks), and County-approved and applicant-proposed housing and job-creation projects that meet other urgent County needs and legal obligations.

The Draft CAP blocks the County's access to innovative, climate-resilient, and clean technologies with mandatory prescriptions for which technologies are acceptable and which are not. In the context of water supply, the Draft CAP locks decades-old recycling, grey water, and potable water re-use technologies into the General Plan, proactively depriving the County and its residents and businesses from using safe, clean, affordable, and reliable water supply solutions that have not yet been deployed at scale, or even invented.

3. **Several measures rely upon State and Federal actions that are outside the County's jurisdiction.**

The Draft CAP includes a web of overlapping documents, each of which adds new mandates and complexities to the compliance obligations. For example, the Draft CAP itself lists only 10 high level "Strategies" in 5 sectors for reducing GHG.[6] The Draft CAP includes 25 "Measures" within those strategies, and "over 90 implementation actions". The Program Environmental Impact Report (PEIR) mitigation measures add dozens of additional mandates to the total CAP measure list.[7]

While the Draft CAP states the County's GHG reduction target will be achieved by successfully implementing five core measures,[8] it imposes more than 100 additional measures on future County projects. Moreover, the Draft CAP fails to disclose quantified GHG emission reductions, estimated costs, or sources of funding for almost all of the 100 mandatory CAP measures. Even if the County were inclined to allow "equivalent" GHG reductions in lieu of CAP-prescribed measures, the CAP provides no methodology for calculating how much GHG reduction is attributable to each measure.

The Draft CAP explains that any project that fails to comply with all CAP measures would be inconsistent with the CAP, be deemed to have a significant adverse GHG impact and need to adopt "all feasible" mitigation measures as well as justify with substantial evidence why the project could not comply with each and every measure.[9] However, of the five core measures that result in the bulk of the GHG reductions, only Measure W1, "Institutionalize Sustainable Waste Systems and Practices," falls within the jurisdictional control of the County. The remaining four core measures fall outside of County control:

- Measure T6: "Increase ZEV Market Share and Reduce Gasoline and Diesel Fuel Sales." The County's role in achieving this objective is most clear in the vehicle purchasing decisions by the County, and in mandating ZEV-charging infrastructure. The County cannot lawfully ban the sale or use of non-ZEV vehicles, yet the Draft CAP demands that 68% of all light duty vehicles (pickup trucks, vans, and cars) sold in the County be ZEVs by 2030 and 100% by 2035. This is state law, authorized only with approval by the US EPA, but its inclusion accounts for 30.5% of the GHG reductions stated in the Draft CAP. These reductions would be achieved with or without the Draft CAP.
- Measure ES2: "Procure Zero-Carbon Electricity." The County's performance metrics for this goal rely on state laws that already require a renewable energy electric grid, and state and local utility mandates and programs already in place and slated for expansion. The Draft CAP can commit the County to procure only zero carbon electricity, but the Draft CAP also requires 96% of community participation in this zero-carbon electricity mandate by 2030. The County lacks the legal jurisdiction to mandate this outcome for existing and future residents and businesses.
- Measure E1: "Transition Existing Buildings to All-Electric." The Draft CAP demands that 80% of existing residences, 60% of existing non-residential buildings, and

[6] Draft CAP. Table 3-1, Page 3-3. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf. Accessed: May 2023.
[7] Draft CAP Recirculated Draft Program Environmental Impact Report, Table ES-2, Page ES-20. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/04/LA-2045-CAP-Recirculated-Draft-Program-EIR.pdf. Accessed: May 2023.
[8] Draft CAP. Page 3-5. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf. Accessed: May 2023.
[9] Draft CAP. Page 1-5. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf. Accessed: May 2023.

100% of renovations, include only electric, not natural gas, service. While the County can mandate this transition for its own buildings, the United States Court of Appeals for the Ninth Circuit has recently confirmed that local governments cannot prohibit the use of natural gas in buildings or appliances in new buildings because this has been preempted under federal law.[10] Removing natural gas service from existing structures is likewise preempted. Therefore, this CAP measure is beyond the County's jurisdiction.

- Measure T8: "Accelerate Freight Decarbonization." State and federal litigation is pending over the extent to which the state can mandate heavy duty EV trucks. The County CAP can require measures such as installation of EV chargers to facilitate this transition, but achieving this freight decarbonization outcome will be dependent on legal proceedings that are outside the County's jurisdiction and control.

4. The Draft CAP fails to consider the implementation challenges associated with the proposed Offsite Reduction Plan.

The CAP requires that project applicants that cannot demonstrate consistency with every item in the Checklist instead fund projects that will generate equivalent reductions in LA County via the County's Offsite GHG Reduction Program. The County plans to create its own GHG offsite registry so that project applicants can comply with this requirement. At the time of this Draft CAP publication, the County has not yet created this offset registry, nor provided any details about its methodology or implementation. The Draft CAP has not demonstrated that this offsite GHG reduction program would be available or able to achieve the required GHG reductions.

Appendix F of the Draft CAP provides examples of six offsite project types that would qualify under this program. However, these examples are either already required under existing State or County regulations, or for that matter the Draft CAP. For example, the Draft CAP proposes that project applicants can fund local building solar programs as part of their offsite GHG reduction program. However, the Draft CAP would require that new projects utilize 100% zero-carbon electricity on-site and the Title 24 2022 Building Energy Efficiency Standards already contain mandatory requirements for solar readiness (Note, these are not the same requirement). Therefore, an applicant could not use funding of local building solar programs as part of the offsite GHG reduction program, as the reductions would not be in addition to reductions required by existing requirements.

The Draft CAP also rejects use of the CARB-approved Net-Zero GHG compliance pathway by expressly disallowing GHG reductions achieved by CARB-approved GHG offsets. Instead, the Draft CAP allows for a County-only GHG reduction offset credit program, but includes zero information about the cost, feasibility, schedule, or scale of any such future program. The Draft CAP demands that GHG reductions achieved by projects must be fully additional to federal, state, and local law mandates in order to count as GHG reductions in any future County offset program.

Given the existing comprehensive regulatory requirements, it will be extremely difficult (and expensive) for project applicants to implement GHG reduction programs within the County. The Draft CAP has neglected to report the potential cost of their proposed offsite GHG reduction program, which could potentially be at much higher costs than comparable programs that could be equally effective at reducing GHG emissions.

[10] California Restaurant Association vs. City of Berkeley. No. 21-16278. United States Court of Appeals for the Ninth Circuit, 2022. Available at: https://cdn.ca9.uscourts.gov/datastore/opinions/2023/04/17/21-16278.pdf. Accessed: May 2023.

The Draft CAP misleadingly references the Scoping Plan to suggest that only local reductions are recommended. The Scoping Plan recommends a tiered approach that offers applicants some flexibility. The exact language of the Scoping Plan reads:

> *"If a project needs further GHG reductions after adoption of all feasible local, off-site mitigation options, **applicants should next consider non-local, off-site mitigation**…"*[11]

The Scoping Plan prioritizes onsite and local measures but allows non-local measures and offset credits. The Draft CAP should follow the precedent set by the Scoping Plan and allow a tiered approach to offset credit mitigation to address the need for GHG reduction.

5. The Draft CAP should not be adopted as a component of the County's General Plan

The County approved the only major mixed use master planned communities recognized by the California Air Resources Board (CARB) to have achieved Net Zero GHG. The Draft CAP does not create any feasible new Net Zero GHG compliance pathway for any project, undermining CARB's resolution to endorse net zero GHG project outcomes similar to those already achieved. The Draft CAP only creates a net zero GHG compliance pathway for like-kind replacement projects that emit less GHG on the same site. This outcome is easily achieved for replacement projects, but there is no pathway provided for projects that would include new uses on the same site or increase land use densities. The Draft CAP would result in housing projects that are in full compliance with the Housing Element and every existing GHG reduction mandate being in violation of the County's General Plan.

CARB's Scoping Plan encourages local Climate Action Plans to support the State's goals, stating:

> *"California's overall state goal of achieving carbon neutrality no later than 2045 can also inform GHG reduction targets at individual community levels, and some communities or regions may be able to reach neutrality themselves. However, it is important to design targets in ways that support overall state goals, recognizing that each region has distinctive sources and systems."*[12]

The Draft CAP should be revised to exclude measures that are in conflict with other County-approved plans, policies, and projects. Once included in the General Plan, compliance with the Draft CAP would be mandatory. Neither elected officials nor staff could authorize deviations from the Draft CAP without amending the General Plan. Third parties seeking to block funding or approvals of infrastructure, job-creation, and housing projects could also sue the County by alleging failure to fully comply with the General Plan; applicants receiving County approvals for such projects would also be targets for such lawsuits.

Inclusion of the Draft CAP in the General Plan would also create new County obligations and expand litigation risks under CEQA. As the Draft CAP itself explains, any project that failed to comply with all applicable requirements would be deemed to conflict with an environmental component of the General Plan. These conflicts would trigger the necessity for an Environmental Impact Report (EIR), and preclude the County or applicants from making use of less costly, less time-consuming, and less litigious CEQA compliance pathways. The Draft CAP specifies that for each non-compliant CAP measure, the "infeasibility" of such a measure must be demonstrated with substantial evidence. Each one

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[11] California Air Resource Board, 2022 Scoping Plan. Appendix D – Local Actions, Page 31. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf. Accessed: May 2023.

[12] California Air Resource Board, 2022 Scoping Plan. Appendix D – Local Actions, Page 18. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf. Accessed: May 2023.

of these "infeasibility" findings, as well as the sufficiency of any alternative CAP measure, is also subject to challenge in CEQA and General Plan compliance lawsuits.

The Draft CAP locks county elected and appointed officials, and voters, into rigid and long-term compliance obligations. Once adopted, the CAP cannot be amended without undergoing further CEQA review inclusive of adoption of "all feasible mitigation" to achieve either the same or a modified GHG reduction goal. San Diego County adopted what its Board of Supervisors believed to be an aspirational CAP into its General Plan in 2018.[13] The CAP was fully-enforceable under the General Plan and was considered a CEQA mandate. Litigants have an unbroken string of lawsuit successes in blocking multiple new housing projects in San Diego County. San Diego County attempted to amend its CAP and allow the use of CARB-approved and other GHG offsets to mitigate GHG emissions, but that was unsuccessful.

An aspirational CAP vote taken decades ago by the San Diego County Board of Supervisors has become one of the most formidable anti-housing, anti-growth tools in California history. Solano County suffered the same fate when its General Plan aspirational CAP also failed to pass a no-growth advocacy CEQA lawsuit challenge. Looking at this woeful record of local agency losses when CAPs were included in General Plans, even the most pro-climate jurisdictions in California (e.g., San Francisco), have recently opted not to include CAPs in their General Plans, while others have carefully drafted CAPs to assure that they are clear, feasible, implementable, and operate in alignment with and support other approved General Plan elements, as well as other policy priorities, plans and obligations.

The County's current General Plan CAP was carefully crafted to be fully attainable, and the County has prevailed in CEQA lawsuits challenging projects based on alleged inconsistency with the present CAP. In contrast, this Draft CAP's inclusion of technically and legally infeasible measures, as well as undefined and unquantified measures, and its rejection of lawful and feasible climate compliance mandates, will result in litigation challenging infrastructure, housing, job-creation, and other projects. There is no federal, state or County obligation to approve even an aspirational policy CAP, let alone adopt a CAP into the General Plan.

Once adopted into the General Plan, the Draft CAP cannot be modified without additional CEQA review. Future amendments that may make the CAP feasible can themselves be litigated for many years while progress on projects comes to a grinding halt. The Draft CAP should be substantially revised into an aspirational policy document that focuses solely on feasible GHG reduction measures which are within the jurisdiction of the County to implement, operate in full alignment and support of the County's economic development, housing, and infrastructure goals, and do not increase the cost, time, or litigation risks for the County or applicants. The Draft CAP should separately quantify GHG reductions from the successful implementation of statewide laws and mandates, and present what additional measures, if any, should be undertaken by the County. We ask that the county do an economic impact study prior to any final adoption of the plan.

BizFed supports California's global climate leadership, and our members are committed to assuring that state and local climate measures can be feasibly implemented in furtherance of other critical California priorities such as the continued growth of the California economy, the increased equity and upward mobility for our working families and employers, the funding and timely completion of urgently needed transportation, water and other infrastructure, and the implementation of the housing elements approved by our cities and counties to solve our regional housing crisis. We look forward to continuing our work with LA County to see progress made in a way that is equitable and lasting.

[13] San Diego County 2018 Climate Action Plan. Available at: https://www.sandiegocounty.gov/content/sdc/sustainability/climateactionplan/2018cap.html. Accessed: May 2023.

Thank you for your consideration of our letter and we look forward to meeting with you in the near future to review our letter and talk in detail about our concerns. If you have any questions, please contact Sarah Wiltfong, BizFed's Director of Policy and Advocacy, at sarah.wiltfong@bizfed.org.

Sincerely,

John Musella	David Fleming	Tracy Hernandez	David Englin
BizFed Chair	BizFed Founding Chair	BizFed Founding CEO	BizFed President

BizFed Association Members

7-11 Franchise Owners Association for SoCal
Action Apartment Association
Alhambra Chamber
American Beverage Association
Antelope Valley Chamber formerly Lancaster Chamber of Commerce
Apartment Association of Greater Los Angeles
Apartment Association, CA Southern Cities, Inc .
Arcadia Association of Realtors
AREAA North Los Angeles SFV SCV
Armenian Trade & Labor Association
Arts District Los Angeles
Associated Builders & Contractors SoCal (ABC SoCal)
Association of Club Executives
Association of Independent Commercial Producers
AV Edge California
Azusa Chamber
Beverly Hills Bar Association
Beverly Hills Chamber
BioCom
Black Business Association
BNI4SUCCESS
Bowling Centers of SoCal
Boyle Heights Chamber of Commerce
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CABIA California Business and Industrial Alliance
Calabasas Chamber of Commerce
CalAsian Chamber
CalChamber
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Business Properties
California Business Roundtable
California Cannabis Industry Association
California Cleaners Association
California Contract Cities Association
California Fashion Association
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Oil Marketers Association (CIOMA)
California Independent Petroleum Association
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Society of CPAs - Los Angeles Chapter
California Trucking Association+
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Cerritos Regional Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Claremont Chamber of Commerce
Commercial Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Council on Infil Builders
Crenshaw Chamber of Commerce
Culver City Chamber of Commerce
Downey Association of REALTORS
Downey Chamber of Commerce
Downtown Alhambra Business Association
Downtown Center Business Improvement District
Downtown Long Beach Alliance
El Monte/South El Monte Chamber
El Segundo Chamber of Commerce
Employers Group
Encino Chamber of Commerce
Energy Independence Now EIN
Engineering Contractor's Association
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Lakewood Chamber of Commerce
Greater Leimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hong Kong Trade Development Council
Hospital Association of Southern California
Hotel Association of Los Angeles
Huntington Park Area Chamber of Commerce
ICBWA- International Cannabis Women Business Association
Independent Cities Association
Industrial Environmental Association
Industry Business Council
Inglewood Board of Real Estate
Inland Empire Economic Partnership
International Franchise Association
Irwindale Chamber of Commerce
Kombucha Brewers International
La Cañada Flintridge Chamber
LA Coalition
LA Fashion District BID
LA South Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Restaurant Association
LAX Coastal Area Chamber
League of California Cities
Long Beach Area Chamber
Long Beach Economic Partnership
Los Angeles Area Chamber
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles LGBTQ Chamber of Commerce
Los Angeles Parking Association
Los Angeles World Affairs Council/Town Hall Los Angeles
MADIA
Malibu Chamber of Commerce
Manhattan Beach Chamber of Commerce
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Tobacco Outlets
National Association of Women Business Owners
National Association of Women Business Owners - LA
National Association of Women Business Owners- California
National Federation of Independent Business Owners California
National Hookah
National Latina Business Women's Association
Orange County Business Council
Orange County Hispanic Chamber of Commerce
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PGA
PhRMA
Pico Rivera Chamber of Commerce
Planned Parenthood Affiliates of California
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional CAL Black Chamber, SVF
Regional Hispanic Chambers
San Dimas Chamber of Commerce
San Gabriel Chamber of Commerce
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Sherman Oaks Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
South Pasadena Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California Leadership Council
Southern California Minority Suppliers Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Sportfishing Association of California
Structural Engineers Association of Southern California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Torrance Area Chamber
Tri-Counties Association of Realtors
United Cannabis Business Association
United Chambers – San Fernando Valley & Region
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems Association
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development Corporation
Veterans in Business
Vietnamese American Chamber
Warner Center Association
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Western Electrical Contractors Association
Western Manufactured Housing Association
Western States Petroleum Association
Westside Council of Chambers
Whittier Chamber of Commerce
Wilmington Chamber
Women's Business Enterprise Council
World Trade Center

Key Issues for the County of Los Angeles 2045 Climate Action Plan (2045 CAP) Recirculated Draft Program EIR (DPEIR)

1. The DPEIR does not adequately quantify greenhouse gas (GHG) reductions associated with the 2045 CAP's proposed measures and actions.
    a. The 2045 CAP identifies 10 strategies, 25 measures, and many implementing actions to reduce GHG emissions in unincorporated LA County. The DPEIR does not quantify reductions from 7 of the 25 measures listed in the CAP.
        i. Appendix D of the DPEIR, also included as Appendix B of the 2045 CAP, describes anticipated emission reductions resulting from the CAP.[1] However, the analysis in this appendix is incomplete. This appendix does not quantify emissions from any of the following measures listed in the CAP:
            I. ES4: Increase Energy Resilience
            II. S5: Establish GHG Requirements for New Development
            III. T5: Limit and Remove Parking Minimums
            IV. E3: Other Decarbonization Actions
            V. E5: Increase Use of Recycled Water and Gray Water Systems
            VI. W2: Increase Organic Waste Diversion
            VII. A2: Support Regenerative Agriculture
        ii. The DPEIR does not adequately support the 2045 CAP as it has not demonstrated the GHG reduction value of these measures.
    b. Appendix D of the DPEIR also does not quantify reductions from any of the mandatory actions cited in the 2045 CAP checklist, which is included as Appendix F of the 2045 CAP.[2]
        i. Several of the checklist items cannot be quantified because they rely on future ordinances or plans that have not yet been developed. The DPEIR relies upon future programs to generate reductions, but as those programs have not been evaluated as part of CEQA, adopted, or demonstrated to be successful, the DPEIR similarly cannot be approved under CEQA. Programs that have been cited in the 2045 CAP but were not evaluated as part of the DPEIR or other CEQA documentation include the following:
            I. Zero Emission Vehicle Master Plan
            II. Building Performance Standards
            III. Carbon Intensity Limits
            IV. ZNE Ordinance
            V. All-Electric New Buildings Ordinance

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[1] LA County Revised Draft 2045 Climate Action Plan Appendix B: Emissions Forecasting and Reduction Methods. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA-County-2045-CAP_Rev_PublicDraft_AppB-Reductions.pdf. Accessed: May 2023.

[2] LA County Revised Draft 2045 Climate Action Plan Appendix F: 2045 Climate Action Plan Consistency Review Checklist. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA-County-2045-CAP_Rev_PublicDraft_AppendixF-Checklist.pdf. Accessed: May 2023.

VI. Net Zero Water Ordinance

ii. The DPEIR is inadequate as it has not substantiated how these 2045 CAP checklist items will help achieve the GHG reduction goals and it cannot be assessed if these are feasible. Per CEQA Statute Article 9, §15126.4, an EIR shall only include feasible mitigation measures.[3] If the plans that govern the mitigation measures are not in place, and the mitigation measure requirements are still unknown, then complying with these measures would automatically be considered infeasible.

c. Since the DPEIR does not evaluate GHG emissions reductions for several required 2045 CAP measures and actions, the DPEIR has not adequately provided a basis in support of the 2045 CAP such that project applicants can propose equivalent alternatives for these measures as allowed for in the CAP.

i. The 2045 CAP allows project applicants to identify alternative project emission reduction measures if they do not comply with certain items in the checklist. However, if the checklist items are not quantified in the DPEIR, or if they rely on ordinances and plans that have not been vetted or approved through CEQA, then project applicants cannot demonstrate that proposed alternatives are quantitively equivalent to these measures.

ii. Unless the DPEIR is updated to quantify reductions from the 2045 CAP checklist items, project applicants will be unable to demonstrate conformity with the plan, and be determined to have "significant and unavoidable" GHG impacts.

d. Overall, the DPEIR has not adequately evaluated the GHG reductions associated with the 2045 CAP. It relies on plans and ordinances that have not been approved through CEQA, and does not quantify reductions associated with several actions and measures that are required within the 2045 CAP. At a minimum, the DPEIR should be updated and recirculated for review with a revised analysis and checklist approach that makes conformance with unadopted programs voluntary until the programs have been evaluated under CEQA, adopted, and demonstrated to be successful. The DPEIR's GHG analysis has not adequately supported the reduction targets the 2045 CAP has stated it will achieve.[4]

2. The DPEIR does not provide adequate information to assess GHG impacts because the essential alternative compliance pathways are not quantified and the DPEIR omits the critical element—a future Offsite GHG Reduction Program to facilitate LA County offsite reductions that will be adopted sometime in the future but with no additional details. This Program lacks technical details and cannot be meaningfully evaluated from a technical standpoint:

a. First, neither the 2045 CAP nor the DPEIR provides any assessment of feasibility to identify and implement GHG reduction programs within Los Angeles County. While it is laudable to prioritize such projects, it is likely to be difficult, and perhaps impossible, for projects to meaningfully obtain GHG emissions reductions through programs located solely in the County. For that reason, the CARB Scoping Plan has a tiered approach to mitigation, prioritizing onsite and local measures, followed by non-local

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[3] Association of Environmental Professionals. 2023 California Environmental Quality Act Statute & Guidelines. Available at: https://www.califaep.org/docs/CEQA_Handbook_2023_final.pdf. Accessed: May 2023.

[4] LA County Revised Draft 2045 Climate Action Plan. Page ES – 4. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf. Accessed: May 2023

measures.[5] The CAP provides no technical justification nor feasibility assessment for deviating from the Scoping Plan's recommended prioritization.

b. Second, neither the 2045 CAP nor the DPEIR provides any assessment of cost feasibility of such a program. The current lack of such programs is a clear indication of the likely higher costs associated with local programs compared to non-local programs. The 2045 CAP and the DPEIR do not technically demonstrate that any such programs are feasible at reasonable costs. Until the cost effectiveness of such a program is proven, there is no basis to assume this alternative offers a viable pathway for the 2045 CAP.

c. Specifically, the documents released by the LA County for the 2045 CAP have not adequately demonstrated feasibility for the offsite reduction measure cited in Appendix F:

    i. <u>Energy storage and microgrids</u>: The Checklist proposes funding for or creation of a microgrid to balance generation from renewable sources and distributed controllable generation, or to deploy a battery storage system. The CAP should demonstrate that this is feasible and cost effective for projects to employ and what emission reductions are achievable with this action.

    ii. Truck and bus electrification programs:
        1. Checklist item 9 requires that projects decarbonize their truck fleets.
        2. CARB has passed or proposed many regulations that also work towards this goal, notably Innovative Clean Transit, Advance Clean Trucks, and Advanced Clean Fleets.
        3. South Coast Air Quality Management District's Warehouse Indirect Source Rule promotes heavy-duty fleet decarbonization.
        4. All of these programs have recognized that there is a period of phase in that needs to occur with this new technology. The CAP has not demonstrated that the requirement is feasible in the context of these existing regulations and what reductions could be achieved by any such programs.

    iii. Hydrogen fuel: The CAP proposes that projects to fund or develop programs that provide renewable hydrogen fueling stations for nearby truck fleets.
        1. This action is already required at goods movement facilities by checklist Item 9.
        2. Hydrogen fuel projects would come at a huge cost to project applicants. Generating enough emission reductions to offset emissions could require applicants to fund hydrogen fuel infrastructure, distribution equipment, fueling stations, new vehicles that utilize hydrogen, and system maintenance. To date, the CEC has spent $166 million to support 86 hydrogen stations in California, according to their 2022 Joint Agency Staff Report on AB 8.
        3. The CAP has not demonstrated that this is feasible for projects to achieve and what reductions could be achieved by any such programs.

    iv. The Offsite Reduction Program's requirement to perform all offsite reduction projects within LA County and prohibit other forms of offset credits creates unnecessary limitations for projects and LA County to effectively achieve GHG reductions to address global climate change.

[5] California Air Resource Board, 2022 Scoping Plan. Appendix D – Local Actions, Page 31. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf. Accessed: May 2023.

1. First, it is extremely difficult and expensive to identify and implement GHG reduction programs within Los Angeles County. Given the parameters required in the 2045 CAP, the 2045 CAP has not demonstrated what amount of GHG reductions are feasible in this program. The Scoping Plan has a tiered approach to offset credit mitigation to address the need for GHG reduction, prioritizing onsite and local measures, followed by non-local measures and offset credits.

2. Second, the 2045 CAP has ignored the potential cost of the offsite GHG reduction program, which likely will carry much higher costs than comparable programs that are equally effective at reducing GHG emissions. The 2045 CAP should demonstrate that the offsite GHG program is feasible in terms of cost.

3. Third, creating and obtaining non-local offsite reductions through voluntary market credit registries is a multi-year process, and includes identification of reduction opportunities, funding of these opportunities, quantification of reductions, and verification of reductions. Most projects will need to fund offsite reductions prior to beginning construction, and thus the timing requirements may render this an infeasible requirement. The 2045 CAP thus needs to demonstrate how this will be feasible from a timing perspective.

3. The DPEIR does not properly analyze the adverse impacts on population and housing, nor the inconsistency with the Project Objective of providing a diverse range of housing. The DPEIR should analyze how the CAP may impair many types of housing projects by imposing a mandatory regulatory framework on every new CEQA project. The DPEIR and 2045 CAP should (1) demonstrate the link between the mandatory mitigation and the impact or (2) establish that a project will only be responsible for its proportional contribution to address the cumulative impact. In particular:

   a. The checklist, as currently designed, obligates an applicant to implement certain types of GHG reduction strategies for *policy grounds unrelated to GHG reductions*. While this may be an aspirational goal for the County, it does not establish a nexus between the required mitigation and a project's impacts if equally effective mitigation is available to address the impact.

   b. The checklist, as currently designed, imposes significant costs and procedural hurdles on the applicant without evidence from the County that those burdens will be roughly proportional to the impact, particularly in light of the availability equally effective GHG mitigation that is less burdensome.

   c. To address this concern, the County should establish greater flexibility to allow an applicant to identify appropriate alternatives for the project based on performance standards or criteria based on climate science and not other policy grounds.

4. The DPEIR did not properly analyze project alternatives and did not select the environmentally superior alternative.

   a. ***Alternative 1 (Carbon Offset Alternative) is the appropriate environmentally superior alternative***. The DPEIR does not explain in enough detail why Alternative 1, Carbon Offset Alternative, is not the environmentally superior alternative. The DPEIR acknowledges that the "no project alternative" would have the least environmental impacts because it would not implement the CAP and therefore there would be no physical changes to the environment associated with its policies. But, it does not acknowledge that the same logic would apply to Alternative 1, which reduces the number of projects needed in the County because offsets could be used in place of some CAP measures. The County takes credit for reduced impacts from Alternative 3 (Lower Targets Alternative) because fewer projects would be built, but it doesn't take credit for any reduction in projects associated with Alternative 1, despite acknowledging that "offsets could be used to replace any of the measures in the 2045 CAP."[6] Therefore, the County's conclusion that Alternative 3 (Lower Targets Alternative) is the environmentally superior alternative is not supported.

b. ***The County's characterization of Alternative 3 (Lower Targets Alternative) is misleading***. The DPEIR states that Alternative 3, which is what the DPEIR recognizes is the "environmentally superior alternative," would "likely facilitate the same number of projects through 2045, resulting in the same impacts through 2045."[7] However, this ignores the fact that by delaying the implementation of GHG reduction activities that have other environmental impacts, new, less impactful technologies may be developed that have the same or greater GHG reduction potential. In other words, back-loading the required reductions will not necessarily result in the same overall impact to the environment as the proposed Project because it will give more time for new technologies (e.g., direct air capture) to emerge.

c. ***Increasing co-benefits is not a project objective and is therefore not relevant for comparing alternatives.*** While Alternative 1 would result in fewer co-benefits, it does not appear that increasing co-benefits is a Project Objective. Therefore, that factor should not be used to discount Alternative 1.

d. ***The analysis of impacts was cursory***. The DPEIR only includes a cursory analysis of impacts compared to the proposed Project. For example, the aesthetic impacts are determined to be the same as the proposed Project. However, this ignores the fact that fewer projects would be constructed with Alternative 1. Another example is that the analysis found that Alternative 1 would have greater impacts with respect to hazards associated with projects in an airport land use plan because "projects facilitated by Alternative 1 could include wind projects built in the region."[8] The DPEIR offers no evidence why Alternative 1 would include more wind projects than the proposed Project.

5. The 2045 CAP creates an overall approach and requirement that will be challenging for most projects to achieve. The overly ambitious approach has created implementation challenges for projects, which will create an undue burden on projects.

   a. The 2045 CAP provides no technical justification for why GHG reductions must occur in the prescriptive categories identified by the Appendix F checklist. Additionally, many of the prescriptive strategies in the checklist are not quantified in the DEIR GHG analysis. The 2045 CAP should provide additional calculations to demonstrate the effect of all categories and measures for proper public review.

   b. An individual project's GHG emissions can be avoided, reduced or mitigated through a variety of mechanisms and programs. While the County may have non-GHG policy reasons to encourage reductions across a variety of sectors—and it may implement Countywide programs to achieve those objectives—individual projects should not be forced into a one-size-fits-all framework without a technical basis under. For example, if Project A is able to achieve GHG reductions by avoiding and reducing all of its GHG emissions through comprehensive water and energy conservation and alternative

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[6] 2045 Climate Action Plan Recirculated Draft Program Environmental Impact Report. Page 4-14. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/04/LA-2045-CAP-Recirculated-Draft-Program-EIR.pdf. Accessed: May 2023.

[7] 2045 Climate Action Plan Recirculated Draft Program Environmental Impact Report. Page 4-21. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/04/LA-2045-CAP-Recirculated-Draft-Program-EIR.pdf. Accessed: May 2023.

[8] 2045 Climate Action Plan Recirculated Draft Program Environmental Impact Report. Page 4-37. Available at: https://planning.lacounty.gov/wp-content/uploads/2023/04/LA-2045-CAP-Recirculated-Draft-Program-EIR.pdf. Accessed: May 2023.

technologies, there is no technical basis to require Project A to implement other measures addressing GHG emissions in other sectors, such as solid waste or agricultural resources. Under this hypothetical, Project A would have already eliminated its potential to impact climate change in accordance with CEQA. Forcing Project A to implement further GHG mitigation measures would "double mitigate" the impact, which is not technically justified in the 2045 CAP and/or require onerous (potential impossible) demonstrations of equivalency to the measures listed in the 2045 CAP.

c. To the contrary, it is common best practice to account for the inherent differences between a wide range of projects by providing flexibility and alternative compliance pathways. CAPCOA's Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity provides a suite of GHG reduction measures, but says that projects are '*encouraged to carefully review the measure factsheets to determine which measures are most applicable to their project and capable of achieving their GHG reduction goals.*'[9] The CAP Checklist creates an inflexible framework with a burden of proof that may be impossible to meet, which neither the Scoping Plan nor the CAPCOA Handbook require.
d. The 2045 CAP does not provide adequate guidance on the significance threshold a GHG analysis should assess if a Project does not fully complete the check list requirements. The wording and approach of the 2045 CAP creates an enormous burden on any project in this situation. In combination with a checklist that may not be able to met by most projects, this is creates additional burden for analysis and litigation risk for projects.

    i. Page F-14: Project Not Consistent with the 2045 CAP. Language suggests a project will have to show how it can reduce emissions equivalent to what the Checklist requires. And while the 2045 CAP uses the word "option to participate" in the Offsite Program, the approach of the 2045 CAP represents this as a mitigation measure to achieve reductions if the project cannot comply with all checklist items.

e. The 2045 CAP structure appears to disqualify projects from demonstrating less-than-significant impacts unless they incorporate all required Checklist items. As such, there is no incentive (or ability) for projects to conduct a 'full GHG analysis' in the case of Checklist inconsistency.

    i. If a project cannot demonstrate consistency with the CAP, the project must prepare a "full" GHG analysis. However, even under that scenario, the CAP states that a project may cause a significant and unavoidable impact for not complying with an approved local GHG plan. Thus, a project would not be able to demonstrate less than significant impacts even with a full GHG analysis.

    ii. Further, the CAP would still impose all the checklist measures "to the extent feasible," which does not have a scientific basis.

    iii. The point of the full GHG analysis would be to demonstrate whether the project has a less than significant GHG impact despite not being consistent with the checklist. Projects that conduct a full GHG analysis should be allowed to demonstrate whether the non-checklist approach results in less than significant GHG impacts. The current 2045 CAP structure does not provide a reasonable path forward for projects to comply, and good projects that do

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[9] California Air Pollution Control Officers Association. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Chapter 3: Measures to Reduce GHG Emissions. Available at: https://www.caleemod.com/documents/handbook/full_handbook.pdf. Accessed: April 2023. Page 47.

achieve meaningful GHG reductions could be mired in onerous evaluations or CEQA challenges.

Building Industry Association of Southern California, Inc.

May 15, 2023

Submitted via electronic mail: climate@planning.lacounty.gov

Attn: Thuy T. Hua, Supervising Regional Planner
County of Los Angeles, Department of Regional Planning
320 West Temple St., 13th Floor
Los Angeles, CA 90012

Re: Building Industry Association of Southern California, Inc. – Comment Letter Concerning the County's Revised Draft 2045 Climate Action Plan

Dear Ms. Hua:

Building Industry Association of Southern California, Inc., Los Angeles/Ventura Chapter (BIA-LAV) is a non-profit trade association of businesses and individuals in the vital homebuilding industry in the Counties of Los Angeles and Ventura. In essence, BIA-LAV's members are those who are the most active in building the new homes and communities in which Angelenos will live. BIA-LAV and its members have long supported governmental efforts aimed at achieving sustainable development and sound environmental stewardship, and will continue to do so.

We write today to provide comments concerning Revised Draft 2045 Climate Action Plan ("RDCAP") in response to its publication by the County of Los Angeles (the "County") regional planning staff. Last week, we were disappointed that the County's staff declined to extend the review period for the RDCAP. It is a very complex document, spanning nearly 1000 pages and dozens of legal and scientific topics, such as agriculture, jobs, energy and water supply and reliability, economic development, housing, infrastructure, public works, transportation, and water. While we and others had been repeatedly assured by the County's staff that the RDCAP was to be an "aspirational" plan, what has been proposed would be legally enforceable in many problematic ways, and would add hundreds of additional pages to the County's general plan.

We had scheduled for last Monday a meeting with the County's staff to discuss the RDCAP. We postponed the meeting because we were and are still– with the assistance of consultants and attorneys – assessing the sweeping consequences of this proposed, massive amendment to the County's general plan and other key, already-approved policy priorities. The program environmental impact report

(PEIR) that accompanied the RDCAP reflects even more technical and legal content, and hundreds of more pages to digest. Indeed, the PEIR's deficiencies alone are vast and overwhelming; and it does not begin to explain or analyze the many conflicts and consequences of the RDCAP vis-a-vis the already-approved general plan, community plans, area plans, and specific plans. The RDCAP plainly has staggering implications to the housing industry; but it generally lacks scientific or technical support for the regulatory burdens that it would impose on projects. Given the sheer volume of material to digest, BIA-LAV will continue to analyze the RDCAP and PEIR with an aim toward providing additional comments to the County and its decisionmakers.

Since the passage long ago of California's Assembly Bill 32 (2006), in which the State Legislature expressed the policy goal of substantially reducing anthropogenic greenhouse gases ("GHG") emissions, our staff and members, as well as our regional and state associational counterparts, have followed and participated in regulatory initiatives intended to address climate change and GHG emissions. During that time, we have seen a wide range of regulatory proposals for GHG regulations which, if they had been imposed uncritically, would have wreaked havoc on our members and their ongoing homebuilding efforts. None of the proposals that we have seen before would so broadly and unduly impose upon and decimate the homebuilding industry as would the RDCAP as it is now presented.

BIA-LAV appreciates that the County's staff feels obligated to propose strong measures aimed to reduce the GHG emissions and incorporate them into an updated climate action plan ("CAP"). Indeed, the urgency of the climate crisis demands action that is both smart and effective. That notwithstanding, if the RDCAP were to be adopted as proposed, it would impose an entirely unmanageable set of new regulatory burdens affecting the potential production of housing and development of communities within the County. The RDCAP should be substantially revisited, corrected and qualified, resulting in a better-reasoned and wise CAP update. Our reasoning is set forth in the discussion that follows.

First, however, as a threshold matter, we must emphasize that both California as a whole and Los Angeles County in particular remain mired in a worsening housing crisis. In recent years, the State Legislature has acknowledged the woeful state of housing supply when enacting the following pronouncements:

> "California has a housing supply and affordability crisis of historic proportions. The consequences of failing to effectively and aggressively confront this crisis are hurting millions of Californians, robbing future generations of the chance to call California home, stifling economic opportunities for workers and businesses, worsening poverty and homelessness, and undermining the state's environmental and climate objectives."[1]

> "California's housing picture has reached a crisis of historic proportions despite the fact that, for decades, the Legislature has enacted numerous statutes intended to significantly increase the approval, development, and affordability of housing for all income levels …."[2]

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1 Calif. Government Code section 65589.5(a)(2)(A).

2 Calif. Government Code section 65589.5(a)(2)(J).

"While the causes of this crisis are multiple and complex, the absence of meaningful and effective policy reforms to significantly enhance the approval and supply of housing affordable to Californians of all income levels is a key factor."[3]

Notwithstanding the clear urgency of such legislative pronouncements, thus far the County has failed to adopt and implement the kinds of reasonable land use policies that are needed to foster substantially more homebuilding in the County.

To illustrate, as we noted in our previous comment letter concerning an earlier draft of proposed CAP revisions, during the eight (8) year period from 2014 through 2021, the County issued permits for the construction of only 8,854 housing units, which translates into an average issuance of only ***1,107*** housing permits annually during the entire eight-year period. This figure falls woefully short of the assessed need for additional housing in the County. Pursuant to state law, the County's recent allocation of the Regional Housing Needs Assessment ("RHNA allocation"), required the County to identify and zone parcels on which to accommodate 90,052 new housing units within the eight-year period April 2021 through April 2029; and the preponderance of the RHNA allocations were imposed to meet pent-up, unmet existing demand rather than current population growth. The County's RHNA allocation therefore equates to ***11,257*** housing units annually, which is greater than ten times larger than the County's rate of actually permitting new housing during the eight (8) year period ending 2021.

Moreover, even as our economy has recovered following the recent pandemic, the rate at which new housing has been constructed within the County's unincorporated jurisdiction has continued to decline. The County reported in the Department of Regional Planning's general plan and housing element annual progress report for 2022 that the County issued certificates of occupancy for only ***956*** housing units on unincorporated County land during all of 2022.[4] Collectively, the constituents of the housing market are speaking loudly to the County's policy makers, saying: Clearly, the County is not taking necessary steps to foster, incentivize, spur and approve new homebuilding – even though the County's own housing element approval makes housing production a policy priority, and even though without solving the housing supply crisis little to no progress can be made on other key policy priorities, like homelessness, racial equity, employee retention and recruitment, and a stable tax and revenue base for the County to pay for its many legally mandated and critically important duties.

If the RDCAP were adopted as proposed, the abysmal current level of housing production within the County will only worsen. In light of both (i) the undeniable need to build much more housing supply in the County, and (ii) the ongoing failure of the County to accommodate new housing supply, the County's decisionmakers should reject the RDCAP's proposed policies because they would both further delay and discourage new housing and community development, and further drive up the costs, the litigation risks and the uncertainty of trying to build housing –

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[3] Calif. Government Code section 65589.5(a)(2)(B).

[4] See *General Plan and Housing Element Annual Progress Reports CY 2022*, LEAP Reporting Table and Summary Table spreadsheets.

or pretty much anything, including without limitation public works, infrastructure, and advanced manufacturing facilities.

Against this backdrop, our most fundamental and urgent concerns about the RDCAP are as follows:

- **First, the sheer number of new regulatory measures, tests and standards reflected in the RDCAP – including new limitations, prescribed implementation measures and potential mitigation impositions – exceeds 100 in total.** Given the limitations of today's technologies, scores of these new prescriptions cannot presently and feasibly be met. Many of the prescriptions remain insufficiently defined in the RDCAP, in that they will rely on future County studies and policy pronouncements or ordinances. Because of the many uncertainties that the RDCAP leaves unaddressed, the RDCAP as proposed would impose upon projects that are presently seeking or soon will seek approval new requirements which can neither be fully fathomed nor met presently.

  Similarly, the draft PEIR prepared for the RDCAP fails to adequately analyze the alleged GHG reductions of the many proposed programs and measures. It lacks technical substantiation for the projected GHG reductions. Consequently, the RDCAP improperly takes credit for as-yet-unadopted programs and foreshadowed or promised measures that have neither been properly evaluated under CEQA nor demonstrated to be likely successful. The CAP's "alternative" compliance pathway is not quantified; and an indicated program for off-site mitigation possibility is promised for formulation and adoption to only sometime in the future.

  Notwithstanding the above, the RDCAP states that all of its measures will, upon its adoption, immediately become part and parcel of the County's general plan. If so, then every project that cannot meet every one of these new measures (to the extent relevant) will be rendered inconsistent with the General Plan. BIA/LAV's members cannot imagine that the County would, in one fell swoop, add so many new benchmarks, thresholds, limitations and areas for close examination, analysis, and potential dispute and litigation to the County's already arduous and prohibitive project approval processes. Thousands of consultants would need to be employed and become educated about such new regulatory prescriptions and tests as might apply to proposed projects, which would add tremendously to the time, expense and complexity of project reviews and approvals. Therefore, first, ***the RDCAP should be pared back very substantially to reduce the sheer number of new prescriptions, calculations and tests that it now includes; and any resulting CAP update should not be incorporated into the County's general plan*** (as is discussed in more depth below). The County should explore instead adopting only a few, relatively plain measures concerning which there is substantial stakeholder agreement concerning their affordability, feasibility and effectiveness.

- **Second*, many of the proposed new requirements are foreseeably impossible to meet – either across the board or in a vast number of circumstances, and the legal devastation this would cause shatters the remainder of the Board's approved general plan, area plans, community plans, specific plans, and other approved plans and projects. The County should remove from the RDCAP all measures that cannot be***

feasibly implemented with certainty based on technical, legal and economic factors that exist today. Even though some of the RDCAP measures establish quantitative, inflexible mandates that are effective in 2045, 2045 is barely 20 years away; and nearly every single home or mixed-use project heretofore approved by the County currently will foreseeably continue to exist in 2045. The RDCAP generally fails to consider the foreseeable interplay among existing development, fully or partially approved pending development, and further development that is yet to be proposed. When the RDCAP is considered with circumspection, many of its measures are actually illegal under current laws and regulations.

For example, the RDCAP aims to require all projects to comply with the RDCAP's new mandate that no more than ten percent (10%) of its water supply will come from water imported into the County. Projects approved today cannot abrogate the County's water supply agreements, create new water regulations that allow for potable use of recycled water, or pretend that cisterns can supply future apartment buildings and manufacturing facilities – especially since new projects cannot under water quality laws result in hydromodification impacts to downgradient streams and habitat areas. There is no evidence that the County can implement its housing element in compliance with RHNA law and meet this water supply mandate, nor is it clear whether – given that the mandate retroactively implicates all pre-existing water uses in the County – any new project can use any amount of stored or imported water, even as a 10% blending source. Simply put, the sources and uses of water in the County, ongoing consumption needs, and the current, foreseeable and imaginable technologies all preclude such an achievement. The BIA/LAV's members, as the homebuilders and leaders in community development who must strive to supply new homes against a backlog of demand, know from their many required demonstrations of water supply reliability that such a tight limitation on imported water cannot be achieved at any cost in the foreseeable future.

We therefore urge the County's staff to contact the Metropolitan Water District of Southern California (MWD), the Los Angeles Department of Water and Power (LADWP) and other water purveyors operating within the county, as well as the State Water Resources Control Board, the Los Angeles County Regional Water Quality Control Board, and the state Department of Health Services, to ascertain their understanding of how this RDCAP measure could actually be implemented in homes might be built next year and will be existing in 2045 – or allow any applicant to demonstrate reliable water supply consistent with the RDCAP's stated tests alongside water supply assessment law and the California Environmental Quality Act (CEQA). Even the voluntary, very costly, and stringent CalGreen Tier II water standard, which most projects are unable to meet, does not prescribe such an unachievable 10% water import cap, nor does it mirror the RDCAP's anti-innovation approach of dictating only three exclusive water treatment technologies (reclaimed water, grey water, and tap-to-toilet water) which County residents and businesses would be allowed to use to meet the test.

Similarly, the RDCAP aims to establish a new land use limitation or goal such that projects where employment will occur must aim for an employment density of 300 employees per acre. Concerning this proposal, BIA/LAV respectfully requests first and foremost that ***all construction and development activities should be expressly excluded from any such employment density requirement or analysis***. Land development and construction activities tend naturally to be logically phased; and work is undertaken serially out of necessity. Critical paths required for any given construction undertaking do not allow for different tradespersons to be piled atop all at once, such as would be required to meet or approach any arbitrary per-acre employment density goal for construction.

Even when looking beyond construction activities, the 300-person per acre employment density goal seems irrational as applied generally to nearly all parts of the unincorporated county. Such a goal might be sensible and achievable only a very few select parts of the largest and most mature cities (such as pre-pandemic New York City) – not in the unincorporated county areas. In well-planned "new town" areas and still maturing communities, however, meeting any such employment density target would be obviously impossible. A one-acre strip mall in which is located a dozen small businesses does not employ 300 people; nor does a modern automated factory, hybrid technology and entertainment venues, or agriculture production or processing. The RDCAP's employment density metric appears from nowhere; and its expected GHG reduction is never quantified. It is impossible to imagine that any mixed-use projects (which are generally favored by regional planners) could ever come close to meeting such a requirement; but the RDCAP nonetheless threatens to impose it as a new General Plan mandate.

In fact, the infeasibility of the many RDCAP requirements becomes apparent when one considers the RDCAP Checklist, set forth in Appendix F (the "Checklist"). Under any level of scrutiny, the Checklist is overly prescriptive and lacks any potential feasibility in most land use contexts. Its sweeping and overly ambitious provisions fail to consider the many implementation challenges that it would create for housing projects. The RDCAP and its appendices include no meaningful technical support indicating how and when actual GHG reductions might be achieved in the prescriptive categories identified by the Checklist.

Individual projects should not be forced into such a one-size-fits-all framework without a supporting technical basis for the approach; nor should infeasibility need to be proven for the components of such a long laundry list of requirements. For example, even if one were to assume that a given project could, factually, achieve net-zero GHGs by avoiding and reducing all of its GHG emissions through some combination design features and other measures, there is no technical or scientific consensus concerning how one might substantiate the individual or combined effects of trying to meet the standards that the Checklist contains. Moreover, forcing projects to comply with *every* element of the Checklist – or to otherwise mitigate for their failure to do so – would, at minimum, require undue heroics and excessive costs, and could effectively require projects to become "net-negative" in terms of their GHG impacts. A far better approach would be to account for the inherent differences between a wide range of projects by providing flexibility and alternative compliance pathways, while aiming for a more reasonable and equitable degree of betterment from projects in terms of their GHG-emissions characteristics.

Finally concerning the Checklist and the RDCAP's discussion about it, if a project cannot demonstrate consistency with the CAP, then the project applicant must prepare a "full" GHG analysis – presumably in an environmental impact report (EIR), even if the project would otherwise qualify for CEQA streamlining or an addendum. The RDCAP states, however, that even such a full EIR process will not excuse the project applicant from complying with each and every single Checklist measures "to the extent feasible." Thus, no consideration is given when the required analysis of a project viewed as a whole demonstrates relative wisdom and expediency of not complying with a particular Checklist measure, or when an already-approved suite of GHG reduction mandates included in state or federal laws and regulations differs from the CAP prescriptions, or when a project would add no or negligible GHG emissions, or would otherwise provide quantified GHG reduction benefits. Any project for which there must be undertaken a full GHG analysis should be able to demonstrate whether it has a less than truly significant GHG impact (based upon a reasonable threshold) irrespective of the Checklist.

We therefore urge the County to instead consider the California Air Resources Board's (CARB) Scoping Plan approach to GHG mitigation, which should include the use of CARB-certified GHG-reduction offsets methodology and dispensation for projects that have already garnered CARB's approval thereunder. The County should be proud of the two master planned communities located within the County which have demonstrated net-zero GHG emissions under CARB's methodology. Instead, the RDCAP as proposed summarily rejects the approaches that CARB uses. CARB's 2022 scoping plan and CEQA itself both recognize that there are multiple pathways by which to demonstrate consistency with California's climate action policies. So too should the County's CAP update recognize multiple potential pathways toward compliance – and not embed into the County's General Plan a mindboggling suite of consultant-generated new mandates that were never before presented as mandates even within the County's own department, let alone to other critical agency, public, business, and homebuilder stakeholders.

For example, the County submitted, and the California Department of Housing and Community Development ("HCD") approved, a new housing element in the County's general plan. The RDCAP makes new housing generally infeasible, for reasons mentioned above (e.g., water) and in light of the scores of other mandatory RDCAP measures. The RDCAP therefore directly undermines the potential implementation of the County's housing element. If the County had proposed, along with its housing element, to add to the length and complexity of its housing project approval process, eviscerate CEQA streamlining for housing (and thus delayed housing approvals by multiple years), add countless thousands of dollars to the cost of producing each housing unit, and impose more than 100 new approval standards for new housing, then HCD would have rejected the housing element as a gross violation of housing and civil rights laws. It should be viewed as no less a violation of those law for the County to impose these same burdens in another section of the general plan (i.e., in a CAP update which the County proposes to incorporate into the general plan) a scant few months later.

Importantly, the County's current CAP was upheld in recent CEQA litigation, as was project-level compliance therewith. This was owing no doubt to the relatively prudent, achievable, and clear content of the current County CAP. BIA-LAV respectfully asserts that maintaining the current CAP would be vastly more reasonable than would be adopting the RDCAP as it is proposed.

- ***Third, the RDCAP should be revised to clearly express the flexible and aspirational nature of its many provisions, and – most importantly – to expressly preempt its weaponization under the California Environmental Quality Act (CEQA). <u>To this end, any finalized CAP update should not be made part and parcel of the County's general plan</u>.*** BIA/LAV is concerned that the County's planning staff espouse the view that the RDCAP as proposed should be viewed as mainly aspirational and not so mandatory as to unduly prejudice any project approvals and development. Respectfully, based on our members' many decades of experience in litigation related to project approvals, BIA/LAV cannot regard the RDCAP as anything less than dangerously over-prescriptive. As written, all of the RDCAP measures would indeed be mandatory – albeit **s**ubject to both (i) off-site mitigation "opportunities" and (ii) possible forgiveness based on infeasibility findings (which might be obtained only after a great expense of time, money and process). Once the RDCAP measures become effective, they would affect virtually any and all projects that will thereafter be considered.

  In California, locally adopted climate action plans legally may be wholly aspirational; or they may instead be mandatory either in part or in whole. Therefore, the County should take care to express its intentions about which elements of any updated CAP will be mandatory in order to prevent the potential and indeed foreseeable weaponization of the updated CAP through CEQA litigation. Notably, San Diego County has been subjected to rounds of litigation due to its uncritical incorporation of its supposedly aspirational climate action plan update in its general plan. As a result of such litigation, that county's own projects, and all private projects that come before the county, can be subjected to legal challenge for the county's failure to strictly enforce its climate action plan update.[5]

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[5] See, e.g., "Enviro Law Group Sues San Diego for Missing Climate Goals in Mira Mesa," Voice of San Diego, Feb. 21, 2023, found at https://voiceofsandiego.org/2023/02/21/enviro-law-group-sues-san-diego-for-missing-climate-goals-in-mira-mesa/; "San Diego Climate Group Sues City over Lack of Enforcement and Unidentified Funding for Its Climate Action Plan," by Dorian Hargrove, September 14, 2022, found at https://www.cbs8.com/article/news/local/san-diego-climate-group-sues-city-over-climate-action-plan/509-8980fa39-67e6-447b-b999-b23e969ca6d0.

Accordingly, BIA/LAV urges the County to include a well-considered "statement of limitation of use" in any CAP update, so as to avoid any arguable claim that the plan's components should be used as a foil under CEQA. Good examples of such statements of limitation of use exists, such as the Southern California Association of Government's (SCAG) statement pertaining to its use of transportation analysis zone (TAZ) maps for modeling in its 2023 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and SCAG's 2012 RTP/SCS disclaimer of CEQA implications related to its long list of potential climate action mitigation concepts.

- ***Fourth, the County should expressly and clearly grandfather all projects that will have commenced their pursuit of development approval prior to the effective date of any climate action plan revision – so that those projects will be subject only to the County's currently-adopted climate action plan, and not to an updated CAP***. Some community development projects, even if they are not yet finally and completely approved, have been contemplated for years or even decades and long been reflected in the County's general plan, local area plans, as well as in the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Community Strategy for several successive four-year cycles. BIA/LAV's members have been actively pursuing and are at various stages of continuing to pursue and implement identified development and project approvals from the relevant agencies of the County. Importantly, these many activities have been undertaken with an aim to comply with the County's currently adopted climate action plan.

  It would be a tremendous waste of the effort and costs already incurred, and thus unduly burdensome, to require such project applicants to revise their plans and proposals to conform to changes that might be reflected in a new climate action plan may result from the RDCAP if and to the extent it is adopted. Therefore, finalization of any updated CAP should include a clear provision grandfathering all project applications that will have been commenced prior to an express implementation date.

- ***Fifth, the most unreasonable suggestion in the RDCAP is the proposal to establish a GHG mitigation "trading" policy whereby alternative, offsite compliance can be demonstrated <u>only by reducing GHG within the County's limits</u>.*** In its comments above, BIA/LAV urges the County to avoid making its many new GHG tests and hurdles binding in such a way that either onsite compliance or heroic offsite mitigation might be required as a component of project approval. Unless it is corrected before it is finalized, the RDCAP indicates a contrary result, and – even worse – indicates that project proponents should be able to mitigate GHG reduction shortcomings by seeking to reduce GHG away from the project (i.e., off-site), but only by mitigating within the county's borders. In effect, then, the County is proposing a mitigation "trading pool" (such as that employed in "cap and trade" regimes). But rather than the trading pool being reasonably broad and deep, it is instead proposed only the size of a small pond.

  There is no legitimate reason to limit the scope of the potential GHG emissions "trading pool" to the County's spatial limits. The anthropogenic GHG gases that contribute to climate change are emitted worldwide in broadly varying ways and amounts throughout differing societies, states and countries for reasons ranging from abject poverty and the relative wealth or dearth of advanced technology to wanton over-consumption. If and to the extent that local project proponents in the County might be required to mitigate their projects' respective GHG emissions, they should be free to seek out the most economical, effective and efficient ways to do so. Indeed, California should be exporting the best technologies and the best and most affordable climate change policies far and wide, especially given that most other states and many nations need better direction far more than does California.[6]

It will be far more difficult, taxing and costly to identify and implement offsite GHG reduction measures if one is limited to doing so only within County's spatial limits. As noted above, the RDCAP presently leaves unanswered many questions about how to quantify what levels of mitigation might be sufficient. Limiting the spatial range of potential measures available would unduly add to project costs whenever more affordable GHG-reduction potential exists outside of the County. In addition, there would likely be additional agency costs involved in administering and policing a circumscribed, county-specific trading pool which can be avoided if the County were to instead align the CAP update with the approach that CARB champions at the state level.

Specifically, CARB, which the State Legislature tasked in 2006 with the primary regulatory power to address GHG emissions, has long approved of and pointedly applauded GHG mitigation that goes beyond county borders, such as the landmark arrangements proposed, promised and, when allowed, put in place by the developers of certain large master planned communities within the County.[7] CARB's most recent scoping plan for GHG reductions specifies that, while localized off-site mitigation offsets may be preferable, non-local offsets and credits should be available to enlarge the feasibility of mitigation.[8] Limiting the trading pool for any off-site GHG emissions mitigation to within the County's borders would assure that the County will have the

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[6] California slightly trails only New York and Maryland in terms of having the lowest per capita GHG emissions in the nation (even though California is relatively vast); and Californians are rapidly adopting electric vehicles at a relatively fast pace, which suggests that California will soon have the lowest per capital GHG emissions in the nation. Moreover, Los Angeles, Orange, Riverside and San Bernardino counties accounted for 40 percent of the 369,364 battery-powered vehicles registered in California in 2020, suggesting that Los Angeles County residents better the state average in terms of having very low per capita GHG emission. "Southern California Continues to Dominate EV Industry," *Governing the Future of States and Localities*, April 2, 2021, found at: https://www.governing.com/next/southern-california-continues-to-dominate-ev-industry.

[7] In its 2022 Scoping Plan, CARB expressly recognized two master planned communities located within the County's jurisdiction (the Newhall Ranch and Centennial projects) as exemplary "net zero GHG" projects. See 2022 Scoping Plan, Appendix D, pp. 24-25, found at https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-action.pdf.

[8] See CARB's 2022 Scoping Plan, App. D – Local Action Plans, p. 31, similarly found at: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-action.pdf.

most expensive and the least efficient and effective GHG off-site mitigation program imaginable. Such would be inconsistent with the County's obligation to help foster the construction of affordable housing for all of its citizens. Therefore, the County should consider adopting the CARB scoping plan's tiered approach to mitigation, prioritizing onsite and local measures, followed by non-local measures, or should instead provide technical justification for deviating from the scoping plan's recommended prioritization.

- ***Sixth and lastly, the RDCAP would, if adopted, violate federal constitutional principles that prevent federal, state or local governments from disproportionately overburdening – as a condition of land use approval – new development and redevelopment in relation to the relative burdens that are similarly shouldered by the jurisdiction's population as a whole.*** As noted above, BIA/LAV urges the County to reject making the many new tests and prescriptions set forth in the RDCAP mandatory. We instead urge the County to be clearly indicate the new CAP measures as aspirational or "directive" only (i.e., non-mandatory); and we ask the County to not include such measures in its general plan whereupon they might be weaponized by project opponents.

  If and to the extent that the County were to reject our requests, many of the new tests and standards reflected in the RDCAP, individually and collectively, would constitute unduly burdensome impositions and conditions of approval which would violate the so-called *Nolan/Dollan/Koontz* line of Supreme Court of the United States opinions. [9] Taken together, these Supreme Court rulings prevent local, state and federal governments from requiring any citizen a person to give up a constitutional property right in exchange for a discretionary benefit conferred by the government – for example, where an exaction demanded has too little or no relationship to the benefit, or where the degree of the exactions that are demanded by permit conditions are not "roughly proportional" to the projected impacts of the development. This is called the doctrine of "unconstitutional conditions."[10]

[9] The *Nollan*, *Dolan*, and *Koontz* trilogy of Supreme Court opinions consists of *Nollan v. California Coastal Comm'n*, 107 S.Ct. 3141 (1987), *Dolan v. City of Tigard*, 114 S.Ct. 2309 (1994), and – most recently – *Koontz v. St. Johns River Water Management Dist*., 133 S.Ct. 2586 (2013).

[10] In *Koontz*, the Supreme Court recapped and explained its opinions in *Nollan* and *Dolan*, and further expounded on the doctrine of unconditional conditions, when finding that a governmental agency had imposed disproportionately oppressive conditions in connection with its offer to approve a permit. application. Specifically, the Court explained the doctrine of unconstitutional conditions as it pertains to citizens' right to apply for permission to develop one's respective property, explaining that the doctrine vindicates the Constitution's enumerated rights (here, the Fifth Amendment right to just compensation for the governmental taking of property). As applied in *Koontz*, the doctrine prevents the government from coercing citizens into giving up their rights; and the Court explained that *Nollan* and *Dolan* represent a special application of the doctrine applicable when owners apply for land-use permits. As the Court explained, the standards set out

> Briefly, if the RDCAP were adopted as it is now proposed, it would force all permit applicants to submit to permit conditions that are vastly more imposing than, and grossly disproportionate to, any requirements that the County is willing to impose upon its existing property owners or their tenants. If and to the extent that the permit applicant can show that it is infeasible to achieve net-zero GHG emissions onsite, then the permit applicant will next be required to mitigate off-site (but only within the County) to otherwise achieve net-zero emissions. Beyond that, only if and to the extent that the applicant runs the full gamut of expensive, time-consuming and ultimately risky CEQA processes might the applicant be ultimately excused in an ad hoc and discretionary manner from any further mitigation on grounds of economic infeasibility under CEQA. The weaponization of CEQA through such a permit process would then be complete.
>
> Essentially, the RDCAP therefore would operate to put all new development and redevelopment on a permanent fast in terms of their potential GHG emissions. It would be as if though new development and redevelopment applicants must forever undertake and maintain both a starvation diet and incessant exercise in order to eliminate all body fat; and – if and to the extent the applicant is unsuccessful in doing so – must buy equivalent gym memberships for other County citizens to compensate for any shortcomings. Such demands are tremendously disproportionate to what little – if anything – is asked of the citizenry generally in terms of their respective GHG emissions reductions.
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> Although the County's staff suggests that many aspects of it are merely "aspirational" rather than mandatory, as the RDCAP is now proposed, the only aspect of it that is truly aspirational is the hope that all of the County's many millions of citizens will magically all become GHG-neutral by the year 2045. Apparently, the RDCAP aims to make a bit of progress toward such a county-wide aspiration by overburdening those who must apply for permission to develop or redevelop homes and property and overtaxing those who may buy, rent or build prospectively built housing. Indeed, the County seems poised to impale all land-use permit applicants with a broad sword in order to fund and make relatively small dents in the GHG emissions of the County's other citizens, who might benefit from the off-site mitigation exactions that the RDCAP promises to impose.

Such a policy approach and its effects would be inconsistent with the pronouncements from the California Legislature which are quoted above – specifically about the need for "meaningful and effective policy reforms to significantly enhance the approval and supply of housing affordable to Californians of all income levels…." We believe that the RDCAP's policies are also inconsistent with the spirit and letter of the doctrine of unconstitutional conditions as it was explained by the Supreme Court of the United States in *Koontz*.

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in *Nollan* and *Dolan* address the danger of governmental coercion in the land-use permitting context while also accommodating the government's legitimate need to offset the public costs of development through land use exactions. See *Koontz*, 133 S.Ct. 2594-96.

Conclusion

We commend the County for its desire to address climate change and the need to be aligned with the State's GHG emission goals. That notwithstanding, many of the RDCAP's policy directives, however well-intended they may be, promise to increase housing costs substantially, further dampen the already dismal housing production in the County, further reduce homeownership opportunities, further increase housing rental rates, and further erode the economic status of the middle class and the most vulnerable residents of the County. We respectfully urge the County to revise the RDCAP substantially in light of our comments above.

Sincerely,

De'Andre Valencia, Senior VP
BIASC/ LA Ventura Chapter

May 15th, 2023

Sent via email

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Re: Comments on the Draft Los Angeles County 2045 Climate Action Plan and Draft Recirculated Environmental Impact Report

Dear Ms. Hua:

These comments are submitted on behalf of the Center for Biological Diversity (the "Center") regarding the Draft Los Angeles County 2045 Climate Action Plan ("Plan" or "Draft Plan") and its Recirculated Draft Environmental Impact Report ("RDEIR"). The Center previously submitted comments on July 18, 2022 on an earlier version of the Plan and its Draft Environmental Impact Report, which is included here as Exhibit 1 ("July 18th Letter"). We hereby incorporate the comments in the July 18th Letter as well as in previous letters of the Center attached thereto, and request that the issues raised in those letters be considered in preparing the Final EIR and any further revisions to the Plan.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Los Angeles County ("County").

I. The County Should Include Power Plant Emissions in its Greenhouse Gas Inventory and Specific Measures in the CAP to Phase Out Power Plant Pollution.

As noted in our prior comments, and consistent with climate science and equity, California must transition off fossil fuel electricity and to 100% renewable, just energy by 2030.[1] In order to

[1] *See, e.g.* United Nations Secretary General, Amid Backsliding on Climate, the Renewables Effort Now Must be Tripled (April 4, 2022) *available at* https://www.un.org/sg/en/content/sg/articles/2022-04-04/amid-backsliding-climate-the-renewables-effort-now-must-be-tripled; also Global 100% RE Strategy Group,

meet this target, however, the County should set the most ambitious goals, including setting a schedule to phase out power plants and accelerate decarbonization efforts. The Revised Draft CAP still lacks a GHG emissions reduction target for the electricity generation sector, instead focusing on consumer demand solutions, and entirely omits consideration of climate disruptive pollution from power plants.

The County has revised the CAP to clarify that it does not consider pollution from power plants within the County environmental setting.[2] The County reasons that it has "no jurisdictional control or influence" over these emissions.[3]

This omission is particularly problematic given the number of power and peaker plants (fueled by either natural gas or oil) within the County.[4] These power and peaker plants are "disproportionately located in disadvantaged communities, where vulnerable populations already experience high levels of health and environmental burdens."[5] The County should exercise its authority and influence to the greatest extent legally and practicable feasible as either a responsible or lead agency to address this source of pollution.

Deferring mitigation of this climate disruptive pollution to either CARB or the air districts forecloses opportunities for the County to target gaps in state and air district regulation of the energy sector. For instance, the state's 100% zero carbon[6] target focuses on retail sales only. This limitation to retail sales means that power plants can on the one hand meet the SB 100 target, but on the other hand, still combust fossil fuels or other feedstocks for end uses outside of retail sales, such as to meet transmission and distribution losses from the grid.[7] This could potentially amount to 10-15% of power generation derived from combusting natural gas at power plants.[8] The Revised Draft CAP still lacks any measure to address these significant GHG and co-pollutant emissions from the power plant sector.

II. The County Should Accelerate the Timeline for Measures to Achieve the Full Local and Climate Benefits Presented by Distributed Energy Resources.

We thank the County for revising the Draft 2045 CAP to include a focus on distributed energy resources ("DER"). Due to the many benefits of DER, as detailed below and in our prior comments, DER can play a key role to achieve CAP decarbonization objectives. As currently

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"Joint declaration of the global 100% renewable energy strategy group," (2021) *available at* https://global100restrategygroup.org/.

[2] Revised Draft CAP at 1-6.

[3] *Id.*

[4] *See e.g.* PSE Healthy Energy, *Energy Storage Peaker Plant Replacement Project*, *available at* https://www.psehealthyenergy.org/our-work/energy-storage-peaker-plant-replacement-project/

[5] *Id.*

[6] The Center maintains disagreement with the (Revised) Draft CAP definition of zero carbon. As detailed in our prior comments, zero carbon should exclude all combustion resources.

[7] LA100 Renewable Energy Study Executive Summary (March 2021) at 8, *available at* https://www.nrel.gov/docs/fy21osti/79444-ES.pdf.

[8] *Id.*

revised, however, the Draft CAP diminishes this role by deferring realization of the full potential of DER in the County to an unknown time in the future, and potentially not until 2045.

As noted in our prior comments, DER confer significant community benefits. These include local economic benefits, including but not limited to local clean energy installation jobs, which are more numerous than utility-scale clean energy jobs.[9]

The Revised Draft CAP echoes several of these benefits of DER. The Revised Draft CAP identifies DER as a "key climate action for wildfire-prone areas,"[10] and in particular "an alternative to the costly infrastructure upgrades that would be required to maintain uninterrupted power service."[11] Compared to utility-scale development, DER also avoid aesthetic impacts,[12] do not risk conflict with existing plans and policies, as detailed below, and can leverage substantial federal incentives, in particular for resource deployment in disadvantaged communities.[13]

In addition, DER present an opportunity to tackle the escalating electricity rates in the County. Although the RDEIR notes SCE's planned investment of $75 billion in utility infrastructure,[14] to assist in decarbonization strategies, this $75 billion would then be passed on to SCE ratepayers, including those within the County. DER, on the other hand, could avoid a substantial portion of this investment by avoiding costs associated with utility-scale solutions. The Public Utilities Commission has identified transmission buildout as the number one cause of high electricity bills.[15] The number two cause is costs to make utility-scale solutions resilient, primarily wildfire mitigation. As the Revised Draft CAP notes, DER can avoid all of these costs to the benefit of County ratepayers that receive SCE service. Adequate deployment of rooftop solar displaces the need for significant transmission and distribution costs that would traditionally be passed on to ratepayers.[16] By contrast to spending $75 billion, growing local solar and storage would save California ratepayers $4 billion a year, adding up to $120 billion over the next 30

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[9] *See, e.g.*, Eric Wesoff and Maria Virginia Olano, *Most US solar jobs are in installation, not manufacturing*, Canary Media, https://www.canarymedia.com/articles/solar/chart-most-us-solar-jobs-are-in-installation-not-manufacturing (Utility-scale solar has a much lower level of labor intensity than distributed solar installation).
[10] *See* Revised Draft CAP at D-15.
[11] RDEIR at 2-22.
[12] *See e.g.* RDEIR at 3.2-9. ("[DER] would be more likely to blend in with the surrounding existing development and visual environment, and they would not be likely to create changes to visual character or quality that would be visible from a scenic vista or that would noticeably significantly interrupt views available from scenic vistas.")
[13] *See e.g.* Revised Draft CAP, Appendix G-4 (referencing "$7 billion for competitive grants to enable low-income and disadvantaged communities to deploy or benefit from zero-emission technologies, including distributed technologies on residential rooftops" from the Inflation Reduction Act.)
[14] RDEIR at 3.7-13.
[15] *See e.g.* CPUC, Utility Costs and Affordability of the Grid of the Future (May 2021) *available at* https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf
[16] For instance in 2018 alone, the California Independent Systems Operator, citing increased rooftop solar and energy efficiency, canceled 20 transmission projects at a $2.6 billion savings to all ratepayers.

years.[17] Similarly, eliminating the need for additional transmission also eliminates the need for utility-caused and expensive wildfire mitigation, such as the costs for undergrounding of transmission lines and associated power shutoffs.[18]

In fact, the majority of the metrics detailed to assess the effectiveness of the County's decarbonization of the energy supply efforts are DER. In addition to "total installed DER capacity," other metrics include degree of deployment of rooftop solar PV, energy efficiency, microgrids, and frontline community benefits — all DER.[19]

Finally, the Revised Draft CAP notes:

> The energy transition includes not only a shift in energy sources, but also a shift in where and when energy is generated and how it is used and managed. This requires rethinking the energy grid to move away from a centralized system dominated by large-scale fossil fuel-based power plants with a one-way flow of energy from source to customers. Instead, the grid is becoming increasingly decentralized, distributed, localized, and network-based. Over time, this will enable greater energy resilience because the system will be able to respond and adapt to local conditions in a more precise way, limiting large-scale disruptions.[20]

The County is clearly aware of how DER does and continues to play an integral and growing role in decarbonizing the energy system. Yet surprisingly, the County does not prioritize DER as it does utility-scale measures. Having identified that SCE lacks sufficient capacity to enroll residents and businesses in their Green Rate option, Measure ES2 is revised to strive for enrollment in SCE's program (utility-scale resources, located at great distance from the County) "or other available 100 percent zero carbon electricity service by 2030."[21] This lacks the specificity required under CEQA; CEQA mitigation measures and/or CAP GHG reduction strategies must be specific, enforceable, and be capable of being implemented. The County should instead prioritize DER, and then have remaining capacity met with SCE or CPA Green Power rate options. Similarly, while the Revised Draft CAP increases the performance objectives for rooftop solar PV (Measure ES3), the County should consider how more aggressive targets for Measure E3 can cure the vague provisions in Measure ES2.

This would also require accelerating development of the "community energy map" (measure ES4.3). The community energy map would identify opportunities for DER deployment, but is currently drafted as a medium to long term measure for completion between 2035-2045. Several

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[17] Vibrant Clean Energy, Role of Distributed Generation in Decarbonizing California by 2045 (July 2021) at 6 *available at* https://www.vibrantcleanenergy.com/wp-content/uploads/2021/07/VCE-CCSA_CA_Report.pdf.
[18] R.20-08-020, Protect Our Communities Foundation, Rebuttal Testimony of Bill Powers, P.E. (July 16, 2021) at 28-32.
[19] Revised Draft CAP at 4-6.
[20] Revised Draft CAP at 1-26.
[21] *See e.g.* Revised Draft CAP at B-15.

existing studies already show the potential for DER in the County.[22] The County should instead leverage that research and work with community-based organizations that already seek DER to deliver community benefits. The County should not defer realization of the full potential of DER for another 10 plus years, or even longer to 2045. Delaying implementation of DER-focused strategies risks locking the County into utility-scale solutions that present greater environmental harms, and are not even built yet.

III. DER Avoid Significant Impacts Omitted From the Revised CAP and RDEIR.

The County should revise the CAP and RDEIR to account for the environmental impacts from utility-scale solutions, including biofuels.

Poorly sited large-scale solar development can result in habitat fragmentation, loss of connectivity for terrestrial wildlife, destruction of carbon sequestration of soils, and introduction of predators and invasive weed species on intact habitat.[23] Onshore wind projects, though they require a smaller footprint than solar projects and thus pose less terrestrial damage,[24] still pose risks to bird and bat mortality, and threats of fragmenting large swaths of land and habitat due to adjacent power lines and roads.[25] Finally, geothermal energy has the potential to also impact biodiversity when sited adjacent to surficial thermal water features, which often are altered in their discharge

[22] *See e.g.* Los Angeles Business Council, UCLA Luskin Center for Innovation, *Bringing Solar Energy to Los Angeles* (July 2010), *available at* https://innovation.luskin.ucla.edu/wp-content/uploads/2019/03/Bringing_Solar_Energy_to_Los_Angeles.pdf.

[23] *Id.* Critically, although ample space exists to develop solar facilities outside areas of high conservation value, some of the nation's utility-scale solar development has occurred in core ecological habitats. Careful siting on already built environments, like residential and commercial building rooftops and parking lots, as well as degraded lands and areas without imperiled species, can avoid these impacts. *See* R.R. Hernandez et al., *Techno-Ecological Synergies of Solar Energy for Global Sustainability*, 2 Nature Sustain. 560 (2019); D. Richard Cameron et al., *An Approach to Enhance the Conservation-Compatibility of Solar Energy Development*, PLOS One (2012). *See also* Patrick Donnelly & Jean Su, *No free lunch on green energy*, Las Vegas Review-Journal (June 19, 2021) *available at* https://www.reviewjournal.com/opinion/nevada-views-no-free-lunch-on-green-energy-2382525/; Noelle Swan, *Energy, Wildlife, and the Myth of the Zero-Sum Game*, Christian Science Monitor (July 12, 2021), https://www.csmonitor.com/Commentary/From-the-Editor/2021/0712/Energy-wildlife-and-the-myth-of-the-zero-sum-game.

[24] Communication with Ben Hoen, Research Scientist, Lawrence Berkeley National Lab (Aug. 13, 2021). The National Renewable Energy Laboratory (NREL) estimated a density of 2.74 +/- 1.4 MW/km^2 for wind projects. *See* Dylan Harrison-Atlas et al., *Spatially-Explicit Prediction of Capacity Density Advances Geographic Characterization of Wind Power Technical Potential*, 14 Energies 3609, 3617 (2021). The Lawrence Berkeley National Lab estimated a density 86 MW/km^2 for solar. *See* Bolinger, "Land requirements for utility-scale PV," ASES Solar 2021, August 5, 2021. For solar projects, nearly 100% of the land is covered with panels, while wind projects—after construction—only take up the area of the pad and access roads. NREL estimated this "direct" land impact as 333 MW/km^2. *See* Paul Denholm et al., Nat. Renewable Energy Lab., Land-Use Requirements of Modern Wind Power Plants in the United States 10 tbl. 1 (2009) *available at* https://www.nrel.gov/docs/fy09osti/45834.pdf.

[25] *See e.g.* Scott Loss et al., *Direct Mortality of Birds from Anthropogenic Causes*, 46 Ann. Rev. Ecol., Evol., and System. 99 (2015) (detailing that limiting biodiversity impacts and bird and bat mortality can be achieved with operational measures, such as higher cut-in speeds and curtailment during certain seasons times of day, heights and outside migratory pathways).

temperature, geochemistry, or quantity after production commences.[26] Rooftop, parking lot, and ground mounted solar, in contrast, lack the impacts resulting from remote, utility-scale projects; and more than sufficient solar potential remains available from rooftop, parking lot and ground mounted solar to meet California's decarbonization targets.[27]

While the Revised Draft CAP details some of these significant impacts, the RDEIR fails to analyze the degree of these impacts, especially when DER present an environmentally superior alternative. Notably, DER can displace the need for dirty combustion resources, including biomethane.[28] The Revised Draft CAP and the RDEIR fail to detail the significant local impacts of biomethane production and combustion within the County. Biomethane production and combustion, while considered a zero-carbon resource under SB 100, cause undue harm to disadvantaged communities and present a false climate solution.[29] The IPCC itself acknowledges, with high confidence, that biofuels can have "adverse socio-economic and environmental impacts, including on biodiversity, food and water security, local livelihoods, and rights of Indigenous Peoples."[30] Biomass facilities are often concentrated in low-income communities and communities of color that are already suffering from high pollution burdens, and worsening environmental injustices. For example, in the San Joaquin Valley in California, four out of five active biomass plants and four out of five idle biomass plants are located in DACs.[31] Most of these communities

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[26] Sorey, M. L. 2000. *Geothermal development and changes to surficial features: Examples from the Western United States*, Proceedings World Geothermal Congress, *available at* https://www.geothermal-energy.org/pdf/IGAstandard/WGC/2000/R0149.PDF.

[27] *See e.g.* Pursuing a Just and Renewable Energy System: A Positive & Progressive Permitting Vision to Unlock Resilient Renewable Energy and Empower Impacted Communities (May 2023) *available at* https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Policy-Brief-for-Positive-Vision.pdf

[28] *See e.g.* RDEIR at 2-26 ("use of biomethane on-site in buildings are key to decarbonization").

[29] Properly accounting for the climate impacts of biomass and biomethane is particularly challenging. This is because carbon accounting for biogenic feedstocks involves complex counterfactuals about what would have happened to waste methane if it were not captured (for biomethane feedstocks), whether and when forest biomass will regrow (for woody biomass feedstocks), and what indirect land-use changes will result from using cropland to produce energy crops (for crop-based feedstocks). Consequently, experts that study the climate impacts of these feedstocks identify estimates with wide ranges of uncertainty. *See, e.g.*, Richard Plevin, *Uncertainty in estimating the climate effects of biofuels: EPA Workshop on Biofuel Greenhouse Gas Modeling* (Mar. 1, 2022), *available at https://www.epa.gov/system/files/documents/2022-03/biofuel-ghg-model-workshop-estimating-biofuel-climate-effects-2022-03-01.pdf;* Miguel Brandao et al., *On quantifying sources of uncertainty in the carbon footprint of biofuels: crop/feedstock, LCA modelling approach, land-use change, and GHG metrics, Biofuel Rsch. Journal* (June 1, 2022) *available at https://www.biofueljournal.com/article_148830_cfd95668b16943c4b53ed4b7e16977ce.pdf.*
The U.S. EPA for example, found in its review of the Renewable Fuel Standard that the program had led to the conversion of up to 8 million acres of land—nullifying and overwhelming any climate benefit the program might have had. *See* EPA, *Biofuels and the Environment: Second Triennial Report to Congress, at 39 (June 29, 2018), available at https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=IO&dirEntryId=341491*.

[30] UN Intergovernmental Panel on Climate Change, 2023, AR6 Synthesis Report 2023, https://report.ipcc.ch/

[31] *See generally* Cal. Office of Env. Health Hazard Assessment, SB 535, *available at* https://oehha.ca.gov/calenviroscreen/sb535

are within the ninetieth percentile for air pollution burden, and some are in the top percentile. Biomass power plants are also guilty of repeated air quality violations.[32] Yet the RDEIR does not detail any of these significant impacts — impacts that DER can avoid.[33]

IV. The RDEIR Does Not Adequately Respond to Comments Advocating for A More Realistic Target for Phasing Out Oil and Gas Operations.

The Draft Climate Action Plan continues to include an underwhelming and confusing ultimate target of 80 percent reduction of emissions from oil and gas operations by 2045. As noted in the RDEIR, the Board of Supervisors adopted the Oil Well Ordinance on January 24, 2023. That Ordinance prohibits new oil wells and makes existing oil wells and production facilities nonconforming uses. Under the County Code, such nonconforming uses must be discontinued and removed from their sites within twenty years.[34] The Climate Action Plan should at a minimum reflect this timeline (i.e., 2043) for phase out of oil and gas operations and acknowledge that the timeline could be shortened further following the amortization study. In addition, either the target should be a 100% reduction of emissions from oil and gas operations, or the County should explain why an 80% reduction is appropriate. While there may be certain operations that are not removed by 2043 as a result of the Oil Well Ordinance, including orphan wells with no discernable owner, or operations not subject to the Oil Well Ordinance, the County should be transparent about why it assumes 20% of emissions will not be addressed.

The RDEIR also makes unfounded assertions about the possible impacts of an earlier oil and gas phase out. While we acknowledge and appreciate the hard work of County staff to move this process forward, we disagree with the discouraging framing that completing a phase-out by 2045 will be “daunting.” Los Angeles County is one of several jurisdictions moving forward with a process to phase out oil and gas extraction. As local governments gain more experience, it is likely that implementation of phase-outs will become easier. In addition, all discussion of possible impacts from a phase-out ahead of 2043 is speculative and should be reserved until the Board of Supervisors moves forward with any such plan.

Four active biomass plants (Rio Bravo Fresno, DTE Stockton, Merced Power, and Ampersand Chowchilla) and four idle biomass plants (Community Recycling Madera Power, Covanta Mendota, Dinuba Energy, and Covanta Delano) are in census tracts designated as disadvantaged under SB 535.

[32] *See* EPA Enforcement and Compliance History Online Database, *available at* https://echo.epa.gov/.

[33] *See e.g.* RDEIR at 3.12-17: “retrofitting of existing buildings, development along existing transit areas, infill projects in urban locations that are already developed, electric vehicle charging stations, or distributed energy resources such as rooftop solar panels”) thereby avoiding environmental impacts and inconsistencies with local plans and ordinances; RDEIR at 3.12-18: “Larger scale projects facilitated by the Draft 2045 CAP . . . such as utility-scale solar generation facilities . . . could be be inconsistent with certain General Plan policies related to land use, specifically Policies LU 6.1, LU 6.2, LU 6.3, LU 10.3, LU 10.5, LU 10.10, C/NR 13.1, and C/NR 13.8.”)

[34] County Code § 22.172.050(B). It is possible that the time period could be extended for some wells through the process outlined in section 22.172.060.

V. The Plan Should Further Emphasize Conservation of Natural Lands and The Role of Poorly Sited Development in Increasing Wildfire Risk.

As outlined in the July 18th Letter (pages 14-18), the Plan should include strategies, funding, and measures to conserve valuable carbon-sequestering, biodiversity-supporting, climate change-resilient non-forest habitats like shrublands, grasslands, deserts, and wetlands. We appreciate that revisions have been made to the Draft CAP to address our comments and we urge further focus and funding on conserving these habitats to combat climate change.

As outlined in the July 18th Letter (pages 19-21), the Plan must address the role of poorly planned development in contributing to wildfire risk while implementing ecosystem appropriate wildfire management strategies. This is necessary to ensure the Plan is consistent with other County policies (including the General Plan's Safety Element) and to acknowledge and disclose the link between climate change and land use planning. While we appreciate that the Draft Plan now includes some revisions consistent with our recommendations to revise Implementing Action A1.2, it still does not acknowledge the link between development in fire-prone areas and increased fire risk and the climate crisis. We also note that despite our recommendation (page 22), the Draft Plan does not appear to set any goals or take any actions to incorporate traditional ecological knowledge into wildfire management and climate change strategies. We urge incorporation of these feasible measures into the Plan and/or RDEIR so reduce wildfire risk and protect carbon-storing habitats.

VI. The CAP Streamlining Checklist Should Provide More Clarity on Performance Standards.

We note that the Draft CAP Checklist in Appendix F includes various proposed checklists and decision-making processes to determine which projects are eligible for CEQA streamlining under the CAP and which project may not be. As outlined in previous letters including our April 30, 2020 letter, CAP mitigation measures must be specific and enforceable in order to render the CAP legally defensible as a CEQA streamlining program. Unfortunately, the CAP still has significant defects in this area. For instance, Appendix F of the Draft CAP allows for streamlining if a project can demonstrate compliance with various county ordinances including a zero net energy (ZNE) ordinance, all electric buildings ordinance, zero emission vehicle master plan, building performance standards, and/or net zero water ordinance. Yet, as the Draft CAP acknowledges, none of these ordinances have been adopted, although the County is seeking to adopt them by 2030.[35] The Draft CAP does not explain how CAP compliance on a project-by-project basis will be determined or achieved before adoption of these ordinances. The Draft CAP should provide more clarity as to what measures would be required for each type of project *prior* to adoption of each of these ordinances; for instance, until a ZNE ordinance is adopted, the Draft CAP should require ZNE for applicable projects and include a definition of ZNE within the checklist. Without such clarity, the CAP cannot properly function as a CEQA streamlining document.

[35] RDEIR, Appx. F, at F-31.

VII. Conclusion

Thank you for the opportunity to submit comments on the Draft Plan and RDEIR. The concerns outlined in this letter are non-exhaustive, and we reiterate those issues that remain unaddressed from our July 18th Letter and the other Center letters attached thereto. We look forward to reviewing the analysis and mitigation strategies in the Final EIR and Plan and proposing suggestions to refine and strengthen them. We also are happy to meet again with County staff to discuss any of the recommendations in this letter, the July 18th Letter, or previous letters of the Center. Please do not hesitate to contact the Center with any questions at the email or number listed below.

Sincerely,

J.P. Rose
Policy Director & Senior Attorney
Urban Wildlands Program
Center for Biological Diversity
Telephone: (408) 497-7675
jrose@biologicaldiversity.org

Exhibit 1

July 18, 2022

Sent via email

Thuy Hua, Supervising Regional Planner
Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012
climate@planning.lacounty.gov

Re: Comments on the Draft Los Angeles County 2045 Climate Action Plan and Draft Environmental Impact Report

Dear Ms. Hua:

These comments are submitted on behalf of the Center for Biological Diversity (the "Center") regarding the Draft Los Angeles County 2045 Climate Action Plan (Plan) and its Draft Environmental Impact Report (DEIR). The Center submitted comments on an earlier version of the draft Plan on April 30, 2020 and on the Notice of Preparation for the DEIR on February 1, 2022, which is included here as Attachment A. We hereby incorporate the comments in both letters by reference and request that the issues raised in those letters be considered in preparing the Final EIR and revised Plan.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Los Angeles County ("County").

The County has proposed an "aspirational goal" of "carbon neutrality" in 2045 with interim targets of 40 percent and 50 percent GHG emissions below 2015 levels by 2030 and 2045, respectively. To adequately address the climate crisis and the closely related public health and environmental justice crises, the Plan must do better.

Climate science demands greater reductions in the near-term that will require a further accelerated transition away from fossil-fuel energy systems and an accelerated adoption of proven, cost-effective, zero-emission solutions that alleviate the disproportionate harm of fossil fuel extraction and combustion. As the world's scientists have repeatedly warned, we are out of time to act on climate. We simply cannot afford any further delay of needed pollution reductions.

Accordingly, the Plan must achieve much more rapid emissions reductions in the near-term and prioritize emission reductions over "carbon neutrality." Under the current Plan, the County projects that, by 2045, it will have a gap of approximately 23 percent "residual emissions" of GHG emissions reductions left to fill to reach carbon neutrality by 2045. (Plan at 3-3). It crosses its fingers and hopes to rely on new technologies, or – perhaps – carbon removal strategies, such as carbon capture and sequestration (CCS) and direct air capture (DAC). (Plan at ES-7, 3-8 – 3-9). There is much more the County can and must do to reduce emissions directly with proven, cost-effective solutions, rather than rely on speculative and problematic technologies like CCS, bioenergy, and DAC.

The Center appreciates the opportunity to raise these concerns with the County. If you have any questions about the Center's concerns, please contact Hallie Kutak at the phone number or email listed at the end of this letter.

I. THE COUNTY MUST INCLUDE A MORE ACCELERATED OIL AND GAS PRODUCTION PHASE OUT MEASURE AND TRANSITION TO CLEAN RENEWABLE ENERGY BY 2030.

A. California Should Phase Out Fossil Fuel Extraction by 2030, If Not Earlier.

Angelenos have been exposed to the harmful impacts of living near fossil fuel production for far too long. The oil and gas industry pollutes our air, soil, and water; harms public health; and fuels the escalating climate crisis. Impacts in the County have been concentrated in historically disadvantaged communities: nearly 73 percent of County residents that live near oil and gas wells are people of color. (Los Angeles County Board of Supervisors Mitchell and Kuehl, 2021). To protect public health and avoid the worst climate catastrophes, a robust body of scientific research has established that no new fossil fuel production and infrastructure can be permitted, and the U.S. must end existing oil and gas production by 2030, not 2045, for a reasonable chance of limiting global temperature rise to 1.5°C.

Measure ES-1 of the Plan—develops a sunset strategy for oil and gas production in unincorporated Los Angeles County by 2045, with performance objectives of reducing emissions from operations by 40 percent below 2015 levels by 2030, 60 percent by 2035, and 80 percent by 2045 (Plan at 3-14)—is inconsistent with science-based climate targets and the County's latest actions to protect communities from oil and gas extraction.

The Plan should instead include a measure to phase out all fossil fuel production by 2030 or earlier, to align with recent research about the measures necessary to ensure temperature rise does not exceed 1.5°C. For example, a recent report found that, for a 50 percent chance of staying within a 1.5°C carbon budget, there can be no new fossil fuel development and 40 percent of developed fossil fuel reserves need to stay in the ground. (Trout et al. 2022). Another recent report agreed that there can be no new fossil fuel production for a 50:50 chance of staying within 1.5°C temperature rise and added that the UN's equity framing of "common but differentiated responsibility" requires wealthier nations with economies less dependent on oil and gas revenues to lead the way with high rates of closure and early phase-out dates. This means that, for the U.S. (and 18 other wealthy nations with the highest capacity for a just transition), oil and gas production must be cut by 74 percent by 2030 with zero production by 2034. (Calverley & Anderson 2022). For this reason, ending oil and gas production throughout California in 2045 is compatible only with the lowest ambition temperature scenario studied; it falls “far short” of what is necessary to stay within a 1.5°C carbon budget. The proposed 2045 timeline for Los Angeles is similarly insufficient, despite the recognition in Goal 7 of the County’s 2019 Sustainability Plan that rapidly moving toward a zero-carbon energy system—including “eliminating fossil fuel production in the County, including drilling, extraction, and refining”—is necessary to keep the County’s commitment to containing temperature rise, in alignment with the goals of the Paris Climate Agreement. (Los Angeles Countywide Sustainability Plan, 2019).

A 2030 or earlier timeframe is also necessary for the Plan to be consistent with recent County actions. As noted in the Plan, in September 2021 the Board of Supervisors voted to phase out oil and gas drilling and ban all new drill sites in unincorporated County areas. The Plan fails to mention, however, that the September 2021 motion specifically requested an “analysis of the feasibility of a 5-year phase-out period.” (Los Angeles County Board of Supervisors Mitchell and Kuehl 2021). The Board of Supervisors requested the five-year timeline because it would align with actions by Culver City to phase out oil[1] and a similar proposal by the City of Los Angeles. More recently, the County Department of Regional Planning drafted an ordinance that will ban new drilling and make oil operations throughout the County a legal nonconforming use that must be phased out within 20 years. (Los Angeles County Department of Regional Planning, Staff Report 2022). The Department also posted a Request for Proposals for an amortization study that would determine the fastest date by which operations can be phased out. The ordinance is expected to be enacted in “late 2022,” and the Requests for Proposals are due July 12, 2022, with a proposed 18-month contract timeline and final amortization recommendations due in May 2023. (Los Angeles County Department of Regional Planning, RFP 2022). In other words, the County will soon have a 2042 default phase out deadline, which may move up to 2027 or some other date before 2030 if the amortization study finds those dates to be legally defensible. The Plan should align Measure ES-1 with these timelines.

Similarly, the Plan does not clarify why Measure ES-1 stops short of reducing emissions by 100 percent. Measure ES-1 focuses on reducing emissions 80 percent below 2015 levels by 2045 with a paired strategy of removing carbon with direct air capture and carbon sequestration. The inclusion of carbon capture as part of the strategy drives the uncertainty in costs associated with Measure ES-1. (Plan, Appendix E at E-3). Carbon capture adds potentially more than $100 million to the cost estimate. There is no need to add millions of dollars in costs to this measure to capture or remove carbon dioxide when the County’s strategy already addresses the vast majority of oil and gas operations throughout the County. The County plans to phase out oil and gas operations through an amortization program that addresses all active and idle wells, and through a separate strategy to address wells in the Inglewood Oil Field. (Los Angeles County Department of Regional Planning, Ordinance Website 2022). The only wells that the County’s current efforts will not address before 2045 are “orphan” wells that have no known operator to hold accountable for proper well abandonment. And the County has begun work on a pilot program to address likely-orphan wells

[1] Culver City recently commissioned a study to determine what a reasonable amortization period would be for the oil wells within its jurisdiction and found that the operator achieved amortization of its capital investment *within four to five years of purchasing the wells.* (Cheek et al. 2020).

using state and federal funding. (Los Angeles County Board of Supervisors Hahn and Mitchell 2021). It is not clear if the Plan assumes that these orphan wells account for the remaining 20 percent of emissions that cannot be eliminated by 2045, or if there are other reasons why emissions cannot be eliminated. The County should explain why it expects emissions to decrease only 80 percent from this measure, especially since the source of those remaining emissions should dictate the implementing actions the County takes. It would be far less costly and more effective to invest resources in addressing orphaned wells if those are the source of remaining emissions than it would be to devise and implement a carbon removal strategy.

B. The County Must Phase Out Power Plants And Accelerate Its Targets For Clean Electricity And Distributed Generation.

As noted above and consistent with climate science and equity, California must transition off fossil fuel electricity and to 100 percent renewable, just energy by 2030. To meet this target, the County must set more ambitious goals, including setting a schedule to phase out power plants and accelerate decarbonization efforts. The current Plan lacks a sufficient target for the electricity generation sector, focusing instead on consumer demand solutions.

1. The County Must Analyze the Phase Out of Power Plants.

After the Supreme Court's disastrous decision limiting the authority of the U.S. Environmental Protection Agency to address the devastating impacts of power plant pollution, it is imperative that local jurisdictions take appropriate action to meet our climate and equity goals. (*West Virginia v. EPA*, No. 20-1530 (June 30, 2022).) This is particularly true for the County and the many power plants in its jurisdiction.

The Plan aims to align with other state and regional initiatives, specifically the implementation of Senate Bill (SB) 100. But SB 100's 100 percent zero carbon target is limited to retail sales of electricity. This limitation means that power plants can technically meet the SB 100 target while still combusting fossil fuels or other feedstocks for end uses outside of retail sales, such as to meet transmission and distribution losses from the grid. (LA100, 2021). As a result, natural gas combustion could potentially amount to 10 to 15 percent of power generation. (*Id.)* In this regard, outside of the catch-all carbon removal strategy, the Plan lacks any measure to address the significant GHG and co-pollutant emissions from the power plant sector. Instead, the Plan proposes to decarbonize the electricity generation sector with utility scale solar, rooftop solar and other distributed energy resources ("DERs"), and demand response strategies. But it is silent on limiting electricity generation emissions. In conjunction with its proposed strategies, the County should also include a measure to limit and eventually phase out power plant pollution.

As detailed below, the County should revise its definition of zero carbon and include measures to phase out power plants. By prioritizing DERs, the County can cure the feasibility issues associated with utility-scale solar. In this way, the County can accelerate the Plan's target for clean electricity generation and achieve zero combustion resources by 2030.

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2. The County Should Revise the Definition of Zero Carbon.

The Plan defines zero carbon as "energy resources that either qualify as "renewable" in the most recent Renewables Portfolio Standard (RPS) Eligibility Guidebook or generate zero GHG emissions on-site." (Plan at 3-15). This is the same definition used by the State for SB 100, which omits lifecycle analyses. These categories are flawed for several reasons and using them will hinder progress toward the County's carbon goals.

First, not all of these resources are, in fact, renewable or carbon-neutral. For instance, evidence shows that, like coal and oil, woody biomass – which is included in the RPS – is a carbon-burning form of energy production that emits carbon dioxide and contributes to the climate crisis. Biomass power plants are California's dirtiest electricity source—releasing more carbon at the smokestack than coal. (Sterman et al. 2018). The average GHG emission rate for California's current electricity portfolio is about 485 pounds carbon dioxide equivalent (CO_2e) per megawatt hour (MWh).[2] In 2018, woody biomass power plants in California emitted more than *seven times* that amount, averaging 3,500 pounds CO_2e per net MWh for non-cogeneration facilities.[3]

Second, automatic inclusion under these programs and definitions precludes an adequate environmental review of local impacts. In particular, the SB 100 analysis omits analysis of significant increases in local air and water pollution in and around mega-dairies from the production of biomethane from dairy waste feedstock. And in California, biomass power plants are among the worst emitters of particulate matter and NOx. Certainly, the LA100 Study includes a No Biofuels scenario to address this concern, and the County should do the same, or otherwise disclose that its

[2] See CARB, California Greenhouse Gas Emissions for 2000 to 2018, Trends of Emissions and Other Indicators (2020 Edition) at Figure 9 (GHG Intensity of Electricity Generation); *see also* CARB, 2000-2018 Emissions Trends Report Data (2020 Edition) at Figure 9, showing the overall GHG Intensity of Electricity Generation in 2018 of 0.22 tons CO2e per MWh, which is equal to 485 pounds per MWh. These calculations were based on the 2020 trends report, however the 2021 edition, California Greenhouse Gas Emissions for 2000 to 2019, Trends of Emissions and Other Indicators (July 28, 2021) (Figure 9) shows a similar number (0.21 tones CO2e per MWh), https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf (data available for download at https://ww2.arb.ca.gov/ghg-inventory-data).

[3] Total CO2e emissions for each facility in 2018 come from California Air Resources Board Mandatory GHG Reporting Emissions data, available at CARB, *Mandatory GHG Reporting – Reported Emissions*, https://ww2.arb.ca.gov/mrr-data (last visited June 23, 2022). Data on net MWh produced by each facility in 2018 come from the Cal. Energy Comm'n, *California Biomass and Waste-To-Energy Statistics and Data*, https://ww2.energy.ca.gov/almanac/renewables_data/biomass/index_cms.php (last visited June 23, 2022). Total CO2e produced by the nine electricity only, non-cogeneration active woody biomass facilities with available data totaled 2,127,693 metric tons, and net MWh in 2018 from these nine facilities totaled 1,334,346 MWh, for an average of 1.59 metric tons CO2e per net MWh, equal to 3,515 pounds CO2e per net MWh. The average of 3,515 pounds CO2e per MWh includes electricity-only plants; cogeneration plants are excluded because some of their CO2 emissions are from heat-related fuel consumption. The high CO2e rate-per-MWh is similar for biomass facilities without cogeneration.

electricity generation measures implicate increased and unjust mega-dairy practices, including increased groundwater and air pollution in the Central Valley.

In response to these concerns, the Joint Agencies (the CEC, CPUC and Air Resources Board, "CARB") developed a "No Combustion scenario." The County should replace its zero carbon definition with the definition of No Combustion, which excludes combustion technology, combustion turbines, combined cycle, combined heat and power, and biomass. (Joint Agencies 2021).

3. The County Should Achieve a "High DER" Future.

The Center appreciates the County's identification of the many benefits of DERs, including community ownership, wildfire mitigation, reducing peak energy demand, resiliency and eliminating the need for the construction of new generation facilities. (Plan at 3-11). There are other benefits to DERs, especially to disadvantaged communities. To maximize these benefits, the County should prioritize the deployment of DERs, versus placing too great a reliance on utility-scale solar measures.

The 2021 Joint Agency Report analysis, implementing SB 100, concluded it is possible to eliminate all combustion resources by 2045. (Joint Agencies 2021). That analysis, however, did not include DERs. As detailed below, DERs are an integral component to meet our climate and equity goals and can theoretically generate enough power to meet U.S. electricity needs multiple times over. (National Renewable Energy Laboratory, 2012). DERs also present significant benefits, can center equity and minimize impacts to biodiversity and habitats. The California Energy Commission ("CEC") recently initiated a rulemaking to examine how California can achieve a "High DER" future. (CEC 2022). In that rulemaking, the CEC is exploring "issues related to the operation and performance of a mature high-DER electricity system in California, as well as near-term issues that must be addressed along the path to the future system," specifically to "optimize DER benefits and value in support of advancing state goals for decarbonization, resilience, affordability, and environmental justice and equity. (*Id.* at 3-4). Similarly, the Public Utilities Commission ("CPUC") also "anticipates a high-penetration DER future and seeks to determine how to optimize the integration of millions of DERs within the distribution grid while ensuring affordable rates." (CPUC 2021). The Plan should match the State's ambition for DERs.

(i) *The County Should Revisit its Over-Reliance on Utility-Scale Solar.*

Although the County proposes to decarbonize the electricity system through all three strategies of utility-scale solar, rooftop solar and other DERs, and demand response, the Plan measures place a tremendous reliance on utility-scale programs, limiting the ambition for alternative generation options through DERs. Measure ES2 seeks 100 percent municipal participation (by 2025) and 96 percent community participation (by 2030) in either Southern California Edison's (SCE's) Green Rate or the Clean Power Alliance's ("CPA") Green Power programs. (Plan, Appendix E at E-3). By contrast, the targets for rooftop solar are far less ambitious. For instance, the Plan proposes a mere five percent growth in rooftop solar on existing multifamily residential and commercial buildings by 2030. Including more aggressive targets, especially for new construction of multifamily residential buildings, will allow low-income renters to leverage other programs with associated benefits, including the Solar on Multifamily Affordable Housing and Virtual Net Energy Metering programs.

The Plan must recognize the difference between "community solar" through the Green Rate and Green Power programs and actual solar *in* the community, which drives realization of the several community benefits detailed below. Neither SCE nor CPA's solar options are located "in the community," or close to customer demand, but instead require generation from large facilities far away from demand. For example, CPA's clean energy would not be generated in certain communities, areas, or even Los Angeles County: "[a]lmost all this energy will come from wind and solar farms in California with a little bit coming from other western states and a little coming from geothermal and small hydroelectric." (DEIR at 3.1-13). Due to the distance of these facilities from County residents, these solar farms require substantial transmission infrastructure, with associated line losses, land use and affordability impacts that DERs avoid.

(ii) ***DERs Present Several Benefits to Achieve our Climate and Equity Goals.***

Utility-scale solutions will simply not meet our climate and equity goals. 100 percent clean electricity requires serving the County's hardest to reach residents where affordability is paramount. (CEC 2016). Achieving affordable electricity bills is critical to decarbonizing our electricity systems, and DERs present several benefits to ratepayers that utility-scale solutions cannot achieve. For instance, adequate deployment of rooftop solar displaces the need for significant transmission and distribution costs that would traditionally be passed on to ratepayers. In 2018 alone, the California Independent Systems Operator, citing increased rooftop solar and energy efficiency, canceled 20 transmission projects at a $2.6 billion savings to all ratepayers. Growing local solar and storage would save California ratepayers $4 billion a year, adding up to $120 billion over the next 30 years. (Vibrant Clean Energy 2021). Similarly, eliminating the need for additional transmission also eliminates the need for utility-caused and expensive wildfire mitigation, such as the costs for undergrounding of transmission lines and associated power shutoffs. DERs also present local economic benefits, including but not limited to local clean energy installation jobs, which are more numerous than utility-scale clean energy jobs. (Wesoff and Olano 2022).

DERs can also cure feasibility issues raised by utility-scale solar. The Joint Agency SB 100 Report, which does not include DERs, shows that we need to build 2.8 GW/year of large-scale solar, every year for 25 years, along with 1.1 GW of consumer solar. However, our average build rate of large-scale solar has to-date been 1.0 GW/year. It is unclear if 2.8 GW/year is possible or affordable. Certainly, SCE's Green Rate program has suspended "all enrollments" for its 50 percent and 100 percent options, due to the need to construct additional utility-scale generation. A more robust deployment of DERs would eliminate this need for additional construction and generation potentially hundreds of miles away from demand.

Adequate deployment of rooftop solar can also minimize the need for the estimated million acres of land to meet the SB 100 core scenario's proposal for utility-scale solar, upon which the Plan places most of its reliance. Utility-scale solar presents significant land use impacts to biodiversity, species and habitats and eliminates opportunities for natural carbon sinks. (Butt et al. 2013; Brittingham et al. 2014; Pickell et al. 2014; Souther et al. 2014; Allred et al. 2015; B. Harfoot et al. 2018). It is simply not feasible to place such reliance on utility-scale solar to meet our climate goals. Backlogs in interconnection queues for utility-scale resources, compounded by the time necessary to plan and build transmission creates a bottleneck preventing necessary buildout by 2030, the critical decade for GHG reduction.

The County should revise the Plan to include more aggressive targets for DER adoption, especially as SCE does not currently have the generation capacity for its utility-scale program. The County should instead take this opportunity to use the Plan to send the appropriate market signals to accelerate DER development to the benefit of the County, especially its historically marginalized residents.

(iii) ***The County Should Implement DERs "From the Ground Up."***

Certain portions of the electricity grid are in such disrepair, especially in low-income communities, that the only viable electrification and resilience solutions may be non-wire alternatives presented by DERs. (Brockway et al. 2021). As noted above, utility-scale solutions are not adequate, and the County should propose particularly ambitious efforts to meet the energy needs of the County's disadvantaged communities.

At a recent joint CEC and CPUC workshop on achieving a High DER future, the two agencies committed to collaborating on community engagement efforts to determine how DERs could meet community-level needs, and thereby ensure that DAC residents are not left behind in a just and clean energy transition. The Center appreciates the County's proposal to identify geographic opportunities to deploy DERs (Plan at 3-11, Action ES4-3), and encourages the County to include measures in the Plan to further coordinate with the CEC and CPUC to serve the hardest to reach residents and achieve more ambitious targets for DERs.

II. THE COUNTY SHOULD SET CLEAR AND MORE AMBITIOUS BENCHMARKS FOR ZERO EMISSIONS TRANSPORTATION.

The transportation sector accounts for over 50 percent of total LA County GHG emissions. (Plan at 2-2). It is therefore imperative that the County do everything in its power to reduce these emissions with clear, ambitious reductions targets. As described below, the County must do more to reduce vehicle miles travelled (VMTs) and tailpipe emissions (including from freight transport), and to increase public transit and deployment of and access to electric vehicles (EVs) and charging infrastructure.

A. Cars and Light Trucks

1. ZEV Sales Targets

Measure T-6 (Plan at 3-29, Appendix E at E-9) calls for sales of new light-duty ZEVs in the County to be 60 percent by 2030 and 100 percent by 2035. Yet the Advanced Clean Cars II rule ("ACC II"), currently being finalized by the Air Resources Board, calls for *68 percent EV sales by 2030*. The County's current plan is less than what ACC II calls for statewide. (CARB, ACC II 2022). This mismatch is unwarranted: in fact, LA County should be *leading* the ZEV transition and setting targets that are well ahead of ACC II. The County is one of the centers of EV adoption in the state. Between 2010 and 2019, 46 percent of all EV and hybrid rebates in California were from Southern California—more than the Bay Area (35.4 percent) and the rest of the state (18.6 percent). (LACEDC 2020, p. 29). Of the Southern California share, 56.8 percent of rebates came from the County, the largest share by far of all counties in the region. The achievement of California's EV targets in ACC II will be called into question if one of the top counties in the state does not even attempt to keep pace with statewide targets.

Instead, the County should set an ambitious EV sales target and reach 100 percent sales by 2030, not 2035. The average vehicle lifetime and the sheer number of internal combustion engine vehicles (ICEVs) that could be sold between 2030 and 2035 demonstrate the need to end gas-powered sales no later than 2030. A 2019 study found that if new vehicle technology is immediately adopted and incorporated into 100 percent of all new vehicle sales, in 20 years it would still only be present in 90 percent of the on-road vehicle fleet. (Keith et al. 2019, p. 2). This means that under a 2035 100 percent ZEV sale requirement, 10 percent of California's fleet would still be ICEVs in 2055, continuing to emit carbon pollution and undermining the state's emission targets. That portion is highly significant: it means that roughly two million additional gas-powered cars would be sold between 2030 and 2034, emitting an estimated 69M $MTCO_2e$ over their lifetimes. (Fleming 2020 and Data Analysis).

The 2030 100 percent ZEV mandate is feasible. According to some estimates, cost parity between ICEVs and ZEVs has already been reached without the use of incentives (see Lutsey & Nicholas 2019, p. 11; see also Taylor and Rosenberg 2022), and experts have concluded that ZEVs are already cheaper to own and maintain over their lifetimes. (Harto 2020). In fact, experts predict that ZEV sticker prices will match their ICEV counterparts as early as 2023 to 2025, primarily due to declining battery costs. (Gearino 2020). In light of these facts, it is clear that delaying 100 percent sales until 2035 is unnecessary and risks bringing warming above 1.5°C.

Finally, even if LA County ignores the clear imperative for 100 percent sales by 2030, it should raise its interim 2030 target well above the current 60 percent goal. Even a commitment to reach 80 percent in 2030 would be a vast improvement and bring us closer to carbon neutrality. The target should be frontloaded to secure maximum carbon reductions earlier: if fewer ICE cars are made and sold during the earlier years, there will be fewer emissions from these vehicles over their lifetimes. An earlier interim target also sends a clear message to industry that it must rapidly shift its investment and capacity to producing EVs.

2. EV Charging Stations

The Plan would "[r]equire all new development to install electric vehicle charging stations ("EVCSs") through a condition of approval/ordinance. Residential development must install EVCSs; nonresidential development must install EVCSs at a percentage of total parking spaces." In addition to these policies, the County should follow the efforts set out in proposed SB 1482 for residential parking, which requires newly constructed multifamily residences in California to have electric vehicle charging access for every unit that has access to a parking space. (SB 1482, Allen 2022). This provision would result in little additional cost for builders while addressing equity for multi-unit dwelling residents.

The Plan would also "[i]nstall EVCSs at existing buildings and right-of-way infrastructure (e.g., lamp poles) throughout unincorporated Los Angeles County." There is no explicit mention of "existing buildings" extending to existing *residential* buildings. Requirements must be set for installing charging at *existing* multi-unit dwellings in addition to new construction.

The Plan also fails to set clear targets regarding the number of EV chargers it had pledged in previous years. The 2019 LA County Sustainability Plan aimed to reach 60,000 new public EV charging stations by 2025, and an additional 70,000 by 2035. (Los Angeles Countywide Sustainability Plan, 2019 at 112). Yet the Plan does not contain definite goals for charging stations.

Other analyses have shown that the County's needs will be much higher than even the goals in the 2019 Sustainability Plan. For example, according to the International Council on Clean Transportation (ICCT), the *City* of Los Angeles alone would need approximately 50,000 public chargers by 2030 to reach 100 percent EV sales by 2030. (Bui et al. 2021, p. 9). The County's needs would be of course much higher. Another ICCT report found that the Los Angeles Metropolitan Area will need 176,672 non-home chargers by 2030—far more than even the Sustainability Plan called for. (Bauer et al. 2021, Table A-2). The lack of definite charging station goals in the Plan is troubling enough; the scale of the County's charging needs demands a detailed plan for building the infrastructure for a fast, equitable transition to ZEVs.

The studies also confirm that the County could implement complementary policies that would reduce the overall need for charging stations. Given the scale of charging infrastructure needed, the County should consider the following ideas, with particular attention to how they would impact the County's focus on equity programs:

- EV-ready building codes
- Prioritized EV-ready zoning
- Preferential EV parking
- Waiving parking fees for EVs at county-owned locations (Bui et al. 2021)
- Enforcing penalties for combustion cars using EV spaces
- Congesting pricing
- Prioritizing VMT reduction

These complementary policies can significantly reduce the County's EV charging needs. One study found that in San Francisco, a combination of these policies would reduce charging station needs by 45 percent by 2030. (Hsu et al. 2020, p. 19). Another study found that a combination of these policies could reduce the demand for new chargers in the LA metropolitan area from nearly 50,000 to 27,300 by 2030. (Bui et al. 2021, p. 9).

3. County Fleet Vehicles

The Plan also calls for electrifying the vehicles in the County light-duty fleet: to 35 percent by 2030, 60 percent by 2035, and 100 percent by 2045. (Plan at 3-29, Appx. E, T7.2). Yet these goals lag behind even the goal President Biden set for federal fleets: that light-duty acquisitions would be 100 percent ZEV by 2027. (White House 2021). While the LA County fleet is not covered by President Biden's Executive Order, the Plan surely betrays its spirit. There is no reason why the County should achieve its ZEV transition years slower than the federal government.

Additionally, the County should include *procurement* dates as well as target dates for when the percentage of the fleet should be zero emissions, as the federal executive order does. It is not clear when the County is going to start purchasing 100 percent ZEVs for its own fleets in order to reach the penetration goals. This information is crucial to understanding how the County plans to meet its goals. Procurement of 100 percent ZEVs should start immediately for light-duty vehicles.

B. Freight and Warehouses

The County should strengthen its performance objectives to advance the phase out of new combustion medium and heavy-duty vehicle (MD/HDV) sales to 2035, which is consistent with CARB's Mobile Source Strategy (CARB 2021, Mobile Source Strategy, p. 68), with higher penetration of ZEV MD/HDVs earlier than the objectives provided. Heavy duty trucks contribute disproportionately to air pollution and harm to disadvantaged communities. (Brown et al. 2021).

A recent Department of Energy study from the National Renewable Energy Laboratory has found that nationwide: "ZEV sales could reach 42 percent of all MD/HD trucks by 2030, reflecting lower combined vehicle purchase and operating costs (using real-world payback periods)" (Ledna et al. 2022). The study's findings suggest that "by 2030, nearly half of medium- and heavy-duty trucks will be cheaper to buy, operate, and maintain as zero emissions vehicles than traditional diesel-powered combustion engine vehicles." (U.S. Dept. of Energy 2022). If this degree of cost parity is achievable across the United States by 2030, then there may be greater adoption of ZE HDVs by 2030 than the County assumes.

The County can help this process by accelerating the implementing actions. For instance, the Plan does not propose to begin implementing freight decarbonization technologies along highway corridors (Appx. E, T8.1) for another 3 years. The County should start implementing these immediately. Similarly, we hope the County will begin the process of streamlining permitting for ZEV MD/HDV charging infrastructure immediately.

The Center appreciates the effort to create an ordinance for all new and existing warehouses to include EVCS (Appx. E, T8.2, T8.3). However, the deadline of 2035 for existing warehouses could be accelerated. Warehouse and logistics development is a well-documented source of greenhouse gas emissions and air quality degradation that can create serious, negative health outcomes for surrounding communities. (Betancourt and Villianatos 2012). Particulate emissions from diesel vehicles contribute to "cardiovascular problems, cancer, asthma, decreased lung function and capacity, reproductive health problems, and premature death. (*Id.* at 5.) With the rapid increase in global trade, the Ports of LA and Long Beach have become a primary entryway for goods, processing over 40 percent of all imports into the United States, and accounting for 20 percent of diesel particulate pollutants in southern California—more than from any other source. (Minkler et al. 2012). These goods are "transloaded" before leaving Southern California, meaning that they spend some time in warehouse storage facilities before they reach their final destination. (Betancourt and Villianatos 2012). This has resulted in a massive, unchecked expansion of warehouse development throughout Southern California, creating a logistics hub so massive that it is now visible from space. (Ragen 2022). This growth continues unchecked and is now bleeding into open space areas in Coachella Valley and elsewhere, choking airways and driving habitat loss. The Plan makes little mention of the supply chain/logistics industry, which drives these impacts. The County must coordinate with regional planning and transportation agencies to ensure that the logistics industry is planned with intention, away from existing residential communities, and that the attendant environmental impacts are limited to the extent feasible.

C. Green Hydrogen

The Plan proposes to "[i]ncrease the use of green hydrogen vehicles. Use biomethane and biogas created from organic waste as a 'bridge fuel' to achieve 100 percent green hydrogen and electric vehicles." (Plan at 3-29). First, biomethane and biogas should not be used as bridge fuels, including as a hydrogen source. Reliance on biomethane and biogas props up the fossil fuel industry as it allows gas companies to maintain their pipeline infrastructure. Relying on wood biomass or forestry residues could promote forest logging, hence destroying a significant carbon sink, as explained in Section V, *infra*. Further, sources of biogas and biomethane, such as animal manure, promote expansion and consolidation of the animal agriculture industry, resulting in more air and water pollution. (Sadaat and Gersen 2021).

Second, green hydrogen, as in electrolytic hydrogen produced by splitting water solely using clean, renewable solar and wind energy, is not a workable solution for decarbonizing our transportation systems and buildings since electrifying these sectors and running them directly on a clean, renewable energy grid is the most efficient, cost-effective solution. Green hydrogen, limited to electrolytic hydrogen produced from renewables (Sadaat and Gersen 2021), could be part of an interim solution to decarbonizing difficult to decarbonize sectors such as aviation and maritime shipping, at least until the point of electrification. However, current evidence points to efforts to scale up hydrogen production, but not necessarily "green" hydrogen production. Currently, 95 percent of hydrogen produced in the United States is made from fossil gas ("grey" hydrogen), emitting substantial climate and air pollution. Fossil fuel companies have expressed interest in hydrogen, marketing the benefits of green hydrogen, but explicitly advocate for all forms of hydrogen production. For instance, their claims of being able to repurpose gas pipeline infrastructure for hydrogen obfuscate the fact that hydrogen is incompatible with current infrastructure and can only be transported as a blend with fossil gas, and only in a relatively small proportion. Promoting hydrogen has become a tool of fossil fuel companies to both prolong the production of fossil gas and the need for fossil gas infrastructure. Until this changes, and clear signs point to clean electrolytic hydrogen being promoted for commercial scale production, hydrogen is a false solution that best serves fossil fuel interests.

III. THE COUNTY SHOULD SET CLEAR AND MORE AMBITIOUS BENCHMARKS FOR BUILDING ELECTRIFICATION.

Natural gas use in buildings is a primary driver of GHG emissions in the unincorporated areas of the County. (Plan at ES-2; Aas 2020). Consequently, the County identifies building electrification as a necessary "core measure" to achieve its 2030 and 2035 greenhouse gas reduction targets. (Plan at 3-4, 3-5). While its goals are lofty, the Plan fails to set ambitious targets or identify the resources necessary to achieve rapid electrification. Absent such benchmarks, the Plan risks locking-in carbon intensive options for several decades.

The Plan envisions that all buildings will be zero net energy (ZNE) by 2045.[4] Yet its own benchmarks get the County nowhere close to that goal. The Plan proposes requiring all new residential buildings to be ZNE by 2025 and all new nonresidential to be ZNE by 2030. (Plan at 3-38). Given the urgency of the climate crisis and the long lifespan of buildings, there is no justification to wait any longer to require new construction to be ZNE, no less the additional decade proposed for nonresidential construction. Fifty-two cities and counties throughout the state — such as the City of Los Angeles, Berkeley, San Francisco, San Jose and Oakland — have already taken these clear-cut steps to prohibit natural gas infrastructure and make electric appliances standard, thereby demonstrating the feasibility of such action. (Rachal 2021). If building electrification is delayed any further, the County will miss the lower-cost opportunities for all-electric new construction, and instead further entrench itself in the cost of expensive early retirement of equipment—a hole it already is trying to dig itself out of through investment in electrifying existing building stock. Requiring ZNE for new construction is available low-hanging fruit. Without embracing such obvious measures, the County risks missing its climate goals altogether.

For one, the County's goal hardly aligns with its most recent actions on building electrification. Earlier this year, on March 15, 2022, the County Board of Supervisors unanimously moved to instruct the Director of Public Works to assess feasibility of ZNE and make recommendations for an ordinance or building code to phase out the use of natural gas equipment and appliances in all new residential and commercial construction, where feasible, starting in 2023. (Los Angeles Board of Supervisors 2022). At minimum, the Plan should align with these timelines that the County has already established.

The Proposed Plan must also speed up its timeline to transform existing building stock. Most of the buildings that will be standing in 2050 have already been built. (IPCC 2014). Consistent with statewide goals on ZNE buildings (CPUC 2022), the Draft EIR and Plan should include plans, incentives, and programs to retrofit at least 50 percent of commercial buildings to ZNE by 2030. The Plan notes the extensive investment needed to electrify existing buildings but appears to lack identified funding sources to carry out electrification. The Final EIR and Plan should include evidence describing how the County will include sufficient funding and staff to carry out the programs and mitigation strategies identified. (*See, e.g.*, *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1116-1118 [EIR invalid because agency offered no evidence that measures for reducing impacts would actually be effective]). Alternatively, if the County lacks funding sources to reach its goals, then the County must electrify where it can and require all new construction to be ZNE on a more accelerated timeline.

In short, the County must take a long-term view of its climate goals and evaluate the role of natural gas infrastructure in that future. A recent CEC report found that, under all the long-term GHG reduction scenarios, electrification of buildings "leads to lower energy bills for customers over the long term than the use of renewable natural gas." (Aas 2020). Further, because the cost of decarbonizing natural gas with renewable natural gas is more expensive than electrification, building electrification now lowers the total societal cost of meeting California's climate goals. (*Ibid*.)

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[4] A ZNE building is defined as one that is energy-efficient and consumes energy less than or equal to the on-site renewable generated energy. (DEIR at ES-50).

IV. THE PLAN MUST LOOK BEYOND TREES AND AGRICULTURAL TO MEET CARBON SEQUESTRATION GOALS.

The Center is encouraged to see the Plan includes strategies to conserve forests and working lands (Strategy 9) and sequester carbon and implement sustainable agriculture (Strategy 10). However, the "focus on conservation and restoration of existing forest lands and urban forests to sequester carbon and support local ecosystems" (Plan at 3-49) ignores a vital opportunity to conserve valuable carbon-sequestering, biodiversity-supporting, climate change-resilient non-forest habitats like shrublands, grasslands, deserts, and wetlands while overvaluing agricultural practices. A broader, more comprehensive approach to combatting climate change that expands focused conservation action to non-forest habitats would demonstrate the County is truly "committed to adapting its programs and services to reduce the unincorporated County areas' greenhouse gas (GHG) emissions and help limit global temperature increases." (Plan at ES-1).

The goals of the carbon sequestration strategies, measures, and implementing actions must be bolder and prioritize the conservation and management of existing intact, connected habitats. To better reflect the priorities and more ambitious goals required to effectively implement native-based solutions to reduce carbon emissions, store more carbon, and combat climate change, the following revisions are recommended:

Sector: Wildlands Conservation and Restoration, Agriculture, ~~Forestry~~, and Other Land Use (A)

Strategy 9: Conserve ~~Forests~~ and Restore Intact, Connected Wildlands and Working Lands

Measure A1: Conserve and Restore Forests, Woodlands, Shrublands, Grasslands, Desert, and other Carbon-Sequestering Wildlands ~~Agricultural~~ and Working Lands~~, Forest Lands, and Wildlands~~

Implementing Action A1.1: Develop an open space conservation and land acquisition strategy that prioritizes wildlife connectivity to conserve and restore native habitats ~~lands~~ for carbon sequestration.

A. Non-forest habitats are important for carbon storage, sequestration, and other co-benefits like biodiversity support and climate change resilience.

Scientists point to nature as an effective and efficient tool to help limit warming by keeping carbon sequestered and removing carbon from the atmosphere. (Fargione et al. 2018; Yang et al. 2019). Efforts to sequester carbon have largely been focused on protecting and planting more trees because forests store the largest percentage of carbon compared to other terrestrial ecosystems. (Ahlström et al. 2015). However, the scale of the impacts of climate change requires more thoughtful and ambitious actions beyond trees that 1) account for carbon emissions when non-forest habitats are destroyed and 2) proactively preserve and restore non-forest carbon-sequestering habitats, including but not limited to shrublands, grasslands, and deserts, to complement forest and tree protections.

California's shrubland, grassland, and desert ecosystems are undervalued despite being significant carbon sinks. (Bohlman et al. 2018; Dass et al. 2018; Janzen 2004; Luo et al. 2007; Wohlfahrt et al. 2008). With much of the stored carbon located in their roots and soils, there is potential for long-term storage that could be resilient to changing environmental conditions. (Aranjuelo et al. 2011; Booker et al. 2013; Evans et al. 2014; Vicente-Serrano et al. 2013; White et al. 2000). These habitats have evolved with warm, dry, water- and nutrient-limited environments, which may make them more adaptable and resilient to climate change compared to tropical and temperate forests. (Luo et al. 2007; Rao et al. 2011; Thomey et al. 2014; Vicente-Serrano et al. 2013). Yet shrublands, grasslands, and deserts are often excluded from carbon calculations and neglected as important carbon sinks and biodiversity hotspots.

With climate change progressing and biodiversity losses continuing, targeting forest and non-forest habitats to capture carbon and protect biodiversity is an elegant and effective strategy to achieve desperately needed gains in both areas. The County has a key forward-looking opportunity here to enact climate policy to protect such habitats. (Maxwell et al. 2020; Dinerstein et al. 2020; Soto-Navarro et al. 2020).

1. Trees and forests

The capacity of trees and forests to sequester carbon is waning, and they are not immune to the impacts of climate change. (Cabon et al. 2022; Green & Keenan 2022). In fact, climate change is already affecting the ability of forests and trees to store carbon. Higher temperatures and increased drought are killing trees (C. D. Allen et al. 2010, 2015; Anderegg et al. 2015; Diffenbaugh et al. 2015; McDowell & Allen 2015; Stevens-Rumann et al. 2018; Sullivan et al. 2020), and scientists predicted that U.S. forests will be increasingly vulnerable to fire-, drought-, and insect-driven mortalities as climate change intensifies. (Anderegg et al. 2022).

In addition, there is evidence in high elevation forests that increased atmospheric carbon is leading to shorter carbon residence time, with trees growing faster and dying more quickly. (Büntgen et al. 2019). Elevated atmospheric carbon is also leading to reduced carbon sequestration in European forest soils, likely due to increased microbial respiration. (Heath et al. 2005). This perpetuates a dangerous feedback loop with more carbon in the atmosphere driving hotter and drier conditions that lead to more carbon release. There is some leeway for tropical forests to offset some impacts of climate change; however, their carbon storage capability could rapidly deteriorate if global surface temperatures increase by more than 2ºC of pre-industrial levels (Sullivan et al. 2020).

Land-use planners must urgently look to additional measures that reduce emissions and store carbon to supplement the capacity of trees and forests and increase our chances of effectively combatting climate change. For example, habitats in semi-arid and arid regions, such as shrublands and deserts, have been found to store significant amounts of carbon while being more resilient to drought and increased atmospheric carbon. (Aranjuelo et al. 2011; Evans et al. 2014; Luo et al. 2007). Notably, these habitats support high levels of biodiversity and endemism. They could play a significant role in in combatting climate change and bringing the state closer to its commitment to conserve at least 30 percent of its lands and coastal waters by 2030 under Executive Order N-82-20.

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2. Shrublands

Shrublands in Mediterranean climates, such as vegetation communities dominated by chaparral and coastal sage scrub, have been found to store a significant amount of carbon in their aboveground biomass under normal weather conditions. (Bohlman et al. 2018; Fusco et al. 2019; Gratani et al. 2013; Luo et al. 2007). In a review conducted by Bohlman et al. (2018), above-ground biomass of shrub communities was found to be as high as 3461 g/m^2, with the amount of carbon stored increasing with the age of the stand. Although below-ground biomass is rarely measured or calculated, some shrubland species have been found to have 41 to 47 percent of their biomass below the surface (Bohlman et al. 2018), and chaparral roots have been found four meters (>13 feet) deep in weathered bedrock. (Sternberg et al. 1996).

This suggests that a substantial amount of carbon may be stored belowground in these habitats, not just in their roots, but also in the microbial communities and mycorrhizal fungi that work in concert with root systems to trap carbon in biomass and soil pores and suppress decomposition of humic substances. (Kravchenko et al. 2019; Soudzilovskaia et al. 2019). Intact shrublands with more diverse plant communities have been found to stimulate the formation of soil pores that support optimal microbial functioning and carbon accrual. (Kravchenko et al. 2019). And increased root surface area supports more mycorrhizae that aid in nutrient uptake and facilitate carbon flow and soil carbon accumulation. (Finlay 2008; Orwin et al. 2011; Soudzilovskaia et al. 2019). In addition, semi-arid shrublands have been found to drive the trend and interannual variation of the global carbon cycle. (Ahlström et al. 2015; Poulter et al. 2014). Thus, shrublands should be recognized for their carbon storage potential and included in carbon calculations.

Unlike forests and trees in tropical and temperate regions, Mediterranean shrublands and desert ecosystems are adapted to hot and dry weather conditions and have been found to be resilient to drought. (Luo et al. 2007; Vicente-Serrano et al. 2013). However, during drought the carbon sequestration capacity of Mediterranean shrublands has been observed to decrease. (Gratani et al. 2013) and can even become a carbon source (Luo et al. 2007). Interestingly, elevated atmospheric carbon dioxide levels have been shown to enhance photosynthesis and above-ground production and increase below-ground carbon pools in chaparral and desert ecosystems by stimulating root and mycorrhizal growth. (Evans et al. 2014; Lipson et al. 2005; Thomey et al. 2014; Treseder et al. 2003). However, above-ground gains were only observed in years with above-average rainfall; it is possible that gains in carbon storage could be offset by increased decomposition activity and/or respiration by soil microbes and mycorrhizae during warmer and drier conditions. (León-Sánchez et al. 2018; Lipson et al. 2005; Thomey et al. 2014). Although future impacts of climate change are uncertain, the carbon storage capacity and potential resilience to climate change of shrublands and desert ecosystems demand attention.

The removal and degradation of shrubland ecosystems have been found to result in the loss of both above- and below-ground carbon storage (*e.g.*, Austreng 2012). Given the potential of California shrublands to store a significant amount of carbon, their extensive distribution, and their potential resilience to changing environmental conditions, these ecosystems warrant more consideration and protections in the fight against climate change.

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3. Grasslands

Grasslands cover about 10 percent of California's land area. (Eviner 2016). Although they are mostly dominated by non-native plant species, they continue to be biodiversity hotspots that support almost 90 percent of state-listed rare and endangered species and 75 federally listed plants and animals. (Eviner 2016). Their above-ground biomass may not be as impressive as forests or shrublands, but there is significant potential for carbon storage in their roots and soils (Germino et al. 2019; Kravchenko et al. 2019; Silver et al. 2010; Soudzilovskaia et al. 2019; Yang et al. 2019). Although it depends on the species and ecological region, native grasslands have been found to have 75-93 percent of their biomass below-ground. (Paruelo et al. 2010; Yang et al. 2019). Studies have found that native grasses store more carbon than non-native grasses. (Koteen et al. 2011; Yang et al. 2019), and grasslands with higher plant diversity facilitate greater soil carbon storage. (Chen et al. 2018; Fornara & Tilman 2008; Isbell et al. 2011; Kravchenko et al. 2019; Lange et al. 2015; Yang et al. 2019; Zavaleta et al. 2010) and are likely more resilient to climate change. (Craine et al. 2013; Dass et al. 2018; Vicente-Serrano et al. 2013).

Like California shrublands, grasslands in semi-arid regions have an adaptive capacity to drought and wildfire. Multiple studies suggest that diverse grasslands can adjust to increased drought. (Craine et al. 2013; Dass et al. 2018; Vicente-Serrano et al. 2013), perhaps through the local expansion of drought-tolerant species. (Craine et al. 2013). When fires burn through California grasslands, the grasslands release less carbon than woody habitats because most of the carbon they store is underground, and they recover relatively quickly. (Dass et al. 2018; Donovan et al. 2020). In fact, one study found that California grasslands may be a more reliable carbon sink than trees and forests in the face of climate change, particularly if global warming exceeds 1.7ºC above pre-industrial levels. (Dass et al. 2018). Evidence suggests that forest resilience to drought and wildfires is already declining under climate change, which further highlights the urgency of preserving and restoring remaining intact native grasslands and their biodiversity in addition to protecting forests and trees to improve our chances of limiting warming to 1.5ºC and avoiding the most devastating impacts of climate change.

4. Deserts

Deserts, which can be dominated by shrubs like creosote bush but can also include forbs, trees, grasses, and dunes, have been found to be a substantial carbon sink. (Janzen 2004; Meyer 2012; Mi et al. 2008; Thomey et al. 2014; Y. Wang et al. 2010; Zamanian et al. 2016). Although aboveground productivity is relatively low, the majority of carbon is stored underground in soil organic carbon as extensive root networks, soil microbial communities, and mycorrhizae (Figure 2) as well as in soil inorganic carbon which can be stored as caliche (M. F. Allen & McHughen, 2011) but also deep soil organic carbon. (CCB 2022). Caliche is calcium carbonate ($CaCO_3$) that is formed when rainwater, soil carbon dioxide from soil and root microbes, and calcium react, and its stability depends on the vegetation present. Deep soil organic carbon is generally stored at depths from 30 centimeters to 1 meter where mineral interactions primarily determine the stability of stored carbon. (Jackson et al. 2017). No soil databases have data on carbon sequestration capacity of soils below 2 meters. (Jackson et al. 2017).

Although often overlooked, soil inorganic carbon in arid and semi-arid regions is estimated to sequester 800-1700 Pg of carbon globally, which is four to 8.5 times higher than the estimated 199 Pg of carbon in global soil organic carbon in these systems. (Thomey et al., 2014). Large stocks of soil inorganic carbon are mostly found in regions with low water availability (*i.e*., areas with mean annual precipitation < 250 mm). (Zamanian et al., 2016), with deserts having the greatest densities of soil inorganic carbon compared to other ecosystems. (Mi et al., 2008; Y. Wang et al., 2010). Soil inorganic carbon and deep soil organic carbon are very stable forms of stored carbon, and they dominate the carbon sink in deserts. (Meyer, 2012; Thomey et al., 2014). This highlights the untapped carbon sequestration potential of California's deserts and the need to protect these landscapes from development and degradation.

B. The Plan's conservation forward language is not backed up by its implementing actions

The Plan mentions a 2045 vision is to "achieve a net gain in carbon storage in the County's wildlands and working lands through management and restoration" and acknowledges that "[f]orests, chaparral shrublands, and wetlands serve as carbon sinks that can sequester carbon dioxide" and "[w]hen these natural and working lands are converted to residential and other urbanized uses, that stored carbon dioxide is released into the atmosphere." (Plan at 3-50). Yet according to the Plan's performance objectives and tracking metrics for implementing action A1.1 to "[d]evelop an open space conservation and land acquisition strategy to conserve lands for carbon sequestration" (Plan at 3-51), the Plan only looks to conserving and restoring natural forest land. (Appendix E at E-16). Not only are non-forest habitats excluded from the Plan, but other important factors that enhance carbon storage and carbon sequestration potential, like prioritizing habitat connectivity and strategically restoring degraded habitats and fallowed agriculture lands, are omitted. The Plan needs to be amended to include the conservation and restoration of other habitats, including but not limited to shrublands, grasslands, wetlands, and deserts, with connectivity as an explicit priority.

When implementing habitat conservation for ecosystem service purposes like carbon sequestration and storage, it is important to take into account that optimal ecosystem services are the result of the functional integrity of healthy ecosystems. There is overwhelming evidence that edge effects from human disturbance like roads and development (including agriculture) impact plants and wildlife and degrade ecosystems. (see Yap et al., 2021a). Negative effects of human disturbance influence important ecosystem dynamics like food webs, nutrient cycling, pollination, and community structure, which, in turn, can disrupt carbon sequestration and storage. (Sobral et al. 2017; Watson et al. 2018). Therefore, prioritizing the preservation of contiguous heterogeneous habitats will benefit biodiversity, which will help improve chances of maintaining ecosystem health and carbon sequestration and storage capacity. The Plan should incorporate connectivity to optimize carbon storage sequestration.

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V. THE PLAN SHOULD PRIORITIZE AVOIDING DEVELOPMENT IN HIGH FIRE-PRONE AREAS AND USE SCIENCE-BASED ACTIONS TO REDUCE WILDFIRE RISK AND PROTECT CARBON-STORING HABITATS.

Wildfires due to lightning strikes and Indigenous cultural burning have occurred on California's landscapes for millennia. They are a natural and necessary process for many of California's ecosystems. But some of the recent fires have been exceptionally harmful to human communities and ecosystems. In the past 200 years since European colonization, forced relocation and cultural genocide of Native Tribes, fire suppression and poor land management, and poor land-use planning has shifted historical fire regimes throughout the heterogeneous ecosystems of the state. In addition, hotter, drier, and more extreme weather conditions due to climate change make the landscape more conducive to wildfire ignitions and spread. Almost all (95-97 percent) contemporary wildfires have been caused by humans and/or human infrastructure (Balch et al. 2017). Therefore, careful and comprehensive analyses of the area's fire history, the various ecosystems' fire ecology, and potential mitigation measures and management strategies to reduce risk of ignition and fire within the County is required. Reliance on a vegetation management plan that bulldozes sensitive ecosystems that could destroy valuable carbon-sequestering, biodiversity-supporting habitat while actually increasing wildfire risk is not only irresponsible, it is negligent. If the County is serious about reducing wildfire risk and protecting carbon-storing habitats, the Plan must include science-based actions and management.

Here are recommended revisions for Implementing Action A1.2:

Limit development in high fire-prone areas and ~~E~~employ ecosystem-appropriate vegetation management of wildlands to reduce unintended human ignitions and wildfire risk ~~and prevent carbon loss in forest lands~~.

A. The Plan must address the role of poorly planned development to reduce wildfire risk.

The Plan fails to acknowledge and discuss that development and human infrastructure in high fire-prone areas increases the risk of igniting wildfires. As detailed in a 2021 Center Report (Yap et al. 2021b), development in highly fire-prone areas increases unintentional ignitions, places more people at risk (within and downwind of the Project area), and destroys native shrubland habitats that support high levels of biodiversity. Almost all contemporary wildfires in California (95-97 percent) are caused by humans in the wildland urban interface. (Balch et al. 2017; Radeloff et al. 2018; Syphard et al. 2007; Syphard & Keeley 2020). For example, the 2019 Kincade Fire, 2018 Camp and Woolsey fires, and 2017 Tubbs and Thomas fires were sparked by powerlines or electrical equipment. And although many of the 2020 fires were sparked by a lightning storm, the Apple Fire was caused by sparks from a vehicle, the El Dorado Fire was caused by pyrotechnics at a gender-reveal celebration, the Blue Ridge Fire was likely caused by a house fire, and electrical equipment is suspected to have ignited the Silverado and Zogg fires.

Recent wildfires have been exceptionally harmful to people. Between 2015 and 2020, almost 200 people in the state were killed in wildfires, more than 50,000 structures burned, hundreds of thousands of people had to evacuate their homes and endure power outages, and millions were exposed to unhealthy levels of smoke and air pollution. Human-caused wildfires at the urban wildland interface that burn through developments are becoming more common with housing and human infrastructure extending into fire-prone habitats, and homes and structures can add fuel to fires and increase spread. (Knapp et al., 2021). This is increasing the frequency and toxicity of emissions near communities in and downwind of the fires. Buildings and structures often contain plastic materials, metals, and various stored chemicals that release toxic chemicals when burned, such as pesticides, solvents, paints, and cleaning solutions. (Weinhold, 2011). This has been shown with the 2018 Camp Fire that burned 19,000 structures; the smoke caused dangerously high levels of air pollution in the Sacramento Valley and Bay Area and CARB found that high levels of heavy metals like lead and zinc traveled more than 150 miles. (CARB, 2021).

In addition, there are significant economic impacts of wildfires on residents throughout the state. One study estimated that wildfire damages from California wildfires in 2018 cost $148.5 billion in capital losses, health costs related to air pollution exposure, and indirect losses due to broader economic disruption cascading along with regional and national supply chains (D. Wang et al., 2021). Meanwhile the cost of fire suppression and damages in areas managed by the California Department of Forestry and Fire (Cal Fire) has skyrocketed to more than $23 billion during the 2015-2018 fire seasons.

New infrastructure in high fire-prone areas should be avoided. If unavoidable, mitigation measures should require structures to have ember-resistant vents, fire-resistant roofs, and irrigated defensible space immediately adjacent to structures. External sprinklers with an independent water source could reduce structures' flammability. Rooftop solar and clean energy microgrids could reduce fire risk from utilities' infrastructure during extreme weather. Transmission lines could be placed underground. In addition, education awareness for construction workers and operations/management employees should be provided and include how to reduce ignition risk. For example, smoking should be prohibited in the Project area, vehicles and electrical equipment that could create sparks need to be properly maintained, defensible space immediately adjacent to structures need to be maintained, etc.

B. The Plan must use the best available science to implement ecosystem-appropriate wildfire management strategies.

The Plan proposes a vegetation management plan to reduce wildfire risk and carbon loss from wildfire without providing sufficient detail regarding what such a plan would entail. "Vegetation management" often includes mechanical removal via logging of trees and/or bulldozing through shrubland, which can have devastating impacts on ecosystems and actually release more carbon than wildfires do. According to Appendix E, the County plans to manage 50,000 acres of wildlands by 2045 for "wildfire risk reduction and carbon stock savings" (Appendix E at E-18), but it is unclear what the management would entail and if wildfire management would include ecosystem-appropriate measures based on the best available science. It would be deeply concerning if the goal of the Plan is to thin and/or remove 50,000 acres of wildlands purportedly to reduce wildfire risk. In addition, monitoring and reporting of wildfire management activities should be required.

Scientific studies showing that carbon emissions in California, and across the U.S., from tree harvest and thinning are much higher than the emissions from wildfire, bark beetles, or drought. Berner et al. (2017) reported that logging was the largest cause of tree mortality in California forests between 2003 and 2012, followed by wildfire and then bark beetles. Furthermore, Harris et al. (2016) reported that between 2006 and 2010 logging was responsible for 60 percent of the carbon losses from California's forests, compared to 32 percent from wildfire. This is because wildfire consumes only a minor percentage of forest carbon while improving availability of key nutrients and stimulating rapid forest regeneration. When trees die from drought and native bark beetles, no carbon is consumed or emitted initially, and carbon emissions from decay are small and slow; meanwhile, decaying wood keeps forest soils productive and enhances carbon sequestration capacity over time. In contrast, logging and thinning results in a large net loss of forest carbon storage, and a substantial overall increase in carbon emissions that can take decades, if not a century, to recapture with regrowth. (Campbell et al. 2012; Holtsmark 2013; Hudiburg et al. 2011; Mitchell et al. 2012; Searchinger et al. 2009).

In addition, some studies indicate that forest thinning can increase fire severity by opening up the canopy, creating hotter and drier conditions and introducing invasive fire-prone grasses. For example, a study in southwestern Oregon forests by Zald and Dunn (2018) found that private industrial forests subjected to intensive harvest experienced higher wildfire severity than more intact forests with a greater proportion of older forest areas. The study suggested that "intensive plantation forestry characterized by young forests and spatially homogenized fuels, rather than pre-fire biomass, were significant drivers of wildfire severity." Similarly, Bradley et al. (2016) found that, across the western U.S., pine and mixed conifer forests with the lowest levels of protection from logging tend to burn more severely, while forests with the most protection from logging burned least severely even though they are generally identified as having the highest overall levels of biomass and fuel loading. (Bradley et al. 2016).

Similarly, the mechanical removal of shrubland habitat would destroy important habitat while perpetuating a negative feedback loop of more wildfire. Chaparral and coastal sage scrub are native California habitats that are adapted to infrequent (every 30 to 150 years), large, high-intensity crown fire regimes. (Keeley & Fotheringham, 2001). However, if these regimes are disrupted, the habitats become degraded. (Keeley 2005, 2006; Syphard et al. 2018). When fires or other types of disturbances (*i.e.*, land-clearing) occur too frequently, type conversion occurs and the native shrublands are replaced by non-native grasses and forbs that burn more frequently and more easily, ultimately eliminating native habitats and biodiversity while increasing fire threat over time. (Keeley 2005, 2006; Safford & Van de Water 2014; Syphard et al. 2009, 2018). Conversely, studies have shown that conservation purchases in areas designated as high fire hazard in Southern California, where chaparral and coastal sage scrub are most vulnerable to development, has led to biodiversity conservation and reduced wildfire risk. (Butsic et al. 2017; Syphard et al. 2016). Thus, the Plan must consider the impacts due to treatment activities on native shrublands when strategizing how to reduce wildfire risk.

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C. The County needs to make a concerted effort to incorporate traditional ecological knowledge into their wildfire management and climate change strategies.

Ramos (2022) states, "Indigenous communities have often been marginalized in the sciences through research approaches that are not inclusive of their cultures and histories." Traditional ecological knowledge (TEK) is often excluded from analyses or distilled to conform to Western science. (Ramos 2022). Here, the Plan fails to acknowledge that Indigenous communities and cultural burning played a role in California's historical fire activity. In fact, there is no mention at all of cultural burning or prescribed fire. This perpetuates the exclusion and marginalization of Indigenous communities and TEK. Consultation with local Native Tribes, and incorporation of Indigenous science, including but not limited to oral histories, ethnographies (that may include burn scars and charcoal records), and archeological data should be incorporated in fire history analysis and subsequent management. As a society, we need to work towards integrative research that "transcends disciplinary boundaries" and employs a range of methodological options to get a deeper understanding of the relationship between people and ecosystems. (Ramos 2022). Doing so will help inform fire management strategies and mitigation measures that work towards reducing harms of wildfire to people while facilitating beneficial fire for the appropriate ecosystems.

Indigenous communities should be more included in climate change and wildfire discourse. Native Americans were found to be six times more likely than other groups to live in high fire-prone areas, and high vulnerability due to socioeconomic barriers makes it more difficult for these communities to recover after a large wildfire. (Davies et al., 2018). In addition, farmworkers, who are majority people of color and often include migrant workers that come from Indigenous communities, often have less access to healthcare due to immigration or economic status. They are more vulnerable to the health impacts of poor air quality due to increased exposure to air pollution as they work. Yet farmworkers often have to continue working while fires burn, and smoke fills the air, or risk not getting paid. (Herrera 2018; Kardas-Nelson et al. 2020; Parshley 2018). Tribes should be included in the development and implementation of wildfire management plans.

VI. THE PLAN SHOULD FOCUS ON EMISSIONS REDUCTIONS AND NATURE-BASED CARBON SEQUESTRATION RATHER THAN RELY ON CARBON CAPTURE TO COVER RESIDUAL EMISSIONS.

The Plan and DEIR state that the plan relies on carbon removal and carbon capture and sequestration (CCS) technologies to address residual emissions. (Plan at 3-9; DEIR at 4-4). Instead of falling back on these unproven technologies and on market-based mechanisms, the Plan should set more ambitious targets for emissions reductions and protecting and enhancing natural and working lands, habitats, and ecosystems, as described above. Indeed, in its Special Report on Global Warming, the IPCC-modeled pathway with the best chance of keeping warming at or below 1.5°C makes no use of fossil fuels with carbon capture or BECCS and proposes limited to no use of engineered carbon removal technologies. (CIEL 2021). Instead, this pathway requires a rapid phaseout of fossil fuels along with *limited* carbon dioxide removal by natural sources such as reforestation and enhanced soil remediation.

Furthermore, CCS carries significant environmental impacts—and may not result in greenhouse gas emissions reductions—that must be analyzed in the program EIR for the Plan. As the Institute for Energy Economics and Financial Analysis notes, the energy required to capture, transport, and inject carbon underground "materially reduces its net benefit." (Butler 2020, p. 4). For example, coal-fired power plants with carbon capture have an energy penalty of 25 percent or more, with the efficiency penalty as high as 15 percent. (Climate Action Network Int'l 2021, p. 9). These "penalties" mean more fuel must be burned to produce the same amount of power, which means higher energy costs, greater emissions of non-CO_2 air pollutants, and increased demand on the grid. (*Ibid.)* Moreover, in the United States, more than 95 percent of all CCS capacity deployed has been used for EOR, meaning "CO_2 waste products from a fossil fuel-burning activity are used to generate more fossil fuels." (CIEL 2021, p. 8). The climate rationale for CCS evaporates if captured carbon is used to pump more oil. And any CO_2 that is stored underground risks leakage back to the atmosphere, based on the long track record of fossil fuel industry leaks and spills.[5]

CCS projects also can harm people because of the emission of harmful air pollutants such as fine particulate matter, ammonia, and hazardous volatile organic compounds. (Kubota 2019; Jacobson 2019). Further, toxic chemicals like lye and ammonia are used to "capture" carbon. (CRS 2021, pp. 4-5). Megatons of these dangerous chemicals must be produced, transported, and handled to operate carbon capture at scale, and will eventually be disposed of, putting communities at risk. And because CCS enables the underlying emissions-generating activity (such as fossil fuel power generation) to continue, upstream and downstream impacts from activities such as fossil fuel extraction, refining, transport, use, and disposal will continue to harm people's health, particularly in overburdened communities. (CIEL 2021, p. 7).

A recent report by the Pipeline Safety Trust calls out CO2 pipelines as "dangerous and underregulated." (Kuprewicz 2022). This analysis applies not only to federal pipeline regulations but also those within California. In the state, the Office of the State Fire Marshall regulates intrastate hazardous liquid pipelines, whereas the California Public Utilities Commission regulates intrastate gas pipelines. (Gov. Code, § 51010; Pub. Util. Code, § 955). But as the Pipeline Safety Trust points out, CO_2 for CCS can be in liquid, gas, or supercritical form. CO_2 in a supercritical state can be categorized as either a liquid or gas and is not currently codified under either statutory or regulatory scheme. This is a problem because, as the Pipeline Safety Trust explains:

> Carbon dioxide has different physical properties from products typically moved in hazardous hydrocarbon liquid or natural gas transmission pipelines. Those differences pose unique safety hazards and greatly increase the possible affected area or potential impact radius upon a pipeline release that

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[5] The myth of permanent carbon sequestration is echoed in regulations that merely kick the climate problem down the road and onto future generations. Under the Environmental Protection Agency's regulations for Class VI injection wells for CO_2, for example, a permit applicant need only show that they can store CO_2 for 50 years to qualify for subsidies. (40 C.F.R. § 146.93.) California's Low Carbon Fuel Standards does not fare much better, requiring only 100 years of storage. (CARB, Accounting and Permanence Protocol for Carbon Capture and Geologic Sequestration under Low Carbon Fuel Standard (2018), https://ww2.arb.ca.gov/sites/default/files/2020-03/CCS_Protocol_Under_LCFS_8-13-18_ada.pdf ["'Permanent sequestration' or 'permanence' means the state where sequestered CO2 will remain within the sequestration zone for at least 100 years."].)

> would endanger the public. CO_2 pipeline ruptures can impact areas measured in miles, not feet. The way regulations currently consider and mitigate for the risks posed by hydrocarbon pipelines in communities are neither appropriate nor sufficient for CO_2 pipelines. (Kuprewicz 2022).

And since *all* CCS projects require moving compressed CO_2 through pipelines, this is an immediate and alarming concern that should halt any CCS development until it is addressed.

As a result of its minimal, if any, effects on reducing carbon emissions and its potential to harm communities, CCS is not a workable backstop for the Plan. At the very least, the County must fully analyze the impacts of these technologies before perfunctorily including them in its plan to reach carbon neutrality.

VII. THE ALTERNATIVES ANALYSIS IN THE DEIR IS INADEQUATE AND FAILS TO COMPLY WITH CEQA.

CEQA mandates that significant environmental damage be avoided or substantially lessened where feasible. (Pub. Resources Code, § 21002; Guidelines, §§ 15002(a)(3), 15021(a)(2), 15126(d).) An agency is therefore barred from approving a project as proposed if there are feasible alternatives which will avoid or substantially lessen the project's significant environmental effects. (Pub. Resources Code, § 21002). Under CEQA, "the public agency bears the burden of affirmatively demonstrating that, notwithstanding a project's impact on the environment, the agency's approval of the proposed project followed meaningful consideration of alternatives and mitigation measures." (*Mountain Lion Foundation v. Fish & Game Com*. (1997) 16 Cal.4th 105, 134). The DEIR's general statements regarding these topics are insufficient. A rigorous analysis of reasonable alternatives to the Project must be provided to comply with this strict mandate.

While alternatives included in an EIR need only be deemed "potentially feasible," an agency's decision at the end of the process to approve the project and find the alternatives "infeasible" requires a comprehensive comparison of the project with the alternatives. Broad considerations of policy come into play when the agency decides whether to approve the project. If the agency determines that the project will best achieve project objectives after considering relevant economic, environmental, social, technological, legal, and other factors, it may approve the project and find the alternatives "infeasible." Unfortunately, the DEIR's analysis of the alternatives proposed lacks evidence to support its conclusions and is therefore inadequate.

The DEIR analyzes two alternatives, to be implemented in addition to the measures and actions un the Draft 2045 Plan: a Carbon Offset Alternative and a Zero Net Energy Buildings Alternative. (DEIR at 4-10).

For one, the County should have considered an alternative in the DEIR that would phase out oil and gas production more quickly. The Plan notes that the objectives of 40 percent below 2015 levels by 2030, 60 percent by 2035, and 80 percent by 2045 would lead to annual GHG emissions reductions of 28,368 $MTCO_2e$ by 2030, 40,178 $MTCO_2e$ by 2035, and 52,148 $MTCO_2e$ by 2045. The cumulative emission reduction potential of an earlier phase out date is large, dwarfing many of the renewable energy production and transportation measures. The Plan should have analyzed a

2030 oil and gas operation phase out alternative, especially given that the alternative is not remote or speculative, but already in progress.

The County also lacked an adequate basis to reject the ZNE Buildings Alternative. ZNE Buildings Alternative would require, in addition to the implementation of measures in the Draft 2045 Plan, that all new residential and commercial construction in unincorporated areas of the County be ZNE by 2023. In addition, it would require 50 percent of existing residential and commercial buildings to be retrofitted by 2030, among other requirements. (DEIR at ES-51). As the DEIR notes, ZNE buildings produce enough renewable energy to meet their own annual energy consumption requirements, thereby reducing the use of nonrenewable energy—and the accompanying emissions— in the building sector. (DEIR at 4-10). No explanation was given for why, contrary to common sense, requiring all new buildings to be ZNE would nevertheless result in similar GHG emissions and worsen air quality and noise for surrounding communities.

Contrary to the DEIR's conclusions, there is no evidence to suggest that this alternative would result in more severe environmental impacts. The County bafflingly concludes that this alternative could result in "similar" or "greater" greenhouse gas impacts as the 2045 County, even though the very definition of ZNE buildings means that they consume less renewable energy than they produce, whereas tradition buildings require continued natural gas hookups and the accompanying GHG emissions. The County thus has no evidence upon which to conclude that ZNE buildings have similar or greater GHG impacts. It must revise the GHG impact analysis to reflect the GHG emissions benefit of this alternative compared to the project, based on its own admissions that this alterative would "likely reduce Countywide GHG emissions more than the Project." (DEIR at 4-24).

The DEIR also concludes that this alternative would lead to an increase in air quality pollutants and noise due to the "additional construction" for ZNE buildings. (DEIR at 4-19, 4-29). The County provides no evidence – and none appears to exist – showing that ZNE construction is noisier or results in the emissions of additional criteria pollutants. Indeed, building electrification improves outdoor air quality and public health outcomes, particularly in winter, when nitrogen oxide emissions create secondary fine particulate matter (PM 2.5) pollution. (Aas 2020). To the extent that the County believes that the implementation of ZNE building standards would induce additional construction projects beyond the construction projected for the County, there is no evidence to support that assertion, either.

The DEIR therefore provides no evidence, basis, or explanation for impermissibly rejecting this alternative. (*See Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 935 ["To facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions."].) As the County admits, this alternative would meet all the project objectives, result in fewer environmental impacts overall, and would even go further in reducing GHG emissions. (DEIR at 4-12).

If the reason for rejecting this alternative is feasibility, the County acknowledges it has not yet conducted a feasibility analysis to compare the upfront higher costs of ZNE infrastructure with traditional construction. As discussed above, the County Board of Supervisors has already ordered a study of the feasibility of phasing out the use of natural gas equipment and appliances in all new residential and commercial construction, where feasible, starting in 2023. (Los Angeles Board of Supervisors 2022). The Director of Public Works has 120 days, or until September 11, 2022, to return to the Board with recommendations. Other projects in the County have recently been approved to include a goal of zero net GHGs, which further demonstrates the feasibility of ZNE construction. (See CDFW 2017). The County may want to wait until those recommendations are complete before making a final decision on the viability of this alternative.

Should the County conclude that this alternative is infeasible, the standard for feasibility is high. Whether a project is economically unfeasible "is not measured by increased cost or lost profit, but upon whether the effect of the proposed mitigation is such that the project is rendered impractical." (*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 600, internal citation omitted.) In *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1180, the Court agreed with the trial court that the administrative record did not contain analysis of the project alternatives in terms of comparative costs, comparative profit or losses, or comparative economic benefit to the project applicant or the community at large. Ultimately, the County must adopt the ZNE alternative unless it can demonstrate with evidence and analysis that this alternative is infeasible.

VIII. CONCLUSION

Thank you for the opportunity to submit comments on the Draft EIR and Plan. We look forward to reviewing the analysis and mitigation strategies in the Final EIR and Plan and proposing suggestions to refine and strengthen them. We also are happy to meet again with County Planning staff to discuss any of the recommendations in this letter. Please do not hesitate to contact the Center with any questions at the email or number listed below.

Sincerely,

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ATTACHMENT A

February 1, 2022

Sent via email

Thuy Hua, Supervising Regional Planner
Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012
climate@planning.lacounty.gov

Re: Comments on Notice of Preparation of a Program Environmental Impact Report for the Los Angeles County 2045 Climate Action Plan

Dear Department of Regional Planning:

The Center for Biological Diversity ("Center") submits the following comments on the Notice of Preparation ("NOP") of a Program Environmental Impact Report ("PEIR") for the Los Angeles County 2045 Climate Action Plan ("CAP"). The Center submitted comments on an earlier version of the draft CAP on April 30, 2020 (the "April 2020 Letter"), which is attached here as Exhibit 1. We hereby incorporate the comments in the April 2020 Letter by reference and request that the issues raised in that letter be considered in preparing the Draft EIR and revised CAP. We appreciate that the upcoming draft of the CAP will include "more clear, specific, feasible, and quantifiable" greenhouse gas ("GHG") reduction strategies, as we requested in the April 2020 Letter.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Los Angeles County ("County").

I. The Draft PEIR and CAP Should Explain How It is Consistent with Statewide Goals.

CEQA Guidelines section 15183.5(b)(1)(D) require that a climate action plan demonstrate that it will achieve planned reductions on a project by project basis. In *Cleveland National Forest Foundation v. San Diego Association of Governments*, the California Supreme Court provided more clarity on what facts, data, and goals projects should analyze in their greenhouse gas analyses under CEQA. ((2017) 3 Cal.5th 497.) The Court found that although an "Executive Order 'is not an adopted GHG reduction plan' and that 'there is no legal requirement to use it as a threshold of significance[,]' … [t]he Executive Order's 2050 goal of reducing California's greenhouse gas emissions to 80 percent below 1990 levels expresses the pace and magnitude of reduction efforts that the scientific community believes necessary to stabilize the climate. This scientific information has important value to policymakers and citizens in considering the emission impacts of a project like SANDAG's regional transportation plan." (*Id.* at 515-516.) Therefore, the Draft CAP should include further discussion on measures that could ensure the County meets statewide goals, including in the Scoping Plan published by California Air Resources Board ("CARB") and in executive orders on GHGs.

II. The Draft PEIR and CAP Should Include Binding and Enforceable Measures.

We appreciate that the County intends that the Draft PEIR and CAP include "more clear, specific, feasible, and quantifiable" GHG reduction strategies. We look forward to reviewing these strategies in the Draft PEIR and CAP and proposing recommendations to further improve and refine them. As outlined in the Draft CAP, a CAP must "[s]pecify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level...." (Draft CAP at 15.) We again caution that the Draft CAP should not include non-binding language in its mitigation measures (e.g., "encourage," "promote," "support" or "whenever feasible").

The Draft PEIR and CAP should also include evidence describing how they will include sufficient funding and staff to carry out the programs and mitigation strategies included in the Draft PEIR and CAP. (See, e.g., *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1116-1118 [EIR invalid because agency offered no evidence that measures for reducing impacts would actually be effective].)

III. The Draft PEIR and CAP Should Demonstrate How They Are Consistent with the LA County Sustainability Plan.

CEQA requires that EIRs disclose and discuss the project or program's inconsistencies with an applicable regional plan, such as a habitat conservation plan or natural community conservation plan. (CEQA Guidelines § 15125(d); 1 Kostka & Zischke, Practice Under the Cal. Env. Quality Act (2d ed. 2015) § 6.56, p. 6-60.1.) The EIR should thus include a detailed analysis of the CAP's consistency with the LA County Sustainability Plan, including how the CAP meets or exceeds the Goals, Strategies, Targets, and Actions set forth in the Plan.

IV. The Draft PEIR and CAP Should Include Strategies to Substantially Reduce VMT.

As noted in our April 2020 Letter, the CAP and Draft PEIR should include robust strategies to significantly reduce vehicle miles travelled ("VMT") within LA County region and consider measures proposed by CARB including within the Scoping Plan. Such strategies should include limiting new large-scale development in areas that generate disproportionately high levels of VMT, including areas far from existing job centers. Consistent with the policies in the Draft LA County Safety Element, the CAP and Draft PEIR should reiterate that new subdivisions in very high fire hazard severity zones are prohibited and inconsistent with the CAP or the LA County General Plan.

V. The Draft PEIR and CAP Should Include Robust Strategies to Achieve Zero Net Energy for All New Development.

As outlined in the April 2020 Letter, the CAP offers LA County an opportunity become a leader in setting standards on requiring zero net energy ("ZNE") for new (and existing) development. The Draft PEIR and CAP should require zero net energy on all new commercial and residential construction. ZNE is feasible, as other projects in the County have recently been approved include a goal of zero net GHGs.[1] The Draft PEIR and CAP should include a ZNE Program that establishes clear standards for meeting ZNE for various sizes of commercial and residential development, and pair such standards with County programs to dramatically increase ZNE infrastructure including free or low-cost EV chargers throughout the county.

Consistent with statewide goals[2] on ZNE buildings, the Draft PEIR and CAP should include plans, incentives, and programs to retrofit at least 50 percent of commercial buildings to ZNE by 2030. This could include a crediting system to incentivize the retrofitting of existing commercial and residential developments with EV chargers and other ZNE infrastructure.

VI. The Draft PEIR and CAP Should Include Strategies to Increase Energy Resilience.

The Center supports the Draft CAP's goal to shift to a renewables-based electricity supply which ensures equitable access to affordable, local, and reliable energy sources. However, the Draft PEIR and CAP should include far more ambitious strategies to increase energy resilience through the widespread adoption of renewable energy. While the April 2020 Letter cites studies demonstrating the feasibility of distributed energy resources, the even more recent results of National Renewable Energy Laboratory ("NREL")'s Los Angeles 100% Renewable Energy Study ("LA100")[3] further demonstrate that achieving 100 percent reliable renewable energy is feasible in the near-term (e.g., by 2035).

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[1] *See* California Department of Fish and Wildlife, *Newhall Ranch Resource and Development Management and Development Plan, Final Additional Environmental Analysis*, Appendix 2.1, available at http://planning.lacounty.gov/assets/upl/case/tr_53108_appendix-2-0-cdfw-final-aea-excerpts.pdf.

[2] California Public Utilities Commission, *Zero Net Energy*, available at https://www.cpuc.ca.gov/ZNE/.

[3] The full report is available here: https://maps.nrel.gov/la100/report.

The Draft PEIR and CAP should also include a program or ordinance to fund and facilitate photovoltaic energy and storage, including through microgrid development, especially for unincorporated and fire-prone areas.

VII. Conclusion

Thank you for the opportunity to submit comments on the NOP. We look forward to reviewing the analysis and mitigation strategies in the Draft PEIR and CAP and proposing suggestions to refine and strengthen them. We also are happy to meet with County Planning staff to discuss any of the recommendations in this letter or the April 2020 Letter.

Sincerely,

J.P. Rose
Senior Attorney
Center for Biological Diversity
660 S. Figueroa Street, Suite 1000
Los Angeles, California, 90017
jrose@biologicaldiversity.org

Exhibit 1

April 30, 2020

Sent via email

Los Angeles County
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012
climate@planning.lacounty.gov

Re: Comments on Public Review Draft of Los Angeles County Climate Action Plan

Dear Department of Regional Planning:

The Center for Biological Diversity ("Center") submits the following comments on the Los Angeles County Climate Action Plan Public Review Draft ("Draft CAP"). While the Draft CAP includes some laudable goals, it suffers from a lack of clear and enforceable measures to ensure significant reductions in regional greenhouse gas ("GHG") emissions. Many of our concerns were also reflected in our comments on the Draft Sustainability Plan, which is included as Attachment 1 and incorporated by reference.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Los Angeles County ("County").

I. Climate Change Is an Urgent and Existential Concern.

Recent science has made clear that human-caused climate change is causing widespread harms to human society and natural systems, and climate change threats are becoming increasingly dangerous. In its 2018 *Special Report on Global Warming of 1.5°C*, the Intergovernmental Panel on Climate Change ("IPCC")—the leading international scientific body for the assessment of climate change—describes the devastating harms that would occur at 2°C warming. The report highlights the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth (IPCC 2018). The report also provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoid the most devastating climate change harms.

The impacts of climate change are already being felt by humans and wildlife. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor (USGCRP 2017). In California, climate change will transform our climate, resulting in impacts including, but not limited to, increased temperatures and wildfires and a reduction in snowpack and precipitation levels and water availability.

II. The County Has a Responsibility to Reduce GHG Emissions.

California gives local authorities like the County significant responsibility over land use and planning decisions within their jurisdictions. But with that responsibility comes a corresponding obligation to account for the negative environmental impacts of those decisions—especially when it comes to controlling GHG emissions. As the California Air Resources Board ("CARB") explains:

> Local governments are essential partners in achieving California's goals to reduce GHG emissions. Local governments can implement GHG emissions reduction strategies to address local conditions and issues and can effectively engage citizens at the local level. Local governments also have broad jurisdiction, and sometimes unique authorities, through their community-scale planning and permitting processes, discretionary actions, local codes and ordinances, outreach and education efforts, and municipal operations. Further, local jurisdictions can develop new and innovative approaches to reduce GHG emissions that can then be adopted elsewhere.

(CARB 2017.) California's Scoping Plan, which lays out the statewide blueprint for meeting the legislature's greenhouse gas reduction targets, also specifically calls out local governments as essential to meeting these targets:

> [L]ocal governments and agencies are critical leaders in reducing emissions through actions that reduce demand for electricity, transportation fuels, and natural gas, and improved natural and working lands management. . . . Over the last 60 years, development patterns have led to sprawling suburban neighborhoods, a vast highway system, growth in automobile ownership, and under-prioritization of infrastructure for public transit and active transportation. Local decisions about these policies today can establish a more sustainable built environment for the future.

(CARB 2017.) Thus, the County must take seriously its obligation to do its utmost to ensure that it is reducing GHG emissions and contributing to the state's achievement of its emissions reduction targets.

III. The Draft CAP Fails to Explain How It Will Meet State Goals.

While the Draft CAP acknowledges statewide climate goals (Draft CAP at 6-8 & 36), it does not explain how measures in the Draft CAP will actually meet these statewide climate goals. For instance, statewide targets require GHG emissions to be reduced to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050, and achieve statewide carbon neutrality by 2045. (Draft CAP at 17 & 36.)

In contrast, the Draft CAP includes a different set of goals: by 2025, reduce GHG emissions by 25 percent below 2015 levels; by 2035, reduce GHG emissions by 50 percent below 2015 levels; and by 2045, achieve carbon neutrality in unincorporated Los Angeles County. (Draft CAP at 8.) The Draft CAP fails to explain how these goals are either consistent or inconsistent with each of the statewide goals.

The Draft CAP therefore does not qualify as a CEQA "streamlining" document. CEQA Guidelines section 15183.5(b)(1)(D) require that a climate action plan demonstrate that it will achieve planned reductions on a project by project basis. In *Cleveland National Forest Foundation v. San Diego Association of Governments*, the California Supreme Court provided more clarity on what facts, data, and goals projects should analyze in their greenhouse gas analyses under CEQA. ((2017) 3 Cal.5th 497.) The Court found that although an "Executive Order 'is not an adopted GHG reduction plan' and that 'there is no legal requirement to use it as a threshold of significance[,]' … [t]he Executive Order's 2050 goal of reducing California's greenhouse gas emissions to 80 percent below 1990 levels expresses the pace and magnitude of reduction efforts that the scientific community believes necessary to stabilize the climate. This scientific information has important value to policymakers and citizens in considering the emission impacts of a project like SANDAG's regional transportation plan." (*Id.* at 515-516.) Therefore, the Draft CAP should include further discussion on measures that could ensure the County meets statewide goals.

IV. The Draft CAP's GHG Emissions Inventory Is Incomplete.

The Draft CAP lists five categories of GHG emissions in its GHG inventory: transportation, stationary energy, waste, industrial processes and product use ("IPPU"), and agriculture, forestry and, other land use ("AFOLU"). (Draft CAP at 30-32.) The CAP should set forth the emissions categories in more detail. A guide prepared by the Bay Area Air Quality Management District ("BAAQMD") recommends, for example, listing the GHG emissions of specific items such as streetlights and traffic signals. (BAAQMD 2009.)

The Draft CAP also does not explain whether "transportation" emissions include emissions outside the County by activity within the County (for example, from exported goods or tourist travel to County from outside the County). This very shortcoming led to a judge invalidating Sonoma County's CAP last year, after the judge determined that it failed to account for all of the County's emissions by excluding transboundary emissions.[1] (Attachment 2.)

[1] The court also held that the CAP's GHG reduction measures were not clearly defined or enforceable, which is also an issue with the Draft CAP here.

V. The Draft CAP's Reduction Strategies and Measures Are Non-Binding And Unenforceable.

The Draft CAP states that if future projects "tier" off of it, then compliance will negate the need for a qualitative analysis of future projects' GHG emissions. (Draft CAP at 15.) The Draft CAP also correctly lays out the legal requirements of a climate action plan. (Draft CAP at 15.) For instance, a CAP must "Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level...." (Draft CAP at 15.) Therefore, the Final CAP, and any such plan prepared pursuant to CEQA Guidelines 15183.5, must meet the requirements for all first-tier environmental review documents and thus must impose enforceable requirements and measures with defined performance standards.[2]

Unfortunately, many of the Draft CAP's reduction measures are largely non-binding and unenforceable, and generally lack performance standards. Notably, the words "encourage," "promote," "support" or "whenever feasible" occur many times in the sections describing the Draft CAP's implementation measures. These measures are legally inadequate and cannot be considered mitigation under CEQA and applicable case law. (*Lincoln Place Tenants Assn. v. City of Los Angeles* (2007) 155 Cal.App.4th 425, 445 ["A 'mitigation measure' is a suggestion or change that would reduce or minimize significant adverse impacts on the environment caused by the project as proposed"]); *Preserve Wild Santee v. City of Santee* (2012) 210 CA 4th 260, 281 [mitigation measures that are so undefined that their effectiveness is impossible to determine are legally inadequate].) The California Attorney General has also expressly disapproved such an approach for measures upon which an agency relies:

> **Can a lead agency rely on policies and measures that simply "encourage" GHG efficiency and emissions reductions?**
>
> No. Mitigation measures must be "fully enforceable." ***Adequate mitigation does not, for example, merely "encourage" or "support" carpools and transit options, green building practices, and development in urban centers***. While a menu of hortatory GHG policies is positive, it does not count as adequate mitigation because there is no certainty that the policies will be implemented.

(CA Attorney General 2009.) The California Attorney General further states that programmatic plans to reduce GHG emissions pursuant to CEQA Guidelines section 15183.5 must "[i]dentify a set of specific, enforceable measures that, collectively, will achieve the emissions targets…." (CA Attorney General 2019.)

In *Sierra Club v. County of San Diego* (2014) 231 Cal.App.4th 1152, the Fourth District Court of Appeal criticized the County of San Diego for including measures in its CAP that were not backed up by a firm commitment by the County that they would be implemented. The Court noted that many of the measures in the CAP "are not currently funded," such that the County of San Diego could not rely upon such unfunded programs to meet GHG reductions. (*Id.* at 1168-

[2] Specifically, CEQA Guidelines section 15183.5(b)(1)(D) states that measures should have "performance standards" which demonstrate they will achieve the planned reductions on a project by project basis.

1169.) The *Sierra Club* opinion also questioned whether people would actually participate in various programs outlined in the CAP, given that the record contained no evidence of such participation. (*Id*. at 1170.) Here, the Draft CAP suffers from similar defects – there is no evidence of funding for many of the various programs set forth in the Final CAP, nor evidence in the record that people or industry will actually participate in the voluntary programs described in the Draft CAP.

Accordingly, although the Draft CAP's reduction measures may generally be worthwhile objectives for the County to pursue, the Draft CAP fails as a CEQA compliance tool because it relies upon non-enforceable measures. The Draft CAP also does not have adequate mechanisms to monitor progress towards achieving verifiable reduction targets.

VI. Strategy 2 Fails to Include Sufficient Measures to Support Transit Oriented Communities.

The Center generally supports the goals of Strategy 2 to support transit oriented communities. However, the targets are unclear, inadequate, and do not provide a path to actually achieve this goal. For instance, the 2025 target is to (1) "increase new housing built within 1/2 mile of high frequency transit to 50%" and (2) "reduce VMT per capita to 20 miles." This target does not specify what the "50%" is a percent of – does this mean 50% of all new housing units in the County? This needs to be clarified in the Final CAP. In addition, it is unclear whether the County is intending to reduce VMT per capita to 20 miles *per day* or some other amount of time. More importantly, VMT per capita of 20 miles a day is still an extremely high number; the CAP should have more aggressive goals to reduce VMT per capita by 2025. As described in further detail in our comment letter on the Draft Sustainability Plan, significant reductions in VMT are required if the state is to meet its GHG reduction goals. (See Attachment 1 at p. 9-10.)

Unfortunately, the Actions supporting Strategy 2 provide no concrete requirements or criteria, or way to measure success. For instance, Action T1 states "Expand the number and extent of transit oriented communities, by encouraging development within High Quality Transit Areas, while ensuring vital public amenities such as parks and active transportation infrastructure are included." (Draft CAP at 50.) Action T1 fails to contain a clear plan how such development will be "encouraged" such that it is little more than a hortatory statement. Likewise, Action T2 states "Develop community plans that will increase the percentage of residents who could live and work within the same community, and that could decrease the vehicle miles traveled." (*Id.*) This action suffers from the same defects as Action T1. It is also fails to specify any target increase in percentage of residents who live or work in the same community, or elements of such "community plans."

VII. Strategy 3 Fails to Include Sufficient Measures to Reduce VMT.

Strategy 3 aims to reduce single occupancy vehicle ("SOV") vehicle trips. However, the Draft CAP does not contain sufficiently aggressive goals. For instance, the Draft CAP only seeks 15 percent of trips to be non-SOV trips by 2025. (Draft CAP at 51.) As we noted in our comments on the Draft Sustainability Plan (Attachment 1), even if this target is met, in five years 85 percent of trips in the County will still be by car. The Draft CAP should call for much stronger measures to reduce SOV trips and VMT. The best way to do this is to limit development in areas far from existing cities, as remote developments generate disproportionately high levels of VMT.

The actions within Strategy 3 are similarly inadequate. For instance, Action T5 states "develop a transportation technology strategy to proactively address how evolving tech-enabled mobility options can support public transit and advance OurCounty goals." (Draft Plan at 51.) This is extremely vague and suffers from the defects outlined in Section V above. Similarly, Action T8 generally refers to "expand[ing] shade along and over pedestrian networks through zoning code revisions that encourage shade-providing building features," but provides no enforceable requirements or metrics as to how much "shade expansion" will be required. (Draft CAP at 52.) Also illustrative of this problem is Action T11, which states, "Develop and implement a transportation demand management (TDM) ordinance that requires developers to incorporate measures such as subsidized transit passes and car share." (Draft CAP at 53.) The time and opportunity to develop measures to require of developers for future projects is here in the CAP, if the County wishes to use the CAP as a CEQA streamlining document.

VIII. Strategy 4 Does Not Include A Clear Plan to Institutionalize Low-Carbon Transportation.

The Center supports Strategy 4 – institutionalize low-carbon transportation. (Draft CAP at 44.) However, the related "Targets" are woefully inadequate – the Draft Plan only seeks 500 EV and 200 ZEV charging stations at County-owned or public properties, and contains no targets for the remainder of the County (e.g., private businesses, residential developments). (Draft CAP at 55.) Likewise, the "Actions" provide no actual mandate for developers or landowners to incorporate charging stations into infrastructure.

If the County is serious about institutionalizing low carbon transportation, it needs to do far more than simply add a few hundred EV chargers at public venues. The CAP should instead include aggressive mandates for every new development (commercial and residential) to include an adequate number of EV chargers, as well as a crediting system in order to incentivize the retrofitting of existing commercial and residential developments with EV chargers.

The CAP should also require installation of charging stations at *all* County-owned properties and public venues, as well as in appropriate public right-of-ways.

And as with the other sections of the CAP, the "Actions" are vague, unenforceable, and do not include any performance criteria. For instance, Action T20 states: "Partner with a car or ride-sharing organization to provide access to EVs for low-income and disadvantaged community residents." (Draft CAP at 57.) Action T20 does not provide any guidance as to what "partnering" means, nor does it provide any benchmark for success. How much expanded access to EVs will the County pursue via this measure? By failing to include any actual target or goal to measure success, the Draft CAP dooms this (and many other Actions) to failure.

IX. Strategy 5 Does Not Contain Clear Plan To Accelerate Freight Decarbonization.

The Center supports the goal to accelerate freight decarbonization. Unfortunately, once again, the Draft CAP's Targets and Actions are not sufficient to meaningfully support this goal.

The Draft CAP does not even clear targets for medium-duty delivery trucks – it simply states that 25-50 percent of medium-duty delivery trucks should be electric or zero emission by 2025. (Draft CAP at 58.) This renders it unclear whether the goal is 25 percent or 50 percent. And the Draft CAP simply has no corresponding and more aggressive targets for 2035 and 2045.

Likewise, the Actions are untenably vague. By way of example, Action T25 states: "Implement freight decarbonization technologies along highway corridors passing through unincorporated communities ..." (Draft CAP at 59.) No specifics, enforceable mandates, or performance criteria are used to define this purportedly "Major Action."

X. Strategy 6 Contains No Plan to Implement Zero Emissions Technologies for Off-road Vehicles and Equipment.

The Draft CAP should include concrete plans to implement and eventually require zero emissions technologies off-road vehicles and equipment. Instead, the Action items include non-binding language like: "Partner with SCAQMD and AVAQMD to ***encourage*** the use of zero-emission and near-zero-emission construction, agriculture, and manufacturing equipment." (Draft CAP at 60, emphasis added.) The CAP can, and should, require zero emission or near-zero emission equipment by a specific date.

XI. Strategy 7 Does Not Provide A Plan To Decarbonize Building Energy Use.

The Center supports decarbonizing building energy use, but finds that the Draft CAP squanders an opportunity to establish the County as a leader in this area. The Final CAP should require zero net energy on all new commercial and residential construction. Zero net energy is feasible, as other projects in the County that have recently been approved include a goal of zero net greenhouse gas emissions.[3]

Indeed, the Draft CAP does not even contain goals that are consistent with state-wide goals. The California Energy Efficiency Strategic Plan provides:

> All new residential construction will be zero net energy (ZNE) by 2020.
> All new commercial construction will be ZNE by 2030
> 50% of commercial buildings will be retrofit to ZNE by 2030
> 50% of new major renovations of state buildings will be ZNE by 2025.[4]

In contrast, the Draft CAP only sets a target of 50 percent of all new buildings and major building renovations being "net zero carbon" by 2025 and 100 percent by 2045. (Draft CAP at 63.) The Draft Plan should contain far more aggressive goals that are consistent with climate science; the entire building sector should achieve zero emissions no later than later than 2045,

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[3] *See* California Department of Fish and Wildlife, *Newhall Ranch Resource and Development Management and Development Plan, Final Additional Environmental Analysis*, Appendix 2.1, available at http://planning.lacounty.gov/assets/upl/case/tr_53108_appendix-2-0-cdfw-final-aea-excerpts.pdf.
[4] California Public Utilities Commission, *Zero Net Energy*, available at https://www.cpuc.ca.gov/ZNE/.

with interim enforceable benchmarks.[5] Moreover, the Draft CAP also does not explain whether term "net zero carbon" is consistent with the state definition of zero net energy.

Strategy 7's Actions fair no better. For instance, Action SE2 simply states "Establish carbon intensity limits for buildings over 20,000 square feet." (Draft CAP at 64.) This contains no objection performance criteria – at best, it is a promise to develop performance criteria at some unspecified time in the future. As such, it fails as a CEQA mitigation measure. (See discussion in Section V above.)

Action SE4 also vaguely promises to "Adopt building code requirements for electric water and space heating and encourage alternatives to other natural gas uses in new and existing buildings." (Draft CAP at 64.) The CAP needs to actually describe building code requirements or provide performance criteria. And "encouraging alternatives" is not a CEQA mitigation measure. Action SE7 likewise promises collaboration with the City of Los Angeles and Santa Monica to "develop building energy and emissions performance standards," but provides no specifics on what those standards will entail, or what level of emissions reductions they would be expected or required to provide. (Draft CAP at 65.)

Action SE5 states "Adopt CALGreen Tier 1 green building standards and identify which Tier 2 standards could be adopted as code amendments." (Draft CAP at 64.) However, significant portions of the California Green Building Standards are already mandatory. Such that it is unclear whether there is simply a restatement of existing law.[6]

Action SE6 is problematic for other reasons. This Action states, "Incentivize net zero energy residential and commercial buildings through streamlined development reviews." (Draft CAP at 65.) First, as noted above, zero net energy should be *required*, not simply incentivized. Second, the Action does not explain what or how development review will be "streamlined." While a CAP that complies with CEQA can streamline some aspects of development, development review should not be streamlined in a way that overlooks other non-climate impacts of a project, such as impacts on air quality, public health, wildlife, and traffic.

In contrast to the vague and unenforceable Actions in the Draft CAP, there are number of enforceable policies that can be used to reach achieve zero emissions by 2045 for all buildings. The Sierra Club's *Building Electrification Action Plan for Climate Leaders* outlines various proposals, including a zero emission building code, local ordinances restricting gas and requiring all-electric new construction for all building types, GHG performance benchmarking, and air pollution standards for appliances. (See footnote 5.)

[5] Rachel Golden, *Building Electrification Action Plan for Climate Leaders* https://www.sierraclub.org/sites/www.sierraclub.org/files/Building%20Electrification%20Action%20Plan%20for%20Climate%20Leaders.pdf (Dec. 2019).
[6] See California Building Standards Commission, "California's Green Building Code," available at https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen.

XII. Strategy 9 Does Not Provide A Concrete Plan To Increase Energy Resilience.

The Center supports the Draft CAP's goal to shift to a renewables-based electricity supply which ensures equitable access to affordable, local, and reliable energy sources. (Draft CAP at 69.) The Center urges the County to include more ambitious targets for distributed energy resources ("DER"). The Draft CAP calls for a 200 megawatt increase in DER capacity by 2025 and a 1 gigawatt increase by 2045. The Center urges the County to incorporate a target of 1 gigawatt in photovoltaic ("PV") energy by 2025 and 4 gigawatts by 2045. The Draft CAP should include a target for 500 megawatts of distributed storage capacity by 2045 and 2 gigawatts by 2045.

DER plays a unique and vital role in creating a renewable energy future that not only promotes deeper renewable penetration, but also advances fundamental goals of equal access to clean energy, social justice, and biodiversity protection. With minimal water use, no emissions from generation, and minimal land use impacts, distributed solar is the most sustainable energy source currently in production.[7] Further, building up distributed solar allows communities to gain local control over their energy system rather than leaving that control in the hands of investor-owned monopoly utilities. This shift empowers communities to make their own energy choices and gives them access to cheaper and cleaner energy, driving energy democracy. Progressive community solar policy can also enable renters and individuals who cannot afford to buy solar energy systems to invest in renewable energy, which in turn creates economic growth and local employment opportunities.

Studies show that far more ambitious targets for DER are currently feasible. A study by the National Renewable Energy Laboratory found that Los Angeles could support 9 gigawatts of rooftop solar, or 60 percent of its estimated total energy demand, using fairly conservative estimates.[8] Another study by the Institute of the Environment and Sustainability at the University of California, Los Angeles ("UCLA") found that rooftop solar can provide 7200 gigawatt hours of on-site building demands in a study area of 1.2 million parcels in L.A. County, which would meet approximately 29 percent of on-site building demands.[9]

The UCLA study found that remaining building demand that would be met by grid sources is approximately 18,000 gigawatt hours, and the potential solar output to export to the grid that is not used on-site is 16,400 gigawatt hours – this significant amount of additional electricity could be available for use by neighboring properties or elsewhere. The UCLA study also found that existing policies regulating grid operations limit potential rooftop solar output; in 20 percent of communities, current policies would reduce the technical potential of net solar generation by limiting the size of the arrays that can be installed. Moreover, the UCLA study found that lower-income and at-risk communities have greatest capacity for solar energy exports

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[7] Wiser, R. et al., "The environmental and public health benefits of achieving high penetrations of solar energy in the United States," Nature Energy Vol. 113, pp. 472-486 (2016); Hernandez, R.R., Hoffacker, M.K. and C. Fields, "Efficient Use of Land to Meet Sustainable Energy Needs," Nature Climate Change, Vol. 5: 353–358, (2015).
[8] Pieter Gagnon, et al., *Rooftop Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment* (Jan. 2016), available at https://www.nrel.gov/docs/fy16osti/65298.pdf.
[9] Erik Porse, et al., *Net solar generation potential from urban rooftops in Los Angeles*, Energy Policy (July 2020).

to the grid. In short, the County should take a hard look at the actual solar capacity of the County based upon existing studies and include policies to meet or exceed the actual solar capacity.

The proposed Actions are also insufficient to address either the targets in the Draft CAP or the more aggressive targets proposed by the Center. Action SE14 proposes developing a community energy map that identifies opportunities for deploying distributed energy resources and microgrids in order to improve energy resiliency in disadvantaged communities. (Draft CAP at 69.) Instead of merely generating a map, the County should develop a program or ordinance to fund and facilitate PV and storage microgrid development, especially for unincorporated and fire-prone areas. The County could begin this program in fire-prone communities, and aim for a minimum of 10 percent PV and storage microgrids instead of simply 10 percent DER installation in fire-prone communities.

XIII. Strategy 10 Fails to Provide a Plan To Reach the Target Renewable Energy Goals.

The Center supports the general goal of Strategy 10 to increase renewable energy, but notes that much stronger targets should be incorporated into the Draft CAP. The Draft CAP calls for installation of solar on only 20 percent of commercial buildings over 50,000 square feet and at least 10 percent of single family residential buildings by 2025, and higher targets for 2035 and 2045.

The Draft CAP should set far more ambitious targets. It should require solar on 60 percent of commercial buildings of any size that are solar compatible and 50 percent of residential buildings by 2025, and 100 percent of all solar compatible buildings by 2030.

The Draft CAP also does not specify *how much* solar must be installed on buildings; by its own terms, a single small panel could be installed on a building, and that building could potentially count towards the goals. As with other sections of the Draft CAP, the Draft CAP does not explain or provide data (e.g., in appendices) how the anticipated GHG mitigation potential is supported by the target.

Once again, the proposed mitigation strategies or “Actions” fall far short of even meeting the Draft CAP’s existing targets. For instance, Action SE17 simply promises that the County will “encourage 100% renewable energy resource mix by 2025.” (Draft CAP at 72.) The severity and urgency of the climate crisis requires governments to do far more than simply “encourage” positive steps—the climate crisis (and state laws and policies) *requires* far more aggressive actions.

Moreover, the Draft CAP should strengthen the County’s role in supporting the community choice aggregation program. More specifically, the Draft CAP should include a no-cost subscription program for low-income families as well as tenants to participate. Such programs could be funded by creating a Community Energy Benefits Fund that would then be overseen by citizen task force or other non-governmental body—the Portland Clean Energy Fund illustrate of how such a program could function. Another example is East Bay Community Energy, which serves Alameda County.

XIV. The Draft CAP Fails to Contain Any Clear Plan To Support Strategy 16, Conserve Forests and Working Lands

The Center supports the conservation of forests and working lands. The Center also supports the targets to increase urban tree canopy. However, the Draft CAP fails to acknowledge how this plan fits into other related plans and programs. In particular, the City of Los Angeles is currently moving forward with a "Safe Sidewalks" initiative that will likely result in the destruction of many thousands of urban trees.[10]

Moreover, the Center supports Action A1 – supporting "the preservation of agricultural and working lands, including rangelands, and restore forest lands, by limiting the conversion of these lands to residential or other uses through tools such as the creation of agricultural easements, particularly within high climate-hazard areas and SEAs." (Draft CAP at 87.) Yet, as outlined in our comments on the Draft Sustainability Plan, the County has a pattern and practice of *approving* large-scale development in rangelands and forest lands, particularly in high fire hazard areas. (See Attachment 1 at p. 4.) Action A1's unenforceable promise to "limit" such conversion is unavailing and fails as a CEQA mitigation measure. (Draft CAP at 87.)

XV. The Draft CAP Fails to Identify Funding Sources for Mitigation Strategies.

As noted above, in *Sierra Club v. County of San Diego* (2014) 231 Cal.App.4th 1152, the Court of Appeal determined that measures in a CAP were insufficient when they were not adequately funded. (*Id.* at 1168-1169.) Here, the various "actions" in the Draft CAP acknowledge that funding will be required (using icons ranging from a $ to $$$$$), but fail to include a specific estimate of how much funding may cost, or identify an available source of funding. Similarly, the handful of sentences in the Implementation Plans "identification of funding sources" provide no specificity nor commitment for funding any of the Draft CAP's Actions. (See Draft CAP at 92.) This renders the Draft CAP inadequate as a CEQA streamlining document. Moreover, this omission calls into question whether any of the programs outlined in the Draft CAP will ever be implemented.

XVI. The Draft EIR Should Provide Further Detail on Mitigation Measures for Individual Projects.

The Center understands that the County will be preparing an EIR for the CAP. (See, e.g., Draft CAP at 15 ["With the adopted CAP, project-specific environmental documents that incorporate applicable CAP actions can "tier off" the environmental document adopted for the CAP to meet project-level CEQA evaluation requirements for GHG emissions."].) In addition, CEQA Guidelines section 15183.5(b)(1)(F) requires that a climate action plan be adopted in a public process "after environmental review." Subdivision (b)(2) provides that "[a] plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later project."

[10] Safe Sidewalks LA, Draft Environmental Impact Report, available at https://sidewalks.lacity.org/environmental-impact-report.

The Center hereby requests a minimum 90-day comment period for the Draft EIR in order to allow for adequate review by the public, particularly given the importance of the document for region-wide planning and the complexity of the issues. We hope that the Draft EIR and next draft of the CAP include and evaluate clear and enforceable measures to put the County on track to reach each of the statewide goals.

XVII. Conclusion

Thank you for the opportunity to submit comments on the Draft CAP. The Center strongly supports many of the goals of the Draft CAP. But these goals are not supported by clear, enforceable, and funded policies. The Center urges the County to significantly revise the CAP in order to address these deficiencies.

Please do not hesitate to contact us if you would like to meet to further discuss these issues.

Sincerely,

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(attached via OneDrive link)

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Attachment 1

May 24, 2019

Sent via email and FedEx

Los Angeles County Chief Sustainability Office
Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012
sustainability@lacounty.gov

Re: Comments on Discussion Draft of Los Angeles Countywide Sustainability Plan

Dear Los Angeles County Chief Sustainability Office:

These comments are submitted on behalf of the Center for Biological Diversity ("Center") regarding the Discussion Draft of the Los Angeles Countywide Sustainability Plan ("Draft Plan"). The Center appreciates the Chief Sustainability Office's efforts in developing the Draft Plan and generally supports the goals of the Draft Plan. We urge the Chief Sustainability Office and the Los Angeles County Board of Supervisors ("Board") to ensure that the strategies and policies supporting these goals are clear and enforceable.

A. Background on the Center for Biological Diversity.

The Center for Biological Diversity ("Center") is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United Sates. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Los Angeles County.

B. The Center Urges Stronger Buffers to Ensure Healthy Community Environments.

We strongly support Goals 1 and 4—"resilient and healthy community environments where residents thrive in place" and opportunities for residents and businesses to "transition to clean economy sectors." (Draft Plan at 20 & 72.) We also support strong efforts to decrease the public health problems generated by freeways and oil and gas drilling, but are concerned that the proposed targets and actions do not go far enough.

The Plan Should Require Larger Buffers between Sensitive Uses and Freeways

We support "siting of new sensitive uses, such as playgrounds, daycare centers, schools, residences, or medical facilities" farther from freeways, but are concerned that the proposed 500-foot buffers are insufficient. Studies indicate even people ***900 to 1200 feet*** from freeways experience health impacts and sensitive receptors such as children and the elderly suffer the most. (Lin 2002.) A review of 700 studies concluded that pollution causes asthma attacks in children, the onset of childhood asthma, impaired lung function, premature death and death from cardiovascular diseases, and cardiovascular morbidity. (Health Effects Institute 2010.) The Health Effects Institute study concluded that the "exposure zone" was 300 to 500 meters from the highways (984 feet to 1640 feet). (*Id.*) Other studies have reached similar conclusions. (Suglia 2008.) Living near expressways also increases the likelihood that residents will suffer from dementia. (Chen 2017.) The University of Southern California's Environmental Health Centers have also collected data and studies showing risks and health impacts to pregnant women, babies, children, teenagers, adults, and seniors of living by a freeway.[1]

The Plan Should Require 2500-foot Setbacks to Separate Oil and Gas Facilities from Homes

We would like to emphasize our support for the Draft Plan's inclusion of a series of actions to address the disproportionate exposure of low-income communities of color to fossil fuel extraction and refining (Actions 2, 3, 4, 5 and 7). In addition, we support Action 78 that calls for collaborating with the City of Los Angeles to develop a sunset strategy for oil and gas operations that prioritizes disproportionately impacted neighborhoods. In the final adoption of the plan, we urge the County to incorporate a more specific, concrete and common sense measure that we have supported at the City and County as an ally of the STAND-LA coalition: a 2500-foot setback (or buffer zone) to separate oil and gas facilities from homes, schools and other sensitive land uses, with a plan to phase out existing oil and gas within no more than five years. We are also supportive of the Draft Plan's inclusion of a commitment to a "Just Transition" that examines the impact of the transition to a cleaner economy and develops strategies for supporting displaced workers and connecting them with meaningful job training and employment opportunities (Actions 56 and 57).

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[1] University of Southern California Environmental Health Centers, *References: Living Near Busy Roads or Traffic Pollution* , available at http://envhealthcenters.usc.edu/infographics/infographic-living-near-busy-roads-or-traffic-pollution/references-living-near-busy-roads-or-traffic-pollution (collecting studies). See also Tony Barboza and Jon Schleuss, "L.A. keeps building near freeways, even though living there makes people sick," *Los Angeles Times* (Mar. 2, 2017), available at http://www.latimes.com/projects/la-me-freeway-pollution/.

Reducing Asthma and Toxic Emissions through Less VMT

The Center strongly supports decreasing child asthma rates as proposed by the Draft Plan. However, this will not be possible if the Board continues to approve projects that add more unnecessary freeway traffic and air pollution to the region. An example of this is the recently-approved Centennial development approved by the Board, which will add 75,000 new long distance car commuters onto our freeways, increasing air pollution and hindering efforts to reduce toxic emissions.

C. The Center Supports Goal 2 and Urges Implementation of Zero Net Energy Standards.

We support the Plan's Goal 2—ensuring that "[b]uildings and infrastructure that support human health and resilience." (Draft Plan at 42.) The Center notes that Action Item 30 envisions the County will "Pilot high performance building standards for new County buildings beyond the current LEED Gold standard, such as Passive House, Zero Net Energy, Net Zero Water, Net Zero Waste..." (Draft Plan at 50.) The Center urges the Plan to require more than just a "pilot" for Zero Net Energy and instead move forward with policies and standards to require zero net energy for new construction.

Zero net energy is feasible, as other projects in the County that have recently been approved include a goal of zero net greenhouse gas emissions. Such projects intend to achieve that goal through reducing onsite greenhouse gas emissions to the greatest extent practicable, but also by offsetting any other emissions through local emissions reductions projects.[2]

D. The Center Supports Goal 3 and Urges Concrete and Enforceable Policies to Limit Sprawl Development.

The Center strongly supports the Draft Plan's goal of equitable and sustainable land use and development without displacement. (Draft Plan at 58.) The Center agrees that the way the County "choose[s] to direct that growth has huge implications for the environment, the economy and social equity." (*Id*.) Likewise, the Center agrees:

> Patterns of exurban sprawl and development in high-hazard areas can place major burdens on our infrastructure and public budgets, especially for unincorporated communities where the County of Los Angeles acts as the municipal service provider. Outward growth limits the resources we could otherwise be investing in our existing communities, where we can promote sustainability, health and well-being by improving walkability and promoting a mixture of uses.

(Draft Plan at 58.) The Draft Plan is correct that exurban sprawl imposes a hidden tax on existing communities. Studies recognize that sprawl "may deprive the poor of economic

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[2] *See* California Department of Fish and Wildlife, *Newhall Ranch Resource and Development Management and Development Plan, Final Additional Environmental Analysis*, Appendix 2.1, available at http://planning.lacounty.gov/assets/upl/case/tr_53108_appendix-2-0-cdfw-final-aea-excerpts.pdf.

opportunity...when jobs, stores, good schools and other resources migrate outward from the core city, poverty is concentrated in the neighborhoods that are left behind." (Frumkin 2002.) Studies also show that sprawl disproportionately increases costs on local government through increased infrastructure costs. (Litman 2015.) One study found that the external costs of sprawl are around $500 billion annually and $650 billion internally. (*Id*.) Sprawl also has significant equity implications—"the abandonment of the metropolitan core leaves inner cities and first-ring suburbs struggling to provide adequate services with an eroded tax base even as growth continues on the periphery." (Belzer 2002.)

The Draft Plan is also correct that "[u]rban sprawl generally requires expensive and expansive infrastructure networks that drain resources and contribute significantly to greenhouse gas emissions." (Draft Plan at 60.)

Unfortunately, with the exception of Supervisor Kuehl, the Board has not shown they are serious about curbing urban sprawl. County supervisors just approved one of the biggest urban sprawl projects in California history last month, the 12,000-acre Centennial Specific Plan, on remote wildlands in the northern corner of the County. The Center informed the County that Centennial would result in less investment in existing communities and—as observed by the developer's own consultants—draw demand away from existing communities in Santa Clarita and San Fernando. The development would also require the construction of a new six-lane freeway (the Northwest 138 Corridor "Improvement Project"), at an initial cost to taxpayers of $830 million.

The Board also just approved the 1,300-acre Northlake development over the objection of the Santa Monica Mountains Conservancy (and the Center). That project will pave over pristine wildlands, inhibit wildlife connectivity in the region, and disproportionately contribute to greenhouse gas emissions, traffic, and air pollution.

If the County is serious about ending its historical pattern of approving more development in the county's diminishing wildlands and rangelands, then it needs to adopt strong enforceable policies to meet this goal. Action 44 is a step in the right direction. The Draft Plan states, "Prohibit the conversion of working lands to residential uses, including farms and rangelands." (Draft Plan at 60.) Such a policy—if it were actually consistently enforced—would be a strong step forward in protecting the County's natural resources.

E. The Center Supports the Draft Plan's Target to Limit Discretionary Development in High Fire Areas.

We support Strategy 3E—limiting development in high fire areas. The science is clear that we can no longer continue building new large-scale development in high fire areas. In Southern California, sprawl developments with low/intermediate densities extending into chaparral and sage scrub habitats that are prone to fire have led to more frequent wildfires caused by human ignitions, like arson, improperly disposed cigarette butts, debris burning, fireworks, campfires, or sparks from cars or equipment (Keeley et al. 1999; Keeley and Fotheringham 2003; Syphard et al. 2007; Syphard et al. 2012; Bistinas et al. 2013; Balch et al. 2017; Radeloff et al. 2018). Human-caused fires account for 95% of all fires in Southern California (Syphard et al.

2013), and homes filled with petroleum-based products, such as wood interiors, paint, and furniture, provide additional fuel for the fires to burn longer and spread farther (Keeley et al. 2007). The most numerous and largest fires in Southern California have been caused by equipment and powerlines in the wildland-urban interface, where housing density is low to intermediate (Syphard and Keeley 2015), and leapfrog developments have been found to have the highest predicted fire risk in the County (Syphard et al. 2013).

More development in high fire areas such as chaparral and sage scrub would lead to a dangerous feedback loop of deadly fires and habitat destruction. These habitats are adapted to infrequent (every 30 to 150 years), large, high-intensity crown fire regimes (Pyne et al. 1996; Keeley and Fotheringham 2001), and if these regimes are disrupted, the habitats become degraded (Keeley 2005, 2006a,b; Syphard et al. 2018). When fires occur too frequently, type conversion occurs and the native shrublands are replaced by non-native grasses and forbs that burn more frequently and more easily, ultimately eliminating native habitats and biodiversity while increasing fire threat over time (Keeley 2005, 2006a,b; Syphard et al. 2009; Safford and Van de Water 2014; Syphard et al. 2018). Thus, placing developments in these high fire-prone areas will lead to more frequent fires while degrading the health and biodiversity of Southern California's ecosystems.

Nonetheless, the "actions" in the Draft Plan do not set forth a clear plan to actually limit development in high fire areas. In particular, while the Countywide "Target" states "no new discretionary development in high hazard areas" by 2025, there is no "action" proposed to meet this target. (Draft Plan at 70.) Instead, as mentioned above, the County has been approving large-scale development such as Centennial and Northlake in high fire areas. By approving entitlements for these projects now despite the science showing such development is dangerous, costly, and environmentally harmful, the County is ensuring large-scale development will continue in fire-prone areas for many years.

F. The Center Strongly Supports Goal 5 and Urges The County To Develop a Wildlife Connectivity Ordinance

The Center strongly supports the Draft Plan's goal of thriving ecosystems, habitats, and biodiversity. (Draft Plan at 78.) To realize this goal, the Plan must consider the issue of wildlife connectivity and the effects of suburban development on wild areas, as explained below.

Habitat Connectivity Is Essential for Wildlife Movement and Biodiversity Conservation.

Habitat connectivity is vital for wildlife movement and biodiversity conservation. Limiting movement and dispersal with barriers (*e.g*., development, roads, or fenced-off croplands) can affect animals' behavior, movement patterns, reproductive success, and physiological state, which can lead to significant impacts on individual wildlife, populations, communities, and landscapes (Trombulak and Frissell 2000; Tewksbury et al. 2002; Cushman 2006; van der Ree et al. 2011; Haddad et al. 2015; Ceia-Hasse et al. 2018). Individuals can die off, populations can become isolated, sensitive species can become locally extinct, and important ecological processes like plant pollination and nutrient cycling can be lost. In addition, connectivity between high quality habitat areas in heterogeneous landscapes is important to allow for range shifts and species migrations as climate changes (Heller and Zavaleta 2009, Cushman et al. 2013). Lack of wildlife connectivity results in decreased biodiversity and degraded ecosystems. Thus, preserving and maintaining natural and created corridors is critical for species and habitat conservation in fragmented landscapes (Gilbert-Norton et al., 2010).

Wildlife connectivity and migration corridors are important at the local, regional, and continental scale. Local connectivity that links aquatic and terrestrial habitats would allow various sensitive species to persist, including state- and federally-protected California red-legged frogs (*Rana draytonii*), arroyo toads (*Anaxyrus californicus*), and other species. At a regional scale, medium- and large-sized mammals that occur in Los Angeles County, such as mountain lions (*Puma concolor*), bobcats (*Lynx rufus*), gray foxes (*Urocyon cinereoargenteus*), ring-tailed cats (*Bassariscus astutus*), and mule deer (*Odocoileus hemionus*), require large patches of heterogeneous habitat to forage, seek shelter/refuge, and find mates.

Climate Change Is Likely to Significantly Alter Wildlife Behavior and Movement.

A strong, international scientific consensus has established that human-caused climate change is causing widespread harms to human society and natural systems, and climate change threats are becoming increasingly dangerous. In a 2018 *Special Report on Global Warming of 1.5°C* from the Intergovernmental Panel on Climate Change (IPCC), the leading international scientific body for the assessment of climate change describes the devastating harms that would occur at 2°C warming, highlighting the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth (IPCC 2018). In addition to warming, many other aspects of global climate are changing. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor (USGCRP, 2017).

Climate change is increasing stress on species and ecosystems, causing changes in distribution, phenology, physiology, vital rates, genetics, ecosystem structure and processes, and increasing species extinction risk (Warren et al., 2011). A 2016 analysis found that climate-related local extinctions are already widespread and have occurred in hundreds of species, including almost half of the 976 species surveyed (Wiens 2016). A separate study estimated that nearly half of terrestrial non-flying threatened mammals and nearly one-quarter of threatened birds may have already been negatively impacted by climate change in at least part of their distribution (Pacifici et al. 2017). A 2016 meta-analysis reported that climate change is already impacting 82 percent of key ecological processes that form the foundation of healthy ecosystems and on which humans depend for basic needs (Scheffers et al. 2016). Genes are changing, species' physiology and physical features such as body size are changing, species are moving to try to keep pace with suitable climate space, species are shifting their timing of breeding and migration, and entire ecosystems are under stress (Cahill et al., 2012; Chen et al., 2011; Maclean & Wilson, 2011; Parmesan, 2006; Parmesan & Yohe, 2003; Root et al., 2003; Warren et al., 2011). As such, it is imperative that current and future land use planning consider the impacts of climate change on wildlife movement.

Corridor Redundancy Helps Retain Functional Connectivity and Resilience.

Corridor redundancy (*i.e*. the availability of alternative pathways for movement) is important in regional connectivity plans because it allows for improved functional connectivity and resilience. Compared to a single pathway, multiple connections between habitat patches increase the probability of movement across landscapes by a wider variety of species, and they provide more habitat for low-mobility species while still allowing for their dispersal (Mcrae et al., 2012; Olson & Burnett, 2013; Pinto & Keitt, 2008). In addition, corridor redundancy provides resilience to uncertainty, impacts of climate change, and extreme events, like flooding or wildfires, by providing alternate escape routes or refugia for animals seeking safety (Cushman et al., 2013; Mcrae et al., 2008; Mcrae et al., 2012; Olson & Burnett, 2013; Pinto & Keitt, 2008).

Human Development and Associated Noise and Lighting Can Interfere with the Behavior of Local Wildlife Such as Mountain Lions.

Human development and associated noise can degrade adjacent wildlife habitat and behavior. (*See, e.g.,* Slabbekoorn 2008.) For instance, field observations and controlled laboratory experiments have shown that traffic noise can significantly degrade habitat value for migrating songbirds. (Ware et al. 2015.) This finding followed lab results indicating that subjects exposed to 55 and 61 dBA simulated traffic noise exhibited decreased feeding behavior and duration, as well as increased vigilance behavior. (*Id*.) Such behavioral shifts increase the risk of starvation, thus decreasing survival rates. A recent study also highlighted the detrimental impacts of siting development near areas protected for wildlife. The study noted that "Anthropogenic noise 3 and 10 dB above natural sound levels . . . has documented effects on wildlife species richness, abundance, reproductive success, behavior, and physiology." (Buxton, et al.) The study further noted that "there is evidence of impacts across a wide range of species [] regardless of hearing sensitivity, including direct effects on invertebrates that lack ears and indirect effects on plants and entire ecological communities (e.g., reduced seedling recruitment due to altered behavior of seed distributors)." (*Ibid*.) Moreover, human transportation networks and development resulted in high noise exceedances in protected areas. (*Ibid*.)

There also is strong evidence documenting the effects of human activity specifically on mountain lions. One study found that mountain lions are so fearful of humans and noise generated by humans that they will abandon the carcass of a deer and forgo the feeding opportunity just to avoid humans. (Smith 2017.)[3] The study concluded that even "non-consumptive forms of human disturbance may alter the ecological role of large carnivores by affecting the link between these top predators and their prey." (Smith 2017.) In addition, the study found that mountain lions respond fearfully upon hearing human vocalizations. Another study demonstrates that mountain lions exposed to other evidence of human presence (lighting, vehicles, dogs) will impact mountain lion behavior. (Wilmers 2013.) Other studies documented diet shifts in mountain lions near human development, and recommended minimizing any development in mountain lion habitat. (Smith 2016; *see also* Smith 2015.)

[3] *See also* Sean Greene, "How a fear of humans affects the lives of California's mountain lions," *Los Angeles Times* (June 27, 2017), available at http://beta.latimes.com/science/sciencenow/la-sci-sn-pumas-human-noise-20170627-story.html.

Additional studies similarly documented that mountain lions avoid "urban, agricultural areas, and roads and prefer[] riparian areas and more rugged terrain." (Zeller 2017; *see also* Vickers 2015.) One study found that over half (55 percent) of radio collared mountain lions in urban areas did not survive, and the majority were killed by humans either by vehicle strikes or using depredation permits. (Vickers 2015.) As such, the Plan should include policies to minimize development in open space areas, as "edge effects" from such development can interfere with animal behavior and movement.

Creating and Enhancing Wildlife Crossings Is Critical to Maintaining Healthy Ecosystems.

We recommend that the Draft Plan include stronger policies to promote wildlife movement and/or include a goal to develop a county wildlife connectivity ordinance. Enhanced connectivity helps sustain functional ecosystems and ensure public safety. Although natural, existing corridors in fragmented landscapes have been shown to have more wildlife movement compared to created corridors (Gilbert-Norton et al., 2010), crossing structures combined with setbacks at the entrances and exits are useful as retroactive restoration in areas where existing roads have high incidence of wildlife vehicle conflict or where species movement has been severely impacted. When appropriately implemented, wildlife crossing infrastructure has been shown to improve wildlife permeability and reduce wildlife vehicle collisions (Bissonette & Rosa, 2012; Dodd Jr. et al., 2004; Dodd et al., 2012; Kintsch et al., 2018; Sawaya et al., 2014; Sawyer et al., 2012).

Outside of California many other states and jurisdictions have been proactively addressing wildlife connectivity issues. For example, Arizona, Colorado, and Wyoming have seen 80-96% reductions in wildlife vehicle collisions while gradually increasing the level of wildlife permeability over time (it appears that some species take more time than others to adapt to crossings) on sections of highways where they have implemented wildlife crossing infrastructure, such as underpasses, culverts, overpasses, wildlife fencing, and escape ramps (Dodd et al., 2012; Kintsch et al., 2017; Kintsch et al., 2018; Sawyer et al., 2012). Utah just completed the state's largest wildlife overpass at Parleys Canyon for moose, elk, and deer. Washington State is about to complete its largest wildlife overpass on I-90, which is anticipated to provide habitat connectivity for a wide variety of species between the North and South Cascade Mountains. The overpass cost $6.2 million as part of a larger $900 million expansion project that will include multiple wildlife crossings along a 15-mile stretch of highway. Savings from less hospital bills, damage costs, and road closures from fewer wildlife vehicle collisions will make up those costs in a few years (Valdes 2018). State and local officials are actively pursuing these types of projects because of the benefits for wildlife connectivity, public safety, and the economy. And in neighboring Ventura County, the Board of Supervisors recently adopted a first-of-its-kind ordinance to protect wildlife connectivity.

The Draft Plan Should Provide Clear Action Items To Support Wildlife Connectivity

We are concerned that the action items proposed in the Draft Plan are insufficient to support Goal 5. In particular, lacking from the action items is any clear plan for ensuring habitat connectivity within the region.

Instead, it appears that the County has not prioritized this issue. For instance, the County General Plan EIR anticipated a significant adverse effect on wildlife movement.[4] The California Department of Fish and Wildlife ("CDFW") urged the County to develop mitigation opportunities for wildlife connectivity, since such "opportunities for wildlife corridors and nursery sites are best established during large scale planning efforts such as this General Plan." CDFW noted that "Wildlife corridor areas can be delineated and set aside in the General Plan for current and future conservation efforts. An assessment could be placed on development within the Project area to secure the acquisition of these critical linkages and sites, therefore reducing impacts to wildlife corridors and nursery sites and ensuring biological diversity."[5] The County did not implement CDFW's recommendations.

The Plan should include a goal to develop a wildlife connectivity ordinance. Moreover, while the proposed "actions" to support Goal 5 are all helpful measures, more is needed. The Plan should incorporate policies that support an "urban growth boundary." Urban growth boundaries have been used in other jurisdictions as a tool to encourage development in or near existing communities while leaving natural areas undeveloped. Without a clearly defined urban growth boundary, developers will continue to propose—and the Board will continue to approve—development in wild and fire-prone areas, which will further inhibit wildlife connectivity while increasing traffic and air pollution.

G. The Center Supports Goals 7 and 8 and Encourages Stronger Policies To Reduce VMT.

We support Goals 7 and Goal 8—a fossil fuel-free LA County with convenient, safe and affordable transportation that reduces car dependency. However, the targets and associated actions do not include sufficiently ambitious goals to reduce vehicle miles travelled ("VMT"). The Draft Plan's aims for "[a]t least 15% of all trips will be by foot, bike, micromobility, or public transit." (Draft Plan at 108.) This means that even if this target is met, in six years 85 percent of trips in the County will still be by car. The Draft Plan should call for much stronger measures to reduce single occupancy vehicle trips and VMT. The best way to do this is to limit development in areas far from existing cities that generate high VMT and limit new freeway development, which induces additional VMT.

The December 2018 Technical Advisory issued by the Governor's Office of Planning and Research (the "VMT Report")[6] contains helpful guidance and analysis that could be

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[4] County of Los Angeles, *Los Angeles County General Plan Update Draft Environmental Impact Report* (June 2014), available at http://planning.lacounty.gov/assets/upl/project/gp_2035_deir.pdf.

[5] County of Los Angeles, *Los Angeles County General Plan Update Final Environmental Impact Report* (March 2015), available at http://planning.lacounty.gov/assets/upl/project/gp_2035_lac-gpu-final-eir-final.pdf.

[6] The VMT Report is available at http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

incorporated into the Draft Plan. For instance, the VMT Report states that land use decisions to reduce GHG emissions associated with the transportation sector are crucial in order to meet the GHG reductions set forth in SB 375. (VMT Report at 3.) The VMT Report further notes that California cannot meet its climate goals without curbing single-occupancy vehicle activity; land use patterns and transportation options will need to change to support reductions in VMT. (*Id*. at 10.) The VMT Report also proposes a "per capita" or "per employee" threshold of 15 percent below existing development as a reasonable threshold. (*Id*. at 10.) The VMT Report reiterates the conclusion of the California Air Resources Board that "there is a gap between what SB 375 can provide and what is needed to meet the State's 2030 and 2050 goals." (*Id*.)

The VMT Report confirms that VMT-intensive development impacts human health and the environment: "Human health is impacted as increases in vehicle travel lead to more vehicle crashes, poorer air quality, increases in chronic diseases associated with reduced physical activity, and worse mental health. Increases in vehicle travel also negatively affect other road users, including pedestrians, cyclists, other motorists, and many transit users. The natural environment is impacted as higher VMT leads to more collisions with wildlife and fragments habitat. Additionally, development that leads to more vehicle travel also tends to consume more energy, water, and open space (including farmland and sensitive habitat). This increase in impermeable surfaces raises the flood risk and pollutant transport into waterways." (VMT Report at 3.) As such, if the County took strong steps to reduce VMT, it would have co-benefits of better air quality, decreased chronic disease, decreased wildlife-vehicle collisions, and less habitat fragmentation.

The VMT Report further states that roadway expansion projects can induce substantial VMT such that the environmental reviews should incorporate quantitative estimates of induced VMT. (VMT Report at 23.) The VMT Report explains that "[b]uilding new roadways, adding roadway capacity in congested areas, or adding roadway capacity to areas where congestion is expected in the future, typically induces additional vehicle travel." (*Id*. at 24.) The Plan should thus contain policies to discourage unnecessary highway development and instead focus infrastructure resources on alternative transportation projects.

H. Conclusion

Thank you for the opportunity to submit comments on the Draft Plan. Again, the Center strongly supports the goals of the Draft Plan. But if the goals in the plan are not supported by clear and enforceable policies, then the final Plan will be ineffective in achieving these goals.

Los Angeles County's traffic jams, air pollution, fragmented wildlife habitat, and diminishing wildlands are a legacy of poor planning decisions made by local officials, often made under pressure from profit-driven developers. Unfortunately Los Angeles County and its Board have continued to approve costly, dangerous, and environmentally-damaging development despite (1) strong public opposition and (2) science confirming that such development is inappropriate in light of the climate crisis, extinction crisis, and the risks of building in fire-prone landscapes.

The Center urges the Chief Sustainability Office and Board to use this Plan as a means to establish a new vision for Los Angeles County that supports healthy communities and healthy wildlands. For such a vision to become reality, it must be supported by clear, binding, and legally enforceable policies. As long as such policies are vague or absent, developers will continue proposing—and officials will likely keep approving—projects that take the county in the wrong direction.

Please do not hesitate to contact the Center at the number or email listed below.

Sincerely,

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(Attached on CD)

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Attachment 2

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FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF SONOMA
JUL 20 2017
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Deputy Clerk

SUPERIOR COURT FOR THE STATE OF CALIFORNIA

COUNTY OF SONOMA

CALIFORNIA RIVERWATCH, Petitioner, v. COUNTY OF SONOMA, ET AL. Defendants.	Case No.: SCV-259242 ORDER GRANTING PETITION FOR WRIT OF MANDATE

This matter was tried to the court on March 23, 2017, the Honorable Nancy Case Shaffer presiding. The Law Office of Jack Silver and Jerry Bernhaut and Jack Silver appeared on behalf of Petitioner; the Office of Sonoma County Counsel and Bruce Goldstein and Verne Ball appeared on behalf of Respondent Sonoma County Regional Climate Protection Authority. At the conclusion of the hearing, the court ordered further briefing. The matter was deemed submitted on April 21, 2017, when all briefs were submitted.

I. SUMMARY OF RULING

The court finds that the Sonoma County Regional Climate Protection Authority's Final Programmatic EIR ("the PEIR") for Climate Action 2020 and Beyond, its Climate Action plan ("CAP") and the County of Sonoma's approval of the CAP violate CEQA, in that the inventory of greenhouse gas emissions is based on insufficient information; the PEIR fails to include effectively enforceable, clearly defined performance standards for the mitigation measures regarding Green House Gas ("GHG") emissions, identified as "GHG Reduction Measures;" and fails to develop and fully analyze a reasonable range of alternatives.

Accordingly, the approval of the PEIR was a prejudicial abuse of discretion by Respondent. Given the lack of information and other material defects, as a matter of law the PEIR cannot fulfill its basic CEQA purpose as an information document.

The court finds that there is insufficient information in the administrative record to support the factual conclusion that the CAP will achieve its fundamental purpose of reducing Respondent's countywide GHG emissions to the stated target of 25% below 1990 levels by 2020.

I. FACTS

Petitioner seeks a writ of mandate overturning Respondent's certification and of a Final Programmatic EIR (the PEIR) for its Climate Action Aplan (CAP) and the approval of the CAP on the grounds that the approvals violate CEQA.

A. The Project

The CAP Project is a planning-level document to guide analysis of the greenhouse gas (GHG) impacts of future projects in the county.

In 2006, the California legislature passed AB 32, the Global Warming Solutions Act (the Act) which, among other things, establishes a statewide goal of achieving 1990-level GHG impacts by 2020.

CEQA Guideline 15183.5 allows agencies to adopt an overall long-range plan such as a general plan or similar plan governing GHG analysis of subsequent projects. Respondent adopted the CAP in accord with Guideline 15183.5 as a method of providing an overall *tiered analysis* of GHG impacts in subsequent projects as a method of complying with the Act's mandate. (1 AR 4, 10.)

B. The Petition for Writ of Mandamus

Petitioner argues that the EIR fails to provide an accurate description of the existing conditions or a means for calculating GHG emissions; that the PEIR contains inadequate mitigation measures, alternatives analysis, or response to public comments.

Respondent opposes the petition, contending that Petitioner relies on non-existent requirements in 15183.5; that Petitioner fails to discuss the substantial evidence in the record, that the EIR sufficiently discusses existing conditions; that the PEIR properly discloses methodology; that the CAP is not a mitigation measure and does not need to contain mitigation measures; that substantial evidence supports the CAP emissions reduction estimates; that the alternatives analysis complies with CEQA; that Petitioner failed to exhaust administrative remedies on the responses to comments; and that Petitioner has demonstrated no prejudicial error.

II. ANALYSIS

A. Request for Judicial Notice

The court grants, in full, Respondents' request to take judicial notice of certain government and regulatory documents, including a statement from the Natural Resources Agency on amendments to the Guidelines regarding GHG emissions; the California Air Resources Board ("CARB") Climate Change Scoping Plan; the CARB draft 2030 Target Scoping Plan Update; the County of Napa CAP; Guideline 15183.5, AB32, and SB 97; and the lodgment of the record in this case.

B. **CEQA**

An EIR is required for a project which substantial evidence indicates may have a significant effect on the environment. (Guidelines for the Implementation of CEQA (Guidelines), 14 CCR section 15063(b)[1]; PRC sections 21100, 21151.) EIRs are, in the words

[1]These are at 14 Cal Code Regs §§ 15000, *et seq*. Courts should at a minimum afford great weight to the Guidelines except when a section is clearly unauthorized or erroneous under CEQA. *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (*Laurel Heights I*) (1988) 47 Cal.3d 376, 391, fn 2; *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1315.

of the California Supreme Court, "the heart of CEQA." *Laurel Heights Improvement Assn. v. Regents of the University of California* (1988) 47 Cal.3d 376, 392 (*Laurel Heights I*).

The ultimate mandate of CEQA is "to provide public agencies and the public in general with *detailed information* about the effect [of] a proposed project" and to minimize those effects and choose possible alternatives. (emphasis added) (PRC 21061.) The public and public participation hold a "privileged position" in the CEQA process based on fundamental "notions of democratic decision-making." (*Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Association* (1986) 42 Cal.3d 929, 936.)

As a fundamental benchmark that generally applies to all issues in CEQA the court, is that the court, in considering an issue, should look to see if "the public could discern... the 'analytic route the... agency traveled from evidence to action.'" (See ***Al Larson Boat** Shop Inc. v. Bd. of Harbor Commissioners* (1993) 18 Cal.App.4th 729, 749; see also *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 513-514, 522.)

The burden of investigation rests with the government and not the public. (*Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1202.)

C. Standard of review

1. Preliminary Basis for Standard of Review

The standard of review is in dispute here. This dispute arises out of the divergent characterizations of the issues by the parties.

Public Resources Code section 21168 provides that when a court reviews a determination, finding, or decision of a public agency, "as a result of a proceeding in which by law a hearing is required to be given, evidence is required to be taken and discretion in the determination of facts is vested in a public agency … the court shall not exercise its independent judgment on the evidence but shall only determine whether the act or decision is supported by substantial evidence in the light of the whole record." However, review is *de novo* when the court must determine whether the agency has prejudicially abused its discretion either by failing to proceed in the manner required by law or by reaching a decision that is not supported by substantial evidence. (*Laurel Heights I, supra* 47 Cal.3d 392, fn.5.)

"[A] reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435 ("*Vineyard*").

As the court explained in *Vineyard*:

> [A]n agency may abuse its discretion under CEQA either by failing to proceed in the manner CEQA provides or by reaching factual conclusions unsupported by substantial evidence. (§21168.5.) Judicial review of these two types of error differs significantly: while we determine de novo whether the agency has employed the correct procedures, "scrupulously enforc[ing] all legislatively mandated CEQA requirements" (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564...), we accord greater deference to the agency's substantive factual conclusions. In reviewing for substantial evidence, the reviewing court "may not set aside an agency's approval of an EIR on the ground that an opposite conclusion would have been equally or more reasonable," for, on factual questions, our task "is not to weigh conflicting evidence and determine who has the better argument."(*Laurel Heights I, supra,* 47 Cal.3d at p. 393....) [2]

While courts must give deference as to substantive factual decisions, courts demand strict compliance with "legislatively mandated CEQA requirements." (*Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564 (*Goleta II*).) A Respondent is entitled to no deference where the law has been misapplied, or where the decision was based on "an erroneous legal standard." (*East Peninsula Educ. Council, Inc. v. East Peninsula Unif. Sch. Dist.* (1989) 210 Cal.App.3d 155, 165.)

Courts must 'determine de novo whether the agency has employed the correct procedures, "scrupulously enforc[ing] all legislatively mandated CEQA requirements"....' (*Vineyard Area Citizens for Responsible Growth, supra,* 40 Cal.4th 435, citing *Goleta II,* 52 Cal.3d at 564.) *Failure to include required information is a failure to proceed in the manner*

[2] *Laurel Heights I* is *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 400 (*Laurel Heights I*

required by law and demands strict scrutiny. (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1236; *Vineyard, supra,* 40 Cal.4th at 435.) The court reviews the PEIR here de novo.

Nevertheless, agency actions are presumed to comply with applicable law unless the petitioner presents proof to the contrary. (Evid. Code § 664; *Foster v. Civil Service Commission of Los Angeles County* (1983) 142 Cal.App.3d 444, 453.) The petitioner in a CEQA action thus has the burden of proving that an EIR is insufficient. (*Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729, 740.)

2. Standard of Review: Substantial-Evidence Test

The substantial-evidence test applies to substantive issues in a decision certifying an EIR. The court must uphold the decision if it is supported by substantial evidence in the record as a whole. (*Bowman v. City of Petaluma* (1986) 185 Cal.App.3d 1065, 1075; see *River Valley Preservation Project v. Metropolitan Transit Dev. Bd.* (1995) 37 Cal.App.4th 154, 166; see *Santa Teresa Citizen Action Group v. City of San Jose* (2003) 114 Cal.App.4th 689, 703. The "substantial evidence" test requires the court to determine "whether the act or decision is supported by substantial evidence in the light of the whole record." (*Chaparral Greens v. City of Chula Vista* (1996) 50 Cal.App.4th 1134, 1143; *River Valley Preservation Project v. Metropolitan Transit Develop. Bd.* (1995) 37 Cal.App.4th 154, 168.)

When applying the substantial-evidence standard, the court must focus not upon the "correctness" of a report's environmental conclusions, but only upon its "sufficiency as an informative document."(*Laurel Heights I* 47 Cal.3d at 393.) The findings of an administrative agency are presumed to be supported by substantial evidence. (*Taylor Bus. Service, Inc. v. San Diego Bd. of Education* (1987) 195 Cal.App.3d 1331.) The court must resolve reasonable doubts in favor of the findings and decision. (*Id.*)

A claim that the EIR lacks *sufficient* information regarding an issue will be treated as an argument that the EIR is not supported by substantial evidence. (*Barthelemy v. Chino Basin Munic. Water Dist.* (1995) 38 Cal.App.4th 1609, 1620.) The petitioners in *Barthelemy* asserted that it was a failure to proceed in the manner required by law where an EIR did not include key information. The court rejected that argument.

a) The Definition of "Substantial Evidence"

Substantial evidence is "enough relevant information and reasonable inferences" to allow a "fair argument" supporting a conclusion, in light of the whole record before the lead agency. (14 CCR § 15384(a); PRC §21082.2; *City of Pasadena v. State of California* (2nd Dist.1993) 14 Cal.App.4th 810, 821-822.) Other decisions define "substantial evidence" as that with "ponderable legal significance," reasonable in nature, credible, and of solid value. (*Stanislaus Audubon Society, Inc., v. County of Stanislaus* (1995) 33 Cal.App.4th 144.)

Substantial evidence includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts. (PRC §21082.2(c); see also Guidelines 15064(g)(5), 15384.) It does not include argument, speculation, unsubstantiated opinion or narrative, clearly incorrect evidence, or social or economic impacts not related to an environmental impact. (Guideline 15384.)

3. Prejudicial Abuse of Discretion

A court may only issue a writ in a CEQA case for an abuse of discretion, including making a finding without substantial evidence, if the error was *prejudicial*. (*Chaparral Greens v. City of Chula Vista* (1996) 50 Cal.App.4th 1134, 1143.) The court must defer to the agency's substantive conclusions an uphold the determination unless. ((Id)*; see* PRC § 21168, 21168.5, *Laurel Heights I, supra,* 47 Cal.3d at 392, fn.5; Remy, et al., Guide to the California Environmental Quality Act (10^{th} Ed.1999) Chapter XI (D), p.590.)

4. Tiered EIRs

As discussed further below, the PEIR here is a tiered EIR prepared in accordance with Guideline 15183.5, which specifically allows for preparation of an overall, first-tier EIR and planning document to govern analysis of GHG emissions and control GHG emissions in order to comply with the statewide mandates to reduce GHG emissions.

A tiered EIR scheme allows an agency to produce a general EIR focusing on an overall plan or policy and later conduct more limited, narrow subsequent EIR review for individual projects within the broad plan or scope of the original, general EIR. (PRC 21068.5, 21093(a); Guideline 15152; *Koster v. County of San Joaquin* (1996) 47 Cal.App.4th 29, 36.) "Tiering" is defined in PRC 21068.5 as:

> coverage of general matters and environmental effects in an [EIR] prepared for a policy, plan, program or ordinance followed by narrower or site-specific [EIRs] which incorporate by reference the discussion in any prior [EIR] and which concentrate on the… effects which (a) are capable of being mitigated, or (b) were not analyzed… in the prior [EIR].

In other words, it is 'a process by which agencies can adopt programs, plans, policies, or ordinances with EIRs focusing on "the big picture" and can use streamlined CEQA review for individual projects that are consistent with such… [first tier plans]….' (*Koster v. County of San Joaquin* (3d Dist. 1996) 47 Cal.App. 4th 29, 36.) The later EIRs need not repeat the analysis or revisit the issues from the original EIR. (Guideline 15385.)

Guideline 15152 is the overall provision governing first-tier documents in general and in its detailed discussion demonstrates clearly what such documents must do, what they must include, and how they may be used.[i] Environmental impact reports "shall be tiered whenever feasible, as determined by the lead agency." (PRC 21093(b).) This "is needed in order to provide increased efficiency in the CEQA Process. It allows agencies to deal with broad environmental issues in EIRs at planning stage and then to provide more detailed examination of specific effects....These later EIRs are excused by the tiering concept from repeating the analysis of the broad environmental issues examined in the [first tier] EIRs." (Discussion following Guideline 15385.)

PRC 21094(c) states that "[f]or purposes of compliance with this section, an initial study shall be prepared to assist the lead agency in making the determinations required by this section."

C. GREENHOUSE GAS EMISSIONS

The Global Warming Solutions Act ("the Act") 'implements deep reductions in greenhouse gas emissions, recognizing that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California...." (Health & Saf.Code, § 38501, subd. (a).) Through this enactment, the Legislature has expressly acknowledged that greenhouse gases have a significant environmental effect.' (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 91 (*CEB*).) Guideline 15183.5 governs tiering and streamlining the analysis of GHG emissions.[ii] Subdivision (b) sets forth the specific things such a plan should do.

1. The Role of the CAP in Subsequent GHG Analysis

A key issue is the ultimate role this CAP will play in subsequent GHG analysis of future projects. Here neither party clearly addresses the intended role and effect of the CAP in the review of subsequent projects.

The CAP at 1013-1016 generally indicates that the CAP is intended to eliminate any need to conduct any GHG analysis in future discretionary projects that comply with the CAP. Specifically, the introduction to the checklist of standards and measures, states that:

> Discretionary projects that utilize the checklist, as modified by the individual agency, and can demonstrate consistency with all applicable mandatory local or regional measures in the CAP, can conclude that their impacts related to [GHG] emissions would be less than significant under CEQA because the project would be consistent with a qualified GHG reduction plan under... Guidelines Section 15183.5.

The introduction then quotes 15183.5(b) and (b)(2) in part as follows:

> (b) Pursuant to sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.
>
> ...
>
> (b)(2) A plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify

> those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project.

It reiterates that the 'significance threshold for projects using the checklist for streamlining is "consistency with an applicable plan for the reduction of [GHG] emissions meeting the requirements of…15183.5" ' All of this indicates an intent that a future project complying with this CAP and its standards and measures need include no independent GHG analysis.

2. Respondent's Contention That Petitioner Imposes Non-Existent Requirements

Respondent argues, that Petitioner is improperly trying to impose requirements on the CAP that do not exist in Guideline 15183.5. This argument is expressly stated at the start of its brief and is repeated throughout its papers. This argument is itself groundless; it is contrary to the fundamental purpose of CEQA requirements.

First, Respondent contends that the Guideline merely gives a list of what such a plan "should" do; not what it "must" do. Although the Guideline does only state what such a plan "should" include, (see end note ii, Guideline 15183.5), it expressly states that it is a tiering mechanism and that it must comply with the standards for first-tier programs or plan EIRs. It is *titled* "*Tiering* and Streamlining the Analysis of Greenhouse Gas Emissions." (Emphasis added.) It beings by explaining that agencies may develop a GHG plan or standards in a plan using a tiering method, governed by the standards for tiering. It states that agencies *may* handle GHG analysis:

> at a *programmatic* [i.e., first-tier] level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. *Later* project-specific environmental documents *may tier from* and/or incorporate by reference that existing programmatic review. Project-specific environmental documents *may* rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in *section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs)*, 15175-15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

(emphasis added.)

As noted above, the CAP also makes it clear that, as a first-tier document, it is to be used in such a manner that, if complied with, will excuse the analysis of a future project from revisiting GHG emissions. Therefore, the CAP, and any such plan prepared under 15183.5, must meet the requirements for all first-tier documents and thus must impose effectively enforceable requirements and measures with defied performance standards.

Second, although Respondent is correct that the requirements on which Petitioner relies are not necessarily in the Guideline itself, they are applicable to *all* CEQA review and, specifically, to first-tier documents, as explained above. Petitioner's further arguments, such as that the CAP must provide a clear, complete, and accurate GHG "inventory," i.e., the existing GHG emissions associated with activities in the county, are consistent with a standard CEQA mandate, which is that an environmental document must present clear, meaningful information sufficient to allow the agency and public to make an intelligent, informed decision, or, stated another way, sufficient to make clear the analytic route of the agency. (*Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Association* (1986) 42 Cal.3d 929, 936; ***Al Larson Boat** Shop Inc. v. Bd. of Harbor Commissioners*, *supra,* 18 Cal.App.4th at 749; *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 513-514, 522. Therefore, it must be based on substantial evidence. (See section C.2., above.)

3. Existing Conditions

Petitioner first argues that the PEIR fails to describe existing conditions accurately because it limits the range of emissions from vehicles miles traveled (VMT) associated with land-use activities in the county and to and from 18 nearby regional locations. Petitioner contends that the baseline or current GHG emissions level associated with the county should include all VMT for trips associated with activities in the county, not only within the county and to and from the 18 nearby regional locations used in the PEIR and that Respondent thus understates the current GHG emissions. Respondent focuses on two general categories of VMT omitted from the PEIR: VMTs generated by goods exported from the county to locations beyond (produce, medical equipment, beer, and wine) , and tourist travel to Sonoma County.

a) CEQA Baselines and Quantifying Current GHG Levels

Ordinarily, an EIR must clearly and consistently describe the baseline, which is *normally* the *existing* environmental setting or conditions. The existing conditions, at the time the notice of preparation ("NOP") is published, "normally constitute the baseline physical conditions by which the lead agency determines whether an impact is significant." (Guideline 15125(a).) Guideline 15126.2(a) states that the agency "should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time...environmental analysis is commenced."

Guideline 15183.5(b)(1)(A) sets forth special requirements for GHG first-tier plans such as the CAP. Such plans are required to "[q]uantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area."

Respondent notes that the ordinary requirements governing determination of the "baseline" apply where there is a project that may alter this in of itself in order to determine the extent of any impact which a project will have. (See Guideline 15126.2(a).)

b) VMT Data

The CAP explanation of how it determined the GHG inventory is found at AR 1050, et seq. It used 2010 data because that year includes largely complete or complete activity data for all sectors as needed to calculate GHG levels; this is not challenged by Petitioner. (See AR 1052; Memorandum of Points and Authorities in Support of Petition for Writ of Mandate, 9:1-3.) The response to comment at AR 1084 explains that the VMTs were determined by considering the travel in the county plus travel between the county and 18 external "traffic analysis zones" ("TAZ").

Respondent relies on Guideline 15130(b) which provides that studies of cumulative impacts are guided by "standards of practicality and reasonableness." According to Guideline 15364, "'Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.' Thus, "[a]n evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible .... The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (Guideline 15151; see also *Citizens to Preserve the Ojai v. County of Ventura, supra,* 176 Cal.App.3d at 429.) Petitioner argues that an agency is "not required to engage in sheer speculation as to future environmental consequences [Citations], [but an] EIR [is] required to set forth and explain the basis for any conclusion that analysis of the cumulative impact of offshore emissions [is] wholly infeasible and speculative." (*Citizens to Preserve the Ojai, supra,* 176 Cal.App.3d at 430.)

Respondent correctly argues that ultimately GHG emissions must be considered in light of their cumulative worldwide impact because of their nature. The Supreme Court in *Center for Biological Diversity v. California Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, at 219-220, considered a challenge to an agency's GHG analysis. The Court explained:

> [W]e address two related aspects of the greenhouse gas problem that inform our discussion of CEQA significance.
>
> First, because of the global scale of climate change, *any one project's contribution is unlikely to be significant* by itself. *The challenge for CEQA purposes is to determine whether the impact of the project's emissions of greenhouse gases is cumulatively considerable*, in the sense that "the incremental effects of [the] individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (§ 21083, subd. (b)(2); see Guidelines, § 15064, subd. (h)(1).) "With respect to climate change, an individual project's emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe. *The question therefore becomes whether the project's incremental addition of greenhouse gases is 'cumulatively considerable' in light of the global problem*, and thus

> significant." (Crockett, Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World (July 2011) 4 Golden Gate U. Envtl. L.J. 203, 207–208 (hereafter Addressing the Significance of Greenhouse Gas Emissions).)
>
> Second, the global scope of climate change and the fact that carbon dioxide and other greenhouse gases, once released into the atmosphere, are not contained in the local area of their emission means that *the impacts to be evaluated are also global rather than local. For many air pollutants, the significance of their environmental impact may depend greatly on where they are emitted; for greenhouse gases, it does not.* For projects, like the present residential and commercial development, which are designed to accommodate long term growth in California's population and economic activity, this fact gives rise to an argument that a certain amount of greenhouse gas emissions is as inevitable as population growth. Under this view, a significance criterion framed in terms of efficiency is superior to a simple numerical threshold because CEQA is not intended as a population control measure.

(emphasis added.)

Consistent with the Supreme Court's discussion in that case, the EIR here expressly discusses the global nature of GHG emissions, explaining that "unlike other resource areas that are primarily concerned with localized project impacts… the global nature of climate change requires a broader analytic approach. Although this section focuses on GHG emissions generated as a result of the CAP, the analysis considered them in the context of potential state, national, and global GHG impacts." (AR 314.) It also noted global GHG concentrations. (AR 81, 106, 316.)

The PEIR analysis considered VMT for the county and the 18 TAZs in the region, and only for automobile traffic and "emissions that local governments have primary influence or control over." (AR 85.) It did not consider travel by other means such as by airplane or emissions over which the local entities have no direct control. (AR 85.) The PEIR explained at AR 82 and 85 that it was relying on the International Council for Local Environmental Initiatives (ICLEI) Protocol and that:

> the ICLEI Community Protocol does not require air travel emissions to be included in the basic emissions necessary for protocol-compliance GHG inventories because it recognizes that local governments have less control over such sources as air travel and that information is often not available to precisely describe an airport's emissions to a specific community.

Similarly, it noted that methodologies exist to estimate emissions further afield but associated with local activities but rejected these methodologies because the information might be difficult to obtain or are not "common" approaches. (AR 85-86.) For example, the response to the comment at AR 85-86 stated:

> [w]hile there are methodologies to estimate upstream emissions..., these methodologies are commonly used to prepare what is known as a "consumption-based" inventory, which estimate the life cycle "carbon footprint" of everything households (and...other consumers) consume. There are also methodologies to estimate "downstream" emissions associated with the transportation, end use, and disposal of goods produced in a jurisdiction, but such methodologies require highly detailed information about the entire downstream supply chain, including the ultimate geographical destination of goods that can be difficult to come by, especially if such data is privately held. While one could estimate emissions using a consumption-based approach of a "downstream" emissions method, these are not the common approach used for community emissions, or national emissions at present, and if used, would make it impossible to compare regional inventories.

As a result, the response contends, "nearly every" national, state, and local agency preparing a CAP has used the "activity-based" approach to calculate and define the GHG inventories. (AR 86.) Respondent asserts that by avoiding the methodologies which include upstream or downstream data, and instead using the ICLEI Protocol, the CAP inventory "can be compared to those other communities, using a common standard...." (Ibid.)

The question before the court is whether there is information in the record showing that Respondent might or might not feasibly have included the additional data as Petitioner contends, or whether Respondent did not need to include it.

Respondent's primary argument that it did not need to include additional emissions estimates is based on its assertion that CEQA only requires an agency to do what is feasible, and further that it need not, and should not, engage in speculation over data that is unknowable. The basic that a public agency is only required to do what is feasible, discussed above, is correct, but Respondent has not persuasively shown that it defeats Petitioner's arguments regarding the need for more information about MVT. The response to comments at AR 84-86 expressly admits that there are methodologies to quantify the additional sources of GHG emissions Petitioner identifies, but did not use them because they are not "commonly" used or the information "can be difficult to come by." This argument does not establish that Respondent had substantial evidence to support its approval.

The record, including the admissions in the PEIR shows that Respondent had a feasible ability to include the additional GHG data. Respondent compares the data used in this CAP to that used by other agencies. (AR 86; generally AR 84-86.) This is a logical explanation for employing the ICLEI Protocol used, but it does not demonstrate that it was "infeasible" to obtain the additional MVT data, especially given that Respondent acknowledges that the methodologies exist.

Had the EIR explained that it was unable to obtain the necessary information, or that there were no methodologies that it could have used to obtain/include it, Respondent's would have been justified in failing to obtain this data. However, here, Petitioner complains that Respondent appears merely to have avoided including greater, more complete, information based on the assumption that it would be "too much work."

The court grants the petition on this point.

D. MITIGATION MEASURES

Petitioner also argues that Respondent failed to adopt "definite, clearly defined and enforceable" mitigations measures. It contends that at least some of the mitigation measures and standards it sets forth are unclear, vague, and not fully enforceable. Petitioner points out that the EIR concludes that the CAP would be "beneficial" and would thus support applicable regulatory plans for reducing GHG emissions, so, it contends, no mitigation for GHG emissions is necessary. (AR 204.)

Respondent argues that the CAP is not intended as a mitigation measure. No mitigation is needed because it is a plan to reduce GHG emissions in subsequent projects.

What Petitioner contends is not that the CAP and EIR need to adopt mitigation measures for the CAP itself, but instead that the CAP, in setting forth purported mitigation measures for future analysis and handling of GHG emissions, fails to present sufficient clearly defined and enforceable mitigation measures and standards.

Respondent points out this is not a "project" in the sense of an activity that will do anything that might create GHG emissions but instead is a plan for handling analysis and mitigation of GHG emissions in future projects. Therefore, there is clearly nothing about this Project to mitigate. Petitioner's contention that the PEIR should imposing sufficiently defined and enforceable mitigations measures, is a different issue.

Guideline 15183.5(b)(1)(D) and (E) are instructive. Subdivision (D) states that the plan should "*[s]pecify measures or a group of measures, including performance standards*, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level. Subdivision (E) states that the plan should "[e]stablish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels." (Emphasis added.)

1. Role and Purpose of Mitigation Measures in CEQA

Mitigation measures are needed, even required, where a project may have a significant impact and the purpose of the measures is to reduce any impact to less than significant. (PRC 21003.1(b); Guideline 15002(a)(3).)

2. Deferral of Mitigation

In general, it is improper for an agency to rely on *deferred* mitigation. (*Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 306; *Defend the Bay v. City of Irvine*

(2004) 119 Cal.App.4^{th} 1261, 1275-1276.) An agency cannot find a significant impact to be mitigated to a less-than-significant level based on a deferred mitigation measure. (*Sundstrom v. County of Mendocino, supra,* 202 Cal.App.3d at 306. It is a violation of CEQA when an agency "simply requires a project applicant to obtain a biological report and then comply with any recommendations that may be made in the report. [Citation.]" (*Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4^{th} 1261, 1275; see also *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4^{th} 777, 793.)

"Deferral of the specifics of mitigation is permissible where the local entity commits itself to mitigation and lists the alternatives to be considered, analyzed and possibly incorporated in the mitigation plan." (*Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4^{th} 1261, 1275-1276; see also *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1030.) This applies where "mitigation is known to be feasible, but where the practical considerations prohibit devising such measures early," so that "[w]here future action to carry a project forward is contingent on devising means to satisfy such criteria, the agency should be able to rely on its commitment as evidence that significant impacts will in fact be mitigated." (*Sacramento Old City Assn., supra*, 229 Cal.App.3d at 1028-1029.)

Because of the nature of first-tier tier EIRs, in particular, deferral of the specifics of mitigation measures, as long as they contain clear performance standards, is particularly appropriate and logical. (See, e.g., *Rio Vista Farm Bureau Center v. County of Solano* (1^{st} Dist.1992) 5 Cal.App.4^{th} 351 ("*Rio Vista Farm Bureau*"); *Al Larson Boat Shop Inc. v. Bd. of Harbor Commissioners, supra,* 18 Cal.App.4th 729.) In *Rio Vista Farm Bureau*, a first-tier "program EIR" serving as "primary planning document for hazardous waste management in the county" was found to contain sufficient mitigation measures adopted as policies to guide subsequent projects. The court rejected a challenge based on the assertion that the mitigation measures were "vague, inconclusive, and even inconsistent," finding the measures sufficient "given the broad, nebulous scope of the project under evaluation." (*Rio Vista Farm Bureau, supra,* 5 Cal.App.4^{th} at 376.) The court found that the specificity of mitigation measures should be proportionate to the specificity of the underlying project, which in that case was a broad planning document to guide later site-specific projects.

The court in *Coastal Hills Rural Preservation v. County of Sonoma* (2016) 2 Cal.App.5th 1234, 1258, upholding the trial court's order denying a CEQA petition for writ of mandate, explained that although "CEQA usually requires mitigation measures to be defined in advance" and not deferred, "deferral [of mitigation measures] is permitted if, in addition to demonstrating some need for deferral, the agency (1) commits itself to mitigation; and (2) spells out, in its environmental impact report, the possible mitigation options that would meet "specific performance criteria" contained in the report."

In *Sundstrom*, *supra*, the county required future hydrological studies as conditions of a use permit and required that any mitigation measures that the study suggested would become mandatory. This was held to be improper because the impacts and mitigation measures were not determined.

The court in *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359 found an Negative Declaration defective because it improperly relied on deferred formulation of specific mitigation measures. There, the city required the applicant to comply with any existing ordinance protecting the Stephens' kangaroo rat and allowed the city to require a biological report on the rat and compliance with any recommendations in the report. The court found this to be insufficient because it, like the approval in *Sundstrom*, was based on compliance with a report that had not yet even been performed.

By contrast, the court in *Schaeffer Land Trust v. San Jose City Council* (1989) 215 Cal.App.3d 612, upheld an Negative Declaration for a general plan amendment for a parcel of land which, regarding traffic issues, required any future development to comply with applicable "level of service" standards. Unlike the other cases mentioned above, here the mitigation measures were delayed because the development and impacts were not concrete, but the mitigation was fixed to set standards which, by definition, ensured that there would be no significant impact. Mitigation with deferred specifics was found to satisfy CEQA where the lead agency had committed to mitigation meeting a specified range of criteria and project approval required the developer to obtain permits and adopt seven itemized measures in coordination and consultation with relevant agencies. *Defend the Bay, supra,* 1276.

In *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 794, the court found a mitigation measure that required replacement habitat preservation to satisfy CEQA even though the specifics were not fully determined but where the approval set forth *specific possibilities and parameters that the mitigation needed to meet.*

3. The Role of the CAP in Subsequent GHG Analysis

The key issue here in determining the sufficiency of mitigation measures is the role this CAP is intended to play in s GHG analysis of future projects. As noted above, one aspect of first-tier plans and EIRs is that they may obviate the need for later projects falling within their ambit to conduct new CEQA review on certain issues where the future projects comply with the first-tier plan. Any later discretionary project that complies with its criteria, such as the standards and requirements it imposes, would not need to do further study of GAG emissions. Accordingly, the standards and requirements the CAP imposes for reducing or minimizing GHG emissions must be considered mitigation measures for purposes of CEQA and must comply with the CEQA requirements. This means that they must set forth clearly defined and enforceable performance standards to be met. Because of the intended streamlining, Petitioner correctly contends that the performance standards and measures set forth the PEIR must be clear, definite, and enforceable.

Here also, Respondent contends that Petitioner is imposing requirements and standards that do not exist in Guideline 15183.5. Respondent ignores the fundamental CEQA requirements which underlie Petitioner's claims. Respondent contends that Guideline 15183.5 does not require mitigation measures for the CAP or within the CAP imposed on future projects. This position not only conflicts with 15183.5 itself, it is fundamentally contrary to the principles of CEQA review.

It is axiomatic in CEQA that any measures or requirements imposed be sufficiently defined to be enforceable and that, in the context of tiering, any subsequent project may avoid analysis of an issue only if it complies with a first-tier document that satisfies CEQA requirements. As noted above, PRC 21094(a) states that where a prior first-tier EIR has been certified and applies to a subsequent project, the agency "*need not examine those effects which ... were either (1) mitigated or avoided...* as a result of the prior [EIR] *or (2) examined at a sufficient level of detail in the prior [EIR] to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means....*" Accordingly, to obviate the need to address an issue or impact as part of a later project's CEQA review, a first-tier plan or program document and EIR must sufficiently analyze that issue or impact to determine that compliance with the document and its mitigations will mitigate or avoid the impact. The mitigation requirements in a first-tier document for avoiding or mitigating the impact *must* include performance standards that are mandatory and include specific, and effectively enforceable performance standards. (*Coastal Hills Rural Preservation v. County of Sonoma* (2016) 2 Cal.App.5th 1234, 1258.)

The prior discussion of Guideline 15183.5 addresses the impact of tiering mechanisms. Again, the CAP, and any such plan prepared under 15183.5, must meet the requirements for all first-tier documents and thus must impose effectively enforceable requirements and measures with defied performance standards.

Further, Guideline 15183.5 *does require the CAP to impose mitigation measures* on future projects. As both Respondent and the CAP itself acknowledge, and as noted above, subdivision (b) expressly states that "a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable *if* the project complies with *the requirements* in a previously *adopted plan or mitigation program* under specified circumstances." This plan or mitigation program, i.e., the CAP, according to (b)(2), "*may* be used in the cumulative impacts analysis of later projects" which clearly means that it need not. However, (b)(2) continues to state that *if it is* so used for a later project, that project must comply with the requirements and mitigation measures from the CAP. Once again, in the Guideline's words, a later project that in fact "relies on [the CAP] for a cumulative impacts analysis *must* identify those *requirements specified in the plan* that apply to the project, and, *if* *those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures....*"

In countering Petitioner's complaint that some of the so-called measures or standards are too vague or loose or ill-defined to be properly enforceable, Respondent asserts that this will be "cured" because Guideline 15183.5(b)(2) states that any requirements that are not "binding and enforceable" will be incorporated as mitigation measures in the project's CEQA document. This "interpretation" does not withstand scrutiny. As explained above, a first-tier document, in order to be used to avoid revisiting analysis of an issue in a later project, must have sufficiently analyzed the issue and found any significant impact to be mitigated or avoided by complying with the document. That means that any requirement, such as mitigation, must have sufficiently defined, clear, and mandatory performance standards to be effectively enforceable and to have predictable results. If the requirements or measures are so ill-defined as to be unenforceable as a practical matter, and effectively meaningless, merely "incorporating" them into the later project's CEQA document will obviously not fix that problem. What the state in the Guideline must mean, therefore, is not that an ineffective measure may simply be incorporated into a later project's document, as Respondent asserts, but that a measure or requirement must be incorporated in the document *if it is not enforced independently, or through some other mechanism.*

4. The Measures in the CAP

The CAP sets forth requirements and standards or mitigation measures at AR 1015-1048.

Respondent primarily argues that under Guideline 15183.5(b)(2), any measure which the CAP imposes and which is "not otherwise binding and enforceable" must be incorporated into future projects. As addressed above, this argument is not meritorious. Guideline 15183.5(b)(2) expressly requires that:

"A*n environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and* *enforceable, incorporate those requirements as mitigation measures* applicable to the project. *If there is substantial evidence that the effects* of a particular project *may be cumulatively considerable notwithstanding the project's compliance with the specified requirements in the plan* for the reduction of greenhouse gas emissions, *an EIR must be prepared* for the project.

(emphasis added.)

Petitioner singles out three of the specific measures or requirements in the CAP for discussion as demonstrating a lack of meaningful enforceability and clear standards.

a) 5-R4 (AR 1026)

The first is 5-R4 (AR 1026.) This "trip-reduction ordinance" requires employers with 50+ employees to offer one of several options to employees in order to reduce GHG emissions: "pre-tax transit expenses, transit or vanpool subsidy, free or low cost shuttle, *or an alternative benefit*." (Emphasis added.) It is the latter to which Petitioner objects, arguing that it is vague and undefined either in what it must be like or what it must achieve, so that there is no way to enforce this. As a result, Petitioner contends, a project could offer as "alternative benefit" which no-one can at this point predict, and argue that it need not do GHG analysis because it has "complied" with this measure. Respondent contends that an alternative of purchasing GHG offsets is considered and this is correct but this is not the definition of "an alternative benefit," which is left open and could be anything. Petitioner is correct on this point.

Respondent contended that Petitioner failed to exhaust administrative remedies on this specific issue.

According to PRC section 21177, "[a] person shall not maintain an action or proceeding unless that person objected to the approval of the project orally or in writing during the public comment period provided by this division or prior to the close of the public hearing on the project before the filing of the notice of determination." This does not, however, bar an association or organization formed after approval from raising a challenge which one of its constituent members had raised, directly or by agreeing with or supporting another's comments. (PRC section 21177(c).) Moreover, someone may file a legal challenge based on an issue as long as "any person" raised that issue during the review process. PRC section 21177(a); see *Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 267-268. It also does not apply to any grounds of which the agency did not give required notice and for which there was no hearing or opportunity to be heard. PRC section 21177(e).

A party challenging decision under CEQA cannot, to exhaust administrative remedies, rely merely on "general objections" or "unelaborated comments." *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535; *Coalition for Student Action v. City of Fullerton* (1984) 153 Cal.App.3d 1194, 1197. However, "[l]ess specificity is required to preserve an issue for appeal in an administrative proceeding than in a judicial proceeding…." *Citizens Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 163.

Petitioner responds that only the substance of the issue must be raised at the administrative level, relying on *Save Our Residential Environment v. City of West Hollywood* (1992) (Cal.App.4th 1745, 1750.) And further that less specificity is required to exhaust an issue in an administrative proceeding that in a judicial one, relying on *Woodword park Homeowners Assn. v. City of Fresno* (2007) 150 Cal.appp.4th 683, 712 and *Brothers Real Estate Group v. City of Los Angeles* (2008) 153 Cal.App.4th 1385, 1395. The court finds that Petitioner did articulate this as a basic contention in the underlying administrative proceedings. (AR 66 and AR 67.)

b) 4-L-1 (AR 1024)

Petitioner's attack 4-L-1, at AR 1024, which requires consistency with applicable "adopted policies" on mixed-use and transit-oriented development, such as zoning codes, general plans, etc., and states that agencies must "support mixed use [sic] development in city-centers and transit-oriented development locations through their General Plans, etc." is not persuasive. Petitioner contends that this is too vague because "mixed-use" has been interpreted to allow hotels and tourist destinations built downtown or near rail stations. Petitioner focuses on one portion of this requirement that is open-ended. Nothing indicates that the type of use that could be allowed in a mixed-use development, whether store, museum, eatery, office, or hotel, has any bearing on GHG emissions. Petitioner cites no evidence or explanation in support of this claim and does not explain how this is material. What matters is that there are clear, adopted standards mandating such development and Petitioner does not challenge that portion of the measure at all.

It is possible that the measure could be found too vague and Petitioner may be challenging it on that basis as well. Petitioner refers to it when mentioning how an "undefined alterative... lacks the required specificity" and Petitioner again mentions it on the following page with reference to "tentative plans" for future mitigation in ill-defined subsequent regulation to be adopted. This, merely requires each jurisdiction to "identify such appropriate areas and include unspecified policies and incentives to encourage development near high-quality transit service." It requires the jurisdiction to define requirements and identify potential incentives, giving a list of the types that these "may include," the last being "other related items." Again, this does not give any clear performance standards regarding how to achieve this or what the parameters are. As Petitioner argues, for the third measure, the court in *Communities for a Better Environment v. City of Richmond,* 184 Cal.App.4th 70, 92, found a measure insufficiently specific where it required reduction of mobile emission sources though "transportation smart" development because "reliance on tentative plans for future mitigation... significantly undermines CEQA's goals of full disclosure and informed decision making." Under this analysis, this measure is also defective.

c) 2-L-1 (AR 1021)

Lastly, Petitioner argues that 2-L-1, at AR 1021, is defective. This measure mandates that the project "comply with local requirement(s) for rooftop solar PV on new residential development. It states that each jurisdiction "will define which new development must provide rooftop solar [PV] by defining qualifying criteria... and the amount of solar required...." As Petitioner argues, this sets no standards at all, just like 4-L-1, but instead merely general principles and future possibilities. This violates CEQA.

Petitioner further argues that the measures in general do not guarantee any likelihood of implementation. This is clear from the ones discussed above. Petitioner cites 1-R2 as another example. It states that two named agencies "will work with the participating communities to implement energy efficient retrofits. Actions may include: Implementing a… weatherization program, expanding energy efficiency outreach/education campaigns…, promoting the smart grid," etc. Again, none of this goes beyond stating wishful thinking, good intentions, and an intent to "work" with others. Measures that fall into this category violate CEQA as well.

Petitioner also generally attacks the measures as lacking meaningful enforceability. Petitioner also contends that of all of them, only 1-S1 and 1-S2 are actually enforceable because they govern building energy and lighting efficiency, both controlled by state regulation. The court finds a few others in addition to 1-S1 and 1-S2 to be similarly enforceable. These include 1-L1, based on Windsor's building code, 1-L2, requiring LED lights in new development.

Aside from those few, Petitioner is correct that most are not enforceable, either because they are too vague and lacking in meaningful mandatory requirements such as those already discussed, which only "require" some "alternative" that is not specified or governed by set parameters. Others, such as 1-L3 through2-L2, state mitigation measures but then state that these are "voluntary," or "encouraged," or only necessary where "applicable" based on circumstances or criteria that are not defined. Others again rely on other jurisdictions such as the cities creating applicable requirements that in some unspecified manner promote the stated, vague, open-ended policies that lack any parameters or requirements. These are too numerous to list them all here but this general characteristic dominates almost all of the measures from what I have read.

Accordingly, the court grants the petition with respect to mitigation. Because the record does not provide adequate information about extraterritorial emissions the agency and the public could not and the court cannot determine whether the CAP would achieve its stated goal to reduce GAG impacts to pre-1990 levels by 2020.

E. ALTERNATIVES

Petitioner asserts that Respondent violated CEQA by adopting as the "environmentally superior alternative" the Zero Net Energy Buildings Alternative because it fails to address GHG emissions from transportation while Respondent declined to evaluate an alternative with a moratorium on, or significant reduction of, new or expanded vineyards, wineries and tourist destinations. (AR 94; 426-427.)

Respondent contends that the analysis is sufficient because Petitioner believes that reducing or stopping growth, and in particular growth that involves travel of people and goods to and from the county, is necessary, and Petitioner cannot impose such mandates on R; Respondent considered a range of alternatives; and choosing the moratorium alternative would require the court to "dramatically substitute" its judgment for Respondent's.

CEQA requires all EIRs to consider alternatives to the project. (*Friends of the Old Trees v. Dept. of Forestry & Fire Protection* (1st Dist.1997) 52 Cal.App.4th 1383, 1393-1395 (*Friends of Old Trees*).)

1. Importance and Central Role of Alternatives Analysis

PRC section 21002 states that "it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects...." An agency may not approve a project that will result in significant impacts *unless it first finds that mitigation measures or alternatives are infeasible*. (PRC section 21081; Guidelines 15091, 15093.)

The Supreme Court decided that considering alternatives is one of the most important functions of an EIR. (*Wildlife Alive v. Chickering* (1976) 18 Cal.3d 190, 197.) In fact, "[t]he core of the EIR is the mitigation and alternatives sections." (*Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564, 566 (*Goleta II*).)

Without evidence regarding why the alternatives are insufficient to meet the project or CEQA goals, meaningful analysis is impossible. An EIR must "explain in meaningful detail the reasons and facts supporting [the] conclusion." (*Marin Municipal Water Dist. v. KG Land*

Corp. California (1991) 235 Cal.App.3d 1652, 1664.) Failure to provide sufficient analysis or alternatives makes it impossible for the court to "intelligently examine the validity of the... action." (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 513-514, 522.)

The alternatives must be discussed in the EIR itself, provided for public review, and subject to analysis, and the agency cannot cure defects by providing analysis in its official response. (See *Friends of the Old Trees, supra*, 52 Cal.App.4th at 1403-1405.)

2. Authority on Analyzing Alternatives and Feasibility

The discussion should evaluate the relative merits of each alternative 14 CCR §15126.6(a). Respondents need not analyze or adopt alternatives that are not feasible. 14 CCR ' 15126.6(c), (f); *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564, 566 (*Goleta II*). However, the document *must* consider alternatives that *are* feasible. *EPIC v. Johnson* (1985) 170 Cal.App.3d 604, 610; *Friends of the Old Trees, supra*, 52 Cal.App.4th 1404.

Ultimately, determining if alternatives are suitable involves a three-part test governed by the "rule of reason" as set forth in Guideline 15126.6. (See *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564, 566 (*Goleta II*); *Save San Francisco Bay Association v. San Francisco Bay Conservation and Development Commission* (1992) 10 Cal.App.4th 908, 919.) The analysis must consider alternatives that 1) may "attain most of the basic objectives of the project," 2) reduce or avoid the project's impacts, and 3) are "potentially feasible." (Guideline 15126.6(a), (f).)

The analysis of alternatives is required to set forth facts and "*meaningful* analysis" of these alternatives rather than "'just the agency's bare conclusions or opinions.'" (*Laurel Heights I, supra*, 47 Cal.3d 376, 404-405; *Goleta II, supra*, 52 Cal.3d 569; *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1353.) All analysis must include "detail sufficient to enable those who did not participate... to understand and to consider meaningfully" the alternatives. (*Laurel Heights I, supra*, 404-405.)

As notes above, "feasible" means able to be "accomplished in a successful manner within a reasonable period... taking into account economic, environmental, social, and technological factors." (PRC section 21061.1.)

When the agency determines that alternatives are infeasible, it "shall describe the specific reasons for rejecting identified...project alternatives." (Guideline 15091(a), (c).) The analysis of alternatives is required to set forth facts and "*meaningful* analysis" of these alternatives rather than "'just the agency's bare conclusions or opinions.'" (*Laurel Heights I, supra*, 47 Cal.3d 376, 404-405; *Goleta II, supra*, 52 Cal.3d 569; *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1353.) All analysis must include "detail sufficient to enable those who did not participate... to understand and to consider meaningfully" the alternatives. (*Laurel Heights I, supra*, 404-405.)

The agency must make findings identifying specific considerations making an alternative infeasible and the specific benefits of the Project that outweigh the relative harm. (PRC § 21002.1(b), 21081, Guideline 15092(b); *Preservation Action Council, supra*, 1353.)

On the other hand, as usual, the requirement is one of reasonableness and a "crystal ball" inquiry is not necessary. (*Residents Ad Hoc Stadium Committee v. Bd. of Trustees* (3d Dist.1979) 89 Cal.App.3d 272, 286.) The key, as with most aspects of an EIR is that the agency must provide enough information about the analytical path taken to allow the court to "intelligently examine the validity of the administrative action." (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 513-514, 522.) However, no "ironclad rule" other than the "rule of reason" governs the decision. (Guideline 15126.6(a).)

An agency cannot find an alternative infeasible simply because the developer does not want to do it. (*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 601.) In fact, the analysis must include alternatives that are reasonable "even if they substantially impede the project or are more costly." (*San Bernardino Valley Audubon Society v. County of San Bernardino* (1984) 155 Cal.App.3d 738, 750; see also *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336.)

An EIR or decision thereon also cannot merely state that an alternative is infeasible simply because it is too expensive or will not lead to sufficient return without providing supporting analysis. (*Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336.) "The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the *additional costs or lost profitability* are sufficiently *severe as to render it impractical* to proceed with the project." (*Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1181; *Uphold Our Heritage, supra*, 599; (emphasis added).)

An alternative should be capable of "substantially lessening" adverse impacts but it need only have fewer impacts and it need not be impact free. PRC 21002; Guideline 15126.6(a); *Citizens of Goleta Valley v. Board of Supervisors (Goleta II)* (1990) 52 Cal.3d 553, 566.

3. Reasonable Range

An EIR must describe a reasonable range of alternatives to the proposed project or its location that would feasibly achieve most of the project's objectives, while reducing or avoiding any of its significant effects. (Guideline 15126.6(a), (d).)

The EIR "shall focus on alternatives… which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objective, or would be more costly." (Guideline 15126.6(b).)

The EIR must set forth the alternatives necessary to permit a reasoned choice and in a manner that will allow "meaningful evaluation." (Guideline 15126.6(a), (d), (f); *Goleta II;* see also *Laurel Heights I, supra*; see also *San Bernardino Valley Audubon Soc., Inc. v. County of San Bernardino* (1984) 155 Cal.App.3d 738, 750-751 (the detail must allow a reasonable choice "so far as environmental aspects are concerned.").)

If an EIR excludes certain alternatives, it should identify the alternatives and set forth the reasons. (*Goleta II, supra,* 569; Guideline 15126.6(b).) The court in determining if the

EIR included a reasonable range of alternatives may consider the entire record to determine if alternatives were properly excluded from consideration. (*Goleta II, supra*, 569.)

Alternatives that would eliminate or reduce significant environmental impacts *must* be considered even if they would cost more or "to some degree" impede attainment of the project's objectives. (Guideline 15126.6(b).)

4. Detail of Relevant Decisions on the Adequacy of Alternatives

In *Friends of the Old Trees, supra*, 52 Cal.App.4th 1383, an extreme case, there was no discussion of alternatives in the versions submitted for public review. The agency argued that the fact it considered mitigation should suffice, while the real party marked a box selecting a certain method of cutting. The court also noted that the *public* brought forth "the only true alternatives," and that these were discussed only after the document was approved. (*Friends of the Old Trees, supra,* 52 Cal.App.4th 1405.) The court found the discussion inadequate. (*Id.*, 1403-1405.)

In *Citizens of Goleta Valley v. Board of Supervisors (Goleta I),* (1988) 197 Cal.App.3d 1167, the EIR considered a smaller hotel to be an economically infeasible alternative to the proposed hotel at issue. Because the EIR lacked *evidence* that the smaller hotel was economically infeasible, the court considered it error to deny the writ of mandate. The court found that although the EIR contained estimated figures of costs, the record did not reveal any *evidence* which *analyzed* the alternative in terms of comparative costs, comparative profits or losses, or comparative economic benefit to the project proponent, residents, or the community at large. (*Id.*, 1180.)

The court in *Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, at 599, addressed a project to demolish an historic mansion in order to construct a new, smaller single-family residence. The court found that evidence that alternatives of historic rehabilitation or rehabilitation with a new addition, would cost between \$4.9 million and \$10 million was not substantial evidence that alternatives were not economically feasible since there was no evidence of the likely cost of a proposed replacement home or average cost of building the proposed 6,000 square foot home in the city. It also found that whether the developer wanted to do the alternative was irrelevant to determining if it is not feasible.

San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus (Arambel and Rose Development, Inc.) (1994) 27 Cal.App.4th 713, also dealt with alternatives analysis. The court found, in the context of a proposed housing development, that the discussion of housing density alternatives was inadequate. The DEIR stated that a lower density would "lessen the impacts," but failed to identify which impacts it meant or to what degree. The court ruled that " [s]uch a bare conclusion without an explanation of its factual and analytical basis is insufficient." *Id.*, at 736. The court went on to state:

> That lower density might not be "economically feasible," is not sufficient justification for the failure to give basic information as to density alternatives which were considered and rejected. Contrary to [respondent's] argument, [petitioners] are not required to show there are reasonable alternatives. *It is the project proponent's responsibility to provide an adequate discussion of alternatives....* If the project proponent concludes there are no feasible alternatives, it must explain in *meaningful detail* in the EIR the basis for that conclusion. Thus, even if alternatives are rejected, an EIR *must explain why* each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages or cannot be accomplished.

Id., at 737 (emphasis added).

5. Whether Feasibility Finding Is Necessary

As noted above, PRC sections 21002, 21081, and Guidelines 15091, 15093 together forbid approval of a project that *will result in significant impacts without first finding that any environmentally superior alternatives are infeasible*. Petitioner argues that Respondent failed to consider an alternative that is environmentally superior.

6. The Alternatives Analysis for the CAP

The alternatives analysis is at AR 425-438. The PEIR explains that it developed and analyzed only *one* other alternative, the Carbon Offset Alternative, in addition to the chosen Zero Net Energy Buildings plan and the mandatory no-project alternative. It expressly rejected a growth moratorium, reduced density, greater density, increased Sonoma Clean Power, expanded transit service, 1990 Levels by 2020 (AB32), and 80% Below 1990 Levels by 2020.

The real issue here is whether the Respondent, in rejecting formulating other alternatives, has considered a reasonable range, as required, and whether Respondent has provided sufficient explanation of infeasibility or other reasoning to support not considering other proposed alternatives.

Respondent's analysis is insufficient. Respondent considered almost no range at all, and only one other alternative that essentially is one that does nothing other than to authorize Respondent to buy GHG offsets for all GHG impacts from projects. Although Respondent argues to the contrary, this alternative seems both infeasible and at the same time would not actually do anything to control or limit actual GHG production. As an alternative, this appears to be one of form, but not of substance.

By contrast, the moratorium or reduced-development alternative which Petitioner proposes, and which was presented to Respondent in public comments (see, e.g., AR 93-94, response to comment) along with others noted but rejected without being developed, include real solutions that differ significantly from the chosen CAP. At least some, like the moratorium or growth limit, also address issues of GHG production from travel. While it is logical that some may be infeasible or incompatible with goals of growth, this is not alone, without explanation or support, a basis for not even considering those alternatives, or modified versions. For example, Respondent noted a moratorium on growth of wineries or housing "until the jobs-housing balance in the County is more equitable," but this does not even address the issues of Petitioner's proposed moratorium, it is arbitrarily limited, and it does not even seem to make much sense. There is no evidence or explanation for what it would be or why Respondent could not consider a similar, but different one, such as Petitioner proposed. That is the purpose of actually developing and considering alternatives. Given that there are available alternatives that differ drastically from what Respondent has considered and given that Respondent has, in effect, considered only one other option that is perhaps only nominally an alternative, this analysis fails to consider a reasonable range of alternatives, or even any range at all.

The court Grants the petition on this issue.

F. RESPONSE TO PUBLIC COMMENTS

Petitioner next argues that Respondent's response to public comments was insufficient in violation of Guideline 15088(c).

The "evaluation and response to public comments is an essential part of the CEQA process." (Discussion following CEQA Guideline 15088.) The final EIR must include evaluation and responses to all comments received in the public-comment period. PRC section 21091(d)(2)(A). Guideline 15088 governs responses to comments and subdivision (c) governs the substance of such responses. It requires responses to address issues "in detail" and demonstrate "why specific comments and suggestions were not accepted." Most importantly, perhaps, the responses must explain the reasons for rejecting suggestions with a "good faith, reasoned analysis" and must not rely on "[c]onclusory statements unsupported by factual information." Guideline 15088(c).

1. Exhaustion of Administrative Remedies

Respondent first contends that Petitioner failed to exhaust administrative remedies on this issue. The court has found, above, that Petitioner exhausted its administrative remedies.

Petitioner's argument here is collateral and not persuasive. Although Petitioner points out that a few responses may not sufficiently resolve issues, that is of little importance in of itself. What matters are the fundamental defects that have not been cured as discussed above: failure to properly determine GHG inventory, or demonstrate that Respondent could not practically have done more or did not need to do more; ill-defined mitigation measures lacking enforceable criteria or parameters; and lack of reasonable range of alternatives.

The court denies the Petition with respect to the comments..

G. WHETHER RESPONDENTS' ERROR WAS PREJUDICIAL

Respondent contends that even if Petitioner demonstrated error, it was not prejudicial. As noted at the outset, in order for the court to issue a writ of mandate, it must find not only error, i.e., a violation of CEQA, but that error was prejudicial. (*Chaparral Greens v. City of Chula Vista* (1996) 50 Cal.App.4th 1134, 1143; *see* PRC 21168, 21168.5, *Laurel Heights I, supra* 47 Cal.3d 392, fn.5; Remy, et al., Guide to the California Environmental Quality Act (10^{th} Ed.1999) Chapter XI(D), p.590.)

Respondent's failure to impose meaningful, effectively enforceable mitigation measures, when presenting compliance with the CAP as a way for future projects to avoid any other GHG analysis, is fundamentally and on its face, prejudicial. The failure to present a reasonable range of alternatives or to properly inventory GHG emissions as required are also on, their face, prejudicial because they prevent informed decision making or public review, the very bases of CEQA. (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1228-1230, 1235-1237 (failure to put critical information in an environmental document was in of itself a prejudicial abuse of discretion partly because it "frustrated the purpose of the public comment provisions"); *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th 1059, at 1073 ("[a]n error is prejudicial when an agency fails to comply with a mandatory CEQA procedure or when a report omits information and thereby precludes informed decision making); *Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1182,; *Schoen v. Dept. of Forestry & Fire Protection* (1997) 58 Cal.App.4th 556, 565 ("We cannot overlook a prejudicial error by surmising that the project would have gone forward anyway.").)

Based on the foregoing,

NOW, THEREFORE,

ORDER

1. The Petition for Mandamus is granted as stated above.

Dated: 7/20/17

By: [signature]
NANCY CASE SHAFFER
Judge of the Superior Court

END NOTES

[i] (a) "Tiering" refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.
(b) Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including general plans, zoning changes, and development projects. This approach can eliminate repetitive discussions of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy, or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration. Tiering does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier EIR or negative declaration. However, the level of detail contained in a first tier EIR need not be greater than that of the program, plan, policy, or ordinance being analyzed.
(c) Where a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof (e.g., an area plan or community plan), the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographical scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand.
(d) Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:
(1) Were not examined as significant effects on the environment in the prior EIR; or
(2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means.
(e) Tiering under this section shall be limited to situations where the project is consistent with the general plan and zoning of the city or county in which the project is located, except that a project requiring a rezone to achieve or maintain conformity with a general plan may be subject to tiering.

(f) A later EIR shall be required when the initial study or other analysis finds that the later project may cause significant effects on the environment that were not adequately addressed in the prior EIR. A negative declaration shall be required when the provisions of Section 15070 are met.
(1) Where a lead agency determines that a cumulative effect has been adequately addressed in the prior EIR, that effect is not treated as significant for purposes of the later EIR or negative declaration, and need not be discussed in detail.
(2) When assessing whether there is a new significant cumulative effect, the lead agency shall consider whether the incremental effects of the project would be considerable when viewed in the context of past, present, and probable future projects. At this point, the question is not whether there is a significant cumulative impact, but whether the effects of the project are cumulatively considerable. For a discussion on how to assess whether project impacts are cumulatively considerable, see Section 15064(i).
(3) Significant environmental effects have been "adequately addressed" if the lead agency determines that:
(A) they have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental report; or
(B) they have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.
(g) When tiering is used, the later EIRs or negative declarations shall refer to the prior EIR and state where a copy of the prior EIR may be examined. The later EIR or negative declaration should state that the lead agency is using the tiering concept and that it is being tiered with the earlier EIR.
(h) There are various types of EIRs that may be used in a tiering situation. These include, but are not limited to, the following:
(1) General plan EIR (Section 15166).
(2) Staged EIR (Section 15167).
(3) Program EIR (Section 15168).
(4) Master EIR (Section 15175).
(5) Multiple-family residential development/residential and commercial or retail mixed-use development (Section 15179.5).
(6) Redevelopment project (Section 15180).
(7) Projects consistent with community plan, general plan, or zoning (Section 15183).

One specific example of a first-tier EIR is a "program" EIR as set forth in Guideline 15168. This details the nature and requirements and uses of such a first-tier EIR, in a manner similar to that set forth in 15152, and gives another good picture of how they are to be used and what they must do to be so used in compliance with CEQA. It states, in full,

(a) General. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

(1) Geographically,

(2) As logical parts in the chain of contemplated actions,

(3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or

(4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

(b) Advantages. Use of a program EIR can provide the following advantages. The program EIR can:

(1) Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action,

(2) Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis,

(3) Avoid duplicative reconsideration of basic policy considerations,

(4) Allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts,

(5) Allow reduction in paperwork.

(c) Use With Later Activities. Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.

(1) If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration.

(2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.

(3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.

(4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.

(5) A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

(d) Use With Subsequent EIRS and Negative Declarations. A program EIR can be used to simplify the task of preparing environmental documents on later parts of the program. The program EIR can:

(1) Provide the basis in an initial study for determining whether the later activity may have any significant effects.

(2) Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.

(3) Focus an EIR on a subsequent project to permit discussion solely of new effects which had not been considered before.

(e) Notice With Later Activities. When a law other than CEQA requires public notice when the agency later proposes to carry out or approve an activity within the program and to rely on the program EIR for CEQA compliance, the notice for the activity shall include a statement that:

(1) This activity is within the scope of the program approved earlier, and

(2) The program EIR adequately describes the activity for the purposes of CEQA.

[ii] (a) Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs), 15175-15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning). (b) Plans for the Reduction of Greenhouse Gas Emissions. Public agencies may *choose to analyze and mitigate significant greenhouse gas emissions in a plan for the reduction of greenhouse gas emissions or similar document.* A plan to reduce greenhouse gas emissions may be used in a cumulative impacts analysis as set forth below. Pursuant to sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.

(1) *Plan Elements. A plan for the reduction of greenhouse gas emissions should:*

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

(F) Be adopted in a public process following environmental review.

(2) Use with Later Activities. A plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable notwithstanding the project's compliance with the specified requirements in the plan for the reduction of greenhouse gas emissions, an EIR must be prepared for the project.

(c) Special Situations. As provided in Public Resources Code sections 21155.2 and 21159.28, environmental documents for certain residential and mixed use projects, and transit priority projects, as defined in section 21155, that are consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in an applicable sustainable communities strategy or alternative planning strategy need not analyze global warming impacts resulting from cars and light duty trucks.

A lead agency should consider whether such projects may result in greenhouse gas emissions resulting from other sources, however, consistent with these Guidelines.

PROOF OF SERVICE BY MAIL

I certify that I am an employee of the Superior Court of California, County of Sonoma, and that my business address is 600 Administration Drive, Room 107-J, Santa Rosa, California, 95403; that I am not a party to this case; that I am over the age of 18 years; that I am readily familiar with this office's practice for collection and processing of correspondence for mailing with the United States Postal Service; and that on the date shown below I placed a true copy of Order Granting Petition for Writ of Mandate in an envelope, sealed and addressed as shown below, for collection and mailing at Santa Rosa, California, first class, postage fully prepaid, following ordinary business practices.

Date: July 20, 2017

JOSÉ OCTAVIO GUILLÉN
Court Executive Officer

By: Missy Lemley
Missy Lemley, Deputy Clerk

-ADDRESSEES-

JERRY BERNHAUT
708 Gravenstein Hwy N # 407
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BRUCE D GOLDSTEIN
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COMMUNITIES FOR A BETTER ENVIRONMENT
established 1978

May 16, 2023

Attn: Thuy Hua,
Los Angeles County Regional Planning
320 W. Temple Street, 13th Floor Los Angeles, CA 90012

Sent via electronic mail

To the Los Angeles County Department of Regional Planning,

RE: Comments on the Draft 2045 Los Angeles County Action Plan

On behalf of Communities for a Better Environment (CBE) we are submitting this comment letter to share feedback on the Draft 2045 Los Angeles County Climate Action Plan (CAP). We commend the Los Angeles County Department of Regional Planning (DRP) for updating the CAP. While the CAP is an opportunity to reduce greenhouse gas emissions, CBE urges the County to continue engaging with frontline communities and meaningfully inventory the disproportionate climate impacts that hit Environmental Justice (EJ) communities hardest.

<u>Energy Supply</u>

In addition to the goals for phaseout of Oil & Gas extraction, the Oil Refinery phase down process will begin, as a measure in the State Scoping Plan. We urge the County to support the state Scoping Plan process to phase down Oil Refinery production of gasoline, diesel, and other products in line with reduction in demand for these fuels. It is important to plan the decommissioning and clean-up of refinery infrastructure, and a Just Transition for refinery workers as California uses less gasoline, diesel, and other refinery products. Refineries will not automatically disappear but continue to pollute local communities for short term profits as they export a greater and greater volume of climate warming fossil fuels abroad.

<u>Oil & Gas</u>

DRP recognizes that eliminating oil and gas drilling are core to the County's decarbonized future, but also that benefits of energy decarbonization do not always reach frontline communities. DRP should continue to accelerate its drilling phaseout timeline to close and remediate drill sites as soon as legally possible. While the County's plan to phase down oil and gas operations 80 percent by 2045 will benefit community health, the CAP can be, and should be more ambitious, targeting 100% phase out by the soonest possible date based on the County's amortization study.

- ES 1.1: CBE supports a sunset strategy which prioritizes disproportionately impacted communities for well abandonment and site remediation. In this process the county must place an emphasis on community involvement so that impacted residents can guide the phase down and trust in effective clean up and remediation practices. Addressing breaches in community trust is one of many remedies a drilling phase out must include alongside stringent health protections and "polluter pays" measures.[1]

- ES 1.2: DRP's recognition of the fugitive emissions threat is an important component of drilling phase out. As abandonment of oil wells proceeds, DRP must establish a long-term well monitoring plan to ensure LA County's legacy of oil drilling does not morph into a legacy of brownfields and fugitive methane pollution. Fugitive methane emissions have proven notoriously difficult to monitor.[2] Drill site remediation should include a management plan to ensure plugging has been effective both in the short and long term.
- ES 1.3: DRP should be extraordinarily cautious in its plans for Carbon Capture and Storage (CCS) in the County. While safety rules and community protection measures should be continued wherever oil and gas infrastructure are present as those sites operate and wind down, CCS is not such a community health measure. Rather, CCS can extend the life of polluting operations in the County, take up large swaths of urban land, and is very energy intensive to operate. CCS can also introduce new hazards into communities already burdened by harmful oil and gas infrastructure.[3]

Solar & Energy Resilience

- ES 3.1, ES 3.2, and ES 3.5: CBE supports the installation of solar on buildings to increase access to renewable energy. It is imperative that the County set baseline protections that prevent landlords from simultaneously claiming County funds and passing costs on to tenants. Instead, DRP's solar incentives should incent affordable housing with upfront financial support for retrofits.
- ES 4.1: Community Resilience Hubs have the potential to provide a safe and comfortable space for community to gather during extreme climate events. A successful resilience hub must be co-designed and developed with community and directly address community concerns. CBE has been working with community members to support the development of two sites in Wilmington to serve as resilience hubs.[4] We encourage the County to directly partner with community-based organizations (CBOs) to ensure meaningful engagement with community members. Community leadership should identify trusted sites, the energy load, resources, services, and materials necessary at the resilience hub to address community needs.

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[1] Liberty Hill Foundation, Drilling Down: The Community Consequences of Expanded Oil Development in Los Angeles, pp. 20, 23 (2015) https://libertyhill-assets-2.s3-us-west-2.amazonaws.com/media/documents/Drilling_Down_Report_-_Full.pdf.
[2] James Turitto, The IEA's Methane Tracker shows massive underestimation of methan emissions in national inventories, Clean Air Task Force (Apr. 8, 2022) https://www.catf.us/2022/04/ieas-methane-tracker-shows-massive-underestimation-methane-emissions-national-inventories/.
[3] Appendix A, CBE, CARB Draft Scoping Plan: AB32 Source Emissions Initial Modeling Results, pp. 4-10 (4 April 2022)
[4] Appendix B: Communities for a Better Environment: Resilience Hub Survey Results Infographic for Wilmington, CA. November 2022 (page 1) (page 2)

Transportation

Transportation is the largest contributor to County greenhouse gas emissions,[5] made up of mostly single-occupancy vehicles. DRP recognizes that lowering total vehicle miles traveled (VMT) and expanding access to zero-emission vehicles (ZEVs) is critical to reducing the County's total GHG emissions. For environmental and low-income communities, public transportation is a vital part of peoples' mobility and increased investment has the opportunity to improve the economic livelihood of communities.[6] Environmental justice communities need a transit system that is free, reliable, clean, adapted to climate conditions, equipped to support riders during extreme climate or industrial risks, and safe. Our lens of safety is embedded in community care and not over-policing. Additionally, investments into local transit systems should prioritize electric and zero-emission technologies. We expand our concerns, recommendations, and support below:

- T 4.6: CBE supports free transit to encourage the use of public transit as a viable alternative to single occupancy vehicles.

- T 4.8: CBE supports the establishment of temporary car-free areas. However, such areas must be identified in partnership with the local and surrounding community's leadership. Following community leadership will ensure that the car-free zones don't further gridlock, increase traffic, and are available during times when community is able to utilize the space.

- T 4.1: CBE has concerns regarding autonomous vehicles. One concern is that it could potentially displace workers from similar delivery jobs, harming low-income workers.[7] Additionally, there is concern regarding the potential personal data breach and over policing of communities. Such autonomous vehicles have been found to record their surroundings using a mounted camera, we are concerned that such recordings could be sold to private companies or local police.[8] This could be systematically dangerous to low-income, people of color who have historically been overpoliced. We also suggest the County directly partner with disability justice leaders and organizations to identify how to best support those living with different abilities who may benefit or be harmed by autonomous mobility. **CBE urge the County to reprioritize investment in mass electric public transit instead of autonomous mobility due to safety concerns and unintended impacts to low-income workers.**

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[5] Revised Draft 2045 Climate Action Plan, available at: https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf
[6] Issuu., Driverless Jobs: Autonomous Vehicles & A Just Transition for Black Drivers, (pg 12), 1 Sept 2021. https://issuu.com/congressionalblackcaucusfoundation/docs/0821-cpar-driverless-jobs-02
[7] Issuu., Driverless Jobs: Autonomous Vehicles & A Just Transition for Black Drivers, (pg 4), 1 Sept 2021. https://issuu.com/congressionalblackcaucusfoundation/docs/0821-cpar-driverless-jobs-02
[8] SFist, Report: SFPD Already Using Surveillance Video from Self-Driving Cars, 12 May 2022

- T 4.10 and T 6.7: Public transportation should be zero emission. "Low emission", "Biomethane" and "Biogas" are not ambitious enough technologies to reach the CAP's target goals. Reather these technologies further exacerbate health impacts in environmental justice communities and air quality and delay the transition to an electric bus fleet. Though low emission could qualify green hydrogen fuel cell transit, many communities have solely and adamantly advocated for electric buses. **CBE urges the County to prioritize and commit to an electric transportation fleet at every opportunity.** Electrification is cleaner, more efficient, and more technologically advanced than hydrogen transit, and further supports existing electric vehicle infrastructure.

- T 9.2: All commercial equipment listed (i.e. forklifts, loaders, welders, saws, pumps, etc.) can be electrified. The Port of Long Beach has already been utilizing such equipment and the County should build on this success, reserving green hydrogen for sectors that cannot be electrified.

- T 8.2 and T 8.4: We encourage the county to prioritize electrification over alternative fuels. Low emission fueling sources, including hydrogen, biomethane, biogas, and natural gas could further delay electrification and potentially create health and environmental impacts for environmental justice communities. Additionally, the streamlining of fueling infrastructure without proper and lengthy community engagement, health studies, and full CEQA analysis could lead to oversight of quality checks, assurances, safety requirements, and lack of proper training for contractors.

<u>Building Decarbonization</u>

The decarbonization of residential buildings is an opportunity to both decrease GHG emissions and reinvest in people's resilience. Low-income families and communities of color face a disproportionate energy burden by paying more than 30% of their income on energy bills.[9] Further electrification and energy efficiency in people's homes could alleviate financial and environmental burdens. However, it can also deeply impact peoples' livelihoods if the transition is not done equitably. Here, we encourage the County to set a baseline platform that prohibits the displacement of tenants, cost of retrofits to be passed on to tenants, exacerbate energy burden, and harassment against tenants. We urge the County to prioritize upfront financial support to affordable housing in retrofits, support tenants with comfortable, local, and free housing during retrofits, mandate sufficient notice to tenants, and incorporate Indigenous land management and greening. The expansion of native landscapes can provide holistic GHG emissions reductions, energy efficiency and overall comfort to tenants. **Additionally, CBE does not support the use of hydrogen in residential buildings.[10]** Direct electrification of homes and businesses is more efficient and safer than burning highly volatile, polluting hydrogen in enclosed buildings. We

[9] Climate Emergency Mobilization Office: Report on Equitable Building Decarbonization, 15 Sept 2022. https://www.climate4la.org/wp-content/uploads/2022/09/Report-on-Equitable-Building-Decarbonization-FINAL-September-15-2022.pdf
[10] Appendix C, Environmental justice and environmental principles regarding the buildout of hydrogen in California, p. 6, 23 March 2023.

urge the County to focus on the electrification of buildings to meet CAP goals rather than delay by exploring or considering the use of "other zero-emission fuel sources" for buildings.

- E 1.5: We support a comprehensive fund to support the decarbonization of new and existing affordable housing. This fund should provide energy efficiency improvements without increasing energy burdens on environmental and low-income communities who are systematically impacted by socio-economic factors. Additionally, this should be designed to leverage funding from state programs or local County funding opportunities.

- E 2.1: Technical and financial assistance can provide the support necessary for affordable housing entities to meet an ordinance requirement that all new buildings are electric. We encourage the County to directly partner with mission-based affordable housing developers in order to create a program that addresses their concerns and needs.

- E 4.3: The expansion of tree planting and green spaces directly supports local communities, curbs the urban heat island effect, and can lead to energy efficiency. As the County develops frameworks for decarbonization, there is a need to couple it with the expansion of green spaces and increased tree canopy. Ultimately, this is also an opportunity to address environmental racism by prioritizing Indigenous land management practices and reinvesting in communities of color.

Green Spaces

Land management and expansion of green spaces supports GHG emissions reductions and overall health and environmental benefits. We strongly encourage the County to commit and prioritize Native greening efforts, rather than solely focus on technical and energy production methods. Natural landscapes can combat the urban heat island effect which could result in lowered energy consumption and encourage the use of public transportation. This combination could curb emissions from the top two higher GHG emitting sectors, transportation, and stationary sources. As such, we encourage the County to promote Strategy 9 as a core strategy. As the County progresses on building electrification, and expands green spaces, there is significant potential in GHG emissions reductions and support for environmental justice communities.

- A3: CBE supports the commitment to expand the County's tree canopy and green spaces. We encourage the County prioritize Native trees, plants, and flowers that heal the soil, build connections to Indigenous communities, and support overall biodiversity and community health. As such, any trees removed must be replaced with Native trees.

CEQA Exemption

CBE is also concerned that the CAP would expediate future CEQA discretionary projects as long as the project can demonstrate consistency with the CAP. In fact, projects consistent with the

CAP would not be required additional greenhouse gas emission analysis or mitigation under CEQA, provided that a project's EIR identifies the CAP requirements that are applicable to the project and adopt those requirements as mitigation measures. (p. 4-10) As such, we ask that the County revise the CAP to provide additional information on the types of discretionary projects that could potentially demonstrate consistency with the CAP.

We believe that CEQA provides the public, and especially environmental justice communities, the opportunity to monitor and provide input on projects proposed in their communities. In fact, CBE strongly opposed the use of CEQA exemptions in the County's Green Zones Ordinance because such exemptions could potentially contravene the Ordinance's purpose of protecting already-overburdened communities from harmful projects.

Given the high rates of government reinvestment into environmental justice communities and the historic placement of energy production and storage facilities and refineries, we believe that a complete analysis of greenhouse gas emissions is necessary for all proposed projects in environmental justice communities. While in isolation a project may seem to minimally increase greenhouse gas emissions, a series of projects that could be consistent with the CAP could potentially create hotspots of higher greenhouse gas emissions.

<u>Conclusion</u>

CBE appreciates the opportunity to provide feedback and comments on the 2045 Draft Climate Action Plan. Overall, we urge the County to prioritize electrification, expand access to solar and storage, increase electric public transit, recommit to Indigenous land management, and explore holistic community-led strategies that address climate impacts. We look forward to working with the County to ensure that strategies are reaching climate goals and supporting low-income communities of color.

Thank you,

Darryl Molina-Sarmiento

Executive Director

Laura Gracia

Climate Adaptation and Resilience Enhancement (CARE) Coordinator

APPENDICES

Appendix A, CARB Draft Scoping Plan: AB32 Source Emissions Initial Modeling Results

Appendix B, Communities for a Better Environment: Resilience Hub Survey Results Infographic for Wilmington, CA. November 2022

Appendix C, Environmental justice and environmental principles regarding the buildout of hydrogen in California

Appendix A

April 4, 2022

COMMUNITIES FOR A BETTER ENVIRONMENT established 1978

California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Energy + Environmental Economics (E3)
44 Montgomery Street, Suite 1500
San Francisco, California 94104

Submitted through CARB Portal

Re: CARB Draft Scoping Plan: AB32 Source Emissions Initial Modeling Results

To CARB and E3 Representatives:

Communities for a Better Environment ("CBE") submits the following comments on the CARB Draft Scoping Plan: AB32 Source Emissions Initial Modeling Results ("Initial Modeling Results") presented by E3 at the California Air Resources Board ("CARB") Public Workshop on the 2022 Scoping Plan Update – Initial Modeling Results Workshop on March 15, 2022. The comments focus on the Petroleum Refining and associated Hydrogen Production sector.[1] (Note that we are separately commenting about the electricity sector.) We request the publication of the detailed input assumptions used in the modeling soon as possible, even if only available in draft form.

CBE is a statewide environmental justice ("EJ") organization with a strong focus on addressing the fossil fuel energy sources that heavily pollute the California communities of Wilmington, Southeast Los Angeles, East Oakland, Richmond, and surrounding areas where we organize, live, and work. Climate change, smog, and toxic emissions severely and disproportionately impact our communities, including oil refineries, oil wells and drilling, power plants, transportation and other sources.

Despite our appreciation for the modeling work and presentation from E3, we are disturbed by the glaring omission of detailed written information explaining critical underlying input assumptions of the PATHWAYS modeling results. During the Q&A portion of the March 15 workshop, CARB indicated it does not intend to correct this serious flaw in the public process and plans to release that information alongside the draft Scoping Plan. At best, failing to disclose such critical assumptions creates fertile ground for extremely unrealistic concepts that skews public discourse and creates a bias for poor decision-making. Without this information, the public is left to speculate. Furthermore, it is essential that CARB disclose and ultimately revise its assumptions for the refinery sector. A recent OEHHA analysis indicated that communities living around refineries and hydrogen plants have seen an increase in GHG and PM2.5 toxic emissions during the period of the Cap and Trade program.[2] Four of the top five entities

[1] SP22-MODEL-RESULTS-E3-PPT.PDF, available at: https://ww2.arb.ca.gov/resources/documents/2022-scoping-plan-update-initial-modeling-results-workshop.

[2] Office of Environmental Health Hazard Assessment (OEHHA), Impacts of Greenhouse Gas Limits Within Disadvantaged Communities: Progress Toward Reducing Inequities, Feb. 2022, Table 2. Direction of Emission Changes at Facilities Near High-Scoring CES Communities Varies by Pollutant and Sector (2018 Compared to 2012 Emissions), p. 38

that use the most offsets own petroleum refineries.[3] The 2022 Scoping Plan must use the best available evidence to provide a clear path forward for the refining sector and refinery communities.

In the case of the Petroleum Refinery sector, the lack of real-world technical evidence to support the assumptions risks premature, or worse, predetermined policy decision-making. The comments below ask questions regarding the reasoning and inputs behind several key results and figures. **These include:**

- the assumed carbon capture rates on individual pieces of equipment and across a whole refinery,
- the lack of evidence of operational and comparable carbon capture and sequestration ("CCS") systems at existing refineries,
- hypothetical CCS-driven emission reduction timelines which inexplicably start immediately,
- non-CCS versus CCS starting points,
- assessment of major physical constraints for siting CCS equipment at California refineries,
- and accompanying safety implications, for starters.

I. Present capture rate assumptions and emissions reductions results for petroleum refining GHGs indicate alarming need for disclosure of additional assumptions and rigorous review of corresponding evidence base.

A. REQUEST FOR RESPONSE: Please clarify the "90% CCS capture" percentage assumption in the context of a whole refinery's emissions.

1. Please detail the total percentage of the overall refinery that is assumed to be covered by CCS,

2. Please detail which parts of the refinery are assumed covered by CCS, including oil refinery hydrogen plants.

3. Please also refer to Table 2-1 of the South Coast 1109.1 report, later excerpted, which lists hundreds of different major refinery combustion equipment (heaters, boilers, incinerators, turbines, FCCUs, calciners, flares, etc.). Did the modeling consider the feasibility of applying CCS to such a complex set of equipment at California refineries, when determining the percentage of emissions covered by CCS? Please detail which specific types of the listed equipment are assumed covered.

4. Please explain whether or how much capture may occur over combustion sources, and whether the percentage is only for carbon dioxide or additionally methane fugitive emissions and other pollutants. Please provide the detailed accompanying spreadsheets used for the relevant portions of the GHG inventory.

[3] Id. at 8

5. Please provide citations on the basis of the assumption that 90% of emissions are captured, where CCS is applied within a refinery, and also identify all existing and operational refinery CCS systems in place in the U.S. and in California that can help assess the validity of the modeling assumptions.

During an Environmental Justice Advisory Committee (EJAC) Fossil Fuel Transportation Working Group, CARB staff indicated the Quest carbon capture and storage project in Alberta provided CARB with a basis for understanding CCS on refineries. We highly discourage CARB from relying on the existence of this project to validate the idea of investing in CCS on refineries generally. The project cost $1.35B (of which $865 Million came from the Canadian government[4]) and only captured a third of the upgrader's emissions. And despite initially claiming that its project Polaris would capture more than 90% of emissions,[5] Shell now states that it is only expected to capture up to 40% from the refinery as a whole and up to 30% from the chemicals plant.[6] We request an explanation for the capture assumption that addresses which part of the Quest project data CARB has considered, if at all.

B. REQUEST FOR RESPONSE: Please explain the reasoning behind the starting time and levels of emission reductions results in scenarios with CCS.

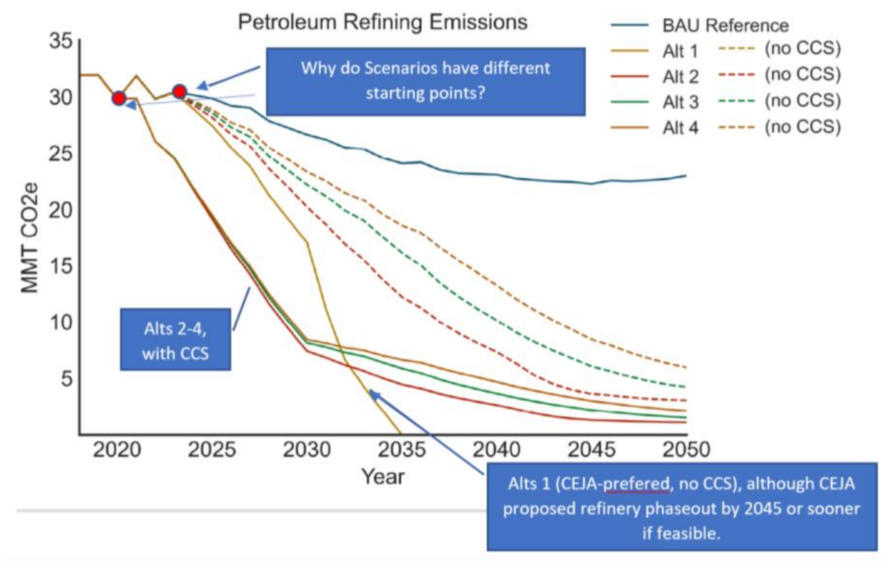
To assist comments on the oil refining sector, below is an annotated version of the graph on refining emissions as presented on Slide 10 at the workshop on March 15, 2022. This graph includes projected emissions in the four Alternatives ("Alt") scenarios 1-4, plus BAU ("Business As Usual").

We interpret this graph to mean, as recommended by the Environmental Justice Advisory Committee ("EJAC"), Alt 1 for refineries does not include CCS. As a result, there is only one Alt 1 line shown, whereas Alts 2-4 are shown both with and without CCS. The three closely grouped solid lines which fall quickly prior to 2030 are Alts 2-4 *with* CCS. The dotted lines are Alts 2-4 *without* CCS.

[4] https://sequestration.mit.edu/tools/projects/quest.html

[5] See: https://www.cnbc.com/2022/01/24/shell-ccs-facility-in-canada-emits-more-than-it-captures-study-says.html "The hydrogen projects we're planning – like Polaris – will use a new technology that captures more than 90% of emissions."

[6] See: https://www.shell.ca/en_ca/media/news-and-media-releases/news-releases-2021/shell-proposes-large-scale-ccs-facility-in-alberta.html



Given that **no CCS units currently exist at California oil refineries**, and for reasons further detailed below, this sharp decline indicates magical thinking around the current state of California refineries and refinery carbon capture technology.

6. Please provide any underlying evidence base for the assumption that results in all three scenarios with CCS (Alternatives 2-4, shown as three tightly-grouped solid lines above) rapidly declining through 2030, *starting immediately*.

7. Please explain why non-CCS scenarios and CCS scenarios use different starting points of emissions. Why do CCS scenarios begin earlier at a lower level of refinery emissions (which might reflect low refinery production and emissions during the pandemic), yet all the non-CCS scenarios start at the higher level, apparently after refinery production and emissions increased again. Or is there another reason for the spike in emissions after 2021?

II. Carbon capture of high percentages of refinery carbon emissions is unlikely at refineries due to their complexity, and the infeasibility of adding controls to hundreds of massive combustion units and thousands of fugitive sources.

Setting any assumptions for a new technology for refineries must be, at least in part, informed by the immensely complex and large physical scale of oil refinery emissions sources and controls. Just last fall 2021, the South Coast Air Quality Management District (SCAQMD) adopted Regulation 1109.1 to address high emissions of Nitrogen Oxides (NOx) at oil refineries after years of rule development, and also after decades of failure of the NOx pollution trading program in the South Coast called RECLAIM.

This is relevant to the Scoping Plan analysis and modeling, because NOx is another combustion pollutant emitted with CO_2 when hydrocarbon fuels are burned or otherwise used at oil refineries.[7] As a result, the data collected on these combustion sources, and the engineering difficulties in siting emissions controls, is also at issue in the Scoping Plan process related to evaluations of Carbon Capture equipment.

The South Coast District performed an updated assessment of the numbers and types of individual combustion units at South Coast refineries. As the largest oil refining region in California, it serves as a ready example of statewide issues and source of critical insights. The next largest region is the Bay Area, with additional substantial refining activities in Bakersfield and Santa Maria.

The South Coast 1109.1 regulation staff report included the following graphics, charts, and tables identifying the large number of major refinery and refinery hydrogen plant sources at play in the South Coast alone. Figure 5 for instance identifies 9 petroleum refineries, 3 small refineries, and 4 related Hydrogen Plants and Sulfuric Acid Plants that are substantial emissions sources (p. 2-1):

Figure 5. PR 1109.1 Affected Facilities

The SCAQMD report identified hundreds of major combustion sources within these facilities. Each one is massive - one refinery heater can combust as much fuel in an hour as four homes using natural gas burn in a year.[8] For a visual, the google map below shows two massive coker heaters at the Marathon (Tesoro) Wilmington refinery, out of the hundreds of combustion units at South Coast refineries and related operations. They dwarf the warehouses and container units seen across the channel and hide multiple burners inside. The NOx, CO_2, and other pollutants emitted through the tall stacks are invisible.

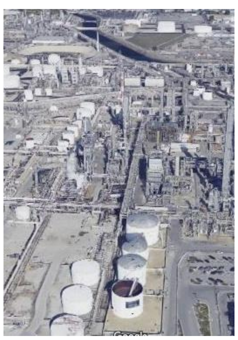
---

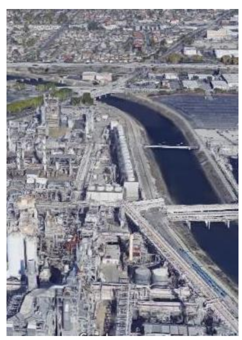
[7] For example, SCAQMD Rule 1109.1 staff report, p. A-1 describes combustion reactions resulting on both NOx and CO_2 emissions, such as Fuel NOx Formation ($R\text{-}N + O_2 \rightarrow NO, NO_2,$ **CO_2,** H_2O, trace species), or Prompt NOx Formation ($R + O_2 + N_2 \rightarrow NO, NO_2,$ **CO_2**, H_2O, trace species).

[8] A million BTUs (British Thermal Units) of heat content is present in approximately 1000 cubic feet of natural gas (which varies a little in energy content). *"**In 2012, the average U.S. home consumed** 61,200 cubic feet of natural gas (or **62.7 million Btu**)."* (American Gas Association Playbook, 2015, p. 78) So a refinery heater rated at 250 million BTUs per hour can burn the same amount of fuel hourly as about 4 homes burn in an entire year. (250/62.7 =~4)

[Google map of Marathon LA Refinery]

For an idea of the complexity of refineries in the Wilmington / Carson / W. Long Beach area, here are a few refinery views from google maps:





Panning further out shows the extreme density of the area, with 5 oil refineries (two Marathon, two Phillips 66, and one Valero), numerous warehouses and other industrial facilities, thousands of homes, and numerous schools and sensitive receptors:

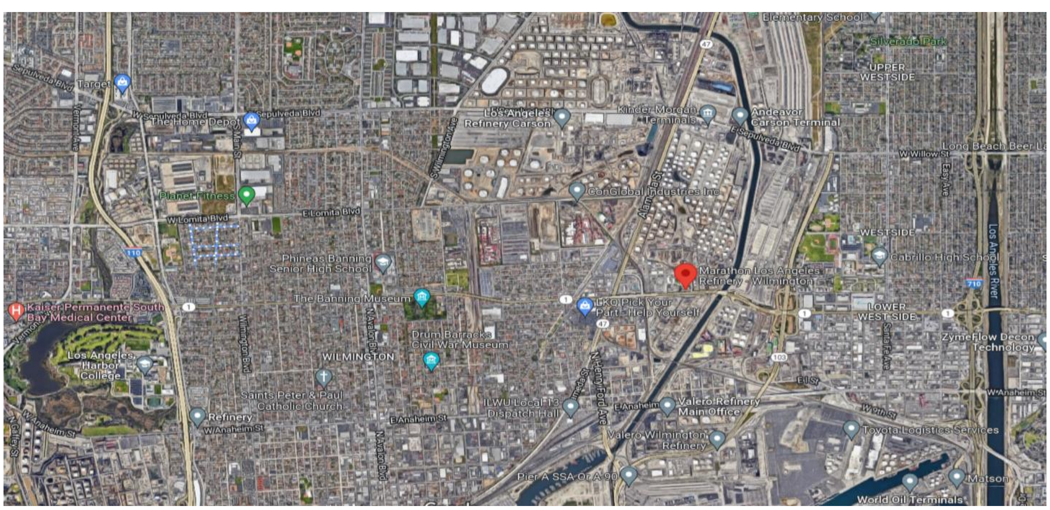


Table 2.1 from the South Coast staff report below identifies 228 Process and SMR[9] heaters and boilers in the South Coast, plus 56 other combustion units. (p. 2-3)

Table 2-1. PR 1109.1 Affected Equipment by Facility

	Process Heater/ SMR Heater/ Boiler	SRU/TG Incinerator	Vapor Incinerator	Gas Turbine	Start-Up Heater/ Boiler	FCCU	Coke Calciner	Flare
Tesoro-Carson	30	2	0	4	1	1	0	0
Tesoro-Wilmington	33	0	0	2	0	0	0	0
Tesoro-Sulfur Recovery Plant	0	2	0	0	0	0	0	0
Tesoro-Coke Calciner	0	0	0	0	0	0	1	0
Torrance	28	2	2	0	1	1	0	0
Chevron	37	4	5	4	1	1	0	0
P66-Carson	10	2	0	0	0	0	0	0
P66-Wilmington	34	2	0	1	2	1	0	0
Ultramar	19	1	0	1	1	1	0	0
AltAir	25	1	4	0	0	0	0	0
Lunday Thagard	5	0	2	0	0	0	0	0
Air Products-Carson	1	0	0	0	0	0	0	0
Air Products-Wilmington	1	0	0	0	0	0	0	0
Air Liquide	1	0	0	0	0	0	0	0
Eco-Services	0	0	0	0	2	0	0	1
Valero Asphalt Plant	4	0	0	0	0	0	0	0
Total	**228**	**16**	**13**	**12**	**8**	**5**	**1**	**1**

When faced with regulating the many combustion sources, oil refiners complained of the need for long timelines. The final rule includes implementation through 2035, fourteen years after adoption, in addition to a 3-year rulemaking process.

These issues illustrate the complexity of the detailed rulemaking process, engineering and design, and construction of complex oil refinery emissions controls. **These realities underline the absurdity of setting modeling assumptions (even if space could be found), that assume non-existent CCS technologies can be quickly constructed and implemented across broad parts of California oil refineries.** This is to say nothing of the high costs.

III. Carbon capture at scale is unrealistic at California refineries due to major limitations in physical space at oil refineries.

During many regulatory proceedings, oil refineries have successfully argued against adding pollution controls, based on physical space limitations. For example, SCAQMD relaxed the originally

[9] Steam Methane Reforming

proposed NOx standard under Regulation 1109.1 from the demonstrated achievable level of 2 ppm, up to 5ppm and higher. Refiners claimed it would require additional stages of Selective Catalytic Reduction (SCR) equipment to meet the 2ppm standard, without sufficient physical space available. The same combustion sources at refineries which emit NOx are also major emitters of GHGs – including hundreds of Boilers & Heaters identified in South Coast rulemaking.

The space issue was not a small or rare complaint. The Staff Report for SCAQMD Rule 1109.1 (Heaters and Boilers and Other Refinery Combustion Sources) identified widespread industry and Air District concerns about space constraints in extremely old facilities.[10] As reported in the Staff Report, the Fossil Energy Research Corporation Assessment (FERCo) conducted site visits to the five major refineries, Chevron, Marathon (Tesoro Refinery), Phillips 66, Torrance, and Valero, to evaluate and discuss facility constraints and challenges of implementing SCR on specific refinery systems. The main concern refinery stakeholders frequently raised to staff was the issue of space and the ability to install post-combustion control.[11] Based on the site visits, FERCo concluded that ***all the facilities exhibited space limitations to varying degrees.*** Not all open space that surrounds a unit is available for an SCR system, as ***open space may be necessary for maintenance work and thus, safety***.[12] As a result, advanced technology, engineering, and design for additional pollution controls are required specifically to address space constraints.[13] The cost for two facilities operating around 8 ppmv NOx to upgrade and meet 8 ppmv NOx was approximately $1 million to $3 million, but to completely replace the SCR or add new technology to meet 2 ppmv ***while addressing space constraints*** ranged from $75 million to $220 million.[14]

Another important example includes the South Coast Rule 1410 rulemaking process, which would have banned the use of deadly Hydrogen Fluoride or Modified Hydrogen Fluoride at two South Coast refineries. This regulation was killed by industry complaints, despite the County of LA's Health Dept. stating that the use of this chemical caused the risk of severe injury or death to a million people in the region. Despite the dire need for regulation, one reason given by the industry opposing the regulation was space constraints at the Valero Wilmington refinery: "Of particular note, available plot space adjacent to the existing HF alkylation unit was identified as a key criteria for success; ***as the District is well aware, such plot space does not exist at the Wilmington Refinery***."[15]

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[10] "The affected refineries were built 50 to over 100 years ago and while equipment has changed over the years, most of the equipment affected by the rule is old and **the spacing configuration of the sites are dense**. Thus, to install pollution control requires creative engineering and design to accommodate the space necessary and perform properly. Some projects currently taking place involve building vertically requiring deep earth pylons to support the structure housing the control technology or constructing complex ducting to house the SCR catalyst beds that stretch long distances horizontally away from the basic equipment", p. 2-19; "Replacing conventional burners with LNB or ULNB often requires special attention because of the flame dimensions and limited space within a refinery process heater," p. A-6; Refinery stakeholders immediately raised the concern that staff did not consider space availability and constraints for this type of design. Refineries cannot accommodate a second SCR reactor which makes the alternative pathway not technically feasible, p. B-20.

[11] p. 2-47.

[12] "Despite the space limitations, some facilities have devised several workarounds such as vertical SCR orientation, running ductwork over existing roadways, and replacement of air heaters with SCR reactors. In addition, FERCo also identified that the locations or sites for SCR installations may hold many unknowns such as electrical capacity for the SCR and uncertainties that can complicate foundation work such as underground pipes," p. 2-47.

[13] p. 2-36.

[14] p. 2-36.

[15] Valero letter to AQMD, Sept. 18, 2017 to Susan Nakamura, South Coast Air Quality Management District, In response to August 23 PR1410 Working Group Meeting, p. 2, available at: https://www.aqmd.gov/docs/default-

Especially after the adoption and planning of broad application of SCR (Selective Catalytic Reduction) controls for NOx, oil refinery real estate will be even more constrained. The record in these proceedings illustrates the foolishness of assuming that additional end of pipe emissions controls are a feasible choice even with regard to a well-established technology, unlike CCS, which does not exist at California refineries.

IV. Oil and chemical plant risk assessment literature states that increasing oil refinery density also increases dangers during fires and explosions.

Oil and chemical industry risk management literature also identifies the need to maintain adequate space for safety at oil refineries (which already regularly have major explosions and fires). For example, an analysis called *Oil and Chemical Plant Layout and Spacing* found:

> **Loss experience clearly shows that fires or explosions in congested areas of oil and chemical plants can result in extensive losses.** Wherever explosion or fire hazards exist, proper plant layout and adequate spacing between hazards are essential to loss prevention and control. Layout relates to the relative position of equipment or units within a given site. Spacing pertains to minimum distances between units or equipment. [16]

While this analysis identified many specific hazards, it recommended performing detailed site by site risk analysis, and identified general comments about access between process units. We have excerpted some recommendations to illustrate the complexity of the safety issues, but also request that CARB and modelers consider the entire document and its implications for realistic assessment of added CCS at oil refineries. Importantly, the final recommendation on this list, which was highlighted in bold by the authors, stated: "**Do not consider the clear area between units as a future area for process expansion.**"

> Provide access roadways between blocks to allow each section of the plant to be accessible from at least two directions.
>
> > • Avoid dead end roads. • Size road widths and clearances to handle large moving equipment and emergency vehicles or to a minimum of 28 ft (8.5 m), whichever is greater.
> >
> > • Maintain sufficient overhead and lateral clearances for trucks and cranes to avoid hitting piping racks, pipe ways, tanks or hydrants.
> >
> > • Do not expose roads to fire from drainage ditches and pipeways.

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source/rule-book/Proposed-Rules/1410/1410-comment-letters/valero-2017-09-18-working-group-meeting-5.pdf?sfvrsn=6

[16] Property Risk Consulting Guidelines, A Publication of AXA XL Risk Consulting, PRC.2.5.2, Copyright 2020, AXA XL Risk Consulting, available at: https://axaxl.com/prc-guidelines/-/media/axaxl/files/pdfs/prc-guidelines/prc-2/prc252oilandchemicalplantlayoutandspacingv1.pdf?sc_lang=en&hash=996EA28071174510C4DA5D35102A9222

• Slightly elevate roads in areas subject to local flooding. • Locate hydrants and monitors along roads to allow easy hook-up of firefighting trucks.

• Provide at least two entrances to the plant for emergency vehicles to prevent the possibility of vehicles being blocked during an incident, e.g., open bridge, railway.

• Plan and implement a "Roadway Closure" permit system authorized and controlled by site Emergency Response personnel as part of the site impairment handling system.

Provide spacing between units based upon the greater of either Table 1 or a hazard assessment. The space between battery limits of adjoining units should be kept clear and open.

Do not consider the clear area between units as a future area for process expansion.

Thus, increases in hazards at oil refineries through broad application of CCS at the hundreds of combustion units at oil refineries represents a *new* safety hazard, increasing the risk for workers and neighbors.

V. CARB Should Request New Modeling to Reflect a 2045 Phasedown Target Without CCS to Support a Commitment to a Statewide Plan to Manage Refinery Phasedown.

Ultimately, we urge CARB to begin crafting new modeling assumptions for the refining sector. We support the EJAC recommendation to model a 2045 phaseout date *without* the use of CCS. Currently, the initial modeling results are rife with cognitive dissonance between phasing out fossil fuel transportation while allowing oil refineries to continue operating in disproportionately pollution burdened communities of color.

California must lead by choosing modeling inputs that reflect the values of environmental justice *and* which will succeed in truly addressing impending climate disaster. Fossil fuel corporations repeatedly and regularly state to investors their intentions to *expand export*s of transportation fuels produced at California oil refineries (including gasoline, diesel, etc.), to add emissions during a climate crisis. Exporting outside of California over the Pacific Rim, prolonging the life of otherwise stranded assets which carry multi-billion dollar clean up liabilities, leaves California environmental justice communities holding the bag of continued harmful toxic emissions and eventual remediation liabilities or workers' pension losses at the point of bankruptcy. For a just and equitable transition, CARB must sound the alarm on the need for a fossil fuel worker and community safety net and commit to develop a plan by 2024 to manage the decline and coordinate the phasedown of California oil refineries by 2045. As the EJAC recommendations discussed and the comments above reflect, the oil refineries are enormously complex and require thoughtful and rigorous planning now.

We appreciate the hard work involved in this modeling, including the many valid assumptions and results that do appear. However, the public, both community-based organizations and corporations alike, need transparent access to the assumptions used and to understand which parts are unchangeable technical matters and which are a matter of policy choice.

We look forward to the background documentation so we can more fully comment in the future.

Sincerely;

Julia May, Senior Scientist, CBE Connie Cho, Associate Attorney, CBE

Kiran Chawla, JD/PhD Candidate, ’24,
Stanford Environmental Law Pro Bono Project

Appendix B

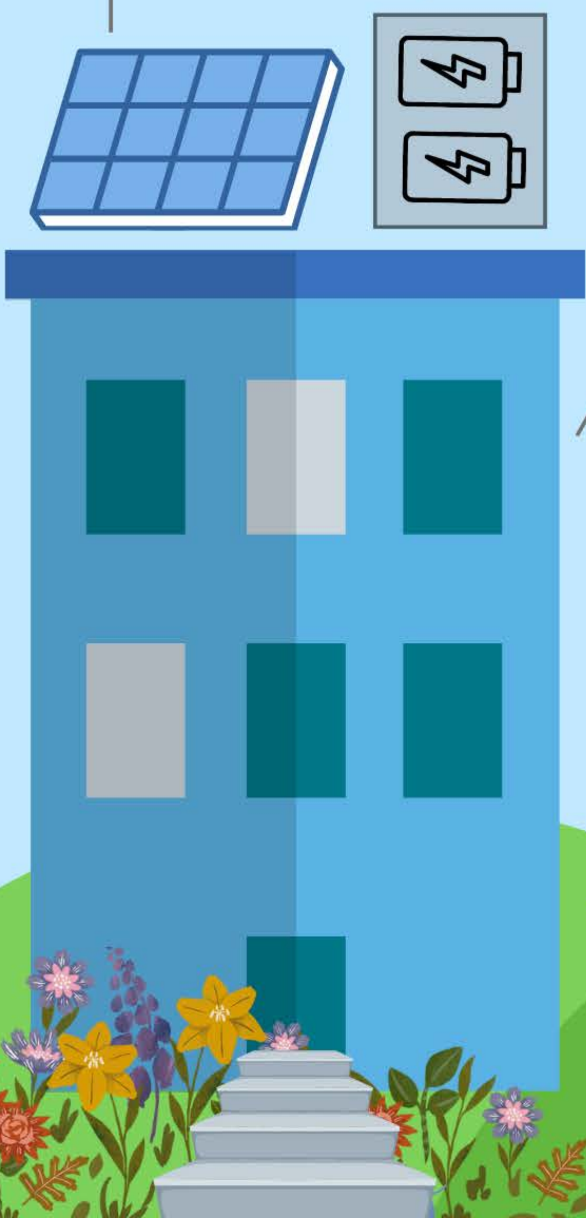
Resilience Hubs

The CARE Program sees the climate crisis through an environmental justice lens. We support community-led organizing to develop community resilience and climate solutions such as resilience hubs. Resilience hubs provide year-round support and resources during climate events, emergency response, and create space for frontline residents to gather and practice self-determination. Through community surveying in Wilmington, we identified a few priorities necessary to create resilience hubs, described below:

COMMUNITIES FOR A BETTER ENVIRONMENT
established 1978

Solar panels absorb sunlight and create electricity. Connecting these panels to a solar battery charges the battery. During a power outage, the charged battery can power outlets for phone charging, lights, air filtration, refrigerators, and much more.

Air conditioning and air filtration helps save lives during extreme heat, wildfire season, or during poor air quality days.
Preference was expressed for expanded hours (8 am - 9 pm). Creating an overnight plan would allow the use of the center during an emergency.



Culturally conscious, multi-lingual, holistic health trained staff are vital to Resilience Hubs to provide support and materials like food, water, and emergency kits- which are necessary for daily life and emergency preparedness

A community garden can provide green space, increase access to local nutritional foods and build relationships.

The impacts from environmental injustice and climate change have disproportionately impacted communities living next to heavy industry. As we build healthy and resilient communities, we must uplift environmental justice and community-led solutions to deliver transformative solutions to respond to the climate crisis.

During our surveying, we asked Wilmington community members what they were most concerned about (see "Top 10 Concerns"). The following resources were requested by frontline residents to combat the worsening climate crisis:

Top 10 Concerns:

- Earthquakes
- Refinery Flaring
- Air Pollution
- Extreme Heat
- Wildfires
- Water + Food Insecurity
- Oil Drilling
- Drought
- Tsunami
- Power Outage

Counseling, Legal/Financial Resources & Support

Food, Water & Refrigeration

Emergency/First Aid Kits, Fire Prevention & Earthquake Response Materials

Phone Charging

Is there anything missing that you would like to see?

Tutoring, Health & Youth Support Services

Hub Within Walking Distance, Complimentary Transportation & EV Charging Stations

Cultural, Art & Organizing Activities

ENTER

Communities for a Better Environment (CBE) is a statewide environmental justice organization. Our mission is to build people's power in California's communities of color and low-income communities to achieve environmental health and justice by preventing and reducing pollution while building a Just Transition towards healthy neighborhoods.

Infographic provided by the Climate Adaptation and Resiliency Enhancement (CARE) Program

Get Involved!

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Appendix C

March 23, 2023

Governor Gavin Newsom
1021 O Street, Suite 9000
Sacramento, CA 95814

Senate President pro Tempore Toni Atkins
1021 O Street, Suite 8518
Sacramento, CA 95814

Speaker Anthony Rendon
1021 O Street, Suite 8330
Sacramento, CA 95814

Re: Environmental justice and environmental principles regarding the buildout of hydrogen in California

Dear Governor Newsom, Pro Tem Atkins, and Speaker Rendon,

On behalf of the undersigned organizations, we respectfully raise vital concerns, considerations, and principles on the buildout of hydrogen in California and its use as part of the state's pathway to decarbonization. Without proper guardrails, hydrogen production threatens to increase climate pollution and make it harder to reach California's ambitious climate goals. Hydrogen could have potential benefits in the fight against climate change, but it is critical to understand its limitations. Before California moves to rely heavily on hydrogen to meet its climate goals, it is essential to understand how and where hydrogen is produced, stored, delivered, and used. Even green hydrogen can itself have short-term climate warming impacts and cause harm to local communities if implemented poorly and without stringent safeguards.

We are diverse groups that agree on bedrock principles for the limited role of hydrogen in meeting California's climate and air quality goals; even this letter cannot capture each group's complete perspective on hydrogen policy. As California considers the role of hydrogen in our decarbonized future, we urge you to enact measures that will:

1. Ensure that any hydrogen used or produced in California is produced via electrolysis through clean and renewable sources and prohibit hydrogen produced with fossil fuels or other polluting feedstocks and processes;
2. Ensure robust monitoring, prevention, and enforcement against leaks in hydrogen infrastructure;
3. Discourage the use of hydrogen for end uses better served by electrification, such as light duty transportation and providing space and water heating in homes and businesses;
4. Avoid blending hydrogen into existing pipelines and minimize other forms of hydrogen transportation;
5. Ensure community engagement from design to completion of any hydrogen project.

1) Hydrogen produced with fossil fuels or other polluting feedstocks and processes is not a climate solution and cannot be used for hydrogen production in California.

Currently, California's supply of hydrogen comes almost entirely from fossil fuels and is produced through a process that emits health-harming pollution in the communities on the fencelines of the state's oil refineries. Hydrogen production by any means other than clean, renewable-powered electrolysis only entrenches the continued use of fossil fuels, plastics, and biogas, even when paired with carbon capture and sequestration (CCS) technology. Methane leakage from producing hydrogen using natural gas and CCS technologies is of significant concern; the climate effects of methane leakage are often underestimated in hydrogen assessments,[1] and methane is a powerful greenhouse gas with high global warming potential. The level of climate harm only increases if there is embedded carbon in the lifecycle analysis of

[1] Ilissa B. Ocko and Steven P. Hamburg, Climate consequences of hydrogen emissions, Atmospheric Chemistry and Physics (July 2022). https://acp.copernicus.org/articles/22/9349/2022/acp-22-9349-2022.pdf

hydrogen. Biogas feedstocks, including dairy biogas, must be excluded from all hydrogen production.

The exclusion of hydrogen produced through polluting industrial processes is also a public health imperative. Carbon dioxide is not the only important pollutant produced through the hydrogen generation process, especially when not produced with renewable energy. Currently, petrochemical companies rely on the steam reformation of fossil gas to produce nearly all of California's hydrogen supply. Steam methane reformation emits health-harming pollution such as nitrogen oxides, fine particulate matter, and carbon monoxide and these facilities are primarily located in disadvantaged communities on the fencelines of California's oil refineries. Policymakers must guard against a build-out of steam methane reformation infrastructure or other hydrogen production equipment that would exacerbate California's air quality crisis.

2) Any hydrogen project must consider the environmental impact of hydrogen including the climate warming impact of leaks and water resource demands.

Hydrogen is not inherently a net benefit for the climate – even when it is produced through electrolysis. Hydrogen itself is an indirect greenhouse gas.[2] While it doesn't trap heat, hydrogen, through a series of chemical reactions, increases the concentration of other greenhouse gases like methane that accelerate the rate of warming. This means that hydrogen itself has a short-lived but powerful impact on the climate, even when produced with renewable energy-powered electrolysis.

Hydrogen is also a very small and slippery molecule and leaks easily into the atmosphere.[3] Any rapid expansion of hydrogen infrastructure (pipelines, storage tanks, etc.) would increase the opportunity for hydrogen to leak.

Because of the inherent climate risk posed by hydrogen use, California's approach must include robust leak detection and monitoring to prevent or swiftly repair leaks of any size. There is emerging consensus among the scientific community on hydrogen's warming impact as a powerful short-lived indirect greenhouse gas; it is a highly potent gas given its indirect impacts as previously discussed. Its potency also changes over different time horizons; it is more powerful over a 20-year period than a 100-year period, but the short-term effects are not typically measured in assessments. When monitoring leakage, hydrogen's impact should be measured both in the short and long term. Minimizing or eliminating hydrogen leakage is absolutely critical to the success of hydrogen as part of the solution to climate change.

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[2] D. Ehhalt and M. Prather, et al, Atmospheric Chemistry and Greenhouse Gases: Intergovernmental Panel on Climate Change (2018). https://www.ipcc.ch/site/assets/uploads/2018/03/TAR-04.pdf

[3] Shanti Menon, Everyone's excited about this new climate solution, but it could create a new climate problem, Environmental Defense Fund (July 2022). https://www.edf.org/article/we-need-talk-about-hydrogen

Furthermore, hydrogen projects must account for the full climate impact of upstream emissions as well as of the hydrogen itself as an indirect, short-lived greenhouse gas. To that end, hydrogen use must include a full lifecycle analysis of emissions associated with its production, transportation, storage, and use.

Production of hydrogen through electrolysis also requires water, though it is not as water-intensive as the steam methane reformation process that industry uses to produce hydrogen today.[4] As California grows its renewable hydrogen sector, consideration of water resource demands must be taken into consideration.

3) Hydrogen should only be used in limited, hard-to-electrify sectors; not sectors that could decarbonize more efficiently through electrification.

Given the risks of a rapid, large-scale buildout of hydrogen production, including its climate warming potential, California should only encourage the use of hydrogen, if at all, for hard-to-decarbonize sectors such as steel, plate glass, cement manufacturing, or as an alternative fuel for maritime shipping, aviation, and long-haul heavy-duty trucking.

Given its relative energy intensity, even green hydrogen risks squandering renewable energy if it is used in end uses that could more efficiently be directly electrified, like the vast majority of road-transportation, cargo-handling equipment, and residential and commercial space heating needs, as well as a large share of industrial heating needs. Moreover, it would be inappropriate to burn hydrogen in residential and commercial buildings or in industrial heating applications that have electric alternatives because hydrogen combustion emits lung-damaging pollution.[5] California should avoid promoting hydrogen use of any kind in these end uses.

Hydrogen is not efficient or well-suited to all sectors, and should not be used as a catch-all decarbonization solution or to delay electrification. Analysis from the Environmental Defense Fund shows that using green hydrogen in passenger vehicles would require much greater quantities of renewable energy – perhaps as much as 2 to 5 times as much renewable energy – than direct electrification of light duty transportation.[6] An even more significant "energy penalty" emerges in the use of hydrogen for home heating; it is far more efficient to use renewable energy to electrify passenger vehicles and heat homes than to use renewable energy to produce hydrogen.

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[4] Andi Mehmeti et al, Life Cycle Assessment and Water Footprint of Hydrogen Production Methods: From Conventional to Emerging Technologies, Environments (February 2018). https://www.mdpi.com/2076-3298/5/2/24

[5] Sara Baldwin, et al, Assessing the Viability of Hydrogen Proposals: Considerations for State Utility Regulators and Policymakers, Energy Innovation (March 2022) pg 9, https://energyinnovation.org/wp-content/uploads/2022/03/Assessing-the-Viability-of-Hydrogen-Proposals.pdf.

[6] Eriko Shrestha and Tianyi Sun, Rule #1 of deploying hydrogen: electrify first, Environmental Defense Fund (January 2023). https://blogs.edf.org/energyexchange/2023/01/30/rule-1-of-deploying-hydrogen-electrify-first/

A widespread transition to electrification is also necessary to address California's air quality crisis, whereas using equipment that burns hydrogen could worsen air quality. In some hard-to-decarbonize sectors such as steel manufacturing or maritime shipping, renewables-based hydrogen could play a valuable role in decarbonization. But in many other sectors, direct electrification is a much safer and more energy efficient route. Therefore, hydrogen should be considered a last resort, not a silver bullet. Furthermore, as is discussed in more detail in following sections, transportation of hydrogen and proposed blending of hydrogen in existing pipelines pose significant leakage risks, further limiting hydrogen's potential use for sectors beyond those mentioned here.

4) California should only use hydrogen produced via electrolysis through renewable sources.

Within the specific sectors that are best suited for hydrogen use, it is crucial that the only hydrogen used is produced via renewable-powered electrolysis. Strict standards for hydrogen production are essential because emissions-intensive hydrogen production technologies could worsen the climate crisis and harm public health in California's most vulnerable communities. Hydrogen is not an inherently 'climate-neutral' source of energy; its effects on the climate, positive or negative, depend on where and how it is produced.

Renewable electrolytic hydrogen production must meet certain standards to ensure it actually delivers climate and public health benefits. First, any renewable hydrogen developed must simultaneously build out renewable sources in tandem to support them. This is necessary to prevent the problem of "resource shuffling," in which the increased demand on renewable energy resources results in pushing demand back to fossil fuel resources.[7] By building out renewable energy sources in tandem with renewable hydrogen projects, California can ensure that its renewable energy generation capacity is expanded and that the renewable hydrogen industry is supported with a stable and renewable power supply.

The threat of increased pollution is particularly acute when hydrogen producers use electricity from the grid. A hydrogen producer that relies on grid electricity cannot meaningfully claim to use renewable power unless it meets the following conditions: (1) it must support additional renewable electricity on the grid (i.e., renewable electricity that would not have existed on the grid but for the electrolyzer's demand), (2) the renewable electricity must be deliverable to the same balancing authority where the electrolyzer is located, (3) the producer must use the renewable electricity in the same hour that it's delivered onto the grid, and (4) it retires all renewable energy credits (RECs) associated with this electricity. Without all of these guardrails, fossil-fuel power generators will likely ramp up and spew more health-harming pollution into neighboring communities to serve hydrogen producers. About half of the state's gas-fired power plants are located in CalEnviroScreen defined disadvantaged communities. Furthermore,

[7] Sasan Saadat and Sara Gersen, Reclaiming Hydrogen for a Renewable Future: Distinguishing Oil & Gas Industry Spin from Zero-Emissions Solutions, Earthjustice (August 2021). https://earthjustice.org/wp-content/uploads/hydrogen_earthjustice_2021.pdf

hydrogen produced from average grid electricity is even more carbon intensive than both incumbent gray hydrogen and fossil fuels like diesel.[8]

5) Hydrogen should not be blended in existing natural gas pipelines and co-location of production and end use should be prioritized.

Because hydrogen leaks easily, one key strategy to avoid any amount of leakage is to move it around as little as possible. Transporting hydrogen increases leakage risk whether by rail, truck, or pipeline. To the extent possible, hydrogen should be produced near the few appropriate end uses to minimize leakage.

Blending hydrogen into existing natural gas pipelines presents significant safety concerns and requires a massive investment in infrastructure to ensure compatibility and integrity. Studies have shown that hydrogen blends up to 20% offer only marginal climate benefits, even without considering the risk of leakage, and could potentially compromise the safety of pipelines made of steel or polymeric materials.[9] The Hydrogen Blending Impacts Study that the University of California, Riverside performed for the California Public Utilities Commission did not identify a level of hydrogen blending that would not jeopardize safety and reliability.[10] The compatibility of end-use appliances, such as cooktop burners and heating furnaces, is also a concern. Building infrastructure to support hydrogen blending would require a significant investment in retrofitting existing natural gas pipelines and ensuring their safety, making it a challenging and expensive proposition. Policymakers must focus on ending reliance on the gas distribution system through rapid and widespread electrification because rapid electrification will advance both climate and air quality goals, whereas injecting hydrogen into the gas distribution system threatens to increase health-harming air pollution.

6) Community engagement is imperative from the start of project development through to project completion.

---

[8] According to data CARB has compiled for the Low Carbon Fuel Standard program, hydrogen produced through the electrolysis of California's grid-average electricity has a carbon intensity of 164.46 gCO2e/MJ, far higher than diesel's carbon intensity of 100.45 gCO2e/MJ. CARB, Table 7-1. Lookup Table for Gasoline and Diesel and Fuels that Substitute for Gasoline and Diesel, https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/ca-greet/lut.pdf?_ga=2.69927632.1369297514.1670526688-1354554675.1652381457.

[9] Jochen Bard, The Limitations of Hydrogen Blending in the European Gas Grid: A study on the use, limitations and cost of hydrogen blending in the European gas grid at the transport and distribution level, Fraunhofer Institute for Energy Economics and Energy System Technology (January 2022). https://www.iee.fraunhofer.de/content/dam/iee/energiesystemtechnik/en/documents/Studies-Reports/FINAL_FraunhoferIEE_ShortStudy_H2_Blending_EU_ECF_Jan22.pdf

[10] Arun SK Raju and Alfredo Martinez-Morales, Hydrogen Blending Impacts Study, University of California at Riverside, (July 2022). https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M493/K760/493760600.PDF

Community engagement and consent are critical components of any process to build out clean energy, and any hydrogen buildout must prioritize early and robust local engagement with communities. We should not repeat the top-down model of decision making that has created environmental injustice, which unfortunately we are experiencing on the ground today with proposed hydrogen projects. Local needs and concerns such as the community selection for projects and the localized impacts of pipelines cannot be overlooked by companies working in this space.

Furthermore, California must ensure that the production of hydrogen does not replicate the extractive cycles of the fossil fuel industry by continuing to pollute Environmental Justice (EJ) communities. It is critical to acknowledge the disproportionate impacts of pollution and environmental harm on EJ communities, and any investment in the renewable hydrogen industry must ensure that these communities are not further burdened with pollution or negative health outcomes. California must prioritize equity and justice in its approach to the renewable hydrogen industry and ensure that it does not perpetuate environmental harm in already overburdened communities.

As the renewable hydrogen industry is in its infancy, California has an opportunity to ensure that the accelerating investment in hydrogen projects yields the climate benefits being sought in the near term, and thereby avoid needing to make major retrofits down the road or even abandon large capital investments that do not turn out to be climate solutions. Hydrogen must only be produced using renewable energy, and should only be applied for hard-to-decarbonize end uses while prioritizing the co-location of production and end use to minimize transportation.

Thank you for your consideration of these issues. We are happy to discuss these concerns further.

Sincerely,

Melissa Romero
Senior Legislative Affairs Manager
California Environmental Voters

Katelyn Roedner Sutter
California State Director
Environmental Defense Fund

Brandon Dawson
Director
Sierra Club California

Sara Gersen
Senior Attorney
Earthjustice

Laura Deehan
State Director
Environment California

Raquel Mason
Policy Manager
California Environmental Justice Alliance

Amee Raval
Policy & Research Director
Asian Pacific Environmental Network

Arnold Sowell
Executive Director
NextGen California

Ellie Cohen
Chief Executive Officer
The Climate Center

Daniel Barad
Western States Policy Manager
Union of Concerned Scientists

Victoria Rome
California Government Affairs Director
Natural Resources Defense Council

Veronica Padilla-Campos
Executive Director
Pacoima Beautiful

Fatima Abdul-Khabir
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The Greenlining Institute

Bahram Fazeli
Director of Research and Policy
Communities for a Better Environment

Jamie Katz
Staff Attorney
Leadership Counsel for Justice and Accountability

Ana Gonzalez
Executive Director
Center for Community Action and Environmental Justice

Jenn Engstrom
State Director
California Public Interest Research Group (CALPIRG)

Cc:
Senator Ben Allen
Senator Josh Becker
Senator Steven Bradford
Senator Lena Gonzalez
Senator Dave Min
Assembly Member Steve Bennett
Assembly Member Laura Friedman
Assembly Member Eduardo Garcia
Assembly Member Luz Rivas

April 11, 2023

Thuy Hua, Supervising Regional Planner
Los Angeles County Department of Regional Planning
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climate@planning.lacounty.gov

RE: Revised Draft 2045 Climate Action Plan (CAP)

Dear Ms. Hua:

Endangered Habitats League (EHL) appreciates the opportunity to comment on selected portion of the Revised Draft 2045 CAP.

Transportation strategies (p. 3-26)

A major component is Strategy 3: Reduce Single-Occupancy Vehicle Trips. However, isn't total VMT a better metric for carbon emissions? While some measures would be the same for both options, single-occupancy trips does not address trip length, long commutes, and sprawling land use patterns. One the other hand, total VMT does so.

Reducing driving distances by reducing remote new development – in addition to increasing housing opportunities near transit – should be added as a measure. This is important as our local transit system is declining in use, and locating housing nearby will not overcome the many barriers. To help implement this measure, project GHG emissions from automotive sources should require full mitigation.

In view of the declining use of traditional bus and rail transit, T4.1 is particularly important, and should be stressed for early implementation.

> T4.1—Expand and improve the frequency of service of unincorporated Los Angeles County shuttles and explore new mobility services, such as micro transit, autonomous delivery vehicles, micro mobility, and on-demand autonomous shuttles.

Strategy 9: Conserve and Connect Wildlands and Working Lands

**• Measure A1: Conserve Forests, Woodlands, Shrublands, Grasslands, Desert, and Other
Carbon-Sequestering Wildlands and Working Lands**

We appreciate the revised draft's greater targets for conservation of natural lands, which has many co-benefits to society. But unless these conserved lands are *newly* protected from development, they do not accomplish much beyond baseline. Suggest the following:

> New a~~A~~cres of wildland managed for
> wildfire risk reduction and carbon
> stock savings:
> • 10,000 acres by 2030
> • 20,000 acres by 2035
> • 50,000 acres by 2045

We continue to recommend further reductions in conversion of natural lands, whose protection now facilitated by the County's fire safety policies.

> Reduce the amount of natural land
> converted for urbanized uses:
> ~~25~~ 50% percent by 2030
> ~~50~~ 75% percent by 2035
> ~~75~~ 90% percent by 2045

MEASURE ES5: Establish GHG Requirements for New Development

Using the 2045 Climate Action Plan for CEQA Streamlining

Consistency Review Checklist (Appendix F)

EHL has *not* technically reviewed the adequacy of the Consistency Review Checklist (Appendix F) for General Plan-consistent projects to reduce GHG emissions in accord with 2045 targets. We do, however, object to use of 110 ADT as a threshold for screening out projects, as it does not account for trip length. Although recommended by CARB, particularly in unincorporated areas, more remote development will have significant emissions even if technically under 110 ADT.

Due to the well-documented problems, we again *concur* with the Checklist provision that, "Carbon offset credits are not permitted to be used as alternative project emissions reduction measures."

We also agree that an Offsite GHG Reduction Program (Offsite Program, ES5.4) that involves *local* emissions reductions would be appropriate if, as described in the Checklist, it meets various strict criteria (enforceability, additionality, etc.). However, there is a lack of clarity that a precondition for use of the Offsite Program is that *on-site* Checklist measures or *on-site* alternative/additional measures (Alternative Project Emissions Reduction Measures and Additional GHG Reductions) are *both* infeasible. The language in the draft – "in tandem" – is imprecise on these relationships ("This program would be used in tandem with the 2045 CAP Consistency Checklist for projects that propose GHG emissions reduction measures as alternatives to those identified in Table F-1 of the 2045 CAP Consistency Checklist, or that propose to include additional GHG emissions reduction measures beyond those described in Table F-1."). Clarification of the sequencing involved would be helpful, so that Checklist and Alternative and Additional measures are exhausted prior to turning to the Offsite Program.

There is also a proposed Carbon Offsets/Credits Feasibility Study, to prepare for the contingency of not meeting 2045 targets. While this is a reasonable precaution, remote carbon offsets are problematic for many reasons. There should be early identification of incipient target failure through monitoring. If called for, the *first steps* should be adjustment of, and additions to, the 2045 CAP measures.

We have questions and concerns over how General Plan amendments (GPAs) relate to the Checklist and over *ES5.3—Evaluate a program for reducing GHG emissions for new developments that require General Plan amendments*. Theoretically, GPA proposals could be beneficial for GHG emissions, or, like leapfrog sprawl development, could be very harmful. But in order to enact the best *overall* planning, the General Plan should be amended *comprehensively*, as part of a County-wide or Community Plan update process. *Piecemeal GPAs should be discouraged.*

The CEQA streamlining offered by Checklist compliance should remain as an incentive to build out the existing General Plan. While there is always a right to propose a GPA, the applicant cannot not rely on Checklist compliance for its GHG analysis. According to Appendix F, GPAs are by definition outside the scope of the Checklist:

> The growth projections outlined in the General Plan's Land Use Element were used in the 2045 CAP to estimate unincorporated Los Angeles County's future emissions. Therefore, projects can use the 2045 CAP Checklist if they are consistent with the Land Use Element.

Proposed GPAs must undertake *de novo* GHG impact analyses in Environmental Impact Reports.

There is, however, ambiguity in the document as to the use of the Checklist. Besides for General Plan-consistent projects, there is a second use, that is, "for projects required or electing to prepare project-specific CEQA GHG analyses, to demonstrate that all feasible applicable checklist measures or alternative project emissions reduction measures have nevertheless been implemented, either as project features or as GHG mitigation measures." Does this second use of the Checklist apply *solely* to General Plan-consistent projects which, for one reason or another, are doing project-specific CEQA review, or is it *also* for use by GPAs in project-specific CEQA GHG analyses? If the latter, what is the purpose of ES5.3?

Thank you for your commitment to climate action and for considering our comments.

Yours truly,

Dan Silver
Executive Director

FIVEPOINT.

May 15, 2023

Thuy Hua, Supervising Regional Planner
Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012
Email: climate@planning.lacounty.gov

Re: Comments on the Revised Draft 2045 Climate Action Plan

Dear Ms. Hua:

The Newhall Land and Farming Company thanks you for the opportunity to provide comments on the Revised Draft Los Angeles County 2045 Climate Action Plan ("CAP"). As the proponent of California's first large-scale net-zero greenhouse gas ("GHG") mixed-use community, we appreciate the County's efforts to reduce GHG emissions while encouraging critical housing.

Innovative Net-Zero GHG Housing Project – In coordination with the County and State in 2017, Newhall developed a net-zero GHG program that implements a broad suite of innovative GHG reduction strategies to maximize onsite and local GHG reductions, such as installing thousands of EV charging stations throughout LA County and implementing a Building Retrofit Program in disadvantaged communities within the County.

- The California Air Resources Board evaluated Newhall's net-zero GHG program and determined that it "will not result in any net additional greenhouse gas emissions."[1]
- The California Department of Fish and Wildlife similarly concluded that "the Project represents an ***innovative*** demonstration of a mixed-use development project ***providing needed housing*** and commercial development in a manner consistent with California's GHG reduction goals… the Project will be one of the largest, if not the ***largest developments in California ever to achieve net zero GHG emissions***."[2]

When the County Board of Supervisors reapproved Mission Village and Landmark Village, the Board found that Newhall's net-zero GHG program would feasibly achieve net-zero GHG emissions based on substantial evidence in the record:

- "The Board further finds that, based on substantial evidence in the record, potentially significant GHG impacts of the Mission Village Project are reduced to

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[1] California Air Resources Board, Letter from Richard Corey, Executive Officer, to Chuck Bonham, Director, California Department of Fish and Wildlife, June 7, 2017.

[2] California Department of Fish and Wildlife, Final Actions and Supplemental Findings for Newhall Ranch RMDP/SCP, p. 40, June 14, 2017 (emphasis added).

less-than-significant levels with implementation of the following measures and that the Project will ***feasibly and reliably achieve net zero GHG emissions***."[3]

- "In addition, because the Project would result in ***no net increase of GHG emissions***, it would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs."[4]

The Board concluded: "The Project represents ***an innovative*** demonstration of a mixed-use development ***Project providing needed housing*** and commercial development in a ***manner consistent with California's GHG reduction goals***."[5]

Following the County's approval, Newhall utilized this program to settle with groups that had long opposed the project. The LA Times called this settlement a "historic truce."[6] The approvals and settlement facilitated the start of construction after multiple decades of litigation and delays, although two local groups continued to challenge the County's approvals and attempt to block these projects that will deliver badly needed housing to the region. Now, homeowners are moving into Mission Village, adding to the County's diversity of housing stock.

Newhall Satisfies CEQA GHG Compliance Pathway – The 2022 Scoping Plan expressly identifies multiple compliance pathways for evaluating a project's GHG impacts under the California Environmental Quality Act ("CEQA"), including for projects demonstrated to achieve "net-zero GHG emissions."[7] Indeed, the 2022 Scoping Plan specifically recognizes Newhall as an example net-zero GHG project that satisfies this CEQA compliance pathway.[8]

The Draft CAP incorporates California GHG reduction goals as its own: "Consistency with the 2022 Scoping Plan, SB 32, and AB 1279 is an appropriate metric by which to determine the significance of the 2045 CAP's GHG emissions through 2045…"[9] Newhall already exceeds the Draft CAP's 2030 and 2035 reduction targets and satisfies the Draft CAP's aspirational target of carbon neutrality by 2045, twenty years early. Therefore, Newhall satisfies the Draft CAP's GHG reduction goals and the Scoping Plan's CEQA compliance pathway.

CARB-Approved Program Must Be Grandfathered Under the CAP to Avoid Impairing Innovative and Sustainable Housing and Jobs – As recognized by the Board, Newhall is an "an innovative…Project providing needed housing…consistent with California's GHG reduction goals." Newhall's net-zero GHG program is unique because it was previously approved by CARB *and* withstood extensive litigation challenges up to the California Supreme Court. Homes and commercial uses developed under Newhall's net-zero GHG program will disproportionately help the County achieve its climate goals with development that satisfies the CAP's aspirational target of carbon neutrality 20 years early. To avoid unintended consequences for this endeavor that aligns with the Scoping Plan's CEQA compliance strategy, it is imperative

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[3] Los Angeles County, Mission Village, Supplemental CEQA Findings and Statement of Overriding Considerations, July 2017, p. 15.

[4] *Id.*, p. 26 (emphasis added).

[5] *Id.*, p. 39 (emphasis added).

[6] Los Angeles Times, Newhall Ranch, September 25, 2017, available at, http://www.latimes.com/local/lanow/la-me-newhall-ranch-20170925-story.html.

[7] 2022 Scoping Plan Update, Appendix D (Local Actions).

[8] 2022 Scoping Plan Update, Appendix D (Local Actions), Section 3.2.2.

[9] Revised Draft CAP, p. 1-4.

that all development covered by Newhall's net-zero GHG program be grandfathered from the CAP's compliance requirements.[10] As such, we respectfully request that the County expressly grandfather development covered by net-zero GHG programs that were approved by CARB before the adoption of the CAP from the CAP's compliance elements (e.g., checklist in Draft CAP, Appendix F). Of course, we remain fully supportive of the County's overall climate goals and will continue to deliver climate neutral housing and jobs to advance such policies.

We look forward to continuing to work with the County on these important sustainability initiatives.

Sincerely,

Matt Carpenter
Vice President, Environmental Resources
On behalf of The Newhall Land and Farming Company

[10] FivePoint has committed to implement the CARB-approved net-zero GHG program across all nine of its villages in Valencia, including the five Newhall Ranch Specific Plan villages (Mission Village, Landmark Village, Homestead North, Homestead South and Potrero Valley) and Entrada South, Entrada North, Valencia Commerce Center, and Legacy Village.

LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources

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Chief Engineer and General Manager

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May 15, 2023
Ref. DOC 6875668

VIA ELECTRONIC MAIL: climate@planning.lacounty.gov

Ms. Thuy Hua
Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012

Dear Ms. Hua:

Los Angeles County Revised Draft 2045 Climate Action Plan – Comment Letter

The Los Angeles County Sanitation Districts (Sanitation Districts) appreciates the opportunity to comment on the LA County Revised Draft 2045 Climate Action Plan (Revised Draft 2045 CAP). We thank you for considering and incorporating our previous comments submitted on July 6, 2022 (copy enclosed). The Sanitation Districts continues to support the Revised Draft 2045 CAP, however, would like to provide the following additional comments below for your consideration:

1. The Revised Draft 2045 CAP contains action measures, specifically Actions E5.2 and E5.3, related to the use of recycled water. The Sanitation Districts has a long history of providing affordable, high-quality recycled water to public and private water suppliers to help meet the water supply needs for more than five million people within the Sanitation Districts' service area. The recycled water is beneficially reused for industrial, commercial, and recreational applications; groundwater replenishment; agriculture; and the irrigation of parks, schools, golf courses, roadways, and nurseries. In addition to existing recycled water uses, the Sanitation Districts has partnered with the Metropolitan Water District of Southern California to explore the potential of a water purification project called Pure Water Southern California (formerly known as the Regional Recycled Water Program) at the Joint Water Pollution Control Plant, located in the City of Carson. At project completion, up to 150 million gallons per day (mgd) of water would be produced to recharge various regional groundwater basins and/or supplement regional water supply sources. We would appreciate if the Revised Draft 2045 CAP recognized these efforts.

2. The Sanitation Districts request that the County consider public agency projects covered by their own CAPs as in compliance with the Revised Draft 2045 CAP. Further, we request that a public agency be able to submit their own CAP in lieu of the checklist.

We again appreciate your leadership and your team's dedication to help update the Los Angeles County's 2045 CAP. Please contact me at (562) 908-4288, extension 2701, or rtremblay@lacsd.org, if the Sanitation Districts can be of any assistance as you work toward implementation of the Revised Draft 2045 CAP.

Very truly yours,

Raymond L. Tremblay

Raymond L. Tremblay
Department Head
Facilities Planning

RT:JL:MNH:pb

Enclosure

LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste Into Resources

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Chief Engineer and General Manager

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July 6, 2022

Ms. Thuy Hua
Los Angeles County Department of Regional Planning
320 W. Temple Street, 13th Floor
Los Angeles, California 90012

Dear Ms. Hua,

LA County Draft 2045 Climate Action Plan – Comment Letter

On behalf of the Los Angeles County Sanitation Districts (Sanitation Districts) we are pleased to support the LA County Draft 2045 Climate Action Plan (Draft 2045 CAP) and would like to provide the comments below for your consideration. The Sanitation Districts serve the wastewater and solid waste management needs of approximately 5.6 million residents in the Los Angeles Basin, Santa Clarita Valley, and Antelope Valley. We operate eleven water reclamation plants, two sanitary landfills, three materials recovery/transfer facilities, and two facilities that convert landfill gas into renewable energy. An important part of our mission is to convert waste into resources such as recycled water, energy, and recycled materials.

As stated in the Draft 2045 CAP, now, more than ever, climate change has become a real, urgent, and significant threat, with impacts being felt today in Los Angeles County and around the globe. The Draft 2045 CAP adapts Los Angeles County programs and services to reduce the unincorporated County areas' greenhouse gas (GHG) emissions and help limit global temperature increases. Further, the Draft 2045 sets forth Los Angeles County's path toward meeting the goals of the Paris Agreement and achieving carbon neutrality for unincorporated areas of the County. The document is comprehensive, thoughtful and reflects the diversity and complexity of Los Angeles County.

As mentioned above, the Sanitation Districts support the vision of the Draft 2045 CAP, however, we offer the following two comments for your consideration:

1) Many Sanitation Districts' facilities are included in the Draft 2045 CAP. To ensure potential emission reductions can be achieved and to avoid double-counting emissions or proposed reductions, an inventory boundary should be determined, and each individual agency should account for and report their own GHG activities within their organization's responsibilities and sphere of control. Similarly, emission estimation methods should reflect the same inventory boundary and rely on the best available information. The Sanitation Districts have performed such an inventory using site-specific data rather than population-based estimates as assumed in the Draft 2045 CAP. While both methods are acceptable, the publication of conflicting emission estimates can be confusing to the public and decision-makers. Due to these differences, we recommend that the Draft 2045 CAP include references to the Sanitation Districts' inventory and to state that Los Angeles County and the Sanitation Districts will work cooperatively to achieve carbon neutrality. A copy of our recently completed "2021 Greenhouse Gas Inventory Report" and a third-party verification of the report titled "Positive Verification Opinion for Greenhouse Gas Emissions and

Reductions for Emissions Year 2021" are attached. We would be happy to provide supporting data and information for our analysis, upon request.

2) The Draft 2045 CAP contains an action to capture all fugitive wastewater treatment process emissions and convert them to fuel. The Sanitation Districts would like to clarify whether Regional Planning meant to state that methane emissions from wastewater treatment processes should be captured and used as a vehicle fuel. GHG emission protocols assume nitrous oxide emissions are emitted from the wastewater treatment process and effluent discharge. If process nitrous oxide emissions cause Sanitation Districts' facilities to become carbon positive, control technologies or process enhancements would be assessed. Regarding nitrous oxide emissions from wastewater effluent, it's unlikely such a source could be controlled after being discharged from a treatment plant. In addition, fugitive emissions are defined by the EPA as "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening," so it's unclear whether such a specific statement should be made about <u>fugitive</u> emissions. Therefore, we recommend this action be changed to reflect that methane produced during the wastewater treatment process is collected and converted into renewable energy or fuel. Please see our website (www.lacsd.org) under "Solid Waste Programs – Food Waste Recycling" and "JWPCP CNG Fueling Facility – Alternative Fuels" for further information about our activities to utilize digester gas from wastewater treatment from diverted processed organic waste to produce renewable natural gas that is available for use as a renewable low carbon vehicle fuel.

We know that updating Los Angeles County's CAP was a significant undertaking and appreciate your leadership and all the people who have brought their dedication to help guide this effort. Please contact me at rtremblay@lacsd.org or at (562) 908-4288, extension 2701 if the Sanitation Districts can be of any assistance as you work toward implementation of the 2045 CAP.

Very truly yours,

Ray Tremblay

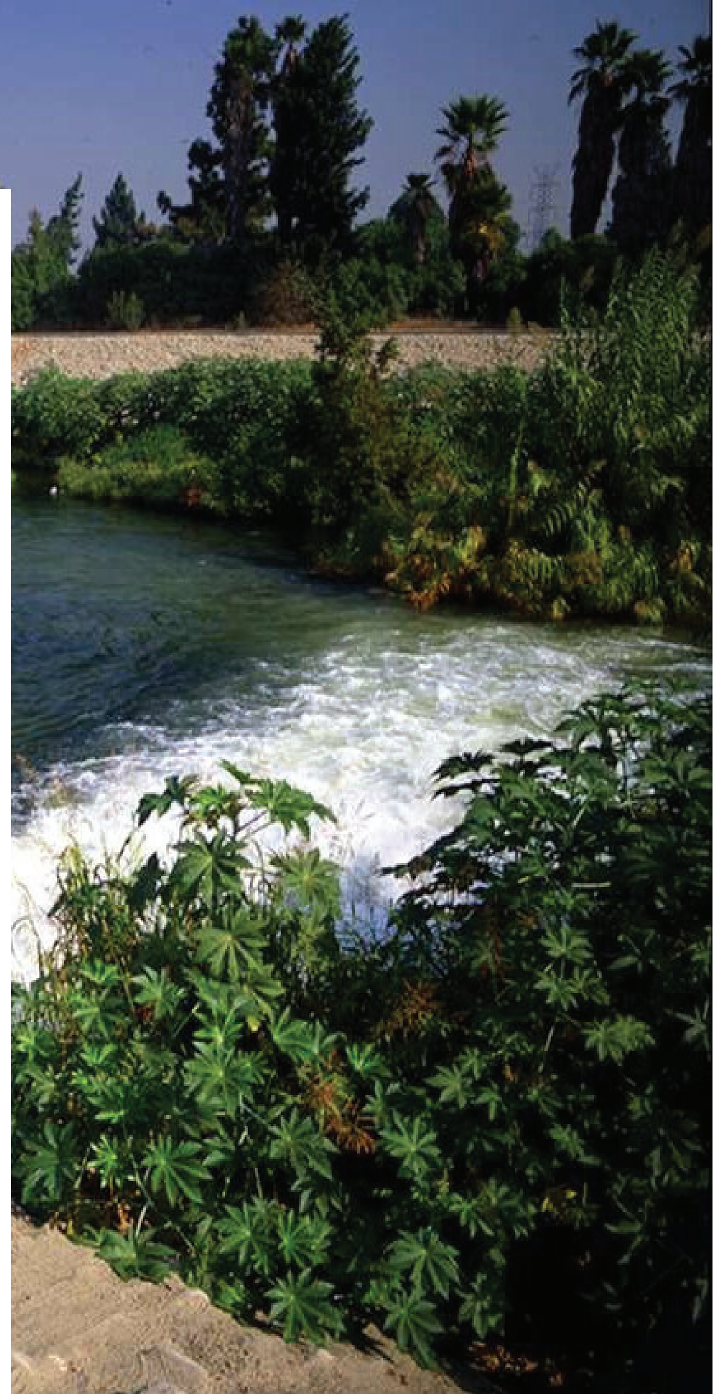
Raymond L. Tremblay
Department Head
Facilities Planning

RT:pb

Attachments

cc: climate@planning.lacounty.gov

2021 Greenhouse Gas Inventory Report



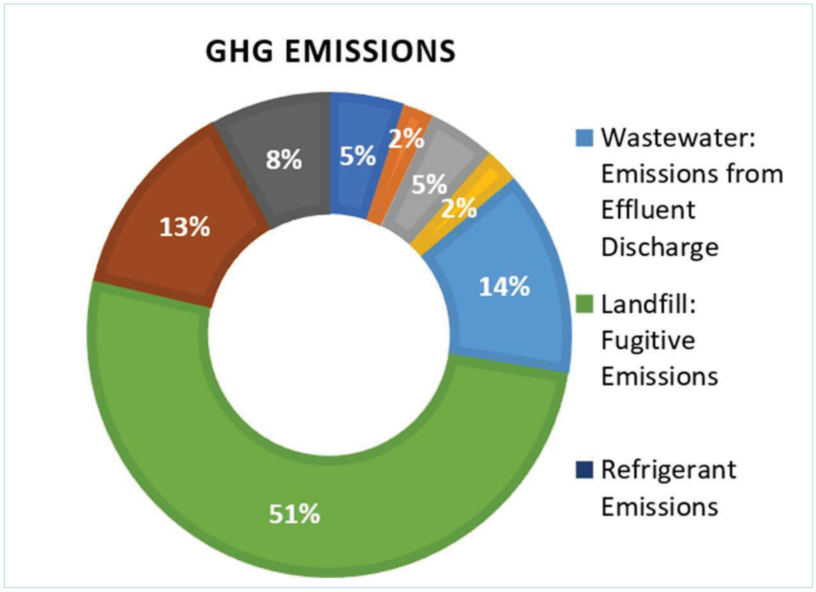
LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources

Table of Contents

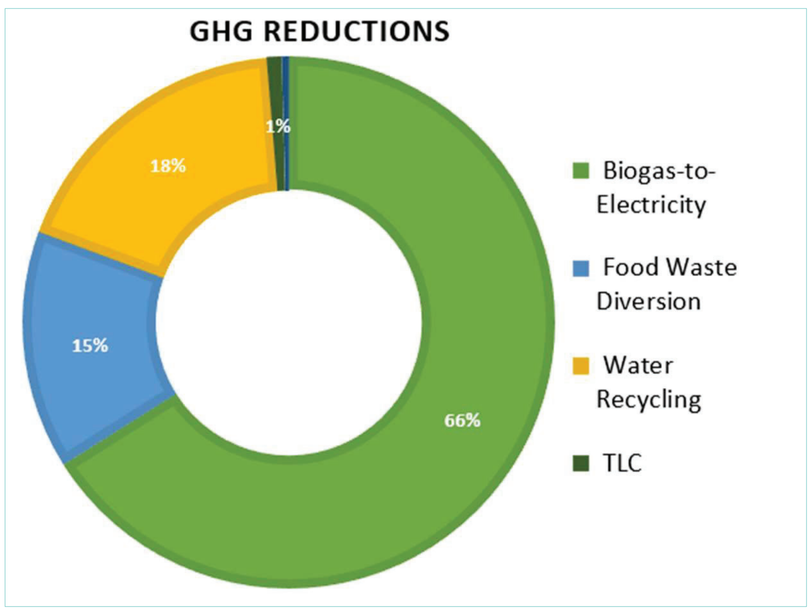
Executive Summary

This report compiles results from the 2021 greenhouse gas (GHG) inventory evaluation conducted by the Air Quality Engineering Section that encompasses all aspects of the Districts' operations. The evaluation provides information on the GHG quantities that the Districts emitted and reduced from operations, renewable energy projects, and waste diversion projects.

Of the emissions sources, fugitive landfill emissions made up 51% of the CO_2e produced. The following largest sources were emissions from wastewater effluent discharge (14%) and purchased electricity (13%).



As reported above, Districts' facilities reduced more GHG emissions than were produced. Reductions were led by biogas-to-electricity (66%), followed by water recycling (18%) and food waste diversion (15%).



It is important to remember that consultants apply a wide variety of assumptions when estimating GHG emissions and reductions. The information contained herein includes assumptions Air Quality Engineering believes are defendable. Specific information pertaining to these calculations are contained in the report below.

Background and Methodology

Emissions

The GHG emission calculations were primarily based on the current Local Government Operations Protocol (LGOP) Version 1.1, except as noted below. The LGOP categorized GHG emissions calculations into three scopes, as follows:

Scope 1	Direct emissions include emissions directly resulting from stationary and mobile combustions, process emissions from wastewater treatment processes, and fugitive emissions from landfills.
Scope 2	Indirect emissions include emissions from purchased electricity and natural gas.
Scope 3	Other emissions include emissions from employee commuting, employee business travel, and waste disposed of outside the organization boundary. [*This scope was not included in the evaluation because the Districts do not have financial or operational control over this emissions category*].

The LGOP draws a distinction between biogenic and anthropogenic emissions by excluding CO_2 from biogenic combustions. By way of review, biogenic emissions (which can only be CO_2) are considered part of the natural carbon cycle, thus typically not included in GHG inventories. Anthropogenic emissions are fossil in origin, thus adding to the existing GHG emissions inventory. For our industry, anthropogenic emissions can be fossil-based CO_2, CH_4, and N_2O. Therefore, they are included in the protocol and this evaluation as direct emissions.

Estimates of GHG Reduction

The standard protocols cited above do not estimate reductions; therefore, other calculations were used to estimate the GHG reductions. Below is the summary of methods used to evaluate the GHG reductions:

1. Biogas-to-Energy: The 2018 EPA's Avoided Emissions and Generation Tool (AVERT) emission factor was used to calculate avoided emissions from electricity produced by biogas-to-energy projects.
2. Water Recycling: The GHG reductions from water recycling were determined by comparing the energy intensity of importing water from the State Water Project (SWP) to the energy intensity of recycled water.
3. Food Waste Diversion: The EPA's Waste Reduction Model (WARM) was used to determine the GHG reduction from the food waste diversion program.
4. Tulare Lake Compost (TLC): The Biosolids Emissions Assessment Model (BEAM) was used to estimate the GHG reduction from the offset of fertilizer that would otherwise be used on the land.
5. Biogas-to-Vehicle Fuel: Carbon intensities comparison was used to estimate GHG reduction from this project.

Results

For consistency, all emission and reduction results use the standard reporting format, metric tons of CO_2 equivalent ($MTCO_2e$). CH_4 and N_2O emissions were converted to CO_2 equivalent using global warming potentials (GWP[1]). Based on the evaluation, in 2021, the Districts emitted 234,851 $MTCO_2e$ and reduced 287,449 $MTCO_2e$ of GHGs. Thus, net emissions of GHG are a negative 52,598 $MTCO_2e$ (see Tables 1.1 and 1.2).

---

[1] GWPs for CH_4 and N_2O are 28 and 265, respectively. Source: Intergovernmental Panel on Climate Change Fifth Assessment Report, 2014.

Table 1.1 GHG Emissions	
Stationary Emissions	12,222
Mobile Emissions	4,951
Wastewater: Emissions from Stationary Combustion	11,008
Wastewater: Emissions from Nitrification/Denitrification Process	5,478
Wastewater: Emissions from Effluent Discharge	33,665
Landfill: Fugitive Emissions	124,558
Refrigerant Emissions	126
Purchased Electricity	32,574
Natural Gas	19,626
Total	**244,207**

Table 1.2 GHG Reductions	
Biogas-to-Electricity	189,716
Food Waste Diversion	41,944
Water Recycling	52,214
TLC	2,439
Biogas-to-Vehicle Fuel	1,136
Total	**287,449**

A. Emissions

The LGOP categorized emission calculations into three scopes: direct emissions, indirect emissions, and other emissions. This evaluation includes direct and indirect emissions but excludes other emissions because the Districts do not have financial or operational control over this category. Below is the summary of 2021 direct emissions and indirect emissions.

Table A GHG Emissions		
Direct Emissions	Stationary Emissions	12,222
	Mobile Emissions	4,950
	Wastewater: Emissions from Stationary Combustion	11,008
	Wastewater: Emissions from Nitrification/Denitrification Process	5,478
	Wastewater: Emissions from Effluent Discharge	33,665
	Landfill: Fugitive Emissions	124,558
	Refrigerant Emissions	126
Indirect Emissions	Purchased Electricity	32,574
	Natural Gas	19,626
Other emissions include emissions from employee commuting, employee business travel, and waste disposed of outside the organization boundary.		Not Included
	Total	244,207

A.1 Direct Emissions

Below is the summary of direct GHG emissions:

Table A.1 - Direct Emissions	
Category	MTCO2e
Stationary Emissions	12,222
Mobile Emissions	4.950
Wastewater: Emissions from Wastewater Stationary Combustion	11,008
Wastewater: Emissions from Nitrification/Denitrification Process	5,478
Wastewater: Emissions from Effluent Discharge	33,665
Landfill Fugitive Emissions	124,558
Refrigerant Emissions	126
Total Direct Emissions	192,007

A.1.1. Emissions from Stationary Combustion

This section of the evaluation includes emissions from stationary source combustion that use diesel, renewable diesel, and gasoline. Emissions from permitted portable engines are also included in this section. Emission factors were obtained from the Emission Factors for GHG Inventories included in Appendix A. Equations 6.2, 6.3, and 6.5 of the LGOP were used for these calculations.

Equation 6.2	CO_2 Emissions from Stationary Combustion (gallons)
Fuel CO_2 Emissions (metric tons) = Fuel Consumed (gallons) × Emission Factor (kg CO_2/gallon) ÷ 1,000 (kg/metric ton)	

Equation 6.3	CH_4 Emissions from Stationary Combustion (MMBtu)
CH_4 Emissions (metric tons) = Fuel Use (MMBtu) × Emission Factor (kg CH_4/MMBtu) ÷ 1,000 (kg/metric ton)	

Equation 6.5	N_2O Emissions from Stationary Combustion (MMBtu)
N_2O Emissions (metric tons) = Fuel Use (MMBtu) × Emission Factor (kg N_2O /MMBtu) ÷ 1,000 (kg/metric ton)	

Table A.1.1 - Emissions from Stationary Combustion						
Global Warming Potential			1	28	265	
Fuel Type	Gallon	Emission Factors (kg CO_2e/Gallon)	CO_2 Emission Factor (kg CO_2/Gallon)	CH_4 Emission Factor (g CH_4/Gallon)	N_2O Emission Factor (g N_2O/Gallon)	$MTCO_2e$ Total
Renewable Diesel	25,293	5.02[1]	Combined in CO_2 Equivalent			127
Diesel	6,907		10.96	0.44	0.09	76
Gasoline	11,675		8.78	0.38	0.08	103
					Sub Total	306
Natural Gas	MMBTU		kg CO_2 /MMBTU	g CH_4 /MMBTU	g N_2O /MMBTU	$MTCO_2e$ Total
JAO	11,704		53.06	1.000	0.100	622
JWPCP	210,289		53.06	1.000	0.100	11,169
Palmdale	334		53.06	1.000	0.100	18
Valencia	1,078		53.06	1.000	0.100	57
					Subtotal	11,866
Propane	SCF		kg CO_2/SCF	g CH_4/SCF	g N_2O/SCF	$MTCO_2e$ Total
All Facilities	319,865		0.15463	0.007548	0.00151	50
					Sub Total	50
					Total	12,222

The entire volume of natural gas usage was included for facilities with natural gas combustion because combustion accounts for most of the usage in those facilities.

[1]The emission factor for renewable diesel is included in Appendix B.

A.1.2. Emissions from Mobile Combustion

This section of the evaluation includes emissions from mobile sources such as passenger cars, vans, trucks, and heavy equipment. Equations 7.2, 7.6, and 7.7 of the LGOP were used for these calculations. Emission factors were obtained from the Emission Factors for GHG Inventories included in Appendix B.

Equation 7.2	CO_2 Emissions from Mobile Combustion
Fuel CO_2 Emissions (metric tons) = Fuel Consumed (gallons) × Emission Factor (kg CO_2/gallon) ÷ 1,000 (kg/metric ton)	

Equation 7.6	CH_4 Emissions from Mobile Combustion
CH_4 Emissions (metric tons) = Annual Distance (miles) × Emission Factor (g CH_4/mile) ÷ 1,000,000 (g/metric ton)	

Equation 7.7	N_2O Emissions from Mobile Combustion
N_2O Emissions (metric tons) = Annual Distance (miles) × Emission Factor (g N_2O/mile) ÷ 1,000,000 (g/metric ton)	

The table below summarizes the input units used in calculations based on the fuel and mobile unit types.

Fuel	Mobile Type	CO_2e Input Unit	CO_2 Input Unit	CH_4 Input Unit	N_2O Input Unit
Renewable Diesel	On-Road Vehicle	Gallon	Not applicable because the emission factor provided by the vendor has already been converted to Carbon Dioxide Equivalent (CO_2e)		
	Non-Road Heavy Equipment	Gallon			
Diesel	On-Road Vehicle	Not Applicable	Gallon	Mileage	Mileage
	Non-Road Heavy Equipment	Not Applicable	Gallon	Gallon	Gallon
Gasoline	On-Road Vehicle	Not Applicable	Gallon	Mileage	Mileage
Compressed Natural Gas (CNG)	On-Road Vehicle	Not Applicable	Cubic Foot	Mileage	Mileage

Table A.1.2 - Emissions from Mobile Combustion							
Global Warming Potential			1	28	265		
Fuel Type	Gallon or SCF	Mile	CO_2 Emission Factor (kg CO_2/Gallon or scf)	CH_4 Emission Factor (g CH_4/mile)	N_2O Emission Factor (g N_2O/mile)	Emission Factors (kg CO_2e/Gallon)	$MTCO_2e$ Total
Renewable Diesel	326,110	N/A	Combined in CO2 Equivalent			5.02[1]	1,637
Diesel (Heavy/Medium) 1995-2005	10,353	62,117	10.21	0.0051	0.0048		106
Diesel (Heavy/Medium) 2007-2021	34,596	207,574	10.21	0.0095	0.0491		356
Gasoline (total)	289,208		8.78				2,539
Passenger Car (2009 -2014)		227,715		0.0071	0.0046		0.32
Passenger Car (2015)		59,919		0.0068	0.0042		0.08
Passenger Car (2016)		1,785		0.0065	0.0038		0.00
Passenger Car (2017)		55,294		0.0054	0.0018		0.03
Passenger Car (2018 & after)		197,939		0.0052	0.0016		0.11
Trucks (1999)		2,317		0.0333	0.0618		0.04
Trucks (2003)		24,727		0.0221	0.0373		0.26
Trucks (2004)		41,617		0.0115	0.0088		0.11
Trucks (2005)		21,155		0.0105	0.0064		0.04
Trucks (2006)		99,765		0.0108	0.0080		0.24
Trucks (2007)		36,429		0.0103	0.0061		0.07
Trucks (2008)		234,326		0.0095	0.0036		0.29
Trucks (2009)		144,057		0.0095	0.0036		0.18
Trucks (2010)		46,221		0.0095	0.0035		0.06
Trucks (2011)		542,791		0.0096	0.0034		0.63
Trucks (2012)		291,187		0.0096	0.0033		0.33
Trucks (2013)		271,531		0.0095	0.0033		0.31
Trucks (2014)		194,467		0.0095	0.0033		0.22
Trucks (2015)		462,302		0.0094	0.0031		0.50
Trucks (2016)		308,598		0.0091	0.0029		0.32
Trucks (2017)		348,451		0.0084	0.0018		0.25
Trucks (2018 and after)		1,390,754		0.0081	0.0015		0.87

Heavy Duty Trucks (1987)		460		0.0322	0.0015		0.00
Heavy Duty Trucks (2008 & after)		23,306		0.0333	0.0134		0.10
CNG	5,399,401		0.054				294
CNG Light-Duty Cars		86,779		0.0820	0.0060		0.34
CNG Light-Duty Trucks		368,395		0.1230	0.0110		2.34
CNG Heavy-Duty Trucks		96,806		3.7000	0.0010		10.05
						Total	4,950

[1]The emission factor for renewable diesel is included in Appendix B.

A.1.3 Wastewater Treatment Plants Direct Emissions

The table below summarizes GHG types and sources that are directly emitted from wastewater treatment processes to the environment according to the LGOP. The first column was added to identify processes that apply to the Districts' operations.

Summary of Wastewater Treatment Process and Fugitive Emission Sources				
Scope	GHG type	GHG source	Data Available	Equation
A.1.3.a	Stationary CH_4 emissions	Incomplete combustion of digester gas at a centralized WWTP with anaerobic digestion of biosolids	Digester gas (ft^3/day) Fraction of CH_4 in biogas	Equation 10.1
			Population served	Equation 10.2
Not Applicable	Process CH_4 emissions	Anaerobic and facultative treatment lagoons	BOD_5 load (kg BOD_5/day) Fraction of overall BOD_5 removal performance	Equation 10.3
			Population served	Equation 10.4
Not Applicable	Fugitive CH_4 emissions	Septic systems	BOD_5 load (kg BOD_5/person/day)	Equation 10.5
			Population served	Equation 10.6
A.1.3.b	Process N_2O emissions	Centralized WWTP with nitrification/denitrification	Population served	Equation 10.7
Not Applicable	Process N_2O emissions	Centralized WWTP without nitrification/denitrification	Population served	Equation 10.8
A.1.3.c	Process N_2O emissions	Effluent discharge to receiving aquatic environments	N load (kg N/day)	Equation 10.9
			Population served	Equation 10.10

Below is the summary of GHG emissions for these LGOP Scope sources that are directly emitted from wastewater treatment processes to the environment:

Table A.1.3 - Wastewater Treatment Plants Direct Emissions	
CATEGORY	TOTAL ($MTCO_2e$)
STATIONARY EMISSIONS	11,008
PROCESS N_2O EMISSION FROM NITRIFICATION/DENITRIFICATION	5,478
PROCESS N_2O EMISSIONS FROM EFFLUENT	33,665
TOTAL WASTEWATER DIRECT EMISSION	50,152

A.1.3.a Emissions from Wastewater Stationary Combustion

This section includes the calculations of annual CH_4 emissions from the inherent inefficiency of combustion equipment. Equation 10.1 of the LGOP was used to calculate the CH_4 emissions from the incomplete combustion of digester gas.

Equation 10.1	Stationary CH_4 from Incomplete Combustion of Digester Gas (site-specific digester gas data)
Annual CH4 emissions (metric tons CO_2e) = (Digester Gas x F_{CH4} x $\rho(CH_4)$ x (1-DE) x 0.0283 x 365.25 x 10^{-6}) x GWP	

Where:

Term	Description	Value
Digester Gas	Measured total standard cubic feet of digester gas combusted	user input
F CH_4	measured fraction of CH_4 in biogas	user input
ρ (CH_4)	density of methane at standard conditions [g/m^3]	662.00
DE	CH_4 Destruction Efficiency	.99
0.0283	conversion from ft^3 to m^3 [m^3/ft^3]	0.0283
365.25	conversion factor [day/year]	365.25
10^{-6}	conversion from g to metric ton [metric ton/g]	10^{-6}
GWP	Global Warming Potential	28

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).

Below is the summary of the results of annual CH_4 emissions from the incomplete combustion of digester gas:

Table A.1.3.a Emissions from Wastewater Stationary Combustion

	Combusted Gas (SCF)	CH_4 Fraction	p(CH_4)	DE	GWP	$MTCO_2e$ Total (MTCO2e)
JWPCP	3,141,590,585	0.61	662	0.99	28	10,097
Lancaster	92,279,508	0.61	662	0.99	28	297
Palmdale	54,687,225	0.61	662	0.99	28	176
Valencia WRP	136,549,000	0.61	662	0.99	28	439
					Total	11,008

A.1.3.b Emissions from Nitrification/Denitrification Process

This section includes the calculations of annual N_2O emissions from the nitrification and denitrification process used in wastewater treatment. Except for the industrial/commercial factor ($F_{ind\text{-}com}$), this GHG evaluation utilized values specified in the LGOP. The $F_{ind\text{-}com}$ factors used in this evaluation were obtained from the 2020 Pretreatment Program Annual Report. Equation 10.7 of the LGOP was used to calculate N_2O emissions from the wastewater treatment processes.

Equation 10.7	Process N_2O Emissions from WWTP with Nitrification/Denitrification
Annual N_2O emissions (metric tons CO_2e) = ((P total x Find-com) x EF nit/den x 10^{-6}) x GWP	

Where:

Term	Description	Value
P total	the total population that is served by the centralized WWTP adjusted for industrial discharge, if applicable [person]	User input
$F_{ind\text{-}com}$	the factor for industrial and commercial co-discharge waste into the sewer system	Varies, used value from the 2020 Pretreatment Report
EF nit/den	emission factor for a WWTP with nitrification/denitrification [g N2O/person/year]	7
10^6	conversion from g to metric ton [metric ton/g]	10^6
GWP	N2O Global Warming Potential	265
Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).		

The results of N_2O emissions from the nitrification and denitrification are included in Table A.1.3.a below:

Table A.1.3.b Emissions from Nitrification/Denitrification Process						
Facility	Population Served	F Industrial Factor	EF Emission Factor	Conversion Factor	GWP	MTCO2e Total
Long Beach WRP	226,811	1.05	7.00	1.00E-06	265	442
Los Coyotes WRP	359,001	1.13	7.00	1.00E-06	265	753
Whittier Narrows WRP	406,051	1.11	7.00	1.00E-06	265	836
San Jose Creek WRP	1,069,856	1.07	7.00	1.00E-06	265	2,124
Pomona WRP	79,262	1.04	7.00	1.00E-06	265	153
Saugus WRP	74,351	1.01	7.00	1.00E-06	265	139
Lancaster WRP	128,204	1.06	7.00	1.00E-06	265	252
Palmdale WRP	196,826	1.01	7.00	1.00E-06	265	369
Valencia WRP	201,619	1.10	7.00	1.00E-06	265	411
					Total	5,478

A.1.3.c Emissions from Effluent Discharge

This section includes the calculations of annual N_2O emissions from effluent discharged into rivers and estuaries. This GHG evaluation utilized all values that are specified in the LGOP. It should be noted that the LGOP does not include an emission factor for ocean discharge; therefore, the JWPCP results may be overestimated because there is less biological conversion of nitrogen to N_2O in the ocean.

Equation 10.9	Process N_2O Emissions from Effluent Discharge (site-specific N load data)
Annual N_2O emissions (metric tons CO_2e) = (N Load x EF effluent x 365.25 x 10-3 x 44/28) x GWP	

Where:

Term	Description	Value
N Load	= measured average total nitrogen discharged [kg N/day]	user input
EF effluent	= emission factor [kg N_2O-N/kg sewage-N produced]	0.005
365.25	= conversion factor [day/year]	365.25
10^{-3}	= conversion from kg to metric ton [metric ton/kg]	10^{-3}
44/28	= molecular weight ratio of N_2O to N_2	1.57
GWP	= Global Warming Potential	265
Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).		

Below is the summary of the results of annual N_2O emissions from effluent that discharged into rivers and estuaries, apart from JWPCP which discharges to the Pacific Ocean:

Table A.1.3.c.1 Emissions from Effluent Discharge

Facility	Average Total Nitrogen	Average Effluent* (MGD)	N load (kg N/day)	N_2O to N_2 Conversion	GWP	Annual N_2O Emissions ($MTCO_2e$)
JWPCP	43.93	242.28	40,232	1.57	265	30,569
Long Beach WRP	9.87	12.67	473	1.57	265	359
Los Coyotes WRP	8.11	17.52	537	1.57	265	408
San Jose Creek East WRP	7.05	35.71	952	1.57	265	723
San Jose Creek West WRP	7.09	26.9	721	1.57	265	548
Pomona WRP	10.10	5.45	208	1.57	265	158
Saugus WRP	6.61	4.85	121	1.57	265	92
Valencia WRP	6.34	13.55	325	1.57	265	247
Lancaster WRP	5.45	13.9	286	1.57	265	218
Palmdale WRP	6.40	8.33	202	1.57	265	153
La Canada WRP	17.95	0.066	4	1.57	265	3
Whittier Narrows WRP	7.90	8.27	247	1.57	265	188
					Total	33,665

* Annual flows are still under review and subject to change.

A.1.4. Landfill Fugitive Emissions

The LGOP specified equation 9.1 to calculate the direct emissions from landfills with comprehensive landfill gas collection systems. Except for the collection efficiency (CE) factor, this GHG evaluation utilized values specified in the LGOP. Actual CE factors, based on research performed by the Districts, were used in place of the 0.75 CE factor specified in the LGOP. Since the actual CE factors are based upon emissions above the soil cover, the oxidation factor (OX) was omitted from these calculations. Collection efficiency factors used in this section are included in Appendix C.

Equation 9.1	Landfills with Comprehensive LFG Collection Systems
CH_4 emitted (metric tons CO_2e) = LFG collected x CH_4% x {(1 - DE) + [((1 – CE) / CE) x (1 – OX)]} x unit conversion x GWP	

Where:

Term	Description	Value
LFG collected	= Annual LFG collected by the collection system (MMSCF)	user input
CH_4%	= Fraction of CH_4 in LFG	0.5, if no facility-specific value is available
DE	= CH_4 Destruction Efficiency, based on the type of combustion/flare system.	.991
CE	= Collection Efficiency	Varies, used actual CE factors
OX	= Oxidation Factor	LGOP specify 0.10 but omitted in this evaluation
Unit conversion	= Convert million standard cubic feet of CH_4 to metric tons of CH_4 (volume units to mass units)	19.125
GWP	= Global Warming Potential to convert metric tons of methane into metric tons of CO_2 equivalents (CO_2e).	28

Table A.1.4: CH_4 Emissions from Landfill

Facility	Collected Landfill Gas (MMSCF)	CH_4%	DE	CE	OX	Unit Conversion	GWP	Landfill Direct Emission ($MTCO_2e$)
Puente Hills Landfill	7,459	28.29	0.99	0.950	0	19.125	28	70,775
Calabasas Landfill	1,967	27.53	0.99	0.918	0	19.125	28	28,800
Scholl Canyon Landfill	3,135	33.99	0.99	0.989	0	19.125	28	12,051
Spadra Landfill	1,690	22.69	0.99	0.972	0	19.125	28	7,969
Palos Verdes Landfill	2,323	6.88	0.99	0.957	0	19.125	28	4,699
Mission Canyon Landfill	41	11.67	0.99	0.915	0	19.125	28	264
							Total	124,558

A.1.5 Refrigerant Emissions

Per the refrigerant leak checks performed in 2021, below are the emissions from refrigerant leaks. The refrigerant leak testing results are included in Appendix D.

Table A.1.5 - Refrigerant Emissions				
Facility	Refrigerant Blend	Quantity (lb)	GWP*	Emission (MTCO2e)
Tulare Lake Compost	R-410B	27	2,229	27.30
Palmdale WRP	R-410A	23.5	2,088	22.26
Lancaster WRP	R-410A	80.5	2,088	76.24
			Total	125.80

*From 100-year GWPs from IPCC Fourth Assessment Report (AR4), 2007.

A.2 Indirect Emissions

According to the LGOP, indirect emissions are emissions from purchased energy. Only two indirect emissions sources apply to the Districts' operations: purchased electricity and natural gas for heating. Calculations for GHG emissions and emission factors are included in Appendix E. The following equations were used to determine the indirect emissions from purchased electricity and natural gas:

A.2.1 Electricity

Equation 6.10	Indirect Emissions from Electricity Use (mt)
CO_2 Emissions = Electricity Use (MWh) × Emission Factor (lbs. CO_2/MWh) ÷ 2,204.62 (lbs./mt)	
CH_4 Emissions = Electricity Use (MWh) × Emission Factor (lbs. CH_4/MWh) ÷ 2,204.62 (lbs./mt)	
N_2O Emissions = Electricity Use (MWh) × Emission Factor (lbs. N_2O /MWh) ÷ 2,204.62 (lbs./mt)	

A.2.2 Natural Gas

Equation 6.16	Converting Steam or Heat Consumption from Therms to MMBtu
Energy Consumption (MMBtu) = Energy Consumption (Therms) x 0.1 (MMBtu/Therm)	

Equation 6.20	Emissions from Imported Steam or Heat (mt)
Total CO_2 Emissions = Energy Consumed (MMBtu) x Emission Factor (kg CO_2 / MMBtu) ÷ 1,000 (kg/mt)	
Total CH_4 Emissions = Energy Consumed (MMBtu) x Emission Factor (kg CH_4 / MMBtu) ÷ 1,000 (kg/mt)	
Total N_2O Emissions = Energy Consumed (MMBtu) x Emission Factor (kg N_2O / MMBtu) ÷ 1,000 (kg/mt)	

Below is the summary of the 2021 indirect emissions:

Table A.2 Indirect Emissions				
Global Warming	1	28	265	
Emission Factors	496.50	0.0340	0.0040	
Purchased Electricity	$MTCO_2$	$MTCH_4$ as CO_2e	MTN_20 as CO2e	$MTCO_2e$ Total
144,056	32,443	62.21	69.26	32,574
Emission Factors	53.06	0.0010	0.0001	
Purchased Natural Gas	$MTCO_2$	$MTCH_4$ as CO2e	MTN_20 as CO_2e	$MTCO_2e$ Total
369,867	19,625	0.55	0.000015	19,626
			Total	52,200

B. 2021 GHG Reductions

This section of the report includes results of GHG reductions from programs operated by the Districts. Table 1 displays a summary of the GHG reductions achieved by each program.

Table B – GHG Reductions and Equivalent Units	
Programs	Reduction $MTCO_2e$
Biogas-to-Electricity	189,716
Food Waste Diversion	41,944
Water Recycling	52,214
Tulare Lake Compost	2,439
Biogas-to-Vehicle Fuel	1,136
2021 Total Reduction	287,449

B.1 Biogas-to-Electricity

The Districts operate three biogas-to-electricity facilities: the Calabasas Landfill Gas-to-Energy (CALF), the Puente Hills Gas-to-Energy Facility (PERG), and the JWPCP Total Energy Facility (TEF). The calculations shown in the table below were based on the EPA's GHG Equivalency Calculator. The emission factor used in this section was obtained from the EPA's 2019 Avoided Emissions and Generation Tool (AVERT) included in Appendix F. The quantity of net electricity generated at each facility was used to determine the amount of GHG reduction resulting from these renewable energy facilities.

Table B.1 – Gas-to-Electricity			
Program	Electricity Generated (MW)	AVERT Emission Factor (lb/MWh)	Offset of Carbon Dioxide ($MTCO_2E$)
JWPCP	20	1,061	84,318
Puente Hills Energy Recovery from Gas Facility	21	1,061	88,534
Calabasas Turbine Facility	4	1,061	16,864
		GHG Benefit	189,716

B.2 Food Waste Diversion

The Districts divert food waste from landfills and direct this resource to the Joint Water Pollution Control Plant (JWPCP) for anaerobic digestion. Food waste enters the Districts' anaerobic digestion stream either directly from waste haulers or through the diversion process at the Puente Hills Materials Recovery Facility (PHMRF). The EPA's Waste Reduction Model (WARM) was used to evaluate the GHG reductions from food waste diversion. The table below shows the results from the WARM evaluation. The WARM worksheet and reference pages are included in Appendix G.

Table B.2 Food Waste Management	
Food Waste (Ton)	GHG Benefit ($MTCO_2e$)
77,794	41,944

B.3 Water Recycling

This portion of the evaluation included the GHG reduction from the beneficial use of recycled water. The GHG reductions are shown in the table below and were determined by comparing the energy intensity of imported water to the energy intensity of recycled water. The GHG calculations used in this section were based on the method used in the Role of Recycled Water in Energy Efficiency and Greenhouse Gas Reduction (2008) published by the California Sustainability Alliance. The energy intensity includes the energy needed for pumping, treatment, and water delivery. Reference pages for the calculations are included in Appendix H.

Table B.3 - GHG Reductions from Water Recycling

	Water Volume (AFY)	Estimated Energy Usage (kWh/AF) *	Emission Factor (MTCO2e /MWH)**	GHG Emission (MTCO2e)
Recycled Water	112,700	600	0.226	15,282
			Total Emission	15,282
Colorado River Aqueduct Imported Water (Baseline)	56,350	2,000	0.226	25,470
State Water Project Imported Water (Baseline)	56,350	3,300	0.226	42,026
Total Baseline				67,496
			GHG Benefit	52,214

*Estimated energy usages are from the Role of Recycled Water in Energy Efficiency and Greenhouse Gas Reduction Study and the updated Estimation of Greenhouse Gas Production from Advanced Treatment and Pumping of JWPCP Effluent memo.

**The emission factor presented in this column was based on the emission rating of 498.7 lb of CO2e per MWh, which equals 0.226 metric tons of CO2e per MWh. The emission rating was obtained from the 2018 eGRID summary published by the EPA. The emission rating used in this calculation was selected because it represents the average emission output in California. The conversion factor from the Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources published by the EPA was not selected because it represents the highest nationwide emission rating rather than the regional average emission rating.

B.4 Tulare Lake Compost (TLC)

This portion of the evaluation examined the GHG reductions from biosolids management at TLC. Biosolids generated by the Districts were managed through Aerated Static Pile (ASP) composting. The Biosolids Emissions Assessment Model (BEAM) was used to estimate the GHG reduction from the process. BEAM was prepared by SYLVIS for the Canadian Council of Ministers of the Environment. The GHG reduction was from the offset of fertilizer that would otherwise be used on the land. The GHG reduction is shown below, and the BEAM worksheets are included in Appendix I.

Table B.4 Biosolids Management

Facility	Quantity (Ton)	GHG Emission ($MTCO_2e$)
TLC	40,613	2,439

B.5 Biogas-to-Vehicle Fuel

This portion of the evaluation included the GHG reduction from the Biogas-to-Vehicle Fuel project. The GHG reductions are shown in the table below and were determined by comparing the carbon intensity of renewable natural gas (RNG) produced by the project with that of traditional diesel. Carbon intensities used in this evaluation are included in Appendix J.

Table B.5 Biogas-to-Vehicle Fuel Project			
Fuel Type	GGE or Gallon	Carbon Intensity (kg CO_2e/Gallon)	$MTCO_2e$ Total
RNG	102,172	2.59	265
Diesel (Baseline)	102,172	13.72	1,401
		GHG Reduction	1,136

Appendix A: Stationary Emissions

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Emission Factors for Greenhouse Gas Inventories

Last Modified: 1 April 2021

Red text indicates an update from the 2020 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO_2e). Gases are converted to CO_2e by multiplying by their global warming potential (GWP). The emission factors listed in this document have not been converted to CO_2e. To do so, multiply the emissions by the corresponding GWP listed in the table below.

Gas	100-Year GWP
CH_4	25
N_2O	298

Source: Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), 2007. See the source note to Table 11 for further explanation.

Table 1 Stationary Combustion

Fuel Type	Heat Content (HHV)	CO_2 Factor	CH_4 Factor	N_2O Factor	CO_2 Factor	CH_4 Factor	N_2O Factor
	mmBtu per short ton	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per short ton	g CH_4 per short ton	g N_2O per short ton
Coal and Coke							
Anthracite Coal	25.09	103.69	11	1.6	2,602	276	40
Bituminous Coal	24.93	93.28	11	1.6	2,325	274	40
Sub-bituminous Coal	17.25	97.17	11	1.6	1,676	190	28
Lignite Coal	14.21	97.72	11	1.6	1,389	156	23
Mixed (Commercial Sector)	21.39	94.27	11	1.6	2,016	235	34
Mixed (Electric Power Sector)	19.73	95.52	11	1.6	1,885	217	32
Mixed (Industrial Coking)	26.28	93.90	11	1.6	2,468	289	42
Mixed (Industrial Sector)	22.35	94.67	11	1.6	2,116	246	36
Coal Coke	24.80	113.67	11	1.6	2,819	273	40
Other Fuels - Solid							
Municipal Solid Waste	9.95	90.70	32	4.2	902	318	42
Petroleum Coke (Solid)	30.00	102.41	32	4.2	3,072	960	126
Plastics	38.00	75.00	32	4.2	2,850	1,216	160
Tires	28.00	85.97	32	4.2	2,407	896	118
Biomass Fuels - Solid							
Agricultural Byproducts	8.25	118.17	32	4.2	975	264	35
Peat	8.00	111.84	32	4.2	895	256	34
Solid Byproducts	10.39	105.51	32	4.2	1,096	332	44
Wood and Wood Residuals	17.48	93.80	7.2	3.6	1,640	126	63
	mmBtu per scf	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per scf	g CH_4 per scf	g N_2O per scf
Natural Gas							
Natural Gas	0.001026	53.06	1.0	0.10	0.05444	0.00103	0.00010
Other Fuels - Gaseous							
Blast Furnace Gas	0.000092	274.32	0.022	0.10	0.02524	0.000002	0.000009
Coke Oven Gas	0.000599	46.85	0.48	0.10	0.02806	0.000288	0.000060
Fuel Gas	0.001388	59.00	3.0	0.60	0.08189	0.004164	0.000833
Propane Gas	0.002516	61.46	3.0	0.60	0.15463	0.007548	0.001510
Biomass Fuels - Gaseous							
Landfill Gas	0.000485	52.07	3.2	0.63	0.025254	0.001552	0.000306
Other Biomass Gases	0.000655	52.07	3.2	0.63	0.034106	0.002096	0.000413
	mmBtu per gallon	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per gallon	g CH_4 per gallon	g N_2O per gallon
Petroleum Products							
Asphalt and Road Oil	0.158	75.36	3.0	0.60	11.91	0.47	0.09
Aviation Gasoline	0.120	69.25	3.0	0.60	8.31	0.36	0.07
Butane	0.103	64.77	3.0	0.60	6.67	0.31	0.06
Butylene	0.105	68.72	3.0	0.60	7.22	0.32	0.06
Crude Oil	0.138	74.54	3.0	0.60	10.29	0.41	0.08
Distillate Fuel Oil No. 1	0.139	73.25	3.0	0.60	10.18	0.42	0.08
Distillate Fuel Oil No. 2	0.138	73.96	3.0	0.60	10.21	0.41	0.08
Distillate Fuel Oil No. 4	0.146	75.04	3.0	0.60	10.96	0.44	0.09
Ethane	0.068	59.60	3.0	0.60	4.05	0.20	0.04
Ethylene	0.058	65.96	3.0	0.60	3.83	0.17	0.03
Heavy Gas Oils	0.148	74.92	3.0	0.60	11.09	0.44	0.09
Isobutane	0.099	64.94	3.0	0.60	6.43	0.30	0.06
Isobutylene	0.103	68.86	3.0	0.60	7.09	0.31	0.06
Kerosene	0.135	75.20	3.0	0.60	10.15	0.41	0.08
Kerosene-Type Jet Fuel	0.135	72.22	3.0	0.60	9.75	0.41	0.08
Liquefied Petroleum Gases (LPG)	0.092	61.71	3.0	0.60	5.68	0.28	0.06
Lubricants	0.144	74.27	3.0	0.60	10.69	0.43	0.09
Motor Gasoline	0.125	70.22	3.0	0.60	8.78	0.38	0.08
Naphtha (<401 deg F)	0.125	68.02	3.0	0.60	8.50	0.38	0.08
Natural Gasoline	0.110	66.88	3.0	0.60	7.36	0.33	0.07
Other Oil (>401 deg F)	0.139	76.22	3.0	0.60	10.59	0.42	0.08
Pentanes Plus	0.110	70.02	3.0	0.60	7.70	0.33	0.07
Petrochemical Feedstocks	0.125	71.02	3.0	0.60	8.88	0.38	0.08
Propane	0.091	62.87	3.0	0.60	5.72	0.27	0.05
Propylene	0.091	67.77	3.0	0.60	6.17	0.27	0.05
Residual Fuel Oil No. 5	0.140	72.93	3.0	0.60	10.21	0.42	0.08
Residual Fuel Oil No. 6	0.150	75.10	3.0	0.60	11.27	0.45	0.09
Special Naphtha	0.125	72.34	3.0	0.60	9.04	0.38	0.08
Unfinished Oils	0.139	74.54	3.0	0.60	10.36	0.42	0.08
Used Oil	0.138	74.00	3.0	0.60	10.21	0.41	0.08
Biomass Fuels - Liquid							
Biodiesel (100%)	0.128	73.84	1.1	0.11	9.45	0.14	0.01
Ethanol (100%)	0.084	68.44	1.1	0.11	5.75	0.09	0.01
Rendered Animal Fat	0.125	71.06	1.1	0.11	8.88	0.14	0.01
Vegetable Oil	0.120	81.55	1.1	0.11	9.79	0.13	0.01
Biomass Fuels - Kraft Pulping Liquor, by Wood Furnish							
North American Softwood		94.4	1.9	0.42			
North American Hardwood		93.7	1.9	0.42			
Bagasse		95.5	1.9	0.42			
Bamboo		93.7	1.9	0.42			
Straw		95.1	1.9	0.42			

Source:

Federal Register EPA; 40 CFR Part 98; e-CFR, (see link below). Table C-1, Table C-2 (as amended at 81 FR 89252, Dec. 9, 2016), Table AA-1 (78 FR 71965, Nov. 29, 2013).

https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=pt40.23.98&rgn=div5#ap40.23.98_19.1

Note: Emission factors are per unit of heat content using higher heating values (HHV). If heat content is available from the fuel supplier, it is preferable to use that value. If not, default heat contents are provided.

Appendix B: Mobile Emissions

Deemed Complete:	December 14, 2018	Staff Summary
Posted for Comment:	December 31, 2018	Tier 2 Method 2B Pathway
Certified and Posted:	January 16, 2019	AltAir Paramount LLC, Paramount, California
CI Effective:	October 1, 2018	North American Tallow to Renewable Diesel Pathway
Fuel Pathway Code:	RDT209	

Pathway Summary

AltAir Paramount (AltAir) LLC operates a Renewable Diesel (RD) plant in Paramount, California. This plant produces RD and renewable naphtha (RN) using a mixture of animal tallow and small quantities of other non-edible vegetable oils. The feedstocks are processed in AltAir's hydro-treating unit to produce RD and RN with renewable jet fuel and renewable propane as co-products. The renewable propane is used on-site as process fuel and small amounts are used in a process burner.

Because AltAir does not have access to a hydrogen plant to pipe in gaseous hydrogen, AltAir purchases liquefied hydrogen which is then transported by truck to their facility. AltAir has applied for a provisional Tier 2 Method 2B RD pathway using North American tallow as feedstock.

Carbon Intensity of Tallow to RD Pathway

The following table lists the proposed CI for this pathway.

Proposed Pathway CI

Fuel	Pathway FPC	Pathway Description	Carbon Intensity (gCO_2e/MJ)		
			Direct Emissions	Indirect Land Use	Total
Renewable Diesel from Tallow	RDT209	Tier 2 Method 2B Pathway: Renewable Diesel produced from North American Tallow. Fuel produced in Paramount, California (Provisional)	38.75	0	38.75

Operating Conditions

Operations at the plant will be subject to the following conditions designed to ensure that the CI of the RD produced at the AltAir plant will remain at or below the value appearing in the above table for all volumes of RD produced using this feedstock and sold in California:

1. Except for periods of abnormal operations, such as planned maintenance or unpredictable, unavoidable, and uncontrollable force majeure events, the CI value specified in the application shall not be exceeded.
2. The commingled feedstock accounting method will be used to determine the CIs of the mixed feedstock. Producers and regulated parties should use this approach to calculate the volumes based on weighted averages of renewable diesel associated with each feedstock present in the finished fuel storage tank at any given time. Producers should be able to provide records that unequivocally associate specific quantities of feedstock with specific volumes of fuel produced. As volumes are added to and withdrawn from the tank, the volume of each feedstock-related CI will be adjusted to account for those additions and withdrawals. Commingled feedstock CI accounts for mixed-feedstocks must be directly determined over an accounting period of no more than a calendar quarter. That is, all volumes of fuel produced must be associated with a specific feedstock within a calendar quarter. Gallons will be associated with feedstock based on the accepted yields for each fuel.
3. Because this pathway is classified as provisional, AltAir must submit two years of quarterly operating data for this plant that is indicative of long-term stable operation. The data must be

submitted every quarter until CARB receives two full years of operating data. Adjustments related to provisional CIs are subject to section 94888(d)(2).

Staff Analysis and Recommendations

Staff has reviewed the AltAir application for certification of Renewable Diesel produced from tallow and finds the following:

- Staff has replicated using the modified version of the CA-GREET 2.0 Tier 2 model with reasonable accuracy the carbon intensity calculations provided by the applicant. Staff has made this determination based upon the material and energy use information, design considerations, process yields, and other input parameters furnished by the applicant.

- On the basis of these findings, CARB staff recommends that the AltAir application for Method 2B LCFS pathway stated in above table be certified, subject to the operating conditions set forth in this document.

Alternative Fuel Tax

The excise tax imposed on compressed natural gas (CNG), liquefied natural gas (LNG), and propane used to operate a vehicle can be paid through an annual flat rate sticker tax based on the following vehicle weights:

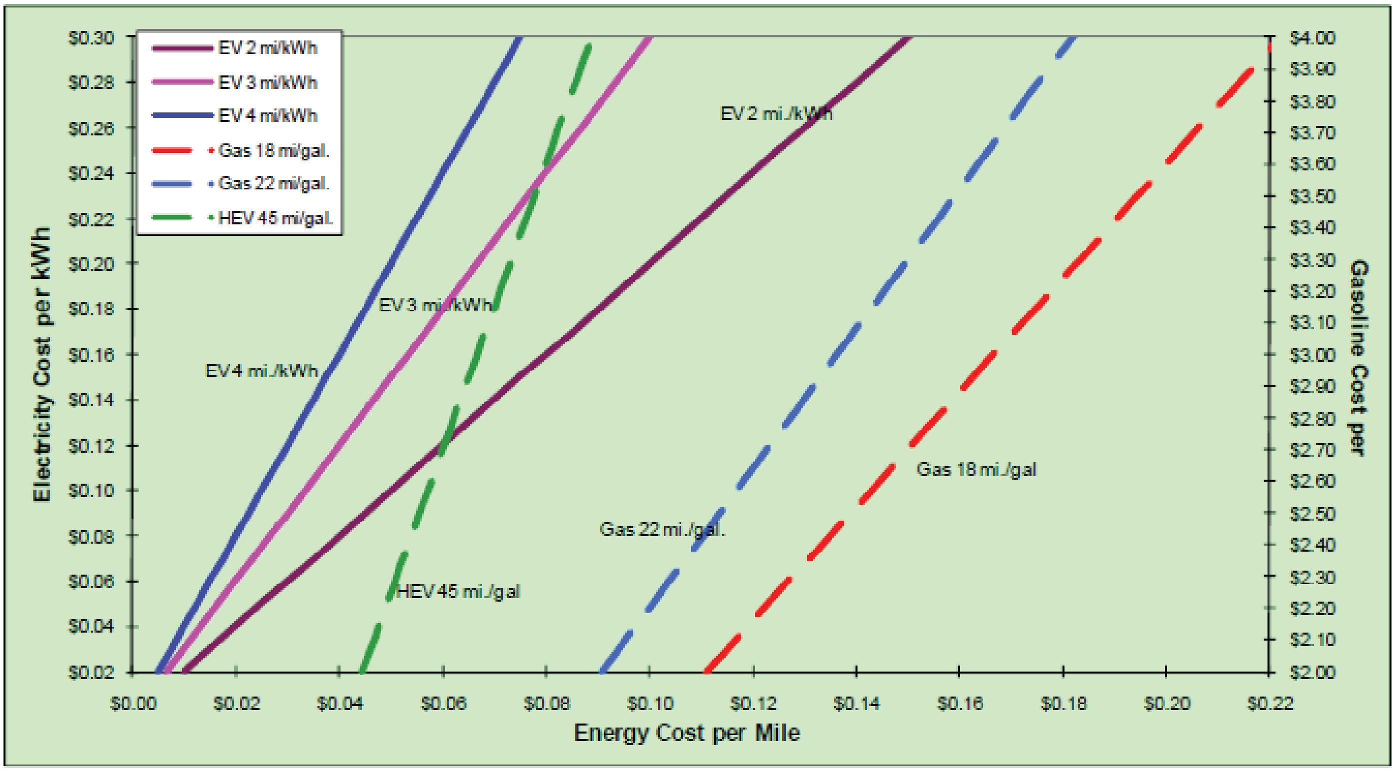
Unladen Weight	Fee
All passenger cars and other vehicles 4,000 pounds (lbs.) or less	$36
More than 4,000 lbs. but less than 8,001 lbs.	$72
More than 8,000 lbs. but less than 12,001 lbs.	$120
12,001 lbs. or more	$168

Alternatively, owners and operators may pay an excise tax on CNG of $0.0887 per gasoline gallon equivalent (GGE) measured at standard pressure and temperature, $0.1017 for each diesel gallon equivalent (DGE) of LNG, and $0.06 per gallon of propane. One GGE is equal to 126.67 cubic feet or 5.66 lbs. of CNG and one DGE is equal to 6.06 lbs. of LNG. The excise tax on ethanol and methanol fuel blends containing up to 15% gasoline or diesel fuel is one-half the tax on gasoline and diesel prescribed by California Revenue and Taxation Code (https://leginfo.legislature.ca.gov/faces/home.xhtml) section 8651.

(Reference California Revenue and Taxation Code (https://leginfo.legislature.ca.gov/faces/home.xhtml) 8651-8651.8, and California Business and Professions Code (https://leginfo.legislature.ca.gov/faces/home.xhtml) 13404 and 13470)

Comparing Energy Costs per Mile for Electric and Gasoline-Fueled Vehicles

The fuel cost of driving an electric vehicle depends on the cost of electricity per kilowatt-hour (kWh) and the energy efficiency of the vehicle. For example, to determine the energy cost per mile of an electric vehicle, select the location on the left axis (Electricity Cost per kWh) at 10 cents in the graph below. Draw a horizontal line to the right until you bisect the EV 3 mi/kWh line. Now draw a vertical line down until you bisect the bottom axis (Energy Cost per Mile). This tells you that the fuel for an electric vehicle with an energy efficiency of 3 miles per kWh costs about 3.3 cents per mile when electricity costs 10 cents per kWh.



The national average cost for electricity in the U.S. is about 10 cents per kWh, while the average residential rate is about 11.7 cents per kWh. Some electric utilities have historically had electric vehicle charging rates that vary by time of use, day, and season. In the past, these rates have ranged from 3 cents to as high as 50 cents per kWh. Older electric vehicles have energy efficiencies of about 2 miles per kWh. Some electric vehicles, such as the EV1 from General Motors, had energy efficiencies of over 6 miles per kWh under some testing.

To determine the energy cost per mile of a gasoline vehicle, pick the location on the right axis (Gasoline Cost per gallon) at $3.50. Draw a horizontal line to the left until you bisect the Gas 22 mi/gal line. Now draw a vertical line down until you bisect the bottom axis (Energy Cost per Mile). This tells you that the fuel for a gasoline vehicle with an energy efficiency of 22 miles per gallon costs about 15.9 cents per mile when gasoline costs $3.50 per gallon. The mileage for commercial fleet vehicles such as light-duty pickups ranges from below 17 miles per gallon to generally about 22 miles per gallon.

The energy cost per mile is also included for a hybrid electric vehicle (HEV) with an energy efficiency of 45 miles per gallon, as these types of vehicles are increasingly being used. If $3.50 per gallon of gasoline is also assumed for the HEV that gets 45 mpg, the energy cost per mile would be 7.8 cents per mile.

Table 2 Mobile Combustion CO_2

Fuel Type	kg CO_2 per unit	Unit
Aviation Gasoline	8.31	gallon
Biodiesel (100%)	9.45	gallon
Compressed Natural Gas (CNG)	0.05444	scf
Diesel Fuel	10.21	gallon
Ethanol (100%)	5.75	gallon
Kerosene-Type Jet Fuel	9.75	gallon
Liquefied Natural Gas (LNG)	4.50	gallon
Liquefied Petroleum Gases (LPG)	5.68	gallon
Motor Gasoline	8.78	gallon
Residual Fuel Oil	11.27	gallon

Source:
Federal Register EPA; 40 CFR Part 98; e-CFR, June 13, 2017 (see link below). Table C-1.
https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=pt40.23.98&rgn=div5#ap40.23.98_19.1
LNG: The factor was developed based on the CO_2 factor for Natural Gas factor and LNG fuel density from GREET1_2017.xlsx Model, Argonne National Laboratory. This represents a methodology change from previous versions.

Table 3 Mobile Combustion CH_4 and N_2O for On-Road Gasoline Vehicles

Vehicle Type	Year	CH_4 Factor (g / mile)	N_2O Factor (g / mile)
Gasoline Passenger Cars	1973-74	0.1696	0.0197
	1975	0.1423	0.0443
	1976-77	0.1406	0.0458
	1978-79	0.1389	0.0473
	1980	0.1326	0.0499
	1981	0.0802	0.0626
	1982	0.0795	0.0627
	1983	0.0782	0.0630
	1984-93	0.0704	0.0647
	1994	0.0617	0.0603
	1995	0.0531	0.0560
	1996	0.0434	0.0503
	1997	0.0337	0.0446
	1998	0.0240	0.0389
	1999	0.0215	0.0355
	2000	0.0175	0.0304
	2001	0.0105	0.0212
	2002	0.0102	0.0207
	2003	0.0095	0.0181
	2004	0.0078	0.0085
	2005	0.0075	0.0067
	2006	0.0076	0.0075
	2007	0.0072	0.0052
	2008	0.0072	0.0049
	2009	0.0071	0.0046
	2010	0.0071	0.0046
	2011	0.0071	0.0046
	2012	0.0071	0.0046
	2013	0.0071	0.0046
	2014	0.0071	0.0046
	2015	0.0068	0.0042
	2016	0.0065	0.0038
	2017	0.0054	0.0018
	2018	0.0052	0.0016
Gasoline Light-Duty Trucks (Vans, Pickup Trucks, SUVs)	1973-74	0.1908	0.0218
	1975	0.1634	0.0513
	1976	0.1594	0.0555
	1977-78	0.1614	0.0534
	1979-80	0.1594	0.0555
	1981	0.1479	0.0660
	1982	0.1442	0.0681
	1983	0.1368	0.0722
	1984	0.1294	0.0764
	1985	0.1220	0.0806
	1986	0.1146	0.0848
	1987-93	0.0813	0.1035
	1994	0.0646	0.0982
	1995	0.0517	0.0908
	1996	0.0452	0.0871
	1997	0.0452	0.0871
	1998	0.0412	0.0787
	1999	0.0333	0.0618
	2000	0.0340	0.0631
	2001	0.0221	0.0379
	2002	0.0242	0.0424
	2003	0.0221	0.0373
	2004	0.0115	0.0088
	2005	0.0105	0.0064
	2006	0.0108	0.0080
	2007	0.0103	0.0061
	2008	0.0095	0.0036
	2009	0.0095	0.0036
	2010	0.0095	0.0035
	2011	0.0096	0.0034
	2012	0.0096	0.0033
	2013	0.0095	0.0035
	2014	0.0095	0.0033
	2015	0.0094	0.0031
	2016	0.0091	0.0029
	2017	0.0084	0.0018
	2018	0.0081	0.0015
Gasoline Heavy-Duty Vehicles	<1981	0.4604	0.0497
	1982-84	0.4492	0.0538
	1985-86	0.4090	0.0515
	1987	0.3675	0.0849
	1988-1989	0.3492	0.0933
	1990-1995	0.3246	0.1142
	1996	0.1278	0.1680
	1997	0.0924	0.1726
	1998	0.0655	0.1750
	1999	0.0648	0.1724
	2000	0.0630	0.1660
	2001	0.0577	0.1468
	2002	0.0634	0.1673
	2003	0.0602	0.1553
	2004	0.0298	0.0164
	2005	0.0297	0.0083
	2006	0.0299	0.0241
	2007	0.0322	0.0015
	2008	0.0340	0.0015
	2009	0.0339	0.0015
	2010	0.0320	0.0015
	2011	0.0304	0.0015
	2012	0.0313	0.0015
	2013	0.0313	0.0015
	2014	0.0315	0.0015
	2015	0.0332	0.0021
	2016	0.0321	0.0061
	2017	0.0329	0.0084
	2018	0.0326	0.0082
Gasoline Motorcycles	1960-1995	0.0899	0.0087
	1996-2018	0.0672	0.0069

Source: EPA (2020) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. All values are calculated from Tables A-107 through A-111.

Table 4 Mobile Combustion CH_4 and N_2O for On-Road Diesel and Alternative Fuel Vehicles

Vehicle Type	Fuel Type	Vehicle Year	CH_4 Factor (g / mile)	N_2O Factor (g / mile)
Passenger Cars	Diesel	1960-1982	0.0006	0.0012
		1983-1995	0.0005	0.0010
		1996-2006	0.0005	0.0010
		2007-2018	0.0302	0.0192
Light-Duty Trucks	Diesel	1960-1982	0.0011	0.0017
		1983-1995	0.0009	0.0014
		1996-2006	0.0010	0.0015
		2007-2018	0.0290	0.0214
Medium- and Heavy-Duty Vehicles	Diesel	1960-2006	0.0051	0.0048
		2007-2018	0.0095	0.0431
Light-Duty Cars	Methanol		0.0080	0.0060
	Ethanol		0.0080	0.0060
	CNG		0.0820	0.0060
	LPG		0.0080	0.0060
	Biodiesel		0.0300	0.0190
Light-Duty Trucks	Ethanol		0.0120	0.0110
	CNG		0.1230	0.0110
	LPG		0.0120	0.0130
	LNG		0.1230	0.0110
	Biodiesel		0.0290	0.0210
Medium-Duty Trucks	CNG		4.2000	0.0010
	LPG		0.0140	0.0340
	LNG		4.2000	0.0430
	Biodiesel		0.0090	0.0010
Heavy-Duty Trucks	Methanol		0.0750	0.0280
	Ethanol		0.0750	0.0280
	CNG		3.7000	0.0010
	LPG		0.0130	0.0260
	LNG		3.7000	0.0010
	Biodiesel		0.0090	0.0430
Buses	Methanol		0.0220	0.0320
	Ethanol		0.0220	0.0320
	CNG		10.0000	0.0010
	LPG		0.0340	0.0170
	LNG		10.0000	0.0010
	Biodiesel		0.0090	0.0430

Source: EPA (2020) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. All values are calculated from Tables A-110 through A-113.

Table 5 Mobile Combustion CH_4 and N_2O for Non-Road Vehicles

Vehicle Type	Fuel Type	CH_4 Factor (g / gallon)	N_2O Factor (g / gallon)
Ships and Boats	Residual Fuel Oil	0.55	0.55
	Gasoline (2 stroke)	9.54	0.06
	Gasoline (4 stroke)	4.88	0.23
	Diesel	0.31	0.50
Locomotives	Diesel	0.80	0.26
Aircraft	Jet Fuel	0	0.30
	Aviation Gasoline	7.06	0.11
Agricultural Equipment[A]	Gasoline (2 stroke)	12.96	0.06
	Gasoline (4 stroke)	7.24	0.21
	Diesel	0.28	0.49
	LPG	2.19	0.39
Agricultural Offroad Trucks	Gasoline	7.24	0.21
	Diesel	0.13	0.49
Construction/Mining Equipment[B]	Gasoline (2 stroke)	12.42	0.07
	Gasoline (4 stroke)	5.58	0.20
	Diesel	0.20	0.47
	LPG	1.05	0.41
Construction/Mining Offroad Trucks	Gasoline	5.58	0.20
	Diesel	0.13	0.49
Lawn and Garden Equipment	Gasoline (2 stroke)	15.57	0.06
	Gasoline (4 stroke)	5.84	0.18
	Diesel	0.33	0.47
	LPG	0.35	0.41
Airport Equipment	Gasoline	2.58	0.25
	Diesel	0.17	0.49
	LPG	0.33	0.41
Industrial/Commercial Equipment	Gasoline (2 stroke)	15.14	0.06
	Gasoline (4 stroke)	5.48	0.20
	Diesel	0.23	0.47
	LPG	0.44	0.41
Logging Equipment	Gasoline (2 stroke)	12.03	0.08
	Gasoline (4 stroke)	6.71	0.18
	Diesel	0.10	0.49
Railroad Equipment	Gasoline	5.78	0.19
	Diesel	0.44	0.42
	LPG	1.20	0.41
Recreational Equipment	Gasoline (2 stroke)	7.81	0.03
	Gasoline (4 stroke)	8.45	0.19
	Diesel	0.41	0.41
	LPG	2.98	0.38

Source: EPA (2020) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. All values are calculated from Tables A-114 through A-115.

Notes:

[A] Includes equipment, such as tractors and combines, as well as fuel consumption from trucks that are used off-road in agriculture.

[B] Includes equipment, such as cranes, dumpers, and excavators, as well as fuel consumption from trucks that are used off-road in construction.

CALIFORNIA AIR RESOURCES BOARD

Version: V3.4910

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Welcome: Winnie Siauw for Los Angeles County Sanitation Districts

Certified Pathways

Fuel Producer: Los Angeles County Sanitation Districts

Company ID: L375

Facility Name: Biogas Conditioning System Facility

Facility ID: F00308

Application for Tier 1 Pathway

Application # A0385

Pathway Number	Fuel Type	FeedStock	Applied Pathway Description	Applied CI(g/MJ)	Prov. Pathway	Pro. Start Date	Pro. End Date
A038501	Compressed Natural Gas (CNG)	Wastewater Sludge	Fuel Producer: Los Angeles County Sanitation Districts (L375); Facility Name: Biogas Conditioning System (F00308); RNG produced from the mesophillic anaerobic digestion of wastewater sludge at a POTW in Carson, California using grid-based electricity, and delivered to on-site CNG dispensing station.	20.43	Yes	08/20/2021	03/31/2023

Certified FPC	Certified CI (gCO2e/MJ)	FPC Start Date	FPC End Date	Certification Date	Certified Pathway Description	FPC Status	Comments	OP CI	Edit
CNG030A03850100	19.28	04/01/2021	12/31/2030	08/20/2021	Fuel Producer: Los Angeles County Sanitation District (L375); Facility Name: Biogas Conditioning System Facility (F00308); Biomethane produced from the mesophilic anaerobic digestion of wastewater sludge; grid electricity; finished fuel is compressed and dispensed as CNG transportation fuel onsite. (Provisional)	Active	Certified Provisional	No	

Back

Appendix C: Landfill Fugitive Emissions

<u>Collection Efficiencies of LACSD's LFG Systems</u>

Measuring landfill gas collection efficiency is important for gauging emission control effectiveness and energy recovery opportunities. The Los Angeles County Sanitation Districts (LACSD) had developed a methodology for estimating collection efficiency using readily acquired integrated surface methane (ISM) concentration data and the US EPA's Industrial Source Complex (ISC) air dispersion model. This innovative methodology has been applied previously to estimate collection efficiency at Districts' Palos Verdes landfill (PVLF) (Huitric and Kong, 2006; Huitric, *et al.*, 2007). This approach is used here to estimate collection efficiencies at Districts' all six landfills.

Background:

Air dispersion mechanism, on which the US EPA's ISC model is based, indicated that the gas emission rate from an area source and the resulting surface gas levels are directly linear with one another. This linear relationship allows the usual definition of gas collection efficiency (i.e., the ratio of measured collected gases to an uncertain amount of generated gases) to be restated in terms of surface gas concentrations. Because methane is readily measured within surface gases and because it is proportionate to total gas emissions, it is used here for calculating collection efficiency.

The ISC model can be used to transform the amount of collected methane to an equivalent reduction in surface methane levels achieved by gas collection, ISM_r. Gas generation is then expressed as the sum of the modeled reduction in surface methane due to collection, ISM_r, and the measured surface methane due to emissions, ISM_e. Gas collection efficiency is then calculated by the following equation:

$$E = \frac{ISM_r}{ISM_r + ISM_e} \qquad (1)$$

where ISM_e is measured by the integrated surface methane (ISM) monitoring, and ISM_r is calculated by the ISC model. Details of the procedures of this methodology are presented in Huitric and Kong (2006), and Huitric, *et al.* (2007).

Approach:

There are three approaches that can be applied to estimate collection efficiencies. The first approach is the Grid-by-Grid Analysis, by which the collection efficiency is calculated by equation (1) on a grid by grid basis for each quarterly ISM monitoring for all the monitoring grids of each landfill. The second approach is the Averaged Grid Emission Analysis, by which collection efficiency calculation is based on the site-wide, rather than grid by grid, overall average surface emissions, ISM_e, and average modeled surface emissions reduction, ISM_r. The third approach is the Weighted Average Analysis, by which a frequency analysis of the site meteorological data is made for hours corresponding to actual ISM monitoring. A frequency table is created using possible wind speed ranges (within which ISM monitoring was taken place) and six meteorological stability categories ("A" through "F"). For each combination of wind speed and stability category, a surface methane concentration reduction due to collection is predicted by the ISC model. The weighted overall average methane reduction due to collection, ISM_r, is calculated based on this frequency table of combinations of wind speed and stability category, as well as the corresponding surface methane reduction under each wind speed and stability category combination. Collection efficiency can then be estimated, according to equation (1), using this weighted average methane reduction, ISM_r, and the average of actual surface methane levels, ISM_e.

Among the three approaches, grid-by-grid analysis is the most accurate and detailed approach. However, extensive analyses of grid-by-grid ISM monitoring and meteorological data are required, and this approach generates exceedingly large model output files, making data analysis a difficult and tedious task. The average grid emission analysis is a simpler approach, with simplified analysis yet still generates large model output files. The weighted average analysis is the simplest approach among the three. It generates much smaller and more manageable ISC output files, enables a much easier analysis. Another significant advantage for this weighted average methodology, is that this approach, unlike the other two approaches, relies only on a fix combination of wind speed and stability category (the frequency table), thus does not require an extensive preprocessing of the meteorological data, that normally requires an outside expert's assistance and extensive upper air meteorological data gathering, for running the ISC model. Thus, as a result, significant time and efforts can be saved.

These three approaches have been previously applied to Districts' Palos Verdes landfill (Huitric and Kong, 2006). Collection efficiencies have been estimated by the three approaches using fiscal year 2001 ISM monitoring and the corresponding weather data. While the most accurate and complete grid-by-grid analysis estimated an average collection efficiency of 93.8% for the urban mode and 96.5% for the rural mode, the simpler averaged grid emission analysis yielded collection efficiencies of 93.2% and 96.4%, for urban and rural modes, respectively, and the simplest weighted average approach resulted in collection efficiencies of 92.8% and 96.1%, for urban and rural modes, respectively. This indicates that the weighted average approach is capable of not only saving time and efforts significantly, but also yielding fairly accurate and more conservative collection efficiency estimations. Therefore, the weighted average approach is used to estimate collection efficiencies at Districts' six landfills in this study.

Collection Efficiency Calculations:

Collection efficiency calculations are conducted for District's Calabasas landfill (CALF), Puente Hills landfill (PHLF), PVLF, Scholl Canyon landfill (SCLF), and Spadra landfill

(SPLF) using the sites' year 2006 ISM monitoring and weather data. Because Districts' Mission Canyon landfill (MCLF) is not required by regulations to conduct integrated surface methane (ISM) monitoring, no ISM monitoring data for year 2006 are available for MCLF. Alternatively, surface methane monitoring and corresponding weather data obtained during two separate surface methane monitoring events (in which, surface methane concentrations were recorded in a routing fashion covering the entire surface of the site) in June 1998 are used to estimate collection efficiencies for MCLF. Quarterly ISM monitoring, and the corresponding weather data are obtained for the entire year of 2006 for each landfill, except for MCLF, for which data from two monitoring events in June 1998 are used. To make the data files more manageable, a computer database algorithm has been developed to filter out unnecessary weather data and to retain only those weather data recorded in hours corresponding to times of ISM monitoring. This database algorithm assigns a stability category ("A" through "F") according to the method developed by Pasquill (1961) for each data point based on time and wind speed associated with this monitoring event. At the same time, this algorithm also records the number of occurrences for each combination of wind speed and stability category within each landfill dataset.

As a result, a site-specific frequency table counting percentage of occurrence of each wind speed and stability category combination can then be generated for each landfill. Subsequently, similar tables containing ISC model predicted surface methane reductions due to collection for each of the wind speed and stability category combinations can be generated for urban and rural modes, respectively. These tables of the ISC model results are generated based on results obtained from previous modeling work at PVLF (i.e., Huitric and Kong, 2006). Because the ISC model predicted surface methane reductions due to collection were generated in such manner that they are only corresponding to a given set of wind speed and stability category combinations, thus are independent of site-specific meteorological conditions. Therefore, these tables of ISC model results are applied to all landfill sites, in conjunction with each site-specific meteorological condition. The combination of the ISC results table and the site-specific (weather data) frequency table (in fact, the product of these two tables) yields a weighted average surface methane reduction due to collection for a landfill. This weighted average surface methane reduction value combines with the average actual ISM measurement leads to collection efficiency estimates for the landfill.

The US EPA's population guidance suggests that for a 3-km radius circle out from a facility, if the area is > 50% urban, then run the ISC model in the urban mode. Otherwise it's more appropriate to apply the model in rural mode. However, to get a better understanding of gas collection system's performance, results under both rural and urban modes are presented. Table 1 below shows quarterly collection efficiency estimates, based on year 2006 monitoring data and under rural and urban modes respectively, for Districts' all, but one, landfills. For MCLF, collection efficiency estimates, based on June 1998 monitoring data, are presented.

Table 1. Collection Efficiency Estimates for Districts' Landfills

Landfill	Collection Efficiency									
	Q1-2006		Q2-2006		Q3-2006		Q4-2006		***Annual Average***	
	Rural	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*
CALF	96.0%	91.8%	97.9%	95.6%	96.1%	93.9%	92.8%	86.1%	**95.7%**	**91.8%**
PHLF	97.0%	93.7%	97.8%	95.8%	96.9%	95.3%	97.4%	95.3%	**97.3%**	**95.0%**
PVLF	97.3%	94.4%	98.6%	97.3%	98.2%	97.2%	96.9%	94.1%	**97.7%**	**95.7%**
SCLF	98.8%	97.5%	99.7%	99.4%	99.4%	99.0%	99.8%	99.7%	**99.4%**	**98.9%**
SPLF	99.9%	99.9%	100%	100%	98.8%	98.0%	95.1%	90.9%	**98.5%**	**97.2%**
	June 02, 1998		June 18, 1998						***Average***	
MCLF	93.5%	87.8%	97.6%	95.2%					**95.5%**	**91.5%**

Discussions:

Because there is no year 2006 ISM monitoring data available for MCLF, surface methane monitoring and corresponding weather data collected in June 1998 were used to estimate collection efficiency at MCLF. Sample bags and OVA device were used during the June 1998 monitoring events, because the reading for the OVA device is analog rather than digital, as it's the case for more modern methane reading devices, roundup errors could have resulted. And these roundup errors could lead to higher methane readings than their actual levels. Lower collection efficiency values could be estimated as a result.

Collection efficiencies for PVLF had been estimated previously using Q2/2006 monitoring data (Huitric, *et al.*, 2007). In this previous study, a more accurate and detailed averaged grid emission analysis was used, and it estimated +99% collection efficiencies for PVLF under both rural and urban modes. As discussed earlier in this paper, the weighted average approach, used here in this study, tends to predict slightly lower collection efficiencies, thus its collection efficiency estimates tend to be more conservative. This is true not only for PVLF, but also for other landfills discussed in this paper.

At CALF, in order to improve collected gas quality for energy recovery, gas system's applied vacuum had been decreased about 40% from its previous level beginning in October 2006. This lowering applied vacuum level led to higher ISM level (but still much lower than the 50 ppm regulatory limit) for Q4/2006 as compared to those of the preceding quarters of the year. Consequently, lower collection efficiency values are estimated for Q4/2006.

Below background level of ISM has been measured for the second quarter of 2006 at SPLF, this resulted in a virtually 100% collection efficiency for Q2/2006.

Because the rules of Pasquill's in identifying stability categories of the weather data are vague and not straightforward, in developing and implementing the database algorithm to identify stability categories, the algorithm is designed that whenever there is a weather condition under which either one of the two neighboring stability categories (say, A or B) can be assigned, the algorithm will always choose the stability category that tends to be more unstable (in this case, category A). This would result in a smaller ISC model predicted surface methane reduction due to collection (ISM_r), and as a result, lower yet more conservative collection efficiency estimations are calculated.

In summary, applying simpler yet systematic and effective approach, collection efficiencies for Districts' landfills have been estimated. Even the estimates tend to be more on the conservative side, the results of this study indicate that all Districts' six landfills are having high efficiency LFG collection systems in operation.

References:

Huitric, R. and D. Kong (2006) "Measuring landfill gas collection efficiency using surface methane concentrations", Solid Waste Association of North America (SWANA) 29th Landfill Gas Symposium, St. Petersburg, FL.

Huitric, R., D. Kong, L. Scales, S. Maguin, and P. Sullivan (2007) "Field comparison of landfill gas collection efficiency measurements", Solid Waste Association of North America (SWANA) 30th Landfill Gas Symposium, Monterey, CA.

Pasquill, F. (1961) "The estimation of the dispersion of windborne material", The Meteorological Magazine, Vol. 90, No. 1063, pp.33-49.

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Appendix D: Refrigerants

SCAQMD RULE 1415 RECORDKEEPING FORM I

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501	**Bldg or area served:**	Cryogenics facility		
Address:	24501 S Figueroa St	Carson	CA	90745	
Mailing Address:	PO Box 4998	Whittier	CA	90607	
Facility Representative:		**Sign:**		**Date:**	03/24/2021
Certified Auditor:	Ryan Hook	**Sign:**		**Cert. #:**	926813064630

System Type:	Air Cooled Chiller	**Make:**	Carrier	**Model #:**	30GXN150-TF640NE
Serial #:	0301F57303	**Unit Tag:**	ch #CH29E-01A	**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair Leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
03/24/2021	Electronic leak detector	**Air Conditioning Solutions Inc** **2223 El Sol Ave** **Altadena, CA 91001**					

Determine the annual refrigerant leak:

Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION = $\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$

Annual Refrigerant Leak (%): 0.00

Notes:
134A

5C65EC12-1A52-4436-A815-DA8E069CB2BD

SCAQMD RULE 1415 RECORDKEEPING FORM I

AQMD

ACS AIR CONDITIONING SOLUTIONS

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501	**Bldg or area served:**	Cryogenics facility

Address:	24501 S Figueroa St	Carson	CA	90745
Mailing Address:	PO Box 4998	Whittier	CA	90607

Facility Representative:		**Sign:**		**Date:**	03/24/2021
Certified Auditor:	Ryan Hook	**Sign:**		**Cert. #:**	926813064630

System Type:	NAAir Cooled Chiller	**Make:**	Carrier	**Model #:**	30GXN150-TF640NE
Serial #:	0301F57305	**Unit Tag:**	ch # RCH29E-01B	**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair Leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
03/24/2021	Electronic leak detector	**Air Conditioning Solutions Inc** **2223 El Sol Ave** **Altadena, CA 91001**	03/24/2021		0		

Determine the annual refrigerant leak:

Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION = $\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$

Annual Refrigerant leak (%): 0.00

Notes:

134A

Chiller is down and is planned for replacement. Large coil leak circuit A1

SCAQMD RULE 1415 RECORDKEEPING FORM I

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501	**Bldg or area served:**	
Address:	24501 S Figueroa St	Carson	CA 90745
Mailing Address:	PO Box 4998	Whittier	CA 90607
Facility Representative:	**Sign:**	**Date:**	
Certified Auditor: Ryan Hook	**Sign:**	**Cert. #:**	

System Type:		**Make:**		**Model #:**	
Serial #:		**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
		Air Conditioning Solutions Inc **2223 El Sol Ave** **Altadena, CA 91001**					

Determine the annual refrigerant leak:

Total Additional Refrigerant:

ANNUAL REFRIGERANT LEAK DETERMINATION = $\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$

Annual Refrigerant Leak (%):

5C65EC12-1A52-4436-A815-DA8E069CB2BD

SCAQMD RULE 1415 RECORDKEEPING FORM I

AQMD

ACS AIR CONDITIONING SOLUTIONS

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501		**Bldg or area served:**		
Address:	24501 S Figueroa St		Carson	CA	90745
Mailing Address:	PO Box 4998		Whittier	CA	90607
Facility Representative:		**Sign:**		**Date:**	
Certified Auditor:	Ryan Hook	**Sign:**		**Cert.#:**	

System Type:		**Make:**		**Model #:**	
Serial #:		**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
		Air Conditioning Solutions Inc **2223 El Sol Ave** **Altadena, CA 91001**					

Determine the annual refrigerant leak:

Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION =

$$\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$$

Annual Refrigerant Leak (%):

5C65EC12-1A52-4436-A815-DA8E069CB2BD

SCAQMD RULE 1415 RECORDKEEPING FORM I

AQMD

ACS AIR CONDITIONING SOLUTIONS

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501	**Bldg or area served:**	Roof

Address:	24501 S Figueroa St	Carson	CA	90745
Mailing Address:	PO Box 4998	Whittier	CA	90607

Facility Representative:		**Sign:**		**Date:**	03/23/2021
Certified Auditor:	Nick Siperly	**Sign:**		**Cert. #:**	926813064630

System Type:	Gas Pack	**Make:**	Carrier	**Model #:**	48AJD030-D-611FF
Serial #:	3706U23227	**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair Leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
03/23/2021	Electronic leak detector	**Air Conditioning Solutions Inc 2223 El Sol Ave Altadena, CA 91001**					

Determine the annual refrigerant leak: Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION = Additional Refrigerant x 100 / Total Charge Capacity

Annual Refrigerant Leak (%): 0.00

Notes:

R-22. No leaks found at this time

A9D73232-0DCC-43E7-9071-03EF15F016CC

SCAQMD RULE 1415 RECORDKEEPING FORM I

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501		**Bldg or area served:**		
Address:	24501 S Figueroa St		Carson	CA	90745
Mailing Address:	PO Box 4998		Whittier	CA	90607
Facility Representative:		**Sign:**		**Date:**	
Certified Auditor:	Nick Siperly	**Sign:**		**Cert. #:**	

System Type:		**Make:**		**Model #:**	
Serial #:		**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair Leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
		Air Conditioning Solutions Inc **2223 El Sol Ave** **Altadena, CA 91001**					

Determine the annual refrigerant leak:

Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION =

$$\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$$

Annual Refrigerant leak (%):

SCAQMD RULE 1415 RECORDKEEPING FORM I

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501		**Bldg or area served:**		
Address:	24501 S Figueroa St		Carson	CA	90745
Mailing Address:	PO Box 4998		Whittier	CA	90607
Facility Representative:		**Sign:**		**Date:**	
Certified Auditor:	Nick Siperly	**Sign:**		**Cert. #:**	

System Type:		**Make:**		**Model #:**	
Serial #:		**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
		Air Conditioning Solutions Inc 2223 El Sol Ave Altadena, CA 91001					

Determine the annual refrigerant leak:

Total Additional Refrigerant:

ANNUAL REFRIGERANT LEAK DETERMINATION =

$$\frac{\text{Additional Refrigerant x 100}}{\text{Total Charge Capacity}}$$

Annual Refrigerant Leak (%):

SCAQMD RULE 1415 RECORDKEEPING FORM I

6563 - PM - M1202.03 - County Sanitation District

Facility Name:	County Sanitation District LAC** County Sanitation 24501		**Bldg or area served:**		
Address:	24501 S Figueroa St		Carson	CA	90745
Mailing Address:	PO Box 4998		Whittier	CA	90607
Facility Representative:		**Sign:**		**Date:**	
Certified Auditor:	Nick Siperly	**Sign:**		**Cert.#:**	

System Type:		**Make:**		**Model #:**	
Serial #:		**Unit Tag:**		**Refrigerant Type:**	

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Date	Leak Test Method	Name & Address of contractor who repaired leak & performed test	Date Leak Detected (if any)	Date Leak Repaired (if any)	Total Days to Repair leak (if any)	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)
		Air Conditioning Solutions Inc **2223 El Sol Ave** **Altadena, CA 91001**					

Determine the annual refrigerant leak:

Total Additional Refrigerant =

ANNUAL REFRIGERANT LEAK DETERMINATION =

$$\frac{\text{Additional Refrigerant} \times 100}{\text{Total Charge Capacity}}$$

Annual Refrigerant Leak (%):

A9D73232-0DCC-43E7-9071-03EF15F016CC

SOUTH COAST AQMD RULE 1415 RECORDKEEPING FORM I

Name: County Sanitation 24501

: 24501 S Figueroa St, Carson, CA 90745

Address: PO Box 4998, Whittier, CA 90607

Representative:			**Customer Signature:** ~i:52:75~		
d Auditor: Nick Siperly		**Cert. #:** 1660809483		**Signed:** Jr 46	
ype	Chiller - Water Cooled Screw	**Make**	Carrier	**Charge Capacity**	1
#	3902Q02027	**Model #**	30HXC246RY	**Refrigerant**	R-

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

	Leak Test Method	Type of Leak or Malfunction	Date Leak Detected	Date Leak Repaired	Total Days to Repair Leak	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)	(
	Electronic Leak Detector	None						

ine the annual refrigerant leak:

AL REFRIGERANT = Additional Refrigerant X 100

DETERMINATION Total Charge Capacity

Total Additional Refrigerant = (

Annual Refrigerant Leak (%) = 0.

an employee or representative of the owner of the system performed all work, then only write "OWNER" in column IV.

SOUTH COAST AQMD RULE 1415 RECORDKEEPING FORM I

Name: County Sanitation 24501

: 24501 S Figueroa St, Carson, CA 90745

Address: PO Box 4998, Whittier, CA 90607

Representative:	**Customer Signature:** ~i:52:75~	
d Auditor: Nick Siperly	**Cert. #:** 1660809483	**Signed:**

ype	Chiller - Water Cooled Screw	**Make**	Carrier	**Charge Capacity**	2
#	S2112Q20156	**Model #**	30HXC126PYE671AA-1	**Refrigerant**	R-

PLEASE REFER TO FORM II IF A REFRIGERATION LEAK OCCURRED

Leak Test Method	Type of Leak or Malfunction	Date Leak Detected	Date Leak Repaired	Total Days to Repair Leak	Refrigerant Recovered (lbs)	Additional Refrigerant (lbs)	(
Electronic Leak Detector	None						

ine the annual refrigerant leak:

AL REFRIGERANT = Additional Refrigerant X 100

DETERMINATION Total Charge Capacity

Total Additional Refrigerant = (

Annual Refrigerant Leak (%) = 0.

an employee or representative of the owner of the system performed all work, then only write "OWNER" in column IV.

SCAQMD RULE 1415 REFRIGERANT ANNUAL AUDIT (FORM I)

Facility Name: LAS		Phone #: 714-614-1271	
Address: 1955 Workman Mill RD Whittier CA 90601			
Mailing Address:			
Facility Representative: JAIME TALAVERA	385339127930	Sign:	Date: 7-1-2021
Certified Auditor: Garrett Black	ID#: ~~[illegible]~~14	Sign:	Date of Audit: 6-28-202

Total Capacity 2550 lbs.	System Type	Refrigeration: Serial # ______	A/C System: Serial # 4604Q69713	Refrigerant	R (134)A

Please check here if the system had a refrigerant leak: [ ]

PLEASE REFER TO FORM II IF A REFRIGERANT LEAK OCCURRED

Date	Leak Test Method	P/O # of Recycler	Name and Address of the CONTRACTOR who repaired leak & performed leak test	Date Leak Detected	Date Leak Repaired	Total Days to Repair Leak	Refrigerant Recovered (lbs)	Additional Refrigerants (lbs)
6/28/2021	Electronic		Carrier Corp 2478 Peck Rd COI, CA 90601					

Determine the annual refrigerant leak by use of this equation below:

$$\text{ANNUAL REFRIGERANT LEAK DETERMINATION} = \frac{\text{Additional Refrigerant}}{\text{Total Change Capacity}} \times 100 < 5\%$$

Total Additional Refrigerant = ______ lbs.

Annual Refrigerant Leak % = ______ %

NOTE: If an employee or representative of the owner of the system performed all work, then only write "OWNER" in column IV.

R1415 (FORM I) JB: (4/13/92)	Form Serial #: ______	Triplicate Forms	WHITE - SOURCE	YELLOW - AUDITOR	PINK - SCAQMD

SCAQMD RULE 1415 REFRIGERANT ANNUAL AUDIT (FORM I)

Facility Name: LAS   Phone #: (714) 614-1271

Address: 1955 Workman Mill Rd Whittier CA 90601

Mailing Address:

Facility Representative: JAIME TALAVERA 385339127930   Sign: Date: 7-1-2021

Certified Auditor: Garrett Black   ID#: [redacted]   Sign: Date of Audit: 6-28-2021

Total Capacity 2550 lbs.   System Type   Refrigeration: Serial # ______________   A/C System: Serial # 4604Q69714   Refrigerant   R (134)A

Please check here if the system had a refrigerant leak: ☐

PLEASE REFER TO FORM II IF A REFRIGERANT LEAK OCCURRED

Date	Leak Test Method	P/O # of Recycler	Name and Address of the CONTRACTOR who repaired leak & performed leak test	Date Leak Detected	Date Leak Repaired	Total Days to Repair Leak	Refrigerant Recovered (lbs)	Additional Refrigerants (lbs)
6/28/2021	Electronic		Carrier Corp 2478 Peck Rd COI CA 90601					

Determine the annual refrigerant leak by use of this equation below:

$$\text{ANNUAL REFRIGERANT LEAK DETERMINATION} = \frac{\text{Additional Refrigerant}}{\text{Total Change Capacity}} \times 100 < 5\%$$

Total Additional Refrigerant = ______ lbs.

Annual Refrigerant Leak % = ______ %

NOTE: If an employee or representative of the owner of the system performed all work, then only write "OWNER" in column IV.

R1415 (FORM I) JB: (4/13/92)	Form Serial #: ______________	Triplicate Forms	WHITE - SOURCE YELLOW - AUDITOR PINK - SCAQMD

SCAQMD RULE 1415 REFRIGERANT ANNUAL AUDIT (FORM I)

Facility Name: LAS		**Phone #:** (714) 614-1271	
Address: 1955 Workman Mill Rd Whittier CA 90601			
Mailing Address:			
Facility Representative: JAIME TALAVERA 385339127930		**Sign:**	**Date:** 7-1-2021
Certified Auditor: Garrett Black	**ID#:** [redacted]4	**Sign:**	**Date of Audit:** 6-28-2021
Total Capacity 750 lbs.	**System Type** Refrigeration: Serial # ______	A/C System: Serial # 5298J59060	Refrigerant R (134) A
Please check here if the system had a refrigerant leak:		PLEASE REFER TO FORM II IF A REFRIGERANT LEAK OCCURRED	

Date	Leak Test Method	P/O # of Recycler	Name and Address of the CONTRACTOR who repaired leak & performed leak test	Date Leak Detected	Date Leak Repaired	Total Days to Repair Leak	Refrigerant Recovered (lbs)	Additional Refrigerants (lbs)
6/28/2021	Electronic		Carrier Corp 2478 Peck Rd COI, CA 90601					

Determine the annual refrigerant leak by use of this equation below:

$$\text{ANNUAL REFRIGERANT LEAK DETERMINATION} = \frac{\text{Additional Refrigerant}}{\text{Total Change Capacity}} \times 100 < 5\%$$

Total Additional Refrigerant = ______ lbs.

Annual Refrigerant Leak % = ______ %

NOTE: If an employee or representative of the owner of the system performed all work, then only write "OWNER" in column IV.

R1415 (FORM I) JB: (4/13/92)	Form Serial #: ______	Triplicate Forms	WHITE - SOURCE	YELLOW - AUDITOR	PINK - SCAQMD

VIC'S
MECHANICAL SERVICE CONTRACTORS
ESTABLISHED 1951

317 E. 5th Street
Holtville, CA 92250
(760) 356-4018
dispatch@vicsac.com

Invoice

DATE	04/28/2021
INVOICE#	85208
TERMS	Due on completion

BILL TO	SERVICE LOCATION
County Sanitation Districts of LA cou4477 P.O. Box 4998 Whittier CA 90607 7608805605Michell	6330 E Hwy 78 - MESQUITE REG LANDFILL 6330 E Hwy 78 Brawley CA 92227 (760) 880-5605

JOB#	DATE	PO/REF#	DESCRIPTION
6371	03/30/2021		**Completion Notes:** In. 8:30-- AC 10. Worne blower belt. A36, weak 15uf blower motor capacitor. Ac 9 found weak 10uf cfm capacitor. AC 7 found no issues on unit.. scale house window unit, need to be replaced, 2 ton , opening is 26 inches by 18 inches. AC 3 HEATER 2 pole 30 amp 24volt coil contactor is pitted need replacement, and a 10uf blower motor capacitor. AC 3 needs freon, R22. AC14 Found no issues on it. AC15 no issues found. Clock out 1:30 3/31/21 clock in= 8:30. AC5 found overheated 2 pole 30 amp 24volt coil contactor on heat strips. AC4 overheated 2 pole 30amp 24 volt contactor on heat strips. AC6A mini working properly. AC6B Wall pack compressor is shorted needs quote for new unit. Clock out= 10:15. We need to reschedule to finish. 4/27/21 AC 8 found pitted contactor (2pole 40aamp 24volt) . #11 didn't find any issues on unit. Replace blower belt. Unit 12. Found cfm blades dropped from motor, put it back check it, amps were fine. No issues found.

PO#1667294
RECEIVED 5/6/2021
MICHELE OCHS
WORK ORDER No. 0343355-14

Job Charges	Qty	Rate	Total
Contract - Commercial Commercial contract; includes material, tax and labor	1.00	$2,475.33	$2,475.33
Job Subtotal			**$2,475.33**
7.75% sales tax (2017)		7.75%	$0.00
Job Total			**$2,475.33**

OK TO PAY
[illegible]

PRE-WORK SIGNATURE	POST-WORK SIGNATURE
	04/27/2021 01:24 pm

Signed By:

Signed By: Mesquite Regional Landfill CSDLA

EQUIPMENT SERVICED

PACKAGE HEAT PUMP: ICP PHH072H0A00AAA

S/N: G081240518

Extended Warranty?: No

SKU:

Warranty Expires:

Installed:

Location: Roof #9

Notes:

WALLPACK: BARD WA121-A05XP4XXJ

S/N: 158C072320128-01

SKU:

Installed:

Location: #6-B

Notes:

Extended Warranty?: No

Warranty Expires:

PACKAGE HEAT PUMP: ICP PHH072H0A00AAA

S/N: G081240517

SKU:

Installed:

Location: Roof#8

Notes:

Extended Warranty?: No

Warranty Expires:

PACKAGE HEAT PUMP: ICP PHH036H0A00AAA

S/N: G080220472

SKU:

Installed:

Location: Roof#11

Notes:

Extended Warranty?: No

Warranty Expires:

PACKAGE HEAT PUMP: DAY & NIGHT PHH150H0A000AA

S/N: 0586008522

SKU:

Installed:

Location: Roof#12

Notes:

Extended Warranty?: No

Warranty Expires:

CONDENSER - HP: DAY & NIGHT N4H318GKC100

S/N: E073412561

SKU:

Installed:

Location: Roof#13

Notes:

Extended Warranty?: No

Warranty Expires:

CUSTOMER MESSAGE

Terms: Due upon completion. Thank you for your business.

Invoice Total:	**$2,475.33**
Deposits (-):	**$0.00**
Payments (-):	**$0.00**
Total Due:	**$2,475.33**

Invoice

Vic's Air Conditioning & Electrical

P.O. Box 815
Holtville, CA 92250
760-356-4018

Date	Invoice #
8/19/2021	86849

Bill To
County Sanitation Districts of LA cou4477 P.O. Box 4998 Whittier, CA 90607

PO# 1667294 - REPAIRS
MESQUITE REGIONAL LANDFILL
RECEIVED 10/25/2021
MICHELE OCHS
WORK ORDER No 0343355-14

P.O. No.	Terms	Project
	Due on completion	6330 E Hwy 78 - MESQUITE...

Quantity	Description	Rate	Amount
	Job# 8247 Assigned Techs: Jorge Teran Completion Notes: AC 10 replace AX36 blower BELT, and 15uf blower capacitor. AC 9 replace 10uf cfm capacitor.. AC 8 Replace a 2 pole 40amp 24volt contactor. AC 3 replace a 2 pole 30amp 24volt coil contactor. AC 5 replace a 2 pole 30amp 24volt coil contactor. AC 4 replace a 2 pole 30amp 24volt coil contactor. AC8 4=16×16×2 FILTERS AC 9 4=16×16×2 FILTERS		
0	GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V CONTACTORS ARE SWITCHES THAT USE HIGH VOLTAGE TO HELP COMPONENTS IN YOUR UNIT. SINCE THEY ARE IN CONSTANT USE, THEY DO NEED TO BE REPLACED OCCASIONALLY.	0.00	0.00
1	PR-FR	98.93	98.93
1	L37-120 / GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V	33.24	33.24
0	10 MFD RUN CAPACITOR REPLACEMENT SIMILAR TO A BATTERY, CAPACITORS HELP START MOTORS BY STORING CURRENT. A DAMAGED CAPACITOR CAN DAMAGE THE MOTOR IF NOT SERVICED. REGULAR MAINTENANCE IS ENCOURAGED.	0.00	0.00
1	PR-FR	98.93	98.93
1	CR10X440 / 10 MFD RUN CAPACITOR	18.08	18.08
0	GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V CONTACTORS ARE SWITCHES THAT USE HIGH VOLTAGE TO HELP COMPONENTS IN YOUR UNIT. SINCE THEY ARE IN CONSTANT USE, THEY DO NEED TO BE REPLACED OCCASIONALLY.	0.00	0.00
1	PR-FR	98.93	98.93
1	L37-120 / GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V	33.24	33.24
0	GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V CONTACTORS ARE SWITCHES THAT USE HIGH VOLTAGE TO HELP COMPONENTS IN YOUR UNIT. SINCE THEY ARE IN CONSTANT USE, THEY DO NEED TO BE REPLACED OCCASIONALLY.	0.00	0.00
1	PR-FR	98.93	98.93
1	L37-120 / GENERIC CONTACTOR * 2 POLE 25 - 30 AMP 24V	33.24	33.24
0	GENERIC CONTACTOR * 2 POLE 35 - 40 AMP 24V CONTACTORS ARE SWITCHES THAT USE HIGH VOLTAGE TO HELP COMPONENTS IN YOUR UNIT. SINCE THEY ARE IN CONSTANT USE, THEY DO NEED TO BE REPLACED OCCASIONALLY.	0.00	0.00
1	PR-FR	98.93	98.93
		Total	

Invoice

Vic's Air Conditioning & Electrical

P.O. Box 815
Holtville, CA 92250
760-356-4018

Date	Invoice #
8/19/2021	86849

Bill To
County Sanitation Districts of LA cou4477 P.O. Box 4998 Whittier, CA 90607

P.O. No.	Terms	Project
	Due on completion	6330 E Hwy 78 - MESQUITE...

Quantity	Description	Rate	Amount
1	L36-860 / GENERIC CONTACTOR * 2 POLE 35 - 40 AMP 24V	103.50	103.50
1	MISC.5 / MISCELLANEOUS .50	2.50	2.50
0	10 MFD RUN CAPACITOR REPLACEMENT SIMILAR TO A BATTERY, CAPACITORS HELP START MOTORS BY STORING CURRENT. A DAMAGED CAPACITOR CAN DAMAGE THE MOTOR IF NOT SERVICED. REGULAR MAINTENANCE IS ENCOURAGED.	0.00	0.00
1	PR-FR	98.93	98.93
1	CR10X440 / 10 MFD RUN CAPACITOR	18.08	18.08
0	26.5-56 IN FAN BELT WITHOUT BLOWER REPAIRS IT IS A GOOD MAINTENANCE PRACTICE TO REPLACE A BELT WHEN SERVICING A UNIT IF THE BELT IS CRACKED OR WORN.	0.00	0.00
1	PR-FR	98.93	98.93
1	A56 / 26.5 - 56 IN FAN BELT WITH BLOWER REPAIRS	45.90	45.90
0	15 MFD RUN CAPACITOR REPLACEMENT SIMILAR TO A BATTERY, CAPACITORS HELP START MOTORS BY STORING CURRENT. A DAMAGED CAPACITOR CAN DAMAGE THE MOTOR IF NOT SERVICED. REGULAR MAINTENANCE IS ENCOURAGED.	0.00	0.00
1	PR-FR	98.93	98.93
1	CR15X440 / 15 MFD RUN CAPACITOR	24.92	24.92
	7.75% Sales Tax [2017]	7.75%	0.00
		Total	$1,104.14

OK TO PAY
NAO

Invoice

MECHANICAL SERVICE CONTRACTORS
ESTABLISHED 1951

Vic's Air Conditioning & Electrical
517 E. 5th Street, Holtville, CA 92250
(760) 356-4018
dispatch@vicsac.com

DATE	10/07/2021
INVOICE#	87697
TERMS	Due on completion

BILL TO

County Sanitation Districts of LA County
P.O. Box 4998
Whittier CA 90607
7608805605Michell

SERVICE LOCATION

6330 E Hwy 78 - MESQUITE REG LANDFILL
6330 E Hwy 78
Brawley CA 92227
(760) 880-5605

JOB#	DATE	PO/REF#	DESCRIPTION
9695	09/28/2021	PO# 1737578	**Completion Notes:** SCALE HOUSE window unit To replace existing 24,000 BTU window unit.

Job Charges	Qty	Rate	Total
Contract - Commercial INSTALLATION LG window unit 24,000 BTU 203/208v 20a Commercial contract; includes material, tax and labor	1.00	$1,724.55	$1,724.55
Job Subtotal			**$1,724.55**
Job Total			**$1,724.55**

PRE-WORK SIGNATURE

Signed By:

POST-WORK SIGNATURE

Signed By:

CUSTOMER MESSAGE

Terms: Due upon completion. Thank you for your business.

Invoice Total:	**$1,724.55**
Deposits (-):	**$0.00**
Payments (-):	**~~$0.00~~**
Total Due:	**$1,724.55**

OK TO PAY
[illegible]

PO# 1737578
RECEIVED 10/12/21
MICHELE OCHS
WORK ORDER NO 0343355-14

Niizawa, Warisa

From:	Reece, Jerry
Sent:	Tuesday, February 22, 2022 2:44 PM
To:	Niizawa, Warisa
Cc:	Watson, Mathew; Gonzalez, Jeanine; Vasquez, Alfonso; Chang, Joseph
Subject:	FW: REFRIGERANT TOTALS - GW RICHARDSON - LANCASTER / PALMDALE

Good afternoon, Warisa,

Here are the totals that they put in at Palmdale and Lancaster for last year. They did not measure any refrigerant that was removed during the leak checks. When they do the leak checks they remove all refrigerant and fill with nitrogen to check for leaks and then refill after the repairs are made. The totals below reflect how much was put back in after repairs. Not sure if we need to change the way this procedure is done so we get a more accurate account for actual lost refrigerant. If so please let me know and we will make sure that happens.

Thank you,

Jerry Reece
Supervisor of Electrical and Instrumentation Repair | Water Reclamation Plants
562-908-4288 ext. 6703 | c 661-505-3782
jerryreece@lacsd.org

LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources
Website | Facebook | Twitter | Instagram | YouTube

From: cassiew@gwrichardsonac.com <cassiew@gwrichardsonac.com>
Sent: Tuesday, February 22, 2022 1:22 PM
To: Reece, Jerry <JerryReece@lacsd.org>
Subject: REFRIGERANT TOTALS - GW RICHARDSON - LANCASTER / PALMDALE

CAUTION: EXTERNAL EMAIL.

Hi Jerry

Thank you for your patience.

I have an approximate total of 23.5 lbs of R410a refrigerant at Palmdale and 80.5 lbs at Lancaster site.
Please let me know if you need anything else from me.

Thank you again and have a great day Jerry

Cassie Williams
Office Manager / Human Resources Asst.
GW Richardson Heating and Air Conditioning, Inc.
28231 Avenue Crocker, #100

Appendix E: Indirect Emissions

Table 6 Electricity

eGRID Subregion	Total Output Emission Factors			Non-Baseload Emission Factors		
	CO_2 Factor (lb / MWh)	CH_4 Factor (lb / MWh)	N_2O Factor (lb / MWh)	CO_2 Factor (lb / MWh)	CH_4 Factor (lb / MWh)	N_2O Factor (lb / MWh)
AKGD (ASCC Alaska Grid)	1,039.6	0.082	0.011	1,262.5	0.110	0.015
AKMS (ASCC Miscellaneous)	525.1	0.024	0.004	1,528.3	0.068	0.012
AZNM (WECC Southwest)	1,022.4	0.077	0.011	1,435.3	0.097	0.014
CAMX (WECC California)	496.5	0.034	0.004	929.5	0.047	0.006
ERCT (ERCOT All)	931.7	0.066	0.009	1,261.0	0.083	0.012
FRCC (FRCC All)	931.8	0.066	0.009	1,123.9	0.068	0.009
HIMS (HICC Miscellaneous)	1,110.7	0.118	0.018	1,535.7	0.139	0.022
HIOA (HICC Oahu)	1,669.9	0.180	0.027	1,682.1	0.159	0.025
MROE (MRO East)	1,678.0	0.169	0.025	1,634.3	0.149	0.022
MROW (MRO West)	1,239.8	0.138	0.020	1,764.3	0.192	0.027
NEWE (NPCC New England)	522.3	0.082	0.011	931.0	0.086	0.011
NWPP (WECC Northwest)	639.0	0.064	0.009	1,575.1	0.148	0.021
NYCW (NPCC NYC/Westchester)	596.4	0.022	0.003	1,067.6	0.022	0.002
NYLI (NPCC Long Island)	1,184.2	0.139	0.018	1,320.3	0.040	0.005
NYUP (NPCC Upstate NY)	253.1	0.018	0.002	931.5	0.043	0.005
RFCE (RFC East)	716.0	0.061	0.008	1,242.6	0.091	0.013
RFCM (RFC Michigan)	1,312.6	0.129	0.018	1,748.9	0.171	0.024
RFCW (RFC West)	1,166.1	0.117	0.017	1,828.3	0.179	0.026
RMPA (WECC Rockies)	1,273.6	0.123	0.018	1,542.6	0.120	0.017
SPNO (SPP North)	1,163.2	0.124	0.018	1,945.5	0.201	0.029
SPSO (SPP South)	1,166.6	0.091	0.013	1,603.5	0.118	0.017
SRMV (SERC Mississippi Valley)	854.6	0.055	0.008	1,137.6	0.069	0.010
SRMW (SERC Midwest)	1,664.2	0.185	0.027	1,907.0	0.204	0.030
SRSO (SERC South)	1,027.9	0.081	0.012	1,413.7	0.107	0.015
SRTV (SERC Tennessee Valley)	1,031.5	0.097	0.014	1,644.3	0.149	0.021
SRVC (SERC Virginia/Carolina)	743.3	0.067	0.009	1,422.6	0.128	0.018
US Average	947.2	0.085	0.012	1,432.3	0.117	0.017

Source: EPA eGRID2018, March 2020

Note: Total output emission factors can be used as default factors for estimating GHG emissions from electricity use when developing a carbon footprint or emissions inventory. Annual non-baseload output emission factors should not be used for those purposes, but can be used to estimate GHG emissions reductions from reductions in electricity use.

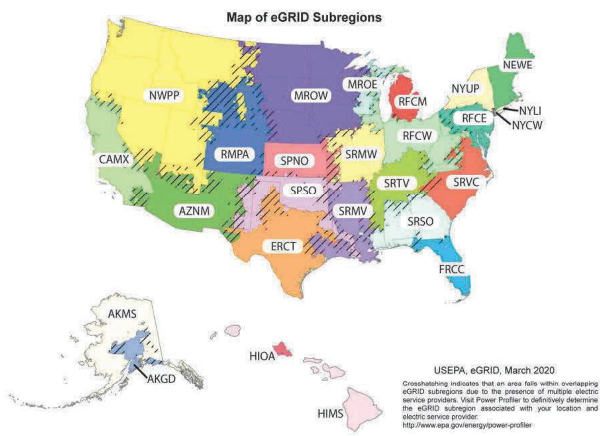

Table 7 Steam and Heat

	CO_2 Factor (kg / mmBtu)	CH_4 Factor (g / mmBtu)	N_2O Factor (g / mmBtu)
Steam and Heat	66.33	1.250	0.125

Note: Emission factors are per mmBtu of steam or heat purchased. These factors assume natural gas fuel is used to generate steam or heat at 80 percent thermal efficiency.

Scope 3 Emission Factors

Scope 3 emission factors provided below are aligned with the Greenhouse Gas Protocol Technical Guidance for Calculating Scope 3 Emissions, version 1.0 (Scope 3 Calculation Guidance). Where applicable, the specific calculation method is referenced. Refer to the Scope 3 Calculation Guidance for more information (http://www.ghgprotocol.org/scope-3-technical-calculation-guidance).

Table 8 Scope 3 Category 4: Upstream Transportation and Distribution and Category 9: Downstream Transportation and Distribution

These factors are intended for use in the distance-based method defined in the Scope 3 Calculation Guidance. If fuel data are available, then the fuel-based method should be used, with factors from Tables 2 through 5.

Vehicle Type	CO_2 Factor (kg / unit)	CH_4 Factor (g / unit)	N_2O Factor (g / unit)	Units
Medium- and Heavy-Duty Truck	1.387	0.013	0.033	vehicle-mile
Passenger Car [A]	0.335	0.009	0.008	vehicle-mile
Light-Duty Truck [B]	0.461	0.012	0.010	vehicle-mile
Medium- and Heavy-Duty Truck	0.207	0.0020	0.0046	ton-mile
Rail	0.021	0.0017	0.0005	ton-mile
Waterborne Craft[C]	0.040	0.0122	0.0017	ton-mile
Aircraft	1.265	0	0.0389	ton-mile

Source:
CO_2, CH_4, and N_2O emissions data for road vehicles are from Table 2-13 of the U.S. Greenhouse Gas Emissions and Sinks: 1990–2018 (Feb. 2020).
Vehicle-miles and passenger-miles data for road vehicles are from Table VM-1 of the Federal Highway Administration Highway Statistics 2018.
CO_2e emissions data for non-road vehicles are based on Table A-124 of the U.S. Greenhouse Gas Emissions and Sinks: 1990–2018, which are distributed into CO_2, CH_4, and N_2O emissions based on fuel/vehicle emission factors.
Freight ton-mile data for non-road vehicles are from Table 1-50 of the Bureau of Transportation Statistics, National Transportation Statistics for 2019 (Data based on 2017).

Notes:
Vehicle-mile factors are appropriate to use when the entire vehicle is dedicated to transporting the reporting company's product. Ton-mile factors are appropriate when the vehicle is shared with products from other companies.
[A] Passenger car: includes passenger cars, minivans, SUVs, and small pickup trucks (vehicles with wheelbase less than 121 inches).
[B] Light-duty truck: includes full-size pickup trucks, full-size vans, and extended-length SUVs (vehicles with wheelbase greater than 121 inches).
[C] Waterborne Craft: updates due to a methodology change.

U.S. Energy Information Administration

Frequently Asked Questions (FAQs)

What are Ccf, Mcf, Btu, and therms? How do I convert natural gas prices in dollars per Ccf or Mcf to dollars per Btu or therm?

Btu—British thermal unit(s)
Ccf—the volume of 100 cubic feet (cf)
M—one thousand (1,000)
MM—one million (1,000,000)
Mcf—the volume of 1,000 cubic feet
MMBtu—1,000,000 British thermal units
Therm—One therm equals 100,000 Btu, or 0.10 MMBtu

In the United States, natural gas can be priced in units of dollars per therm, dollars per MMBtu, or dollars per cubic feet.[1] The heat content of natural gas per physical unit (such as Btu per cubic foot) is needed to convert these prices from one price basis to another. In 2020, the U.S. annual average heat content of natural gas delivered to consumers was about 1,037 Btu per cubic foot. Therefore, 100 cubic feet (Ccf) of natural gas equals 103,700 Btu, or 1.037 therms. One thousand cubic feet (Mcf) of natural gas equals 1.037 MMBtu, or 10.37 therms.

You can convert natural gas prices from one price basis to another with these formulas (assuming a heat content of natural gas of 1,037 Btu per cubic foot):
$ per Ccf divided by 1.037 equals $ per therm
$ per therm multiplied by 1.037 equals $ per Ccf
$ per Mcf divided by 1.037 equals $ per MMBtu
$ per Mcf divided by 10.37 equals $ per therm
$ per MMBtu multiplied by 1.037 equals $ per Mcf
$ per therm multiplied by 10.37 equals $ per Mcf

The heat content of natural gas may vary by location and by type of natural gas consumer, and it may vary over time. Consumers and analysts should contact natural gas distribution companies or natural gas suppliers for information on the heat content of the natural gas they supply to their customers. Some natural gas distribution companies or utilities may provide this information on customers' bills.

[1] The U.S. Energy Information Administration reports natural gas in volumes of cubic feet through 1964 at a pressure base of 14.65 psia (pounds per square inch absolute) at 60° Fahrenheit. Beginning in 1965, the pressure base is 14.73 psia at 60° Fahrenheit.

Learn more:
Average annual and monthly heat content of natural gas consumed by state
Newly released heat content data allow for state-to-state natural gas comparisons
Natural gas conversion calculator

Last updated: June 1, 2021

Other FAQs about Natural Gas

- Does EIA have county-level energy production data?
- Does EIA have forecasts or projections for energy production, consumption, and prices for individual states?
- Does EIA have information on U.S. natural gas and oil pipelines?
- Does EIA have information on unplanned outages or shutdowns of U.S. energy infrastructure?
- Does EIA publish energy consumption and price data for cities, counties, or by zip code?
- Does EIA publish shale gas and coalbed methane production and reserves data?
- How does EIA calculate the year-ago and five-year averages in the Weekly Natural Gas Storage Report?
- How many alternative fuel and hybrid vehicles are there in the United States?
- How much coal, natural gas, or petroleum is used to generate a kilowatthour of electricity?
- How much does it cost to generate electricity with different types of power plants?
- Which states consume and produce the most natural gas?
- Why am I being charged more for heating oil or propane than the price on EIA's website?
- How much natural gas does the United States have, and how long will it last?
- How much natural gas is consumed in the United States?
- How much of U.S. carbon dioxide emissions are associated with electricity generation?
- How much shale gas is produced in the United States?
- What are Ccf, Mcf, Btu, and therms? How do I convert natural gas prices in dollars per Ccf or Mcf to dollars per Btu or therm?
- What are the major factors affecting natural gas prices?
- What can I expect to pay for heating this winter?
- What is U.S. electricity generation by energy source?
- What is the outlook for home heating fuel prices this winter?
- What is the price or cost of natural gas for U.S. electric power producers?
- What is the volume of world natural gas reserves?
- What types and amounts of energy are produced in each state?

On This Page:

Coal

Conversion & Equivalents

Diesel

Electricity

Environment

Gasoline

General Energy

Natural Gas

Nuclear

Oil/Petroleum

Prices

Renewables

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Didn't find the answer to your question?

Ask an energy expert

Emission Factors for Greenhouse Gas Inventories

Last Modified: 26 March 2020

Red text indicates an update from the 2018 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO_2e). Gases are converted to CO_2e by multiplying by their global warming potential (GWP). The emission factors listed in this document have not been converted to CO_2e. To do so, multiply the emissions by the corresponding GWP listed in the table below.

Gas	100-Year GWP
CH_4	25
N_2O	298

Source: Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), 2007. See the source note to Table 11 for further explanation.

Table 1 Stationary Combustion

Fuel Type	Heat Content (HHV)	CO_2 Factor	CH_4 Factor	N_2O Factor	CO_2 Factor	CH_4 Factor	N_2O Factor
	mmBtu per short ton	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per short ton	g CH_4 per short ton	g N_2O per short ton
Coal and Coke							
Anthracite Coal	25.09	103.69	11	1.6	2,602	276	40
Bituminous Coal	24.93	93.28	11	1.6	2,325	274	40
Sub-bituminous Coal	17.25	97.17	11	1.6	1,676	190	28
Lignite Coal	14.21	97.72	11	1.6	1,389	156	23
Mixed (Commercial Sector)	21.39	94.27	11	1.6	2,016	235	34
Mixed (Electric Power Sector)	19.73	95.52	11	1.6	1,885	217	32
Mixed (Industrial Coking)	26.28	93.90	11	1.6	2,468	289	42
Mixed (Industrial Sector)	22.35	94.67	11	1.6	2,116	246	36
Coal Coke	24.80	113.67	11	1.6	2,819	273	40
Other Fuels - Solid							
Municipal Solid Waste	9.95	90.70	32	4.2	902	318	42
Petroleum Coke (Solid)	30.00	102.41	32	4.2	3,072	960	126
Plastics	38.00	75.00	32	4.2	2,850	1,216	160
Tires	28.00	85.97	32	4.2	2,407	896	118
Biomass Fuels - Solid							
Agricultural Byproducts	8.25	118.17	32	4.2	975	264	35
Peat	8.00	111.84	32	4.2	895	256	34
Solid Byproducts	10.39	105.51	32	4.2	1,096	332	44
Wood and Wood Residuals	17.48	93.80	7.2	3.6	1,640	126	63
	mmBtu per scf	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per scf	g CH_4 per scf	g N_2O per scf
Natural Gas							
Natural Gas	0.001026	53.06	1.0	0.10	0.05444	0.00103	0.00010
Other Fuels - Gaseous							
Blast Furnace Gas	0.000092	274.32	0.022	0.10	0.02524	0.000002	0.000009
Coke Oven Gas	0.000599	46.85	0.48	0.10	0.02806	0.000288	0.000060
Fuel Gas	0.001388	59.00	3.0	0.60	0.08189	0.004164	0.000833
Propane Gas	0.002516	61.46	3.0	0.60	0.15463	0.007548	0.001510
Biomass Fuels - Gaseous							
Landfill Gas	0.000485	52.07	3.2	0.63	0.025254	0.001552	0.000306
Other Biomass Gases	0.000655	52.07	3.2	0.63	0.034106	0.002096	0.000413
	mmBtu per gallon	kg CO_2 per mmBtu	g CH_4 per mmBtu	g N_2O per mmBtu	kg CO_2 per gallon	g CH_4 per gallon	g N_2O per gallon
Petroleum Products							
Asphalt and Road Oil	0.158	75.36	3.0	0.60	11.91	0.47	0.09
Aviation Gasoline	0.120	69.25	3.0	0.60	8.31	0.36	0.07
Butane	0.103	64.77	3.0	0.60	6.67	0.31	0.06
Butylene	0.105	68.72	3.0	0.60	7.22	0.32	0.06
Crude Oil	0.138	74.54	3.0	0.60	10.29	0.41	0.08
Distillate Fuel Oil No. 1	0.139	73.25	3.0	0.60	10.18	0.42	0.08
Distillate Fuel Oil No. 2	0.138	73.96	3.0	0.60	10.21	0.41	0.08
Distillate Fuel Oil No. 4	0.146	75.04	3.0	0.60	10.96	0.44	0.09
Ethane	0.068	59.60	3.0	0.60	4.05	0.20	0.04
Ethylene	0.058	65.96	3.0	0.60	3.83	0.17	0.03
Heavy Gas Oils	0.148	74.92	3.0	0.60	11.09	0.44	0.09
Isobutane	0.099	64.94	3.0	0.60	6.43	0.30	0.06
Isobutylene	0.103	68.86	3.0	0.60	7.09	0.31	0.06
Kerosene	0.135	75.20	3.0	0.60	10.15	0.41	0.08
Kerosene-Type Jet Fuel	0.135	72.22	3.0	0.60	9.75	0.41	0.08
Liquefied Petroleum Gases (LPG)	0.092	61.71	3.0	0.60	5.68	0.28	0.06
Lubricants	0.144	74.27	3.0	0.60	10.69	0.43	0.09
Motor Gasoline	0.125	70.22	3.0	0.60	8.78	0.38	0.08
Naphtha (<401 deg F)	0.125	68.02	3.0	0.60	8.50	0.38	0.08
Natural Gasoline	0.110	66.88	3.0	0.60	7.36	0.33	0.07
Other Oil (>401 deg F)	0.139	76.22	3.0	0.60	10.59	0.42	0.08
Pentanes Plus	0.110	70.02	3.0	0.60	7.70	0.33	0.07
Petrochemical Feedstocks	0.125	71.02	3.0	0.60	8.88	0.38	0.08
Petroleum Coke	0.143	102.41	3.0	0.60	14.64	0.43	0.09
Propane	0.091	62.87	3.0	0.60	5.72	0.27	0.05
Propylene	0.091	67.77	3.0	0.60	6.17	0.27	0.05
Residual Fuel Oil No. 5	0.140	72.93	3.0	0.60	10.21	0.42	0.08
Residual Fuel Oil No. 6	0.150	75.10	3.0	0.60	11.27	0.45	0.09
Special Naphtha	0.125	72.34	3.0	0.60	9.04	0.38	0.08
Unfinished Oils	0.139	74.54	3.0	0.60	10.36	0.42	0.08
Used Oil	0.138	74.00	3.0	0.60	10.21	0.41	0.08
Biomass Fuels - Liquid							
Biodiesel (100%)	0.128	73.84	1.1	0.11	9.45	0.14	0.01
Ethanol (100%)	0.084	68.44	1.1	0.11	5.75	0.09	0.01
Rendered Animal Fat	0.125	71.06	1.1	0.11	8.88	0.14	0.01
Vegetable Oil	0.120	81.55	1.1	0.11	9.79	0.13	0.01
Biomass Fuels - Kraft Pulping Liquor, by Wood Furnish							
North American Softwood		94.4	1.9	0.42			
North American Hardwood		93.7	1.9	0.42			
Bagasse		95.5	1.9	0.42			
Bamboo		93.7	1.9	0.42			
Straw		95.1	1.9	0.42			

Source:
Federal Register EPA; 40 CFR Part 98; e-CFR, June 13, 2017 (see link below). Table C-1, Table C-2, Table AA-1.
https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=pt40.23.98&rgn=div5#ap40.23.98_19.1

Note: Emission factors are per unit of heat content using higher heating values (HHV). If heat content is available from the fuel supplier, it is preferable to use that value. If not, default heat contents are provided.

Appendix F: Biogas-to-Energy

2019 AVERT Emission Factors

National Emission Factors

National Weighted Averages (lb/MWh)						
	Onshore Wind	*Offshore Wind*	*Utility PV*	*Distributed PV*	*Portfolio EE*	*Uniform EE*
Avoided CO_2 Rate	1,429	1,361	1,456	1,570	1,562	1,550
Avoided NO_x Rate	0.78	0.68	0.84	0.91	0.89	0.85
Avoided SO_2 Rate	0.85	0.76	0.84	0.90	0.91	0.92
Avoided $PM_{2.5}$ Rate	0.10	0.10	0.10	0.11	0.11	0.11

National factors presented here reflect a weighted average of the avoided emission rates of AVERT's 14 regions. Averages are weig

Regional Emission Factors

Avoided CO2 Rate (lb/MWh)						
	Onshore Wind	*Offshore Wind*	*Utility PV*	*Distributed PV*	*Portfolio EE*	*Uniform EE*
California	966	972	980	1,071	1,073	1,061
Carolinas	1,529	1,537	1,562	1,676	1,706	1,664
Central	1,676	-	1,661	1,790	1,785	1,800
Florida	988	-	1,044	1,126	1,112	1,087
Mid-Atlantic	1,420	1,422	1,460	1,576	1,567	1,540
Midwest	1,732	-	1,718	1,850	1,850	1,860
New England	1,022	1,023	1,038	1,120	1,126	1,104
New York	1,005	1,004	1,039	1,121	1,127	1,090
Northwest	1,487	1,487	1,539	1,691	1,631	1,636
Rocky Mountains	1,752	-	1,728	1,886	1,883	1,904
Southeast	1,416	-	1,504	1,619	1,599	1,563
Southwest	1,404	-	1,392	1,519	1,547	1,544
Tennessee	1,348	-	1,419	1,537	1,530	1,479
Texas	1,199	-	1,242	1,315	1,298	1,282

Avoided SO2 Rate (lb/MWh)						
	Onshore Wind	*Offshore Wind*	*Utility PV*	*Distributed PV*	*Portfolio EE*	*Uniform EE*
California	0.05	0.05	0.05	0.06	0.07	0.06
Carolinas	0.58	0.58	0.60	0.64	0.68	0.64
Central	1.30	-	1.19	1.28	1.28	1.36
Florida	0.20	-	0.25	0.27	0.25	0.23
Mid-Atlantic	1.06	1.07	1.12	1.20	1.19	1.18
Midwest	1.58	-	1.49	1.60	1.63	1.67
New England	0.08	0.08	0.11	0.12	0.12	0.09
New York	0.17	0.17	0.17	0.18	0.20	0.17
Northwest	0.69	0.68	0.71	0.78	0.75	0.75
Rocky Mountains	0.54	-	0.52	0.57	0.57	0.58
Southeast	0.31	-	0.33	0.35	0.35	0.34

Appendix G: Food Waste Diversion

Waste Reduction Model (WARM) -- Results

Total GHG Emissions from Baseline MSW Generation and Management ($MTCO_2E$):	38,702.33
Total GHG Emissions from Alternative MSW Generation and Management ($MTCO_2E$):	(3,241.45)
Incremental GHG Emissions ($MTCO_2E$):	(41,943.78)

$MTCO_2E$ = metric tons of carbon dioxide equivalent

Per Ton Estimates of GHG Emissions for Baseline and Alternative Management Scenarios

Material	GHG Emissions per Ton of Material Produced ($MTCO_2E$)	GHG Emissions per Ton of Material Source Reduced ($MTCO_2E$)	GHG Emissions per Ton of Material Recycled ($MTCO_2E$)	GHG Emissions per Ton of Material Landfilled ($MTCO_2E$)	GHG Emissions per Ton of Material Combusted ($MTCO_2E$)	GHG Emissions per Ton of Material Composted ($MTCO_2E$)	GHG Emission per Ton of Material Anaerobically Digested ($MTCO_2E$)
Corrugated Containers	5.58	(5.58)	(3.14)	0.18	(0.49)	NA	NA
Magazines/third-class mail	8.57	(8.57)	(3.07)	(0.43)	(0.35)	NA	NA
Newspaper	4.68	(4.68)	(2.71)	(0.85)	(0.56)	NA	NA
Office Paper	7.95	(7.95)	(2.86)	1.13	(0.47)	NA	NA
Phonebooks	6.17	(6.17)	(2.62)	(0.85)	(0.56)	NA	NA
Textbooks	9.02	(9.02)	(3.10)	1.13	(0.47)	NA	NA
Mixed Paper (general)	6.07	(6.07)	(3.55)	0.07	(0.49)	NA	NA
Mixed Paper (primarily residential)	6.00	(6.00)	(3.55)	0.02	(0.49)	NA	NA
Mixed Paper (primarily from offices)	7.37	(7.37)	(3.58)	0.11	(0.45)	NA	NA
Food Waste	3.66	(3.66)	NA	0.50	(0.13)	(0.12)	(0.04)
Food Waste (non-meat)	0.76	(0.76)	NA	0.50	(0.13)	(0.12)	(0.04)
Food Waste (meat only)	15.10	(15.10)	NA	0.50	(0.13)	(0.12)	(0.04)
Beef	30.09	(30.09)	NA	0.50	(0.13)	(0.12)	(0.04)
Poultry	2.45	(2.45)	NA	0.50	(0.13)	(0.12)	(0.04)
Grains	0.62	(0.62)	NA	0.50	(0.13)	(0.12)	(0.04)
Bread	0.66	(0.66)	NA	0.50	(0.13)	(0.12)	(0.04)
Fruits and Vegetables	0.44	(0.44)	NA	0.50	(0.13)	(0.12)	(0.04)
Dairy Products	1.75	(1.75)	NA	0.50	(0.13)	(0.12)	(0.04)
Yard Trimmings	NA	NA	NA	(0.20)	(0.17)	(0.05)	(0.09)
Grass	NA	NA	NA	0.12	(0.17)	(0.05)	0.00
Leaves	NA	NA	NA	(0.53)	(0.17)	(0.05)	(0.14)
Branches	NA	NA	NA	(0.54)	(0.17)	(0.05)	(0.22)
HDPE	1.42	(1.42)	(0.76)	0.02	1.29	NA	NA
LDPE	1.80	(1.80)	NA	0.02	1.29	NA	NA
PET	2.17	(2.17)	(1.04)	0.02	1.24	NA	NA
LLDPE	1.58	(1.58)	NA	0.02	1.29	NA	NA
PP	1.52	(1.52)	(0.79)	0.02	1.29	NA	NA
PS	2.50	(2.50)	NA	0.02	1.65	NA	NA
PVC	1.93	(1.93)	NA	0.02	0.66	NA	NA
Mixed Plastics	1.87	(1.87)	(0.93)	0.02	1.26	NA	NA
PLA	2.45	(2.45)	NA	(1.64)	(0.63)	(0.09)	NA
Desktop CPUs	20.86	(20.86)	(1.49)	0.02	(0.66)	NA	NA
Portable Electronic Devices	29.83	(29.83)	(1.06)	0.02	0.65	NA	NA
Flat-Panel Displays	24.19	(24.19)	(0.99)	0.02	0.03	NA	NA
CRT Displays	NA	NA	(0.57)	0.02	0.45	NA	NA
Electronic Peripherals	10.32	(10.32)	(0.36)	0.02	2.08	NA	NA
Hard-Copy Devices	7.65	(7.65)	(0.56)	0.02	1.20	NA	NA
Mixed Electronics	NA	NA	(0.79)	0.02	0.39	NA	NA
Aluminum Cans	4.80	(4.80)	(9.13)	0.02	0.03	NA	NA
Aluminum Ingot	7.48	(7.48)	(7.20)	0.02	0.03	NA	NA
Steel Cans	3.03	(3.03)	(1.83)	0.02	(1.59)	NA	NA
Copper Wire	6.72	(6.72)	(4.49)	0.02	0.03	NA	NA
Mixed Metals	3.65	(3.65)	(4.39)	0.02	(1.02)	NA	NA
Glass	0.53	(0.53)	(0.28)	0.02	0.03	NA	NA
Asphalt Concrete	0.11	(0.11)	(0.08)	0.02	NA	NA	NA
Asphalt Shingles	0.19	(0.19)	(0.09)	0.02	(0.35)	NA	NA
Carpet	3.68	(3.68)	(2.38)	0.02	1.10	NA	NA
Clay Bricks	0.27	(0.27)	NA	0.02	NA	NA	NA
Concrete	NA	NA	(0.01)	0.02	NA	NA	NA
Dimensional Lumber	2.13	(2.13)	(2.66)	(0.92)	(0.58)	NA	NA
Drywall	0.22	(0.22)	0.03	(0.06)	NA	NA	NA
Fiberglass Insulation	0.38	(0.38)	NA	0.02	NA	NA	NA
Fly Ash	NA	NA	(0.87)	0.02	NA	NA	NA
Medium-density Fiberboard	2.41	(2.41)	NA	(0.85)	(0.58)	NA	NA
Structural Steel	1.67	(1.67)	(1.93)	0.02	NA	NA	NA
Vinyl Flooring	0.58	(0.58)	NA	0.02	(0.31)	NA	NA
Wood Flooring	4.03	(4.03)	NA	(0.86)	(0.74)	NA	NA
Tires	4.30	(4.30)	(0.38)	0.02	0.50	NA	NA
Mixed Recyclables	NA	NA	(2.85)	0.03	(0.42)	NA	NA
Mixed Organics	NA	NA	NA	0.18	(0.15)	(0.09)	(0.06)
Mixed MSW	NA	NA	NA	0.31	0.01	NA	NA

GHG Emissions from Baseline Management of Municipal Solid Wastes

Material	Baseline Generation of Material (Tons)	Baseline Recycling (Tons)	GHG Emissions from Recycling ($MTCO_2E$)	Baseline Landfilling (Tons)	GHG Emissions from Landfilling ($MTCO_2E$)	Baseline Combustion (Tons)	GHG Emissions from Combustion ($MTCO_2E$)	Baseline Composting (Tons)	GHG Emissions from Composting ($MTCO_2E$)	Baseline Anaerobic Digestion (Tons)	GHG Emissions from Anaerobic Digestion (MTCO2E)	Total GHG Emissions ($MTCO_2E$)
Corrugated Containers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Magazines/third-class mail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Newspaper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Office Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Phonebooks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Textbooks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (general)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (primarily residential)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (primarily from offices)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Food Waste	77,794.00	NA	NA	77,794.00	38,702.33	0.00	0.00	0.00	0.00	0.00	0.00	38,702.33
Food Waste (non-meat)	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Waste (meat only)	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beef	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Poultry	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grains	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bread	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits and Vegetables	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dairy Products	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yard Trimmings	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grass	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leaves	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Branches	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
LDPE	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PET	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
LLDPE	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PS	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PVC	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Plastics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PLA	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	0.00
Desktop CPUs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Portable Electronic Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Flat-Panel Displays	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
CRT Displays	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Electronic Peripherals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Hard-Copy Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Electronics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Aluminum Cans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Aluminum Ingot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Steel Cans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Copper Wire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Glass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Asphalt Concrete	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Asphalt Shingles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Carpet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Clay Bricks	0.00	NA	NA	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Concrete	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Dimensional Lumber	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Drywall	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Fiberglass Insulation	0.00	NA	NA	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Fly Ash	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Medium-density Fiberboard	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Structural Steel	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Vinyl Flooring	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Wood Flooring	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Tires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Recyclables	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Organics	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mixed MSW	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Total	77,794.00	0.00	0.00	77,794.00	38,702.33	0.00	0.00	0.00	0.00	0.00	0.00	38,702.33

GHG Emissions from Alternative Management of Municipal Solid Wastes

Material	Baseline Generation of Material (Tons)	Alternative Source Reduction (Tons)	GHG Emissions from Source Reduction ($MTCO_2E$)	Alternative Recycling (Tons)	GHG Emissions from Recycling ($MTCO_2E$)	Alternative Landfilling (Tons)	GHG Emissions from Landfilling ($MTCO_2E$)	Alternative Combustion (Tons)	GHG Emissions from Combustion ($MTCO_2E$)	Alternative Composting (Tons)	GHG Emissions from Composting ($MTCO_2E$)	Alternative Anaerobic Digestion (Tons)	GHG Emissions from Anaerobic Digestion (MTCO2E)	Total GHG Emissions ($MTCO_2E$)
Corrugated Containers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Magazines/third-class mail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Newspaper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Office Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Phonebooks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Textbooks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (general)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (primarily residential)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Paper (primarily from offices)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Food Waste	77,794.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	77,794.00	(3,241.45)	(3,241.45)
Food Waste (non-meat)	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Waste (meat only)	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beef	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Poultry	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grains	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bread	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits and Vegetables	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dairy Products	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yard Trimmings	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grass	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leaves	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Branches	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
LDPE	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PET	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
LLDPE	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PS	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PVC	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Plastics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
PLA	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	0.00
Desktop CPUs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Portable Electronic Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Flat-Panel Displays	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
CRT Displays	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Electronic Peripherals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Hard-Copy Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Electronics	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Aluminum Cans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Aluminum Ingot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Steel Cans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Copper Wire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Glass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Asphalt Concrete	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Asphalt Shingles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Carpet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Clay Bricks	0.00	0.00	0.00	NA	NA	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Concrete	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Dimensional Lumber	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Drywall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Fiberglass Insulation	0.00	0.00	0.00	NA	NA	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Fly Ash	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Medium-density Fiberboard	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Structural Steel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00
Vinyl Flooring	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Wood Flooring	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Tires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Recyclables	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Mixed Organics	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mixed MSW	0.00	NA	NA	NA	NA	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00
Total	77,794.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77,794.00	(3,241.45)	(3,241.45)

Appendix H: Water Recycling

Mojave/Metropolitan Water Storage Program

In 2003, Metropolitan entered into a demonstration agreement with Mojave Water Agency. The agreement allows for the exchange of SWP water on the basis of one acre-foot of return water for each acre-foot of water previously delivered to Mojave. A 2011 amendment extended the agreement to 2035 and reduced program costs. Metropolitan did not store or recover water from the Mojave program during FY 2020/21, leaving 18,812 AF in the exchange account as of June 30, 2021.

Water Transfers and Exchanges

San Gabriel Valley Municipal Water District Exchange

A 2013 purchase and exchange agreement with San Gabriel Valley Municipal Water District meant that during FY 2020/21, Metropolitan developed 1,629 AF of additional supply by exchange.

Colorado River Resources

Acquisitions and exchanges made possible by the 2003 Quantification Settlement Agreement continued during FY 2020/21. Figure 3-2 illustrates annual water supplies managed through the CRA since CY 2012. In CY 2020, Metropolitan managed a total of about 1,154,000 AF of water supplies through the Colorado River system. Of this volume, 687,000 AF was conveyed into Metropolitan's service area. Metropolitan also stored 338,000 AF of Intentionally Created Surplus in Lake Mead and stored or exchanged more than 128,000 AF of supplies outside Metropolitan's service area. On January 2021, Metropolitan's ICS storage in Lake Mead reached a record high level of 1,293,029 AF. For the remainder of CY 2021, due to dry conditions on the State Water Project, Metropolitan planned to divert approximately 1,068,000 AF of Colorado River supplies, including 70,000 AF of ICS, while keeping more than 1.2 MAF in Lake Mead for later use.

Figure 3-3 illustrates the storage levels of lakes Mead and Powell through FY 2020/21. While peak snowpack conditions were near average in 2021, a dry fall and significantly below-average spring

Niizawa, Warisa

From: Hartling, Earle
Sent: Friday, January 28, 2022 2:25 PM
To: Niizawa, Warisa
Subject: RE: Recycled Water Volume for 2021

Hey Warisa,

I'm still missing the official groundwater recharge numbers for December, as well as the December flows for the Lakewood and Central Basin MWD systems and Palmdale agriculture. However, my best estimate for calendar year is about 112,500 acre-feet.

If you'd like, I can give you updates as new data is received.

Earle

From: Niizawa, Warisa <warisaniizawa@lacsd.org>
Sent: Thursday, January 27, 2022 2:20 PM
To: Hartling, Earle <EHartling@lacsd.org>
Subject: Recycled Water Volume for 2021

Good Afternoon Earle,

I am working on the 2021 GHG Inventory Report and need the recycled water volume for the year. I understand that you may not have all the data available yet as it is still early in the year. However, I was wondering if there is any preliminary number that I can use?

Thank you in advance for your help,
Warisa

State Water Project Resources

Metropolitan holds a contract with DWR that provides for SWP participation rights and an allocation of 1,911,500 AF annually, subject to availability. The two-year period from 2020 through 2021 ranked as the second driest two-year period in the historical record, exceeded only by 1976-77. This dry sequence resulted in a 20 percent allocation of SWP contract supplies in CY 2020 and a 5 percent allocation for CY 2021. Below-average snowpack and dry soil conditions in 2021 reduced runoff in the Feather River watershed to near-record lows. In FY 2020/21, Metropolitan managed 685,000 AF through the SWP system (Fig. 3-1), about 790,000 AF less water than in the previous fiscal year (FY 2020/21 deliveries and storage are subject to final reconciliation). During FY 2020/21, Metropolitan exercised options under its SWP water management programs to ensure delivery capability under these dry-year conditions. These included drafting more than 34,000 AF from San Joaquin Valley storage accounts, 117,000 AF from flexible storage accounts in Castaic Lake and Lake Perris, and supplying the Mills Water Treatment Plant with 9,500 AF of supplies from Diamond Valley Lake to offset State Water Project demands.

Metropolitan's net SWP payments during FY 2020/21 were $521.8 million (Table 3-1) on a modified accrual basis. Metropolitan also administered existing storage programs outside its service area along the SWP system, as described on the following pages.

Water Storage Programs

Semitropic/Metropolitan Water Banking and Exchange Program

Metropolitan's 1994 groundwater storage agreement with Semitropic Water Storage District in Kern County allows storage of up to 350,000 AF. During FY 2020/21, Semitropic delivered 12,223 AF in the second half of the fiscal year. The total water in storage on June 30, 2021 was 253,072 AF.

Table 4-13
Single Agency Perspectives

	IEUA	Ontario	San Diego	Los Angeles
Additional Tertiary Recycled Water Available in 2005[1]	43,705 AFY	8,682 AFY (included in IEUA)	23,512 AFY	24,650 AFY
Energy Intensity of TERTIARY Recycled Water[2]	333 kWh/AF (Distribution Energy only)	333 kWh/AF (Distribution Energy only)	1,150 kWh/AF[10] (Treatment & Distribution Energy)	600 kWh/AF[3] (Treatment & Distribution Energy)
Marginal Water Supply	SWP (E.Branch) via MWD	SWP (E.Branch) &/OR City Groundwater	SWP & Co.River via SDCWA/MWD	SWP & Co.River via MWD
Energy Intensity of Marginal Water Supply[4]	3,224 kWh/AF	2,054 kWh/AF (average SWP @ 3,224 & G.W. @ 884)[5]	3,140 kWh/AF (assume 50/50, SWP and Colorado River)	2,666 kWh/AF (avg. 2,917 SWP & 2,415 Co. River)
Incremental R.Water (5 years, 2011-2015]	218,525 AF[6]	43,410 AF	117,560 AF	123,250 AF
Cumulative 5 Year Impact[7]				
Marginal Water Supply	742,985 MWH	89,164 MWH	369,138 MWH	328,585 MWH
Recycled Water	72,769 MWH	14,456 MWH	135,194 MWH	73,950 MWH
Est. Energy Savings	631,756 MWH	74,708 MWH	233,944 MWH	254,635 MWH
Avoided N.Gas (CCGT, MMBTUs)[8]	4,544,219 MMBTUs	537,375 MMBTUs	1,682,759 MMBTUs	1,831,590 MMBTUs
Reduced GHG (CCGT, metric tons)[9]	241,114 metric tons	28,513 metric tons	89,286 metric tons	97,183 metric tons

Notes:

[1] From Table 4-3. Recycled Water Opportunity Profiles of Four Southern California Water Agencies. The San Diego estimate includes secondary effluent being discharged to the ocean that could be treated to tertiary standards with existing treatment plant capacity.

[2] The energy intensity of each agency's recycled water is the ***incremental energy*** needed to treat and deliver wastewater effluent for its intended beneficial use. For IEUA and Ontario, since wastewater must be treated to tertiary standards before disposal, the recycled water energy intensity is the amount of incremental distribution energy only. Correctly computed, the amount of recycled water distribution would be computed as the amount of energy needed to deliver recycled water from its source (wastewater treatment plant), less the amount of distribution energy needed to deliver the marginal water supply(s) the recycled water is displacing. For simplicity and conservatism, we assumed that all recycled water distribution was "incremental." For San Diego and Los Angeles, however, since advanced primary and secondary effluent is allowed to be discharged to the ocean without further treatment, the energy intensity of recycled water is computed as the sum of the incremental energy needed to treat wastewater effluent to tertiary standards, plus the incremental amount of distribution energy needed to use the recycled water.

[3] Incremental energy needed to treat secondary effluent to tertiary was estimated by LADWP at 100 kWh/AF. Recycled water distribution energy was not available. However, distribution energy for potable water supplies (imported and from the Los Angeles Aqueduct) was estimated by LADWP at 387 kWh/AF. For conservatism, we used an estimate of 500 kWh/AF for recycled water distribution and did not make any adjustment for distribution energy that would be incurred in any case to deliver marginal water supplies to end users.

3.0 METROPOLITAN BASELINE FACILITIES AND OPERATIONS

Metropolitan's net energy use and costs are dominated by the pumping (transport) of water over the CRA and SWP systems. For the period of 2013-2018, approximately 93 percent of Metropolitan's annual electricity costs were for the SWP and CRA systems, and the remaining 7 percent of energy costs were associated with retail electricity purchases for water treatment plants and other Metropolitan facilities (Figure 3-1).

During this period, 75 percent of Metropolitan's total annual energy expenditures were associated with the SWP, which accounted for approximately 55 percent of total annual energy consumption to pump water into Southern California. This disproportionate energy cost is attributed to a higher unit price for electricity to pump water along the SWP, as compared to the unit price of electricity for the CRA (which includes low cost federal hydropower from Hoover and Parker Dams). Additionally, the large energy cost is also due to the higher energy intensity of SWP supplies (approximately 3,300 kWh/acre-foot [AF]) compared to CRA supplies (approximately 2,000 kWh/AF).

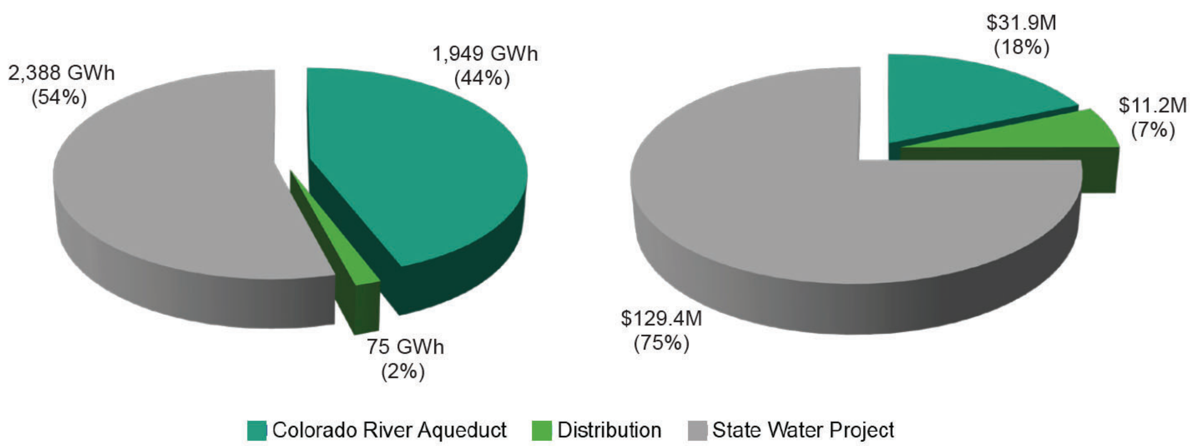


Figure 3-1 Metropolitan's overall electricity requirements and cost (average 2013-2018)

Given Metropolitan does not have direct control over operations of the SWP, the remainder of this section will focus exclusively on the energy use and cost for CRA operations (wholesale power) and for Metropolitan's treatment, distribution and office facilities (retail power).

For wholesale power, Metropolitan has proactively maintained several power contracts with various suppliers that have contract prices and terms set to help Metropolitan and its member agencies maintain a favorable overall low cost for wholesale electricity related to transporting water via the CRA. Today, Metropolitan has existing advantageous contracts with the U.S. Department of Interior, Bureau of Reclamation (USBR), Western Area Power Administration (WAPA) and others. Details on these contracts are discussed in the following sections. Annual costs for wholesale electricity have varied widely due to a variety of factors, including pumping volume, the utilization of energy banking provisions, and the volatility in the energy markets. Additionally, California's cap-and-trade program established in 2013 resulted in an added cost to market prices for energy with GHG emissions, including imported electricity, and affects Metropolitan's wholesale energy cost. Due to this embedded cost of carbon, Metropolitan's carbon footprint is evaluated as a continuing future factor in higher

1. Subregion Output Emission Rates (eGRID2018)

eGRID subregion acronym	eGRID subregion name	Total output emission rates lb/MWh							Non-baseload output emission rates lb/MWh							Grid Gross Loss (%)
		CO_2	CH_4	N_2O	CO_2e	Annual NO_x	Ozone Season NO_x	SO_2	CO_2	CH_4	N_2O	CO_2e	Annual NO_x	Ozone Season NO_x	SO_2	
AKGD	ASCC Alaska Grid	1,039.6	0.082	0.011	1,045.0	5.5	5.4	1.1	1,262.5	0.110	0.015	1,269.6	6.5	6.4	1.1	5.12%
AKMS	ASCC Miscellaneous	525.1	0.024	0.004	527.0	7.7	7.8	0.7	1,528.3	0.068	0.012	1,533.6	22.8	23.0	2.0	5.12%
AZNM	WECC Southwest	1,022.4	0.077	0.011	1,027.5	0.7	0.7	0.3	1,435.3	0.097	0.014	1,441.8	1.0	0.9	0.3	4.80%
CAMX	WECC California	496.5	0.034	0.004	498.7	0.5	0.4	0.0	929.5	0.047	0.006	932.5	0.8	0.7	0.0	4.80%
ERCT	ERCOT All	931.7	0.066	0.009	936.1	0.5	0.6	0.8	1,261.0	0.083	0.012	1,266.5	0.8	0.8	1.1	4.87%
FRCC	FRCC All	931.8	0.066	0.009	936.1	0.4	0.4	0.3	1,123.9	0.068	0.009	1,128.3	0.4	0.4	0.4	4.88%
HIMS	HICC Miscellaneous	1,110.7	0.118	0.018	1,119.1	7.6	7.6	4.0	1,535.7	0.139	0.022	1,545.8	11.8	11.5	5.0	5.14%
HIOA	HICC Oahu	1,669.9	0.180	0.027	1,682.6	3.5	3.8	8.0	1,682.1	0.159	0.025	1,693.6	4.2	4.2	8.4	5.14%
MROE	MRO East	1,678.0	0.169	0.025	1,689.7	0.9	0.9	0.9	1,634.3	0.149	0.022	1,644.5	0.9	1.0	1.0	4.88%
MROW	MRO West	1,239.8	0.138	0.020	1,249.2	1.0	1.0	1.4	1,764.3	0.192	0.027	1,777.0	1.5	1.4	1.8	4.88%
NEWE	NPCC New England	522.3	0.082	0.011	527.6	0.4	0.4	0.1	931.0	0.086	0.011	936.5	0.5	0.4	0.3	4.88%
NWPP	WECC Northwest	639.0	0.064	0.009	643.4	0.6	0.6	0.4	1,575.1	0.148	0.021	1,585.2	1.4	1.4	0.8	4.80%
NYCW	NPCC NYC/Westchester	596.4	0.022	0.003	597.8	0.3	0.2	0.0	1,067.6	0.022	0.002	1,068.9	0.5	0.5	0.1	4.88%
NYLI	NPCC Long Island	1,184.2	0.139	0.018	1,193.1	0.9	0.8	0.2	1,320.3	0.040	0.005	1,322.8	1.0	0.9	0.4	4.88%
NYUP	NPCC Upstate NY	253.1	0.018	0.002	253.9	0.1	0.1	0.1	931.5	0.043	0.005	934.0	0.5	0.5	0.5	4.88%
RFCE	RFC East	716.0	0.061	0.008	720.0	0.3	0.3	0.5	1,242.6	0.091	0.013	1,248.6	0.7	0.6	0.8	4.88%
RFCM	RFC Michigan	1,312.6	0.129	0.018	1,321.2	0.8	0.8	1.3	1,748.9	0.171	0.024	1,760.3	1.2	1.2	2.1	4.88%
RFCW	RFC West	1,166.1	0.117	0.017	1,174.0	0.8	0.7	0.9	1,828.3	0.179	0.026	1,840.5	1.4	1.1	1.4	4.88%
RMPA	WECC Rockies	1,273.6	0.123	0.018	1,281.9	0.7	0.7	0.4	1,542.6	0.120	0.017	1,550.7	0.8	0.8	0.4	4.80%
SPNO	SPP North	1,163.2	0.124	0.018	1,171.6	0.6	0.7	0.3	1,945.5	0.201	0.029	1,959.2	1.2	1.3	0.7	4.88%
SPSO	SPP South	1,166.6	0.091	0.013	1,172.8	0.8	0.9	1.2	1,603.5	0.118	0.017	1,611.5	1.3	1.3	1.9	4.88%
SRMV	SERC Mississippi Valley	854.6	0.055	0.008	858.4	0.6	0.7	1.0	1,137.6	0.069	0.010	1,142.2	0.9	0.9	1.4	4.88%
SRMW	SERC Midwest	1,664.2	0.185	0.027	1,676.8	1.1	0.8	2.5	1,907.0	0.204	0.030	1,920.9	1.1	0.9	2.7	4.88%
SRSO	SERC South	1,027.9	0.081	0.012	1,033.5	0.5	0.4	0.3	1,413.7	0.107	0.015	1,420.9	0.8	0.7	0.5	4.88%
SRTV	SERC Tennessee Valley	1,031.5	0.097	0.014	1,038.1	0.6	0.5	0.6	1,644.3	0.149	0.021	1,654.4	0.8	0.8	0.9	4.88%
SRVC	SERC Virginia/Carolina	743.3	0.067	0.009	747.5	0.4	0.4	0.3	1,422.6	0.128	0.018	1,430.9	0.9	0.8	0.5	4.88%
U.S.		**947.2**	**0.085**	**0.012**	**952.9**	**0.6**	**0.6**	**0.7**	**1,432.3**	**0.117**	**0.017**	**1,440.1**	**1.0**	**0.9**	**1.0**	**4.87%**

Created: 3/9/2020

Appendix I: Tulare Lake Compost

Composting

Unit Processes & Inputs	Inputs & Daily Emissions	Default Input (Optional)
Feedstock Input		
Material type	sludge	
Quantity of sludge going to composting (Mg/day-wet)	100	
Solids content (%)	28.0%	
Quantity of sludge going to composting (Mg/day-dry)	28.1	
Sludge density (kg/m^3)	950	950
Volume of sludge going to composting (m^3/day)	106	
Has the sludge been digested prior to composting?	yes	no
Total nitrogen (%-dry weight)	5.0%	5.0%
Total phosphorus (%-dry weight)	1.9%	1.9%
Total volatile solids - TVS (%-dry weight)	51.0%	51.0%
Organic carbon (%-dry weight)	29.0%	29%
Will compost use replace commercial fertilizer use where it is applied?	yes	yes
Volumetric ratio of amendment to sludge (m^3 amendment:m^3 sludge, as is)*	3	3
Amendment grinding on-site?	yes	yes
Volume of sludge in compost (%)	25%	
Volume of amendment in compost (%)	75%	
Density of amendment (kg/m^3)**	250	250
Quantity of amendment going to composting (Mg/day-wet)	79	
Blended Feedstock Characteristics		
C:N	22	22
Solids content (%)	43%	43%
Type of composting operation	ASP	
Are active composting piles covered or is the air from them treated through a biofilter?	yes	yes
Fuel Use		
Grinding (L-diesel fuel/day)		261
Setting up and breaking down piles (L-diesel fuel/day)		448
Total fuel use for composting equipment (L-diesel fuel/day)	710	710
Applying compost to land (L-diesel fuel/day)	68	68
CO_2 Emissions from Diesel used (Mg/day)	**2.15**	
Electricity Use		
Electricity requirements of composting system (kWh/day)	5,053	5,053
CO_2 Emissions from Electricity used (Mg/day)	**0.92**	
Methane Emissions		
CH_4 emitted from compost pile (Mg/day)	0.00	
CO_2 Emissions equivalents from released CH_4 (Mg/day)	**0.00**	
Nitrous Oxide Emissions		
N_2O emitted from compost pile (Mg/day)	0.033	
N_2O emitted from applying compost to soils (Mg/day)	0.0110	
CO_2 Emissions equivalents from released N_2O (Mg/day)	**10.26**	
Carbon Sequestration		
From compost applied to soil (Mg CO_2/day)	**-7.02**	
Fertilizer Off-set Credits		
From nitrogen applied to soil (Mg CO_2/day)	**-5.61**	
From phosphorus applied to soil (Mg CO_2/day)	**-1.07**	

CO_2 equivalents (Mg/year)	**-136**
Scope 1	**1,968**
Scope 2	**334**
Scopes 1 & 2	**2,303**
Scope 3	**-2,439**
Biomass combustion	**-**

Instructions and Notes

General: Enter data for all solids that were composted. Whenever possible use data from local measurements.

*For this row, if entering a local value, enter in both the blue and orange cells.
**Default is for density of sawdust.

Key	
Input	0
Default from reference values	0
Data used to calculate default (for information only)	0
Process output	**0**

Appendix J: Biogas-to-Vehicle Fuel

Last Updated 1/7/2022 Total Number of Applications (2.0) or Pathways (3.0) 1240

App/Pathway #	Class	Calculator Version	Applicant & Pathway Description	Facility Location	Feedstock	Fuel Type	Current Certified FPC	Current Certified CI	Certification Date
A038501	Tier 1	3.0	Fuel Producer: Los Angeles County Sanitation District (L375); Facility Name: Biogas Conditioning System Facility (F00308); Biomethane produced from the mesophilic anaerobic digestion of wasterwater sludge; grid electricity; finished fuel is compressed and dispensed as CNG transportation fuel onsite. (Provisional)	California	Wastewater Sludge (030)	Compressed Natural Gas (CNG)	CNG030A03850100	19.28	8/20/2021

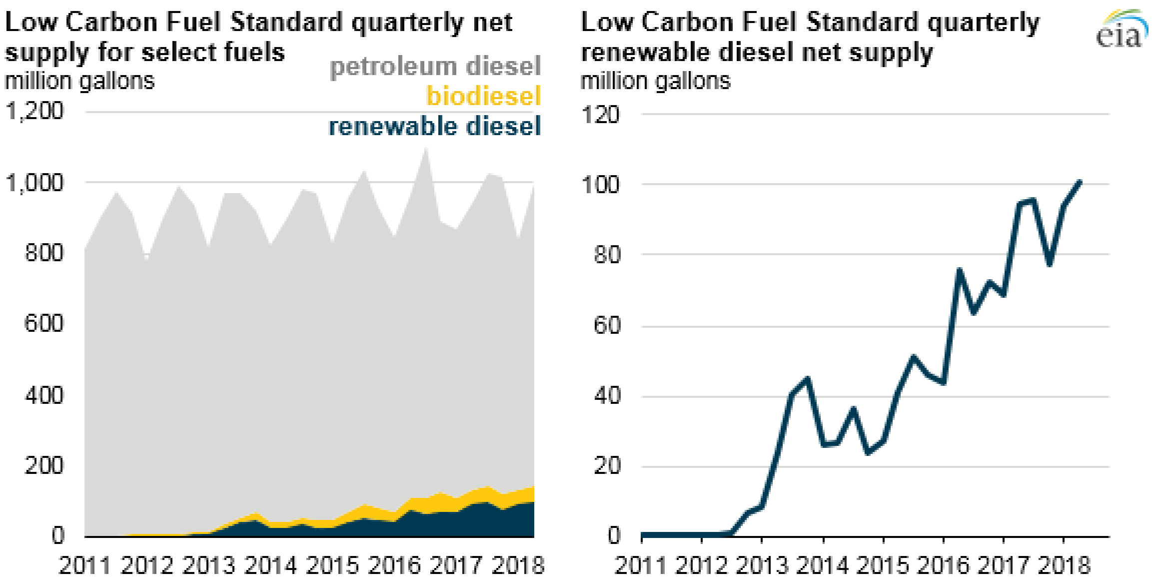
U.S. Energy Information Administration

Skip to sub-navigation

Today in Energy

November 13, 2018

Renewable diesel is increasingly used to meet California’s Low Carbon Fuel Standard



Source: U.S. Energy Information Administration, based on California Air Resources Board

Renewable diesel net supply to California’s fuel market has increased since the state’s Low Carbon Fuel Standard (LCFS) program went into effect in 2011, reaching 100 million gallons during the second quarter of 2018, or 10.1% of the total diesel supplied to California that quarter. The LCFS program, which is administered by the California Air Resources Board, sets standards to incrementally decrease the carbon intensity of motor gasoline and diesel fuel by at least 10% by 2020 relative to a 2010 baseline.

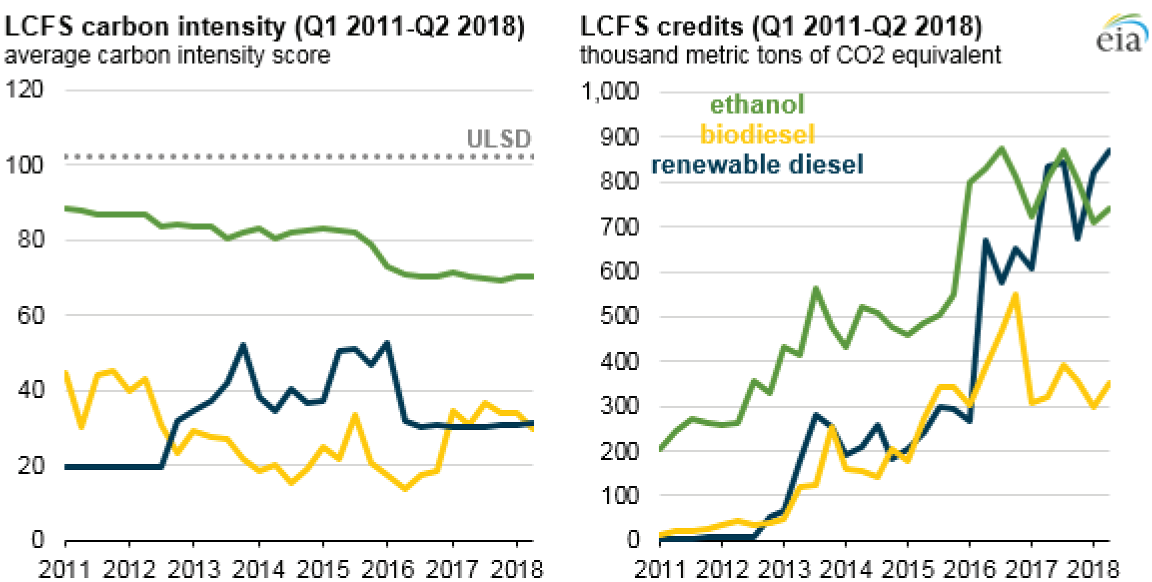
Renewable diesel is an alternative fuel that is chemically similar to petroleum diesel and nearly identical in its performance characteristics. Renewable diesel shares the same fat, oil, and grease feedstocks as biodiesel, but renewable diesel can be blended into petroleum diesel at higher blend levels compared with biodiesel blends. Renewable diesel is often produced either through hydrotreating at a biorefinery or co-processing at a petroleum refinery.

To comply with the LCFS, petroleum refiners, importers of motor gasoline and diesel, and wholesalers of motor transportation fuel are required to either produce low carbon fuels or purchase credits to demonstrate compliance. The mechanism used to regulate the LCFS is a measurement called carbon intensity, which is an estimate of a fuel’s lifecycle greenhouse gas emissions. Transportation fuels with a carbon intensity lower than the annual standard earn credits, while transportation fuels with a carbon intensity higher than the annual standard earn deficits. Regulated parties trade credits through the online LCFS Reporting Tool and Credit Bank & Transfer System.

As carbon intensity requirements have become progressively more stringent, prices for LCFS credits have increased. Throughout most of the program’s history, LCFS credits averaged lower than $100/metric ton (mt). During 2017, LCFS credits averaged $89/mt, growing to $164/mt through the first 10 months of 2018, suggesting an increasing difficulty for refiners, importers, and wholesalers in meeting annual carbon intensity targets.

Source: U.S. Energy Information Administration, based on Argus Media

The credits generated by renewable diesel producers have some of the lowest carbon intensities of any of the LCFS-approved liquid fuel pathways. The average carbon intensity of renewable diesel, measured in grams of carbon dioxide equivalent per megajoule (gCO2e/MJ), has been about 30 gCO2e/MJ since spring 2016. Much of this low carbon intensity fuel is made from used cooking oil feedstock. Compared with other liquid transportation fuels, renewable diesel's carbon intensity is approximately 20 gCO2e/MJ lower than ethanol and about equal to the average carbon intensity of biodiesel. Ultra-low sulfur diesel, which accounts for most of the diesel supplied in California, has a carbon intensity of 102 gCO2e/MJ.



Source: U.S. Energy Information Administration, based on California Air Resources Board

Under the LCFS program, renewable diesel generates a large number of credits relative to other fuels because it has some of the largest lifecycle greenhouse gas reductions compared with other fuels. The total volume of LCFS credits associated with renewable diesel exceeded that of fuel ethanol for the first time in 2018, reaching about 870,000 mt of carbon dioxide equivalent during the second quarter of 2018.

While renewable diesel imports from Singapore remain significant, planned renewable diesel production capacity additions during the next several years have the potential to increase the share of domestic renewable diesel in the California market. A number of LCFS amendments are slated to go into effect in 2019, including an extension of the program to increase the total reduction in carbon intensity to at least 20% by 2030.

Principal contributors: Steve Hanson, Neil Agarwal

Energy Density and Conversion Facros

Fuel (units)	*Energy Density and Conversion Factors*
CARBOB (gal)	119.53 (MJ/gal)
CaRFG (gal)	115.83 (MJ/gal)
Diesel fuel (gal)	134.47 (MJ/gal)
CNG (scf)	105.5 (MJ/Therm)
LNG (gal)	78.83 (MJ/gal)
Electricity (KWh)	3.60 (MJ/KWh)
Hydrogen (kg)	120.00 (MJ/kg)
Undenatured Anhydrous Ethanol (gal)	80.53 (MJ/gal)
Denatured Ethanol (gal)	81.51 (MJ/gal)
FAME Biodiesel (gal)	126.13 (MJ/gal)
Renewable Diesel (gal)	129.65 (MJ/gal)
Alternative Jet Fuel (gal)	126.37 (MJ/gal)
Renewable Naphtha	117.66 (MJ/gal)
Propane (gal)	89.63 (MJ/gal)

Source: CARB's Quarterly Fuel Usage Spreadsheet
https://ww3.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/quarterlysummary_103119.xlsx

RNG CI			**Diesel**		
RNG CI	19.28	gCO2e/MJ	RNG CI	102.00	gCO2e/MJ
Energy in Diesel	134.47	MJ/gal	Energy in Diesel	134.47	MJ/gal
RNG CI	2.59	CO2e/gallon	RNG CI	13.72	CO2e/gallon

ESA

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April 8, 2022

Mr. Mathew Watson P.E.
Supervising Engineer
Los Angeles County Sanitation Districts
1955 Workman Mill Road
Whittier, CA 90601

Subject: Positive Verification Opinion for Greenhouse Gas Emissions and Reductions for Emissions Year 2021

Dear Mr. Watson:

Environmental Science Associates (ESA) is pleased to provide the following Positive Verification Opinion for Greenhouse Gas (GHG) Emissions and GHG Reductions for Emissions Year 2021 based on information within the Draft 2021 GHG Emissions Inventory Report (Report) compiled by Los Angeles County Sanitation Districts (LACSD) and submitted to ESA on March 15, 2022.

Based on verification analysis conducted that is generally consistent with California's Global Warming Solutions Act methods and in accordance with standards within ISO 14064-3, ESA concludes, with the assurances detailed below, that the 2021 GHG inventory and GHG reduction statements in the Report are free of material errors and a fair representation of the GHG data and information; and prepared in accordance with the best practices related to GHG quantification, monitoring, and reporting.

This statement is made with the following assurances. In ESA's limited review of data collected from emissions sources, individual facilities and the organization, ESA verified evidence that LACSD's 2021 GHG emissions and the GHG reductions were:

- Materially correct and a fair representation of the GHG data and information; and generally prepared in accordance with the best practices related to GHG quantification, monitoring, and reporting, and
- Based on data checks conducted, ESA has determined, with limited assurance, that there is low risk for material misstatement from GHG calculations and data aggregation at the organizational level.

Based on the GHG emissions and reductions data provided within the Report, LACSD has demonstrated carbon neutrality.

Thank you for engaging ESA to complete this verification. If you have any questions about our verification statement, or the underlying analysis, please feel free to contact me at ceaster@esassoc.com or 925.900.3675.

Sincerely,

Christopher Easter
Air Quality & GHG Director
CARB Lead GHG Verifier Accreditation #CARB H-21-039

Copy: David Rothbart (LACSD)
Warisa Niizawa (LACSD)
Jeff Caton (ESA)
Tim Sturtz (ESA)

LEAGUE OF WOMEN VOTERS OF LOS ANGELES COUNTY

Ms. Thuy Hua, Supervising Regional Planner
Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012

Sent via email to climate@planning.lacounty.gov

Dear Ms. Hua,

Comments on Revised Draft 2045 Climate Action Plan dated March 2023

The League of Women Voters (LWV) of Los Angeles County strongly supports Los Angeles County's Climate Action Plan (CAP) and encourages the County to adopt the plan and implement it. *It is imperative that the County implement measures to reduce greenhouse gas (GHG) emissions as quickly as possible.* The CAP outlines numerous measures to move electricity generation from fossil fuels to renewables, to electrify buildings and transportation, to encourage use of mass transit, to reduce energy use, and to reduce generation of GHG in the development of building materials and the decomposition of organic waste. The CAP is thorough and broad-ranging in its coverage.

The League's policies and values on Climate Change, Land Use, Housing and Homelessness, Transportation, and Meeting Basic Needs are in excellent alignment with those of the County. However, we differ in urgency to act, particularly regarding land use and transportation.

Transportation remains the largest emissions category in our county and postponing work to reduce car dependence will run through our carbon budget faster. The low supply of available electric vehicles (EV), their cost, and slow adoption by drivers who must travel the farthest to their jobs mean that a key leg of the CAP's decarbonization strategy will not meet the schedule. Our County does not control the supply of EVs, but we do control the number of lane miles of bike lanes on major roads. Priority bus lanes and bike lanes are statutorily exempt from CEQA so there is no need for delay to complete lengthy and expensive studies. Our county's money and staff time are better spent working on implementation.

The League "recognizes land as a resource as well as a commodity". For instance, the League opposes locking land near multi-billion dollar transit investments, major job centers, and colleges and universities with zoning for low-density uses. There is no need to wait for a future rail line or EV, when people can simply walk or bike to work or school today if zoning and safe streets allow it. People who live walking or cycling distance to work or school do not suffer the stress of delayed or canceled buses and trains.

Implementation of many CAP actions is dependent upon development and adoption of many detailed plans, policies, regulations and ordinances. The work is divided among many agencies

and departments with full-time day-to-day responsibilities. The League is concerned that implementation be accomplished urgently and that it not slip into a bureaucratic quagmire. Appendix E lays out the details of implementation and monitoring and gives time frames. The early time frames extend out to 2030 and the later ones to 2045. There are no very near timeframes set out in the CAP for development and adoption of the plans, policies, regulations and ordinances. If these directives are not put in place promptly, the League is concerned that the implementation of the actual actions will lag. This must not happen.

Further, the League understands that measures in the CAP are restricted by other elements of the County's General Plan. The League recommends that future updates of General Plan elements be integrated with CAP needs. For instance densifying high quality transit areas (HQTAs) is expected to lower GHG emissions and improve equity because residents can take transit to access jobs and services instead of driving. However, transit is only one low-carbon mobility option. Walking is the cheapest and lowest emitting option. Unincorporated LA County land across the street from 8,000 jobs at or adjacent to Los Angeles Air Force Base is zoned for R-1. Similarly, students in community colleges are sleeping in their cars and county land across the street from El Camino College (22,000 students) is zoned R-1.

The League urges the Board of Supervisors and the management of the Los Angeles County government to prioritize climate action and to set, budget and monitor firm expectations for each upcoming year. The League urges the County to be fully transparent with the public about successes and difficulties with carrying out the CAP. We appreciate the transparency of the Measure W: Safe Clean Water Program Portal. We hope to see something similar for the CAP with links to the General Plan, Public Works, Transportation and other departments as appropriate.

Sincerely,

Margo Reeg,

Margo A. Reeg

President
Los Angeles County League of Women Voters
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VIA E-MAIL

May 12, 2023

Thuy Hua, AICP
Supervising Regional Planner
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Ph: (213) 974-6461
Em: thua@planning.lacounty.gov
Em: climate@planning.lacounty.gov

RE: Southwest Mountain States Regional Council of Carpenters' Comments in Support of the County of Los Angeles' Draft 2045 Climate Action Plan.

Dear Thuy Hua:

On behalf of the Southwest Mountain States Regional Council of Carpenters ("**SWMSRCC**"), my Office is submitting these comments regarding the County of Los Angeles' ("**County**") Revised Draft Environmental Impact Report ("**RDEIR**") for the Draft 2045 Climate Action Plan ("**Draft 2045 CAP**" or "**Plan**").

SWMSRCC is a labor union representing over 63,000 union carpenters in 10 states, including California, and has a strong interest in well-ordered land use planning and in addressing the environmental impacts of development projects. Individual members of SWMSRCC live, work, and recreate in the unincorporates areas of the County and would be directly affected by the environmental and social impacts of future projects subject to the Plan.

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

SWMSRCC incorporates by reference all comments raising issues regarding the Plan and its environmental review, including associated documents and reports. See

California Clean Energy Com. v. City of Woodland (2014) 225 Cal.App.4th 173, 191 (citing *Citizens for Open Government v. City of Lodi* (2006) 144 Cal.App.4th 865, 875) (any party who has objected to a project's environmental documentation may assert any issue timely raised by other parties); see also *Santa Teresa Citizen Action Group v. City of San Jose* (2003) 114 Cal.App.4th 689, 701 (citing Pub. Res. Code, § 21177, subds. (a), (b)) (in order to attack a decision that is subject to the California Environmental Quality Act (CEQA), the alleged grounds for noncompliance must have been presented to the public agency, and the party attacking the decision must have raised some objection during the administrative proceedings).

Moreover, SWMSRCC requests that the County provide notice for any and all actions referring or relating to the Project issued under CEQA (Pub. Res. Code, § 21000 et seq.), and the California Planning and Zoning Law (Gov. Code, §§ 65000–65010). California Public Resources Code, sections 21092.2 and 21167, subsection (f) and California Government Code, section 65092 require agencies to mail such notices to any party who has filed a written request for them with the clerk of the agency's governing body.

I. THE COUNTY SHOULD REQUIRE THE USE OF A LOCAL SKILLED AND TRAINED WORKFORCE TO BENEFIT ITS ECONOMIC DEVELOPMENT AND THE ENVIRONMENT.

The County has committed itself to meet the goals of the 2016 Paris Climate Agreement and achieving carbon neutrality for its unincorporated areas by adapting programs and services to essentially reduce GHG emissions. See Draft 2045 CAP, p. ES-1. The Plan "identifies strategies, measures, and actions to mitigate GHG emissions from community activities, which may include some municipal operations[.]" *Ibid.* Considering that transportation by on-road vehicles comprises 52% of the 5.2 million metric tons of carbon dioxide equivalent ($MTCO_2e$) that unincorporated L.A. County emitted in 2018 (the most recent inventory completed), and that "the largest decline in emissions will result from changes to the transportation" sector, it is vital that the Plan implement strategies, measures, and actions that effectively curb the amount of time individuals spend on the road. Draft 2045 CAP, p. ES-7. Besides increasing densities and diversity of land uses near transit, reducing single-occupancy vehicle trips, and institutionalizing low-carbon transportation, the Plan should mandate additional measures and strategies. Draft 2045 CAP, p. ES-5.

To this aim, the County should require that all developers of future projects subject to the Plan utilize local workers who are registered apprentices in, have graduated from, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from, a Joint Labor-Management Apprenticeship Program approved by the State of California.

Community benefits such as local hire can also be helpful to reduce environmental impacts and improve the positive economic impacts of future projects subject to the Plan. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of future project sites can reduce the length of vendor trips, reduce greenhouse gas (GHG) emissions, and provide localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

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

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

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

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

Furthermore, workforce policies have significant environmental benefits given that they improve an area's jobs-housing balance, decreasing the amount and length of job

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

commutes and the associated GHG emissions. In fact, on May 7, 2021, the South Coast Air Quality Management District (South Coast AQMD) found that the use of a local state-certified apprenticeship program can result in air pollutant reductions.[2]

The extent and significance on the environment of locating jobs closer to residential areas cannot be overstated. As the California Planning Roundtable has noted:

> 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.[3]

Moreover, local hire mandates and skill-training are critical facets of a strategy to reduce vehicle miles traveled (VMT). As planning experts Robert Cervero and Michael Duncan have noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions given that the skill requirements of available local jobs must match those held by local residents.[4] Some municipalities have actually tied local hire and other workforce policies to local development permits to address transportation issues. Cervero and Duncan note that:

> 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

---

[2] 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* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10.

[3] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf.

[4] 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* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

> 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.

Recently, the State of California verified its commitment to developing its workforce through the Affordable Housing and High Road Jobs Act of 2022, otherwise known as Assembly Bill No. 2011 (AB2011). AB2011 amended the California Planning and Zoning Law to allow ministerial, by-right approval for projects being built alongside commercial corridors that meet certain affordability and labor requirements.

The Plan focuses heavily on ensuring that the path to carbon neutrality is inclusive, accessible, equitable, and fair. Draft 2045 CAP, p. 1-13. It intends to effectuate its goals in a way that prioritizes frontline communities and low-income households that have historically experienced a disproportionately high share of environmental impacts. Many of these communities and households are comprised of or include laborers and carpenters. To ensure that this sector of the workforce is included in the Plan's definitive strategies and policies through a local hire mandate would not only further the County's goal of utilizing the Plan as a "policy document," but also further the Plan's commitment to create opportunities to "integrate equity in ways that help reverse the trends of discrimination and disinvestment." Draft 2045 CAP, p. 1-14. While the Plan's Climate Equity Guiding Principles may be adequate for prioritizing equity, more should be mandated. Implementing a local workforce requirement in all future applicable projects aligns with prioritizing frontline communities, promoting collaborative work, and achieving direct results.

The County should therefore consider mandating that all future projects in unincorporated L.A. County utilize local workforce policies and requirements to benefit the local area economically and to mitigate GHG emissions, improve air quality, and reduce transportation impacts.

II. ALL FUTURE PROJECTS SHOULD BE CONSISTENT WITH THE 2045 CLIMATE ACTION PLAN APPROACH TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT.

CEQA is a California statute designed to inform decision-makers and the public about the potential significant environmental effects of a project. CEQA Guidelines,

§ 15002, subd. (a)(1).[5] At its core, its purpose is to "inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.

CEQA directs public agencies to avoid or reduce environmental damage, when possible, by requiring alternatives or mitigation measures. CEQA Guidelines, § 15002, subds. (a)(2)-(3); see also *Berkeley Keep Jets Over the Bay Com. v. Board of Port Comrs. of the City of Oakland* (2001) 91 Cal.App.4th 1344, 1354; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 400. The Environmental Impact Report (EIR) serves to provide public agencies and the public in general with information about the effect that a proposed project is likely to have on the environment and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines, § 15002, subd. (a)(2). If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in Public Resources Code section 21081. See CEQA Guidelines, §§ 15092, subds. (b)(2)(A)-(B).

While the courts review an EIR using an 'abuse of discretion' standard, the reviewing court is not to *uncritically* rely on every study or analysis presented by a project proponent in support of its position. *Berkeley Keep Jets*, *supra*, 91 Cal.App.4th at p. 1355 (quoting *Laurel Heights, supra,* 47 Cal.3d at pp. 391, 409 fn. 12) (internal quotations omitted). A clearly inadequate or unsupported study is entitled to no judicial deference. *Id.* Drawing this line and determining whether the EIR complies with CEQA's information disclosure requirements presents a question of law subject to independent review by the courts. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515; *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48, 102, 131. As the First District Court of Appeal has previously stated, prejudicial abuse of discretion occurs if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory

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

goals of the EIR process. *Berkeley Keep Jets, supra*, 91 Cal.App.4th at p. 1355 (internal quotations omitted).

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

A strong presumption in favor of requiring preparation of an EIR is built into CEQA. This presumption is reflected in what is known as the "fair argument" standard under which an EIR must be prepared whenever substantial evidence in the record supports a fair argument that a project may have a significant effect on the environment. *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602; *Friends of "B" St. v. City of Hayward* (1980) 106 Cal.3d 988, 1002.

The fair argument test stems from the statutory mandate that an EIR be prepared for any project that "may have a significant effect on the environment." Pub. Res. Code, § 21151; see *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.App.3d 68, 75 (hereafter, "*No Oil*"); accord *Jensen v. City of Santa Rosa* (2018) 23 Cal.App.5th 877, 884 (hereafter, "*Jensen*"). Under this test, if a proposed project is not exempt and may cause a significant effect on the environment, the lead agency must prepare an EIR. Pub. Res. Code, §§ 21100, subd. (a), 21151; CEQA Guidelines, §§ 15064, subds. (a)(1), (f)(1). An EIR may be dispensed with only if the lead agency finds no substantial evidence in the initial study or elsewhere in the record that the project may have a significant effect on the environment. *Parker Shattuck Neighbors v. Berkeley City Council* (2013) 222 Cal.App.4th 768, 785. In such a situation, the lead agency *must* adopt a negative declaration. Pub. Res. Code, § 21080, subd. (c)(1); CEQA Guidelines, §§ 15063, subd. (b)(2), 15064, subd. (f)(3).

"Significant effect upon the environment" is defined as "a substantial or potentially substantial adverse change in the environment." Pub. Res. Code, § 21068; CEQA

Guidelines, § 15382. A project may have a significant effect on the environment if there is a reasonable probability that it will result in a significant impact. *No Oil, supra,* 13 Cal.App.3d at p. 83 fn. 16; see *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 309 (hereafter, "*Sundstrom*"). If any aspect of the project may result in a significant impact on the environment, an EIR must be prepared even if the overall effect of the project is beneficial. CEQA Guidelines, § 15063, subd. (b)(1); see *County Sanitation Dist. No. 2 v. County of Kern* (2005) 127 Cal.App.4th 1544, 1580.

This standard sets a "low threshold" for preparation of an EIR. *Consolidated Irrigation Dist. v. City of Selma* (2012) 204 Cal.App.4th 187, 207; *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252; *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928; *Bowman v. City of Berkeley* (2004) 122 Cal.App.4th 572, 580; *Citizen Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754; *Sundstrom, supra,* 202 Cal.App.3d at p. 310. If substantial evidence in the record supports a fair argument that the project may have a significant environmental effect, the lead agency must prepare an EIR even if other substantial evidence before it indicates the project will have no significant effect. See *Jensen, supra*, 23 Cal.App.5th at p. 886; *Clews Land & Livestock v. City of San Diego* (2017) 19 Cal.App.5th 161, 183; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491; *Friends of "B" St.*, 106 Cal.App.3d 988; CEQA Guidelines, § 15064, subd. (f)(1).

SWMSRCC supports the Plan's element to develop a new review consistency checklist to allow future projects to streamline GHG analyses pursuant to CEQA by allowing that General Plan-consistent projects that incorporate applicable 2045 CAP actions be excused from a separate quantitative GHG analysis. See Draft 2045 CAP, pp. ES-2, 1-4, 1-5. The CEQA Guidelines specify that CEQA review of a project's GHG emissions can be streamlined should the CAP do the following:

- Quantifies GHG emissions, both existing and projected, from activities within a defined geographic area over a specified time period.
- Establishes a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.
- Identifies and analyzes the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.

- Specifies measures or a group of measures, including performance standards, that would collectively achieve the specified emissions level if implemented on a project-by-project basis, as demonstrated by substantial evidence.
- Establishes a mechanism for monitoring the plan's progress toward achieving the target, and requires an amendment if the plan is not achieving specified levels.
- Is adopted in a public process following environmental review.

See Draft 2045 CAP, p. 1-4; CEQA Guidelines, § 15183.5.

Additionally, the Plan meets the requirements of CEQA Guidelines, section 15183.5 by:

- Quantifying all primary sectors of GHG emissions associated with all activities occurring within unincorporated Los Angeles County over which the County has some level of jurisdictional control or influence[1] for 2015 through 2045;
- Establishing GHG emissions reduction targets for 2030, 2035, and 2045, below which GHG emissions would not be cumulatively considerable based on the substantial evidence that the 2045 CAP is consistent with the 2022 Scoping Plan, Senate Bill (SB) 32, and AB 1279,[2] as well as an aspirational goal for 2045;
- Analyzing community emissions for unincorporated Los Angeles County as a whole and including predicted growth expected by 2045;
- Including specific mandatory and voluntary measures that quantitatively achieve the overall reduction targets for 2030, 2035, and 2045, and make progress toward the aspirational goal for 2045;
- Including an implementation and monitoring program that contains performance indicators and targets, details regarding funding and financing strategies, a list of available and expected funding sources, and a table for monitoring and reporting progress on the measures and their implementing actions; and,
- Being adopted through a public process in compliance with CEQA.

Id.

Considering the magnitude of the emissions generated by on-road transportation in unincorporated L.A. County, coupled with the wide-reaching benefits of a reduction in VMT resulting from local hire requirements, SWMSRCC requests that the County include an additional provision into the Plan's CEQA streamlining procedures by mandating that a local hire measure be included in the checklist addressing all feasible applicable measures or alternative project emissions reduction measures as project features or as GHG mitigation measures for projects that are required or electing to prepare a project-specific GHG analysis. See Draft 2045 CAP, p. 1-5.

III. CONCLUSION

SWMSRCC respectfully requests that the County take into consideration the aforementioned concerns and incorporate the measures suggested into its implementation of the Plan. Doing so would address several of the Plan's strategy areas and further its overarching purpose, namely, to reduce the County's impact on climate change, to aid in its "obligation under CEQA . . . and various California Executive Orders to do its part to reduce GHG emissions within the state[,]" and to do so in ways that "support pathways toward equitable and transformative implementation of climate strategies." Draft 2045 CAP, p. 1-15. Should the County have any questions or concerns, it should feel free to contact my Office.

Sincerely,

____

Reza Bonachea Mohamadzadeh
Attorney for Southwest Mountain
States 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);

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

EXHIBIT A

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

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March 8, 2021

Mitchell M. Tsai
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."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

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

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

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

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

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

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

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

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

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

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[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

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

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

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

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

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

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

Practical Application of a Local Hire Requirement and Associated Impact

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

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

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

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

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

Disclaimer

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

Sincerely,

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

Paul E. Rosenfeld, Ph.D.

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	Riverside-Salton	14.6	11
County	Riverside-South	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**

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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	CO	SO2	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	0.1713	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	1,721.6826	1,721.6826	0.1294	0.0000	1,724.9187
2023	0.6148	3.3649	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5295	1,627.5295	0.1185	0.0000	1,630.4925
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**	**1,721.6826**	**1,721.6826**	**0.1294**	**0.0000**	**1,724.9187**

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	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	214.6991
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6823	1,721.6823	0.1294	0.0000	1,724.9183
2023	0.6148	3.3648	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5291	1,627.5291	0.1185	0.0000	1,630.4921
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**	**1,721.6823**	**1,721.6823**	**0.1294**	**0.0000**	**1,724.9183**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4103	1.4103
2	**12-1-2021**	**2-28-2022**	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**	**11-30-2022**	1.1918	1.1918
6	**12-1-2022**	**2-28-2023**	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	CO	SO2	Fugitive 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	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
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**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	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	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
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**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	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	CO	SO2	Fugitive 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					0.0496	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	tons/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	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	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	tons/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	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	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**

3.4 Grading - 2021

Mitigated Construction Off-Site

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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	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**

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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	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**

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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	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
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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	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**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	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**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	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**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	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**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

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	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-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	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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-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	CO	SO2	Fugitive 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	0.0109	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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	tons/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

Mitigated Construction Off-Site

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

Mitigated Construction Off-Site

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

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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	tons/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						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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	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**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	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	1,257.5879	0.0519	0.0107	1,262.0869
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		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	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	1,257.5879	0.0519	0.0107	1,262.0869
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		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

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

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					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	tons/yr										MT/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

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor 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**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor 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

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

8.2 Waste by Land Use

Unmitigated

	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**

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

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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	CO	SO2	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	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1521
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

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	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1520
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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	CO	SO2	Fugitive PM10	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	CO	SO2	Fugitive PM10	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	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
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**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	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	CO	SO2	Fugitive PM10	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					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		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/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	0.0772	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	CO	SO2	Fugitive PM10	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					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/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	0.0772	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/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		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	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	CO	SO2	Fugitive PM10	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	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0803	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0803	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	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	CO	SO2	Fugitive PM10	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	0.4079	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	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	CO	SO2	Fugitive PM10	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	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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/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	0.3027	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	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/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	0.0566	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
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**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/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	0.0566	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	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/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	0.0535	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
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**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

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/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	0.0535	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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/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	0.5707	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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	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/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	0.5707	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

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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/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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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	CO	SO2	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	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

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	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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

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

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	CO	SO2	Fugitive PM10	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	CO	SO2	Fugitive PM10	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	0.1304	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
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**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0896	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0896	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	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	CO	SO2	Fugitive PM10	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	0.4284	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	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	CO	SO2	Fugitive PM10	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	0.3183	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	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/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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
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**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
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**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	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/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	0.0601	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
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**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

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/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	0.0601	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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/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	0.6406	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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	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/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	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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/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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	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	1,418.6554	1,418.6554	0.1215	0.0000	1,421.6925
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4412	1,342.4412	0.1115	0.0000	1,345.2291
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**	**1,418.6554**	**1,418.6554**	**0.1215**	**0.0000**	**1,421.6925**

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	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	210.7651	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	1,418.6550	1,418.6550	0.1215	0.0000	1,421.6921
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4409	1,342.4409	0.1115	0.0000	1,345.2287
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**	**1,418.6550**	**1,418.6550**	**0.1215**	**0.0000**	**1,421.6921**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4091	1.4091
2	**12-1-2021**	**2-28-2022**	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**	**11-30-2022**	1.1415	1.1415
6	**12-1-2022**	**2-28-2023**	1.0278	1.0278
7	**3-1-2023**	**5-31-2023**	0.9868	0.9868
8	**6-1-2023**	**8-31-2023**	0.9831	0.9831

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	CO	SO2	Fugitive 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	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
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**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	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	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
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**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	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	tons/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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	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	tons/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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	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**

3.4 Grading - 2021

Mitigated Construction Off-Site

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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	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**

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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-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	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**

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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-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	CO	SO2	Fugitive 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	0.2158	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
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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	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**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	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**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	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**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	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**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

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	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-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	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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-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	CO	SO2	Fugitive 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	0.0109	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-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	tons/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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	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	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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	tons/yr										MT/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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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	tons/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						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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	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**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	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	1,257.5879	0.0519	0.0107	1,262.0869
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		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	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	1,257.5879	0.0519	0.0107	1,262.0869
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		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

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

Unmitigated

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

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor 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**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor 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

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

8.2 Waste by Land Use

Unmitigated

	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**

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

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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	CO	SO2	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	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0956
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

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 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	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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	CO	SO2	Fugitive PM10	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	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
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**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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		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/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	0.0584	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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/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	0.0584	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0607	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/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	0.0607	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	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	CO	SO2	Fugitive PM10	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	0.3027	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	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/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	0.3027	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	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/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	0.0427	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
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**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/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	0.0427	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
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**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

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/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	0.0403	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	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/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	0.0403	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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/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	0.4296	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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	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/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	0.4296	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

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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/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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the 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	CO	SO2	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	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

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	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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	CO	SO2	Fugitive PM10	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	0.1304	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	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/day										lb/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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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		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/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	0.0638	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					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	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	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	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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/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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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/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	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
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**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/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	0.0469	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
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**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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/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	0.0469	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
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**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

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/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	0.0444	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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
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**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

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/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	0.0444	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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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/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	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	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	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/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	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			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 Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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/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

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	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		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
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		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
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**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	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	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
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**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment C

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

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

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

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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.

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Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

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

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

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

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

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

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

EXHIBIT C

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

1640 5th St.., Suite 204 Santa
Santa Monica, California 90401
Tel: (949) 887-9013
Email: mhagemann@swape.com

Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

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

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

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

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

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 DNAPL-contaminated 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.

<u>Other Experience:</u>

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

From: SCOPE
To: Iris Chi
Subject: Re: Revised Draft 2045 Climate Action Plan
Date: Monday, May 15, 2023 3:36:07 PM
Attachments: image.png

CAUTION: External Email. Proceed Responsibly.

Due to many events these last two months we have not had time to focus on the revised and re-circulated CAP EIR. We request an additional two weeks to review these documents.

Some of our members did watch the posted link to your presentation. Our biggest concern is that you are using the 2015 year as a baseline. This seems inappropriate when the situation demands a return to 1990 levels as requested by the IPCC and other government agencies. It is as though you are only going back to 2015 so that your figures will look good instead of really trying to comply with the changes that need to be made. We believe that this baseline will not comply with State and County climate goals. Changing the baseline to make it look as though the County is making headway will not address the underlying problem of the urgent need to reduce CO2 and Methane releases through reducing or eliminating their sources.

Lynne Plambeck

Santa CLarita Orgnization for Planning and the Environment.

scope.org

> -----Original Message-----
> From: Iris Chi <IChi@planning.lacounty.gov>
> Sent: Apr 17, 2023 12:06 PM
> To: SCOPE <exec-scope@earthlink.net>
> Subject: Revised Draft 2045 Climate Action Plan
>
> Good morning,
>
> Thank you for your prior participation in the update to the County's climate action plan. We released the Revised Draft 2045 Climate Action Plan and Recirculated Draft Environmental Impact Report for public review. Comments on both documents are requested by 5:00 pm on May 15th. Both documents can be accessed on the project website: https://planning.lacounty.gov/long-range-planning/climate-action-plan/documents/
>
> We will be convening an online meeting to discuss and answer questions from the environmental community on April 20, 2023 at 3:00 pm. A meeting invite will be

sent out shortly with the link to the Zoom meeting.

If you are unable to join this meeting, we invite you to sign up for an appointment to ask us your questions during lunchtime hours. Click here to sign up for an appointment.

Thank you,

Iris

IRIS CHI, AICP (she/her/hers)

PLANNER, Environmental Planning and Sustainability

Office: (213) 974-6461 • Direct: (213) 974-6460
Email: ichi@planning.lacounty.gov

Los Angeles County Department of Regional Planning
320 West Temple Street, 13th Floor, Los Angeles, CA 90012
planning.lacounty.gov

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Our field offices are currently open to the public. Please visit planning.lacounty.gov for information about available services, public meeting schedules, and planning projects.

TEJON RANCH
COMPANY

May 15, 2023

VIA U.S. MAIL:
Los Angeles County Department of Regional Planning
Attn: Thuy Hua
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

VIA EMAIL: climate@planning.lacounty.gov

SUBJECT: Draft 2045 Climate Action Plan (CAP) Comment Period

Dear Ms. Hua:

Tejon Ranch Co., on behalf of itself and its subsidiary/affiliated entities Tejon Ranchcorp and Centennial Founders, LLC (collectively, the "Tejon Ranch") offers these written comments on the proposed Draft 2045 Climate Action Plan ("CAP") and the Recirculated Draft Program Environmental Impact Report ("PEIR"), State Clearinghouse #2021120568.

Tejon Ranch applauds Los Angeles County's pledge to fight global climate change. We believe that State and local climate measures can be feasibly implemented in furtherance of other critical California priorities such as the continued growth of the California economy, the increased equity and upward mobility for our working families and employers, the funding and timely completion of urgently needed transportation, water and other infrastructure, and the implementation of the housing elements approved by our cities and counties to solve our regional housing crisis. Tejon Ranch is committed to being at the forefront of conservation and sustainable development to help lead the charge on protecting California's resources while creating communities that provide jobs and housing that align with the State's and County's goals.

Tejon Ranch – Leading the Way

In 2008, Tejon Ranch entered into the Tejon Ranch Conservation and Land Use Agreement (Ranchwide Agreement), a historic conservation agreement with the state's leading environmental advocacy groups (Natural Resources Defense Council, Sierra Club, Audubon Society, Planning and Conservation League, and Endangered Habitats League) to conserve approximately 240,000 acres (roughly 90 percent) of the Ranch lands, and allow development of four significant new master planned communities on sites scientifically selected as having lower natural resource values, which are located proximate to existing transportation and utility infrastructure on the remaining, approximately 30,000 acres (roughly 10 percent). As a voluntary and proactive conservation agreement by Tejon Ranch, the Ranchwide Agreement is the largest private land conservation commitment in California history and was finalized following many years of detailed project-level scientific analysis and data collection on Tejon Ranch. At 240,000 acres, the open space preservation at Tejon Ranch is larger than any other private conservation commitment in

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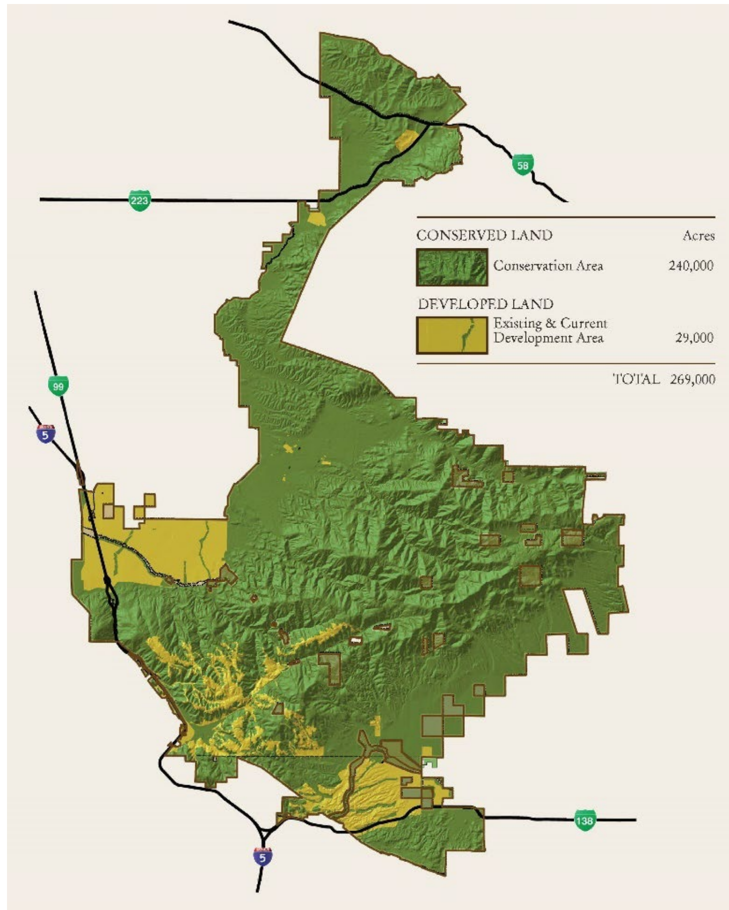
under the Ranchwide Agreement contain multitudes of trees and plants which serve as carbon sinks that will fight climate change in perpetuity. These lands capture approximately 3.3 million tons of carbon, which is equivalent to the carbon produced by 2.5 million passenger vehicles (5% of California's fleet) in a year.



Tejon Ranch is an iconic California property in remarkable condition – but not from being untouched. It is working land that is cared for with intention and principles of good stewardship that inspired the creation of huge conservation areas that conserve hundreds of plant and animal species. Tejon Ranch's extensive water assets meet our current needs as well as our projected future needs through the full buildout of our master planned communities. The Ranch has led in the adoption of environmentally sensitive practices throughout our enterprise, including water conservation in our ranching, farming, and real estate operations, including water resource recovery facilities (WRRF) incorporated into each of our master plans including Centennial, Tejon Mountain Village, Grapevine, and the Tejon Ranch Commerce Center. Environmental sensitivity and sustainability are cornerstones of the thoughtful planning, intentional design, and careful development of our master planned communities which will serve to solve California's housing crisis in an intelligent way. All communities at Tejon Ranch will be built with resiliency features such as permanently maintained defensible space, community water systems incorporating state-of-the-art water conservation measures, reclaimed water for irrigation, stormwater capture, drought-tolerant landscaping, photovoltaic solar, multi-modal transportation, and prolific EV charging stations.

Tejon Ranch has executed upon thoughtful, forward-thinking development at our Tejon Ranch Commerce Center (TRCC), which has created thousands of jobs for the surrounding communities. One such example was the completion of second largest single-roof commercial solar energy system in the State of California in 2011[1] which was the equivalent of "eliminating the emissions of 389 cars or powering 241 homes yearly." The water used for irrigating the drought tolerant landscaping at TRCC is recycled at Tejon Castac Water District's water

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[1] https://www.businesswire.com/news/home/20110511005387/en/IKEA-Powers-Up-2nd-Largest-Single-Roof-Commercial-Solar-Energy-System-in-State-at-Distribution-Center-in-Tejon-California

reclamation and recycling facilities. The Commerce Center is also a focal stopping point along the Interstate 5 corridor for electric vehicles. To date, there are over one hundred charging stations built on-site and we are working to deliver many more.

Tejon Ranch's masterplan, Centennial, a future net-zero GHG community[2] located in Los Angeles County, includes 19,333 homes, of which nearly 3,500 are affordable housing units, and provides a jobs-housing balance through 10.1 million square feet of commercial, industrial and institutional uses. During the many years of planning of Centennial, Tejon meticulously identified achievable GHG reductions and project level mitigation measures that dramatically reduced the GHG impacts of the project. Many of these GHG reduction measures are included within the certified Environmental Impact Report ("EIR") for the Centennial project and the remainder are included in the legally-binding and publicly transparent Climate Resolve Settlement Agreement which has been previously provided to the County. As a result of our commitment to these unrivaled GHG reduction measures, the project has been formally recognized by the state's leading climate regulatory agency, the California Air Resources Board, as a model for large residential development projects in achieving net-zero GHG emissions[3]. A few of these measures are listed below and are consistent with the Draft 2045 CAP or exceed what Los Angeles County has envisioned to date.

- 50% of the project's total electric energy demand (i.e. household, business, civic/institutional, recreational, and public facilities) shall be met by onsite renewable energy.
- 100% of project single-family detached homes shall be "solar-ready" or equivalent, based on the latest technology.
- Provide a ride-share program, on demand pick up, shuttle service or similar methods to employment, commercial and residential areas of Centennial.
- Provide "complete streets" throughout the community to provide alternative modes of transport (walking, biking, low-speed vehicles (LSVs) such as neighborhood electric scooters, bikes, and other Neighborhood Electric Vehicles (NEVs).
- Implement a NEV Network – for NEVs (a "low speed vehicle" up to 35 MPH that are electric powered and ideal for short trips up to 30 miles in length). A NEV network includes roadways, parking, charging stations, striping, signs, and educational tools and can double as bicycle routes. NEVs are an alternative to traditional vehicle trips and therefore would reduce vehicle trips.
- Net Zero GHG Emissions: The community commits to net zero GHG emissions by reducing to zero all emissions through significant on-site and off-site commitments. A large component prioritizes disadvantaged communities, followed by other projects within Los Angeles County, and other parts of southern and central California.
- Electric Vehicle Advancement: Advance the EV future through commitments to install almost 30,000 chargers within and outside the community. Provide incentives to support the purchase of 10,500 electric vehicles.

[2] Environmental group and Tejon Ranch agree on plan to build 19,300 zero-emission homes, Los Angeles Times, December 1, 2021

[3] California Air Resources Board Final 2022 Scoping Plan Update, Appendix D, pages 25-26.

- 95 miles of bike/pedestrian trails to encourage walkability and non-motorized transportation for residents to work, live and play within Centennial.
- Wildfire Prevention: Funding for on-site and off-site fire protection and prevention measures, including up to 4 fire stations, comprehensive fire protection plan and emergency response plan, fire-resilient community design, planning, and vegetation management (including fuel modification zones) with benefits to neighboring communities and new buildings that will employ the latest building codes.

These are just some of the forward-thinking commitments that Tejon Ranch has made on a project level to minimize and then fully offset remaining GHG emissions as to its Centennial project. These project features are important because they demonstrate feasible, clear, implementable project level mitigations. Tejon Ranch is proud of Centennial and the progressive measures it will implement while providing attainable housing and affordable housing for Los Angeles County residents. Tejon Ranch will continue to support climate crisis goals and is partnering with Los Angeles County to bring cutting edge concepts to address climate change on a project level.

Draft 2045 CAP Should Not be a Component of the General Plan

The Draft 2045 CAP is crafted for an enormous County with vastly different pockets of populations and densities and is trying to address numerous issues in a one-size-fits-all section of the County General Plan. Erroneously, as currently written, the Draft 2045 CAP is contemplated to be adopted as part of the Los Angeles County General Plan. Irreparably, once included in the General Plan, compliance with the Draft 2045 CAP is mandatory: neither elected officials nor staff can authorize deviations from the Draft 2045 CAP without amending the General Plan. Third parties seeking to block funding or approvals of infrastructure, job-creation, and housing projects can also sue the County, alleging failure to fully comply with the Draft 2045 CAP in accepting or disbursing funds, or approving, infrastructure, jobs or housing projects. Both the County and applicants receiving County approvals for such projects will become targets in such opposition lawsuits.

Inclusion of the Draft 2045 CAP in the General Plan also creates new County obligations, and expands litigation risks, under the California Environmental Quality Act ("CEQA"). As the Draft 2045 CAP itself explains, any project that fails to comply with all applicable requirements (inclusive of the 25 Draft 2045 CAP measures, more than 90 implementation actions, and scores of PEIR mitigation measures, collectively "CAP Measures") would conflict with an environmental component of the General Plan, a significant and unavoidable Land Use impact, and would have a significant GHG impact. These conflicts would trigger the necessity for an Environmental Impact Report (EIR) and preclude the County or applicants from making use of less costly, less time-consuming, and less litigious CEQA compliance pathways. The Draft 2045 CAP specifies that for each non-compliant Draft 2045 CAP Measure, the "infeasibility" of such a measure must be demonstrated with substantial evidence. Each one of these "infeasibility" findings, as well as the sufficiency of any alternative Draft 2045 CAP measure, is also subject to challenge in CEQA and General Plan compliance lawsuits.

California Governor Newsom has stressed that California needs 2.5 million new homes by 2030[4], and officials at the California Department of Housing and Community Development are implementing state law to achieve this goal. To meet the demand of the housing crisis, including achieving the goal of 1 million new units of affordable housing, Los Angeles County must dramatically ramp up housing construction. The Southern California Association of Governments (SCAG) 6th Cycle Regional Housing Needs Allocation (RHNA) plan driving the 2021-2029 housing element for Los Angeles County targets the delivery of over 812,000 homes, 90,000 of which are to be delivered in unincorporated Los Angeles County by 2029. These targets include over 330,000 low income and very-low-income homes, over 39,000 of which are allocated to Unincorporated Los Angeles County. If adopted as part of the General Plan, the Draft 2045 CAP will be used to stop development and will be weaponized against achieving State goals and thwarting the delivery of desperately needed homes. The Draft 2045 CAP should be revised to include only feasible, clear, implementable Draft 2045 CAP Measures that are aligned with and allow for full implementation and achievement of other critical County infrastructure, economic development, housing, and other needs.

If adopted as part of the General Plan, the Draft 2045 CAP hinders County elected and appointed officials' ability to implement long-term housing law compliance obligations. Once adopted, the Draft 2045 CAP cannot be amended without undergoing further CEQA review inclusive of adoption of "all feasible mitigation" to achieve either the same or a modified GHG reduction goal. Evidence of this happening can be found when San Diego County adopted what its Board of Supervisors believed to be an aspirational CAP into its General Plan in 2018. Anti-housing litigants weaponized the CAP, and courts concluded that the County had adopted the CAP as a fully enforceable General Plan and CEQA mandate. Housing opponents have had an unbroken run of successful lawsuits in blocking multiple new housing projects in that county. San Diego attempted unsuccessfully to amend its CAP and allow for example the use of CARB-approved and other GHG offsets to mitigate GHG emissions, only to lose in court – again, and again. Another example is Solano County, in Northern California, which suffered the same fate when its General Plan aspirational CAP also failed to pass muster in a no-growth advocacy CEQA lawsuit challenge. Looking at this woeful record of local agency losses when CAPs were included in General Plans, even the most pro-climate jurisdictions in California, such as San Francisco, have elected not to include their CAPs in their General Plan – while others have very carefully drafted CAPs to assure that they are clear, feasible, implementable, and operate in alignment with and support other approved General Plan elements, as well as other policy priorities, plans and obligations.

Tejon Ranch supports the currently adopted County CAP, because it is feasible and includes measures that are within the County's jurisdiction and control to feasibly implement. As the County knows, the Centennial project was determined in both our EIR and by the trial court to be fully consistent with the County's current CAP. The Draft 2045 CAP, in contrast, is a massive and sprawling set of mandates – some of which are not even defined, and none of which are tailored to quantitatively assign feasible GHG reduction obligations to new projects, proposed retrofits, and existing structures. CAP 2045 also does not include an economic feasibility assessment for the vast range of structures and activities that it seeks to regulate, from advanced manufacturing to entertainment and tourism, from every category of infrastructure project, and

[4] Governor Newsom's Newly Created Housing Accountability Unit Marks First Year, Nov 4, 2022.

from isolated single-family homes to multi-family, mixed-use, and master planned communities.

Overview and Examples of Concerning Draft 2045 CAP Measures

Building homes or commercial and retail is a calculated risk in Los Angeles County and comes with a certain level uncertainty because of CEQA and how CEQA allows opponents to litigate all aspects of each project. However, even the tortuous CEQA process lays out the road map for project applicants to follow to demonstrate compliance, including how to analyze and mitigate impacts through a series of measures and performance standards. CEQA Guidelines are analyzed, debated, studied and compared to previously completed projects, and yet litigants are consistently successful in overruling approvals throughout the State. The reason for the success of overturning approvals during the court process is because project level mitigation and impact analysis can be subjective and left to a judge's interpretation of CEQA. The Draft 2045 CAP and PEIR add more than 50 new General Plan consistency and compliance obligations, and dozens more implementation and other measures, often without any detail and almost always without any GHG quantification metric, which will only add more uncertainty for project applicants. The Draft 2045 CAP and PEIR collectively provide project opponents a vast bucket list of items to weaponize through CEQA challenges arguing that projects did not sufficiently mitigate impacts against poorly defined, unclear measures and performance standards. The following are just some examples of infeasible measures and mitigations that would create uncertainty for future development in Los Angeles County.

1. **Land Use to Address Jobs/Housing Balance:** *By 2030 achieve a jobs density of 300 jobs per acre:*

   The Draft 2045 CAP 300 employee per acre mandate would not have any immediate effect on existing employers; however, employers and applicants proposing new or expanded commercial, manufacturing, infrastructure, tourism, entertainment, and even church and educational uses, that do not have 300 employees per acre, would be inconsistent with the Draft 2045 CAP. These projects would thus have a significant and unavoidable GHG impact triggering the need for an EIR instead of more streamlined CEQA addendum and categorical exemptions for projects that are consistent with the General Plan, These projects would then be subject to a costly CEQA compliance process, the outcome of which would provide opponents with scores of new CEQA deficiency litigation claims about the sufficiency of substantial evidence to support infeasibility determinations as well as whether the substitute measure will indeed achieve the GHG reduction performance target that corresponds to this 300 employee per acre employment target. Since no such GHG calculations are disclosed in the Draft 2045 CAP, prospective employers would not even know how to begin to show compliance with this Draft 2045 CAP mandate, which is proposed to be independently and fully enforceable as part of the General Plan.

   Imposing this narrowly defined County-wide employment density metric to such a broad array of future projects, thus exposing them all to CEQA litigation while being out of compliance with the General Plan, is not consistent with the State and County goals to create economic growth and bring jobs to the County's many and diverse communities.

The Draft 2045 CAP and associated Program EIR do not, however, analyze or mitigate the consequences of this measure on the economic development plan components of the County's General Plans, Area Plans, and Community Plans. This is both a fatal flaw in the Program EIR, and a violation of General Plan laws requiring internal harmony and consistency within the County's complex General Plan, which also includes multiple Area Plans and Community Plans.

The County should encourage job creation that will bring employment opportunities to the residents of Los Angeles County, especially higher wage jobs in expanding and innovating industry and business sectors. It is unrealistic to mandate a job creation of 300 jobs per acre that would be hard to meet for even high-density downtown areas. This measure will discourage any small businesses, hospital expansions, medical offices, manufacturers, retail services, church, entertainment, schools and others from building as none of them could meet the employment density standard established by the Draft 2045 CAP and would be considered inconsistent with the General Plan and have an unavoidable CEQA GHG impact. This is particularly unachievable given the expansion of hybrid workforce, where only a portion of employees are present daily, especially in the goods movement sector, entertainment or religious venues, schools or recreational sports facilities, or on college and university campuses, this mandate would not be achievable. Table 1 below includes the average employment densities of common categories of commercial use, none of which come close to the 300 employee per acre Draft 2045 CAP requirement.

Table 1: Employment Density per Acre by Sector

Sector (NAICS codes)	Mean	Median	IQR	Sample size
Manufacturing (31, 32, 33)	18.8	11.0	15.7	217
Transportation and Warehousing (48, 49)	11.2	8.0	10.8	34
Construction (23)	19.4	9.9	18.4	122
Wholesale Trade (42)	12.8	8.0	11.1	132
Retail Trade (44, 45)	13	7.1	11.6	65
Real Estate and Rental and Leasing (53)	5.7	2.2	5.8	24
Administrative Support and Waste Management and Remediation Services (56)	22.5	20.3	22.0	25

2. **Ban on Net Zero Projects Using CARB-Approved Methodologies for Feasibly Achieving Net Zero GHG Projects**:

The Draft 2045 CAP correctly relies on other laws and agencies previously completed work product to help Los Angeles County meet their goals. The Draft 2045 CAP heavily touts the California Air Resources Board (CARB), widely considered the state's expert climate agency, adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), *"which lays out a path for achieving the statewide goals"*. The goals and priorities of the Draft 2045 CAP can mirror the 2022 Scoping Plan without being adopted in the General Plan. Instead, the County should consider the Draft 2045 CAP as aspirations for the County to achieve and review each individual project to thoughtfully craft and adopt measures that can be implemented to help off-set emissions.

In fact, the County has already done this with their approval of the only two major mixed use master planned communities recognized by CARB to have achieved Net Zero GHG: Centennial and Newhall. Centennial is a model for achieving Net Zero GHG as acknowledged by CARB in their 2022 Scoping Plan **"**Tejon Ranch Company, the developer for the Centennial Specific Plan located in northern Los Angeles County, also committed its development to result in no net increase of GHG emissions… Mitigation measures employed by these developers include the prohibition of natural gas in residential and commercial properties; the requirement of on-site solar photovoltaic energy systems on residential and commercial properties; the installation of almost 30,000 EV chargers within and outside the plan area; funding incentives for the purchase of 10,500 passenger EVs and electric school buses and trucks; and procuring and retiring carbon offset credits from the voluntary market… they do demonstrate the feasibility of a net-zero approach for other large and complex residential development projects."

The County likewise recognized this achievement and commitment from Centennial with their trial court filing on February 2, 2022, stating, "that Real Parties (*Tejon Ranch Co. et al.)* have reached an accord with Climate Resolve to **achieve a "net zero GHG project" with massive investments in green infrastructure.**"[5]

Centennial's net zero GHG program also complies with the CARB-endorsed geographic hierarchy of GHG mitigation to successfully mitigate GHG emissions: "The State recommends prioritizing GHG mitigation actions according to a geographic hierarchy as follows: on-site opportunities; local, off-site GHG mitigation; and GHG offsets that meet CEQA's requirements." "The recent settlement agreement applicable to the Centennial Specific Plan in Los Angeles County also applied a geographic hierarchy for GHG mitigation, specifying that at least 51 percent of mitigated emissions should take place within the project, 69.5 percent within California, 82.25 percent within the United States, and no more than 17.75 percent from international projects. The geographic hierarchy of GHG mitigation is feasible, as demonstrated by these examples."[6]

Despite supporting these Centennial project approvals and supporting CARB's 2022 Scoping Plan, the Draft 2045 CAP specifically forbids projects from partnering with CARB to achieve carbon neutral goals, rejecting use of the CARB-approved Net Zero GHG compliance pathway employed by the only recognized large residential Net Zero GHG projects in California, by expressly disallowing GHG reductions to be achieved by CARB-approved GHG offsets that are quantified, validated, and meet other criteria including additionality. Instead, the Draft 2045 CAP allows, but does not provide detail on, a future County-only GHG reduction offset credit program that may potentially be

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[5] Objections to Petitioners' [Proposed] Judgment Granting Peremptory Writ of Mandate at p. 6, Center for Biological Diversity et al. v. County of Los Angeles, et al., Case No. 19STCP02100 (Los Angeles County Superior Court, filed Feb. 22, 2022).

[6] https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp-appendix-d-local-actions_0.pdf Draft 2022 Scoping Plan May 2022

defined, evaluated, adopted, and ultimately implemented at some later date. In fact, there is no information provided about the cost, feasibility, schedule, or scale of any such future offset program. The Draft 2045 CAP states:

> *"An offsets/credits program is not a 2045 CAP strategy, measure, or action currently proposed for implementation… Further, offset credits are not currently permitted to be used as alternative project emissions reduction measures for new development pursuant to the 2045 CAP Consistency Checklist. The offsets/credits program would be considered for potential implementation later, and only after completion of the feasibility study. The potential offsets/credit program would be designed to be consistent with applicable CEQA case law requirements, including requirements that offsets be enforceable, real, permanent, quantifiable, verifiable, and additional. The potential offsets/credits program would provide clear, objective, and measurable performance standards for all allowable GHG offsets. For any potential future GHG offsets/credits program evaluated by the County, the County would prioritize implementation of offsets generated within or close to Los Angeles County."*

The Draft 2045 CAP asserts that it will fulfill CARB's goals and policies, but then expressly forbids the essential GHG offset component that were critical components of the net zero GHG programs in the County's own CARB-recognized master planned communities.

If the County's ultimate goal is indeed to achieve carbon neutrality by 2045, while simultaneously fighting climate change, the County should embrace any method that helps reduce GHG for both the County, State and the Globe.

As mentioned above, the Draft 2045 CAP allows but does not include a County-only GHG reduction offset credit program, but includes zero information about the cost, feasibility, schedule or scale of any such future program. The Draft 2045 CAP does not create any feasible new Net Zero GHG compliance pathway for any new project, undermining the Board's Resolution endorsing net zero GHG project outcomes similar to those already achieved by Centennial and Newhall. The Draft 2045 CAP currently creates only a net zero GHG compliance pathway for like-kind replacement projects on the same site that emit less GHG. Replacing an old office building or home with a new "like-kind" office building or home easily achieves this net zero GHG outcome given new lower GHG technologies and legal mandates, but the Draft 2045 CAP creates no compliance pathway for projects that would increase land use densities and intensities which are called for under the Housing Element as well as economic development components of the General Plan, or that include new uses beyond those that already exist on the same site. The Draft 2045 CAP makes housing, commercial, and mixed-use master planned community projects – as well as infrastructure and public facility projects - that are in full compliance with the General Plan, Housing Element and every existing GHG reduction mandate, a violation of the County's General Plan.

3. **Severe and Unlawful New Prohibitions Regarding the Use of Existing Water Supplies:**

   Like much of California, the development of Los Angeles County was and remains dependent on a diverse and resilient water supply that includes imported water. The Draft 2045 CAP demands that 90% of all water consumed within the unincorporated County boundaries, and 80% of agricultural irrigation water, be supplied exclusively by local water sources consisting of reclaimed water, grey water, and potable recycled water by 2045 with no pathway to achieve this. Under this Draft 2045 CAP Measure, no imported water source – including water delivered directly to the County, and water purchased and stored for use in the County, and no de-salinization technology or other technology falling outside the three designated technologies, can supply more than 10% of the County's total water demand. It is unrealistic and infeasible to demand new projects study and comply with this measure when the technology does not currently exist to do so, regulations do not currently authorize potable use of treated water, and existing development within the County will not be held to the same standards. This will create certain litigation for any project moving forward as a red flag of General Plan inconsistency, and yet the Draft 2045 CAP provides no pathway for new projects to be compliant. Consider the following five concerns if the Draft 2045 CAP moves forward with this measure.

   i. Legally infeasible. The County is party to numerous water infrastructure, supply, and management contracts that govern imported water, which is by far the largest source of water to the County and cities within the County.

   ii. Technically and scientifically infeasible. While all three of the exclusively sanctioned water treatment technologies (grey water, reclaimed water, and toilet-to-tap water) have already been invented and implemented on a small scale in limited areas (almost none of which supply water to unincorporated Los Angeles County), all of these treatment technologies effectively concentrate nitrate and other residual chemicals in the treated water supply, and for technical, scientific, and regulatory compliance reasons, these treated waters must be blended with fresh water to be usable (for either non-potable or potable uses) over time through multiple treatment cycles. It is not technically feasible, based on both the realities of chemistry and geographic distribution, to supply 90% of the County's water supply from grey water, recycled water, and potable reclaimed water.

   iii. Conflict with other County General Plan, plan, policy, and state law legal mandates. The County is required by its own General Plan as well as state law to implement its approved Housing Element, calling for delivery of 90,000 new homes in Unincorporated Los Angeles County by 2029, and plan for and approve plan-compliant housing for these many thousands of new homes. New homes cannot be built without adequate water supplies;

however, the Draft 2045 CAP would cause the County to violate housing laws by disapproving new housing dependent on existing and new water supplies that are not supplied by a minimum of 90% recycled, grey water, and potable recycled water – none of which are currently available or legally sanctioned to meet the potable drinking water needs of multi-family and community-scale housing seeking County approvals today. The County also cannot achieve its economic diversification goals, including for example attracting additional advanced manufacturing, battery and climate-tech, aerospace, research, medical, and technology employers, without providing an adequate, secure, and high-quality water supply.

iv. The Draft 2045 CAP, if adopted into the General Plan as proposed, applies most directly and immediately to the County's own projects, and to the County's approval of project applications. This means that the legal risks and compliance costs of the legally and technically infeasible water mandate in the Draft 2045 CAP will fall most immediately on challenges to County-funded projects (e.g., infrastructure, arts, parks), as well as County-approved and applicant-proposed housing and job-creation projects that meet other urgent County needs and legal obligations. A new water recycling project that relies on blending treated water with imported water would, for example, fail if it used even 15% of imported water as a blending source for recycled water.

v. The One-Size Fits All Technology Mandates in the Draft 2045 CAP (for Water Supplies and Other prescriptions) Are Anti-Innovation and Impede Global GHG Reductions. The Draft 2045 CAP accepts only three water technologies to provide 90% of the County's total water supply, all of which are technologies that exist today. The Draft 2045 CAP is hostile to innovative technologies, notwithstanding decades of progress in achieving environmental goals through technology innovation. CARB has confirmed that the entire California economy contributes less than 1% to global GHG emissions, and the County's most significant climate change leadership opportunities are supporting innovation including development and production of new technologies and practices that are desirable and cost-effective, and thus likely to be used by other states and countries. The County's leadership in technology innovation, capital and company formation, advanced manufacturing, and marketing, are the necessary and appropriate engines of global climate change solutions. The 2045 Draft CAP's 10% cap on imported water frustrates, rather than furthers, these climate change leadership opportunities and is more likely to shuffle people and jobs to other states and local jurisdictions than result in meaningful global GHG reductions.

Additional Challenges with the Draft 2045 CAP

As documented throughout this letter, the Draft 2045 CAP does not quantify the amount of GHG reductions the various measures would bring to the County if implemented, and yet each project applicant will be left trying to calculate reduction numbers to try and comply with the measures. The Draft 2045 CAP indicates that to show consistency through an alternative measure, a project must show how it can quantitatively achieve the same reductions as the listed measure (Page F-5 of Appendix F). However, for many of these measures the Draft 2045 CAP does not quantify the emissions associated with the measure (e.g., ES4, ES5, T5, E3, W2, A2, and emission reductions within sub-measures listed in Appendix E for each measure are not broken out individually either) and thus, there is 1) no basis in the Draft 2045 CAP how these measures are achieving GHG reductions, and 2) no basis for a Project to demonstrate consistency with the Draft 2045 CAP or for alternatives to these measures.

The Draft 2045 CAP Checklist also includes aspirational requirements (i.e., EV trucks [Measure T8] and construction electric equipment [Measure T9]) which no project can currently be consistent with given the lack of technology to meet these requirements. However, when included in the General Plan as proposed for the Draft 2045 CAP, the County has ensured that projects will be inconsistent with the General Plan by not being able to comply with technology that doesn't exist.

In addition, the Draft 2045 CAP includes many plans (e.g., Zero Emission Vehicle Master Plan, Building Performance Standards, Carbon Intensity Limits, ZNE Ordinance, All-Electric New Buildings Ordinance, and Net Zero Water Ordinance) that are cited in Appendix E and F, but have not even been developed yet. Without knowing the content of these undeveloped plans, neither housing and job-creating applicants, nor supporters of public facilities or infrastructure improvement projects proposed by other County departments or public agencies, can confidently assess project consistency with the Draft 2045 CAP, nor could a project demonstrate that it meets the requirements of the Draft 2045 CAP checklist. This is another example of why the Draft 2045 CAP should not be substantially revised, as well as excluded from the General Plan.

Furthermore, the performance criteria listed in Appendix E are mostly established on a county-wide basis, yet they are connected to the checklist items in Appendix F for specific projects (e.g. Measure T6 lists County-wide goals for EV sales and number of EVCS installed but does not indicate project-specific goals for this measure). In this way, the Draft 2045 CAP does not present a viable basis for a project to demonstrate consistency with the Draft 2045 CAP. As discussed at length, the County should consider projects on an individual basis, fully consider foreseeable GHG project-level impacts based on core state law GHG reduction mandates that comprise the vast majority of the quantified GHG reductions as documented in the Draft 2045 CAP, and then identify feasible additional GHG reductions and mitigation measures based on specific project information as well as ever-evolving technologies and practices. Only this modified Draft 2045 CAP General Plan approach can be implemented consistent with, and in furtherance of, the many other housing, jobs, conservation, infrastructure, and other priorities included in existing, approved General Plan, Area Plans, and Community Plans. The many infeasible, one-size-fits-all measures in the Draft 2045 CAP should be removed from the General

Plan, but can potentially be maintained as a list, outside the General Plan, of potentially feasible GHG reduction measures for consideration on project-by-project basis, and in the context of evaluating potential future ordinances as state law and feasible technologies and practices continue to evolve.

Considerations

In closing, Tejon Ranch Company thanks the County for providing the opportunity for us to share our deep and broad concerns regarding the Draft 2045 Climate Action Plan. The Company takes seriously its responsibility to lead in addressing the critical climate and housing crises facing our County. We have consistently demonstrated through our substantial and voluntary land conservation efforts, the employment of best practices in environmentally sensitive and sustainable community planning and design and our entering the legally-binding, publicly transparent Climate Resolve Agreement, the Company's unrivaled commitment to achieving Net Zero GHG emissions for our Centennial project and enabling the County to successfully address the dire housing crisis in a safe, resilient, and sustainable way. We respectfully submit that the County should recognize Centennial as a model for achieving net zero GHG emissions, just as CARB has, and not impede or otherwise take action to add costs, uncertainties, or new or inconsistent GHG reduction obligations for the project. We further ask that the County give serious and thoughtful consideration to addressing the following problematic core elements of the Draft 2045 CAP, and that the County stay on track to provide for the housing and economic growth that is consistent with the approved General Plan, as carefully determined by the Board of Supervisors to best serve all Angelinos.

- The Draft 2045 CAP should be substantially revised into an aspirational document that focuses solely on feasible GHG reduction measures which are within the jurisdiction of the County to implement, operate in full alignment and support of the County’s economic development, housing, and infrastructure goals, and do not increase the cost, time, or litigation risks for the County or applicants.

- The Draft 2045 CAP should separately quantify GHG reductions from the successful implementation of statewide laws and mandates, and calculate what additional measures, if any, should be undertaken by the County, while allowing projects to reduce their GHG emissions through CARB-approved offsets and other mitigation approaches.

- The Draft 2045 CAP inventory and GHG reduction methodology should pivot into recognition that retaining County residents and jobs, and providing the necessary expansions of housing, economic development and infrastructure needed to restore economic opportunity and upward mobility to County residents, is a more effective GHG strategy than exporting jobs to states and countries with lower standards and practices for reducing GHG impacts.

community planning and design and our entering the legally-binding, publicly transparent Climate Resolve Agreement, the Company's unrivaled commitment to achieving Net Zero GHG emissions for our Centennial project and enabling the County to successfully address the dire housing crisis in a safe, resilient, and sustainable way. We respectfully submit that the County should recognize Centennial as a model for achieving net zero GHG emissions, just as CARB has, and not impede or otherwise take action to add costs, uncertainties, or new or inconsistent GHG reduction obligations for the project. We further ask that the County give serious and thoughtful consideration to addressing the following problematic core elements of the Draft 2045 CAP, and that the County stay on track to provide for the housing and economic growth that is consistent with the approved General Plan, as carefully determined by the Board of Supervisors to best serve all Angelinos.

- The Draft 2045 CAP should be substantially revised into an aspirational document that focuses solely on feasible GHG reduction measures which are within the jurisdiction of the County to implement, operate in full alignment and support of the County's economic development, housing, and infrastructure goals, and do not increase the cost, time, or litigation risks for the County or applicants.

- The Draft 2045 CAP should separately quantify GHG reductions from the successful implementation of statewide laws and mandates, and calculate what additional measures, if any, should be undertaken by the County, while allowing projects to reduce their GHG emissions through CARB-approved offsets and other mitigation approaches.

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Thank you for your consideration of these important items.

Sincerely,

Marc W. Hardy
Senior Vice President and General Counsel

THE GREENLINING INSTITUTE

May 15, 2023

Los Angeles County Department of Regional Planning
Attn: Thuy Hua
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

RE: Comments on the Revised Draft 2045 Climate Action Plan

Dear Ms.Hua,

Thank you for the opportunity to help shape the County's Revised Draft 2045 Climate Action Plan (CAP).[1] The Greenlining Institute is a policy advocacy organization that works toward a future where communities of color can build wealth, live in healthy places filled with economic opportunity, and are ready to meet the challenges posed by climate change. Our organization has worked extensively to research and advocate for key strategies to make equity real in climate adaptation and resilience in California. In Los Angeles County, we work directly with communities of the San Gabriel and Pomona Valleys who are at the frontlines and have been identified by the LA County Climate Vulnerability Assessment as having a higher likelihood of increased exposure to climate hazards.[2] Our partners have also identified the following key priorities for local climate action in the region: mobility and transportation justice, food justice and urban agriculture, and extreme heat. However, the communities we serve face significant barriers such as the necessary capacity building and resources needed to address climate impacts. To overcome these challenges, our shared vision for the region is to:

- Connect leaders to build collective people power, and develop a common language to pursue climate opportunities;
- Center organizations and bring together stakeholders who have not been traditionally part of the climate conversation;
- Increase community ownership over climate solutions, including language justice to effectively engage in participatory planning and policy making at the local and state level;
- Support community stakeholders with the capacity, resources and partnerships needed to realize community visions for climate resilience and equity.

[1] *Revised Draft 2045 Climate Action Plan*, Los Angeles County Department of Regional Planning, Mar. 2023.https://planning.lacounty.gov/wp-content/uploads/2023/03/LA_County_2045-CAP_Rev_Public_Draft_March_2023_Chapters.pdf. Accessed 17 Apr. 2023.
[2] *LA County Climate Vulnerability Assessment,* Oct 2021. https://ceo.lacounty.gov/wp-content/uploads/2021/10/LA-County-Climate-Vulnerability-Assessment-1.pdf. Accessed 17 Apr. 2023.

We look forward to shaping the development of the CAP by applying our experience in climate resilience, capacity building and learnings from our local partners. There are numerous aspects of the the current draft that we appreciate:

- First, we support the newly added section on *Climate Equity* in Chapter 1 from the first iteration of the CAP, which includes a list of climate equity guiding principles and a proposed equity approach for implementation (pages 51-57).

- We also agree that investments should be prioritized in frontline communities of unincorporated regions of LA County, and alignment with existing resources and tools such as the County's Climate Vulnerability Assessment, Healthy Places Index and CalEnvironScreen 4.0 to identify frontline communities (page 54).

- Lastly, we appreciate that capacity building in frontline communities and partnerships with community-based organizations (CBOs) is prioritized to ensure meaningful engagement throughout the CAP implementation and evaluation process (page 55).

We appreciate the opportunity to provide feedback on the current draft and offer the following CAP recommendations to ensure equitable outcomes and meaningful benefits in frontline communities across unincorporated areas of Los Angeles County.

Recommendations

Communities of color, indigenous communities, and low-income neighborhoods have been shaped by deliberate and exclusionary public policies. As a result, under-resourced communities have borne the brunt of generational disparities in socioeconomic and health outcomes, and suffer first and worst from escalating climate impacts. Moreover, these communities have long been excluded from the decision-making processes that impact their lives and neighborhoods, despite the deep expertise and solutions that they hold.

To achieve full potential, we must dismantle the systemic barriers for communities to have full access and opportunity to participate in local climate action. In our experience, under-resourced communities face the following key structural challenges to addressing climate impacts:

- *Ecosystem Gaps:* Decades of disinvestment have resulted in gaps across local ecosystems. Local organizations often require additional support for specific issue-area, content, or technical expertise. Another challenge is staffing and overall administrative capacity to meaningfully engage in the development, implementation and evaluation of local climate plans. In LA County, unincorporated regions face additional challenges to fully and actively participate in local climate action without local city governments in place.

- *Need for More Robust Multi-Sector Partnerships*: Even where neighborhoods may have strong community-based or institutional anchors, those actors may not be working constructively together to achieve greater collective impact. Communities may be siloed by issue areas, sectors, or a lack of trust, and require more meaningful opportunities to work together towards a shared climate vision grounded in equity.

- *Funding:* Under-resourced communities have been systematically starved of funding and investments, both public and private. Communities lack the resources needed to meaningfully engage residents, build collective visions, share their expertise, and work with local governments to implement projects and policies set forth by climate action plans.

- *Access to Structural Power:* Under-resourced communities lack the access or influence needed to advance community priorities. Implementing projects and changing policies to meet the needs of residents often requires access to structural power as embodied by local and regional governments.

In order to address these structural challenges, DRP must support under-resourced communities to fully take ownership over the decisions and proposed actions from the CAP that will shape their neighborhoods for years to come.

1. **Support Capacity Building from the Bottom Up**

To support equitable opportunity and access to tools for community-driven climate action, DRP should actively support capacity building activities in under-resourced communities from the bottom up. This involves centering community engagement, leadership, and governance, and supporting the ecosystem of change. Our organization defines capacity building as the process of strengthening local leadership, skills, expertise, and resources to enable communities to meet their needs and achieve self-determination:

a. *Center Community Engagement, Leadership, and Governance*

Centering community engagement and leadership in local climate action is foundational. No one knows better than community members themselves what is needed in their neighborhoods, yet rarely are community voices centered in the decision-making processes that impact their daily lives. An example of a process that centered meaningful engagement is the community engagement model used in the development of the LA County Sustainability Plan (OurCounty).[3] The development of OurCounty employed a number of best practices including multi-stakeholder workshops, language-accessible outreach materials, and anchor community-based organizations to facilitate workshops and uplift equity strategies. Through local multi-stakeholder partnerships with philanthropy, the county was also able to provide anchor community-based organizations with grants and participation stipends for stakeholder engagement.

[3] *OurCounty Stakeholder Engagement Summary,* LA County Chief Sustainability Office. https://ourcountyla.lacounty.gov/wp-content/uploads/2019/07/OurCounty-Stakeholder-Engagement-Summary_For-Web.pdf. Accessed 17 Apr. 2023.

The Transformative Climate Communities (TCC) program, administered by the Strategic Growth Council, also provides a strong design model for both community engagement and collaborative governance that can be applied in the implementation of local climate action plans.[4] TCC requires the development of Community Engagement Plans, supports community-led decision-making that builds towards collective impact and requires collaborative governance between a diverse range of organizations. This creates a platform where community organizations and residents not only have a seat at the table, but also have meaningful decision-making power in developing strategies and actions for climate resilience in their communities.

b. *Support the Ecosystem of Change*

Across local ecosystems, we have found that successful collective impact depends on the resourcing of several key stakeholder types (a strong community anchor, supportive local government, and community-facing technical assistance or a third-party entity) so they can effectively collaborate to conduct community engagement efforts.

i. Community anchors are community-based organizations or coalitions which organize or engage directly with residents and have a history of strong relationships, trust, and cultural competency with impacted communities. Community anchors ground the effort in community-identified priorities and leadership, but may lack the technical or administrative capacity. Through using an intersectional approach, community anchors can also bring together stakeholders who have not traditionally been part of the climate conversation but whose communities are at the frontlines of climate impacts such as immigrant rights, worker centers and tenant rights organizations.

ii. Government partners may include local governments, regional governments, and other public agencies that can offer significant administrative and fiscal capacity. However, for local governments to be strong community-aligned partners, it is crucial that key political decision-makers and implementing staff support the community-led effort.

[4] *Transformative Climate Communities Program Final Round 5 Guidelines*, California Strategic Growth Council, 15 Feb. 2023. https://sgc.ca.gov/programs/tcc/docs/20230308-TCC_R5_Guidelines.pdf. Accessed 17 Apr. 2023.

iii. Technical assistance providers can be a vital component in advancing community-led visions for climate resilience. TA providers should tailor their services to fill capacity gaps of community partners including partnership-building support, funding, community engagement, project pre-development, building community capacity, and more. Furthermore, many community-based organizations have developed community-driven climate resilience plans and potential projects ideas. Therefore, the DRP should prioritize aligning the CAP with existing community visions for climate resilience, and provide TA support to build their capacity. Doing so will ensure communities' visions of climate resilience and adaptation become an integral component of the CAP.

2. Operationalize Equity from Project Goals through Evaluation

Including a commitment to equity is not enough to ensure that equity will occur. Operationalizing equity requires embedding equity into all stages of a climate action plan. We strongly encourage DRP to embed equity into the proposed strategies, measures and actions of the CAP and in the creation of any new local grant programs to support frontline communities. The Greenlining Institute’s “Making Equity Real in Climate Adaptation and Community Resilience Guidebook” provides a framework for how to embed equity in policies, projects or programs using the following four steps.[5]

a. *Embed Equity in the Mission, Vision, & Values*

Equitable outcomes and a strong equity evaluation flow directly from the goals and targets established at the outset. The CAP should explicitly state a commitment to equity, clearly define equity, establish specific measurable equity targets, and identify the frontline communities they seek to benefit upfront. An example of equity-centered goals is the LA County’s Sustainability Plan where equity is embedded in the twelve sustainability goals of the plan. Existing county resources such as the Climate Vulnerability Assessment can also be used for targeted benefits in communities most vulnerable to the impacts of climate change.[6] Such efforts will allow the county to tackle the climate impacts faced by frontline communities.The effort must also aim to create comprehensive climate strategies for communities that go beyond building the resilience of physical environments to address other health and economic injustices that climate impacts exacerbate.

b. *Build Equity into the Process*

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[5] Mohnot, Sona, et al. The Greenlining Institute, 2019, *Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs*, https://greenlining.org/wp-content/uploads/2019/08/Making-Equity-Real-in-Climate-Adaption-and-Community-Resilience-Policies-and-Programs-A-Guidebook-1.pdf. Accessed 17 Apr. 2023.

[6] *LA County Climate Vulnerability Assessment,* Oct 2021. https://ceo.lacounty.gov/wp-content/uploads/2021/10/LA-County-Climate-Vulnerability-Assessment-1.pdf. Accessed 17 Apr. 2023.

DRP should deeply engage community members to learn about and respond to their priorities, needs, and challenges in adapting to climate impacts in order to inform the development and implementation of the CAP. This includes building partnerships with diverse organizations such as immigrant rights organizations and worker centers that are increasingly advocating for measures to address extreme heat.

In addition, DRP Equity Guiding Principles can be improved upon. Figure 4-1: Equity Guiding Principles notes the engagement process as Step 6. Rather, engagement should be woven throughout. Communities should be actively part of the decision-making process in implementation (Step 5), when conducting evaluation (Step 8), and so on (pgs. 39-43). DRP should include securing funding sources for CBO grants and stipends to support participants throughout the engagement process as well. Through this, DRP will be able to better identify how proposed actions may generate burdens (e.g. time/capacity, displacement, and increased costs), either directly or indirectly to frontline communities and an accompanying plan to address and mitigate those burdens.

c. *Ensure Equity Outcomes*

The CAP must lead to equity outcomes that respond to community needs, reduce climate vulnerabilities, and increase community resilience. Outcomes can include improved public health and safety, workforce and economic development, and more in ways that reduce historical and current disparities. As one example, the Santa Cruz Climate Action Plan developed an Equity Screening Tool to screen all proposed actions to ensure equitable and just transition outcomes for communities. Some of the equity criteria used in the tool included community health and safety, affordability, and green job facilitation and creation.[7]

d. *Measure & Analyze for Equity*

The CAP should apply clear equity metrics in Chapter 4: Implementation and Monitoring (pages 139-143) and in tracking metrics proposed in Table 4-1 (page 144) to evaluate its successes and challenges in prioritizing frontline communities. DRP can partner with CBOs to establish reporting criteria and metrics to achieve this. Additionally, DRP should establish accountability checkpoints to measure the outcomes of actions to ensure equitable benefits to frontline communities and avoid disproportionate harm. Course correction checkpoints, and a transparent process for communicating progress to community stakeholders should also be put in place.

3. Assess Grant Administration and Potential Funding Opportunities

[7]*Climate Action Plan Appendices,* City of Santa Cruz, Jun. 2023. https://www.cityofsantacruz.com/home/showpublisheddocument/90694/637983259399030000. Accessed 17 April. 2023.

DRP must assess and improve its internal practices to simplify program administration, reduce barriers in the development of new grant programs and prioritize potential funding opportunities that invest in frontline communities.

a. *Administrative Assessments*

Communities working through local grants and other government processes often encounter a labyrinth of complicated rules and regulations. To reduce barriers for entry in the development of new grant programs for individuals for energy retrofits (page 57) and grants for local CBOs to conduct community engagement (page 142), we encourage DRP to conduct internal evaluations of their own grant management processes and requirements. Such an evaluation would help DRP assess how their internal administrative processes could be streamlined to improve public access. For example, such an assessment could distinguish which administrative requirements are statutorily required, and which requirements are in fact just custom or accepted practice. This would help to reduce the number of administrative specifications and increase overall accessibility of grants especially for under-resourced communities of LA County.

b. *Remove Needless Funding Barriers*

As DRP carries out its own internal assessments, funding barriers immediately stand out for limiting the ability of communities to participate in local climate action plans. As DRP acknowledges, many incentive programs present barriers to fully engage in local climate action (pg 57). The reimbursement model creates significant cash flow challenges for individuals as they may not have available extra resources to cover upfront costs. In the creation of any new programs targeted at frontline communities, DRP should offer advance pay to allow full equitable participation in climate resilience. Small and/or under-resourced community-based organizations seeking to partner with local governments to engage in climate action plans also have similar barriers when accessing local grants. When partnering with community-based organizations to support community engagement activities DRP should offer advance payment to reduce financial barriers.

c. Prioritize Funding Sources that Invest in Frontline Communities

Many of the funding sources identified in Table 3-3 (page 76) do not prioritize investments in frontline communities. DRP should identify a list of potential funding sources that invest in and outline clear benefits to frontline communities. When partnering with community-based organizations to seek state and federal grant opportunities, DRP should prioritize grant opportunities that also have the least administrative barriers and provide advance pay for partner organizations. For instance, the California Air Resources Board Sustainable

Transportation Equity Program (STEP) [8] uses an advance pay regulation to grant the majority of funds up front for planning and implementation grants[9]. Doing so will ensure DRP's commitment to *"prioritize funding and action in frontline communities"* and support diverse multi-stakeholder partnerships to implement actions from the CAP (pg 140).

Conclusion

Thank you for the opportunity to offer comments for the proposed LA County 2045 Climate Action Plan. We urge the LA County Department of Regional Planning to incorporate the recommendations outlined above into the final CAP and continue engaging frontline communities so the CAP is reflective of their visions for climate resilience.

Sincerely,

Katherine Cabrera
Program Manager of Capacity Building, *The Greenlining Institute*

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[8] *Sustainable Transportation Equity Project Implementation Grant Solicitation*, 4 June 2020. https://ww2.arb.ca.gov/sites/default/files/classic/msprog/step/step_implementation_grant_solicitation.pdf. Accessed 17 Apr. 2023.

[9] *Proposed Additional Requirement for Advance Payment of Certain Funds Regulation*. California Air Resources Board, 3 Sept. 2019, https://ww2.arb.ca.gov/rulemaking/2019/advancedpayment2019. Accessed 17 Apr. 2023.