

Memo



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Date: April 1, 2019

To: Andy Miner and Margaret Netto, City of Sunnyvale

From: Pat Angell, Ascent Environmental
Julia Wilson, Ascent Environmental
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Subject: **Response to the Laborers International Union of North America's Public Comment Regarding the AMD 1 Redevelopment Project**

OVERVIEW AND INTRODUCTION

This memorandum documents Ascent Environmental's (Ascent's) response to correspondence submitted 13 weeks after the close of the public comment period on the Draft EIR pertaining to the proposed AMD 1 Redevelopment Project (project) located in the City of Sunnyvale (city). The correspondence was submitted on March 24, 2019 by the Laborers International Union of North America (referred to below as comment letter or commenter). No detailed comments on the Draft EIR were submitted by this organization during the comment period. The correspondence critiques the analyses of the following resource areas contained in the Draft EIR: air quality, biological resources, and noise. While this correspondence references the Final EIR, its comments are focused on the technical analysis provided in the Draft EIR.

This memorandum responds to these comments. Note, modeling was revised in response to this comment, which modified the values of estimates of both air pollutants and greenhouse gas (GHG) construction and operational emissions; however, no significant new information that would identify new significant impact or a substantial increase in severity of an identified impact would occur that would require recirculation of the EIR pursuant to State CEQA Guidelines Section 15088.5.

As further discussed below, the comment letter includes input from consultants that have technical experience in the areas of air quality and biological resources that argue the EIR impact analysis fails to address significant issues. The Draft and Final EIR were prepared by technical experts at Ascent that have between 5 to over 25 years of experience in the areas of air quality, biological resources, noise, and CEQA compliance. Disagreement amongst experts is not a sufficient reason to require an EIR to be updated and recirculated pursuant to State CEQA Guidelines Section 15151. Under established CEQA precedent, the lead agency may properly accept the determinations and conclusions reached by the experts that prepared the EIR, even though other conclusions could also be reached (see *Eureka Citizens v. City of Eureka*, (2007) 147 Cal. App. 4th 357, 371-372 (accepting findings on noise impacts despite experts' disagreement over methodology); *Ctr. for Biological Diversity v. Dep't of Fish & Wildlife*, (2014) 224 Cal. App. 4th 1105, 1179-80 (2014) *reversed on other grounds*, 62 Cal. 4th 204 (2015) (one scientist's disagreement with a conservation

plan is “not pertinent to the issue of whether the environmental impact report’s conclusions are supported by substantial evidence”). Since the function of review of the EIR is limited to determining whether the EIR is supported by substantial evidence, it is not an “abuse of discretion” for a public agency “to give more weight to one set of ‘experts’ than to another.” (see *Greenebaum v. City of Los Angeles* (1984) 153 Cal. App. 3d 391, 412). Thus, the City is properly allowed to reject the opinions and beliefs of commenter’s experts and instead rely on its experts’ and their expert opinions and analysis regarding the Project and its environmental impacts.

1.1 AIR QUALITY/CLIMATE CHANGE

CRITERIA POLLUTANT, PRECURSOR, AND GHG EMISSIONS

The comment letter references the California Supreme Court’s decision in *Sierra Club v. County of Fresno* (herein referred to as the Friant Ranch decision). The Court evaluated the adequacy air quality analysis contained in the EIR prepared for the Friant Community Plan Update and Friant Ranch Specific Plan. For a number of reasons, the Court confirmed the 5th District Court of Appeal’s holding that the regional analysis of criteria air pollution was inadequate under CEQA and asserted that air quality analyses should frame significant impacts in terms of effects to human health.

To demonstrate consistency with the Court’s direction in the Friant Ranch decision, the Final EIR provides an updated discussion associated with project air quality impacts to human health (Final EIR pages 3-1 through 3-6). To achieve consistency, the methodology and impact analysis discussions were expanded to include a narrative regarding the development of the Bay Area Air Quality Management District’s (BAAQMD’s) CEQA thresholds of significance (which were applied to the project) and their applicability to reduce ambient air quality impacts and related public health impacts within the San Francisco Bay Area Air Basin (SFBAAB). The Draft EIR found that unmitigated construction-related emissions would exceed BAAQMD’s thresholds and concluded a potentially significant impact. In the significance determination, the EIR related these exceedances to the potential for adverse human health impacts to occur; however, following the application of Mitigation Measures 4.2-1a and 4.2-1b, construction emissions would be successfully reduced to levels below the applied thresholds of significance. Project operational emissions would not exceed BAAQMD thresholds and would not create an impact to public health. By making these edits to the EIR in the Final EIR, the city demonstrated consistency with the Friant Ranch decision.

The comment letter to which this memorandum responds to also asserts that the modeling performed for the Draft EIR underestimates emissions of criteria pollutants and precursors. For example, the comment refers to underreporting of emissions associated with enclosed parking structures which would serve project residents. The comment also refers to the use of “Townhouse” as a CalEEMod land use subtype. However, this land use choice adequately represents the energy consumption associated with the project as 130 multi-family housing units would be provided within 22 townhouse buildings repurposed to support a higher number of individuals as compared to each townhouse supporting one family unit. CalEEMod defaults assumed 63 people occupying these buildings and this number has been adjusted to support 370 persons.

The comment letter also states that the air quality modeling did not address emissions associated with the project garage. Transportation emissions were modeled in CalEEMod using traffic data provided by the traffic consultant, which accounted for vehicle trips accessing project garages. These mobile emissions were addressed in the modeling and were reported in Draft EIR Table 4.2-6.

In response to this comment, Ascent has prepared additional modeling of construction emissions following the application of Mitigation Measure 4.2-1a and 4.2-1b. Mitigation Measure 4.2-1a requires that the project applicant apply Tier-4 emissions standards to all diesel-powered off-road equipment if feasible. However, the language of Mitigation Measure 4.2-1a provides for flexibility based on the feasibility of using Final Tier 4 engines. Due to market constraints, the project applicant may use Tier 3 engines in cases where use of Final Tier 4 is infeasible.

Table 1 below summarizes the anticipated construction emissions from project buildout including additional inputs recommended by the commenter. Based on comment’s concern that emissions were underreported, the model has been adjusted to provide a more conservative estimate to demonstrate a scenario where Tier 4 equipment could not be used for every piece of construction equipment. The model applied a suite of Tier 3 and Final Tier 4 standards to a variety of equipment. As shown in Table 1, the project would not exceed BAAQMD thresholds. The revised modeling also represents an increase in parking area. The Draft EIR air quality construction modeling did factor the overall site development related to grading and paving activities. Emissions associated with hauling of 15,000 cubic yards of excavated soil and importation of new concrete (13,800 cubic yards) and new asphalt (13,400 cubic yards) were factored and were included in the updated modeling. This is noted in the attached model outputs.

As show below, these levels of criteria pollutant and precursors would still be below BAAQMD’s construction emissions threshold. Nonetheless, although emissions of air pollutants would be less than significant, the difference in the model contained in the attachment of this memorandum estimate that metric tons of carbon dioxide equivalent per year (MTCO₂e/year) would be higher than the model contained in Appendix B of the Draft EIR. Nonetheless, the application of Mitigation Measure 4.5-1 would still apply and climate change impacts.

Table 1 Mitigated Construction Emissions by Construction Year (2018-2022)

Year ¹	ROG (lb/day)	NO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ e (MT/year)
2018	1	36	25	5	46
2019	4	51	38	20	1,708
2020	3	33	6	1	1,593
2021	25	53	24	11	2,112
2022	16	25	6	2	1,010
BAAQMD Threshold	54	54	82	54	Zero Net Increase ²

Notes: ROG=reactive organic gases, NO_x=oxides of nitrogen, PM₁₀=respirable particulate matter, PM_{2.5}=fine particulate matter, lb/day=pounds per day, CO₂e=carbon dioxide equivalent, MT/year=metric tons per year, BAAQMD=Bay Area Air Quality Management District.

¹ Construction would occur over five phases, which would be expected to overlap. As such, maximum daily emissions levels are summarized by year.

² BAAQMD does not formally recommend a zero-net increase threshold for climate change analyses; however, the city and Ascent Staff have applied the threshold to the project to best show consistency with the 2017 California Climate Change Scoping Plan.

Source: Modeling conducted by Ascent Environmental in 2019.

Under the revised model prepared in response to this comment, mitigated construction emissions would generate a total of 6,469 MTCO₂e, which represents a 1,119 MTCO₂e increase from what was previously estimated in the Draft EIR. However, Mitigation Measure 4.5-1, which requires the project applicant to achieve a zero-net increase in GHG emissions through a combination of applying of all feasible on-site mitigation measures and purchasing carbon offsets, would still apply to the project.

Table 2 below summarizes the estimated emissions of criteria pollutants, precursors, and GHGs associated with operation of the project.

Table 2 Mitigated Operational Emissions by Sector for the Year 2022¹

Year ¹	ROG (lb/day)	NO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO _{2e} (MT/year)
Vehicle Trips (Mobile Sources)	7	23	17	5	2,887
Natural Gas Combustion (On-Site)	<1	1	<1	<1	305
Solid Waste Disposal ²	0	0	0	0	224
Water Consumption and Wastewater Treatment ²	0	0	0	0	113
Electricity Consumption (On-Site) ³	<1	<1	<1	<1	26
Landscape Maintenance	32	1	<1	<1	12
Total	39	25	18	6	3,567
BAAQMD Threshold	54	54	82	54	Zero Net Increase ⁴

Notes: ROG=reactive organic gases, NO_x=oxides of nitrogen, PM₁₀=respirable particulate matter, PM_{2.5}=fine particulate matter, lb/day=pounds per day, CO_{2e}=carbon dioxide equivalent, MT/year=metric tons per year, BAAQMD=Bay Area Air Quality Management District.

¹ Emissions estimates account for energy and water efficiency project design features as well as reduced mobile-source emissions associated with improved density and affordable housing units.

² Solid waste disposal, water consumption, and wastewater treatment activities are sectors that only apply to GHG emissions.

³ Residents of the project site would be enrolled in Silicon Valley Clean Energy, which provides 100 percent renewable energy to its customers using Pacific Gas & Electric infrastructure. Currently, 98 percent of all Sunnyvale residents are enrolled. A 98 percent reduction in GHG emissions associated with electricity was therefore assumed to be representative of the community.

⁴ BAAQMD does not formally recommend a zero-net increase threshold for climate change analyses; however, the city and Ascent Staff have applied the threshold to the project to best show consistency with the 2017 California Climate Change Scoping Plan.

Source: Modeling conducted by Ascent Environmental in 2019.

As shown above, operation of the project under the revised model would not generate emissions of criteria pollutants or precursors in exceedance of BAAQMD's mass emission thresholds. This is the similar conclusion drawn in the Draft EIR and no mitigation was required or recommended. In Draft EIR Section 4.5, "Greenhouse Gas Emissions and Climate Change," operational emissions were estimated to be 3,560 MTCO_{2e}/year, which would be a potentially significant impact and Mitigation Measure 4.5-1 was developed to reduce emissions to a less-than-significant level. The similarity of these emissions levels despite remodeling indicates that the operation of an enclosed parking structure generates very little emissions. The minor increase would be due to a slight increase in energy consumption related to lighting and operation of garage doors and kiosks. It also shows that the number of persons within a land use subcategory has very little impact on CalEEMod outputs.

Table 2 shows an anticipated operational GHG emissions value of 3,567 MTCO_{2e}/year, a 7 MTCO_{2e}/year increase from the number contained in the Draft EIR. Nevertheless, this incremental rise in operational emissions would be mitigated to less-than-significant levels through the application of Mitigation Measure 4.5-1. Impact determinations would not change as a result of new modeling.

TOXIC AIR CONTAMINANTS

Health Risk Assessment

The commenter asserts that the Draft EIR does not quantify the cumulative exposure of sensitive receptors near the project site to toxic air contaminants (TACs). The comment letter includes a third-party analysis conducted by the environmental consulting firm SWAPE concludes a hazard index in exceedance of BAAQMD's 1.0 or greater hazard index threshold of significance for individual projects. This is counter to the technical analysis provided in the Draft EIR as well as the AMD Potential Residential Development in Sunnyvale, CA – Preliminary Screening for Toxic Air Contaminants (Illingworth and Rodkin, 2016). The Illingworth and Rodkin that indicated that combined sources of TACs (cumulative exposure and thus an overestimate) would not exceed a hazard index in exceedance of 1.0 (i.e., <0.9). Moreover, BAAQMD has an adopted cumulative TAC threshold of a hazard index of 10.0. The findings of this analysis indicate a cumulative exposure of <0.9, which is below this threshold. Thus, project-related and cumulative TAC exposure would be less than significant, as concluded in the Draft EIR.

As the Draft EIR explains, the nearest sensitive receptors to the project site are residential neighborhoods to the north, east, and west of the project site, located adjacent to the site. The TAC of greatest concern is diesel PM, which would be emitted during project construction. The Draft EIR explains that diesel PM is highly dispersive and concentrations decline quickly from the source (e.g., 500 feet from a freeway the concentration of diesel PM decreases by 70 percent) (Draft EIR page 4.2-17). Moreover, as explained in the Draft EIR, construction would be expected to occur over 5 years (i.e., 2018-2022), which is 25 years less than the recommended 30-year exposure period used by the California Air Pollution Control Officer Association (CAPCOA) as an exposure threshold that warrants conducting a health risk assessment (HRA). Additionally, the Draft EIR estimates emissions of PM₁₀, which diesel PM is a surrogate of, to be below BAAQMD's recommended threshold of significant for construction emissions (Draft EIR Table 4.2-4).

Further, the project consists of residential land use types and does not introduce any substantial sources of TACs beyond a minor amount of diesel PM from diesel-powered service trucks that would occasionally be used at the project (e.g., moving vehicles). As noted in the Draft EIR, the project would add an additional 6,670 daily trips; however, these trips would primarily be gasoline- or electricity-powered automobiles which would not emit diesel PM.

The commenter states that its expert, SWAPE, prepared a level 2 Health Risk Screening Assessment (HRSA), applying the U.S. Environmental Protection Agency's AERSCREEN model, as recommended by OEHHA and CAPCOA, and calculated that construction and operation of the project will result in cancer risks of 23.5 in one million, 22.3 in one million, and 50.7 in one million. However, SWAPE based its HRSA calculations on its own "updated air modeling," not the modeling conducted in the Draft EIR. SWAPE has limited knowledge of the specifics of the project or its assumed emissions, nor of any of the assumptions used in Draft EIR (development and project detail assumptions were provided in the Draft EIR in Chapter 3, "Project Description," and modeling assumptions were provided on Draft EIR pages 4.2-10 and 4.2-11 and Appendix B). For this reason, any calculations completed by SWAPE regarding health risk are not accurate and not supported by substantial evidence.

Last, the commenter alleges that the EIR should have analyzed cumulative health risk. As explained above, substantial evidence supports the City's determination that there is no health risk impact from either project construction or operation, thus there is no significant contribution to any cumulative health impact. SWAPE cites other "stationary sources" within 1,000 feet of the nearest residential receptor, but none of these sources have high emission profiles that support SWAPE's analysis.

Indoor Air Quality

The commenter appends its document with a separate comment from a Certified Industrial Hygienist who states that the project's air quality analysis is flawed because there is no discussion of indoor air quality. The commenter asserts that residents of buildings are exposed to high levels of off-gassed formaldehyde from the decomposition of composite wood products used to construct buildings, which would be the case for residents occupying the project site. The commenter also states that residents of the project site would be exposed to adverse levels of PM_{2.5} from ambient concentrations of PM_{2.5} within the project site.

The commenter alleges that its expert, Mr. Offermann has determined that the Project's indoor emissions of formaldehyde constitute a significant CEQA impact. Mr. Offermann claims that, assuming this project will be built using typical materials and construction methods used in California, future residents will experience a cancer risk from formaldehyde of approximately 125 per million. Mr. Offermann sites his own 2009 study—the California New Home Study (2009 study), and a 2018 study—Indoor Air Quality in new California Homes with Mechanical Ventilation by Chan et al—and appears to rely on both of these studies to derive his 125 in one million value.

Mr. Offermann calculates a 180 in one million figure based on the 2009 study. He then lowers this by 30 percent based on the second study to derive a 125 in one million figure. However, there are many distinguishing factors between these studies and the project.

First, the project would comply with mandatory and applicable regulatory requirements, many of which were not in place when the homes in the 2009 and 2018 studies were built. These applicable requirements include the following:

- ▶ The Composite Wood Products Regulation is a California Air Resources Board (CARB) regulation that reduces public exposure to formaldehyde through the establishment of strict emission performance standards on particleboard, medium density fiberboard and hardwood plywood (collectively known as composite wood products). The regulation, adopted in 2007, established two phases of emissions standards: an initial Phase I, and later, a more stringent Phase 2 that requires all finished goods, such as flooring, destined for sale or use in California to be made using complying composite wood products. As of January 2014 only Phase 2 products are legal for sale in California. Moreover, the ASHRAE 62.2 ventilation and air filtration requirements in the state's Title 24 Building Code improves indoor air quality, and these standards are scheduled to become more stringent with the adoption of the 2019 Title 24 Building Code that the project would be required to comply (Codes and Standards Enhancement Initiative 2018).
- ▶ On December 12, 2016, EPA published in the Federal Register a final rule to reduce exposure to formaldehyde emissions from certain wood products produced domestically or imported into the United States. EPA worked with CARB to help ensure the final national rule was consistent with California's requirements for similar composite wood products.

While the second study cited by Mr. Offermann was published in 2018, it assessed homes built in 2011, before the newest CARB formaldehyde standards (Phase 2 standards) were put into place (2014). Thus, these studies do not provide evidence that the project, which will be built in phases out to 2020, will have significant impacts from formaldehyde emissions.

In addition, the 2018 study cited by Mr. Offermann, required participants to keep their windows closed for the duration of the study and rely on mechanical ventilation. In reality, residents would open their windows for hours at a time during spring, summer, and fall. This ventilation would greatly reduce formaldehyde concentrations in indoor air and thus the studies do not accurately capture real-world scenarios. In addition, the studies assume a continuous 24-hour exposure and 100 percent absorption by the respiratory system, further unrealistic assumption unsupported by

substantial evidence. For these reasons, the project can be distinguished from the homes studied in the 2009 and 2018 studies.

Second, Mr. Offermann's claim that the project would result in significant impacts is based on pure speculation and assumption, regarding project construction and materials, regarding health risk modeling of formaldehyde, regarding how much ventilation there will be in project homes, and regarding application of a significance threshold that is not formaldehyde specific. CEQA does not require speculation. CEQA Guidelines Section 15145; *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376 (where future development is unspecified and uncertain, no purpose can be served by requiring an EIR to engage in sheer speculation as to future environmental consequences).

The commenter also states that residents of the project site would incur health effects associated with exposure to dangerous levels of PM_{2.5}, for which Santa Clara County and the SFBAAB are in nonattainment for the California ambient air quality standards (CAAQS) and national ambient air quality standards (NAAQS). However, as determined by the California Supreme Court in the *California Building Industry Association v. BAAQMD*, CEQA reviews the impacts of a project on the environment rather than the effects of the environment on the residents or users of a project. The Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment – and not the *environment's* impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

As directed by the Court, a project would only need to evaluate the environments impact on a project if the project itself would exacerbate an existing adverse condition. The commenter asserts that due to the nonattainment designation of Santa Clara County and the SFBAAB, the Draft EIR should have evaluated the health impacts of PM_{2.5} to residents of the project site. As identified in Draft EIR Table 4.2-4 and 4.2-6 in the Draft EIR and above, emissions of criteria air pollutants and precursors following mitigation would be below BAAQMD's recommended thresholds of significance. BAAQMD provides substantial evidence for the use of their thresholds in their CEQA Justification Report. Because project emissions would not exceed these thresholds, the existing nonattainment designation within the project site would not be exacerbated. No further analysis is required regarding the effects of the environment to residents of the project site.

1.2 BIOLOGICAL RESOURCES

SPECIAL-STATUS BIRD SPECIES

The commenter identifies that the project and surrounding area as providing suitable habitat to support populations of special-status bird species but provides no project site specific evidence (field review, habitat mapping, or species observations) to support this statement. Draft EIR pages 4.3-1 and 4.3-2 and Exhibits 3-1 and 3-2 document that the project site and the surrounding area consists of urban developed conditions that provide no natural habitat that would support the presence of these species in the manner commenter suggests. The project site only includes small landscaped areas that are actively maintained and thus do not provide quality foraging or stopover habitat.

The commenter states that the EIR biological resources impact analysis omitted 36 special-status bird species that should have been included. Many of the species listed by the commenter are considered "Birds of Conservation Concern" (a U.S. Fish and Wildlife Service designation) or "Watch List" species (a California Department of Fish and Wildlife designation). These designations are typically not considered "special-status" under CEQA. Additionally, the commenter listed several species with designated protection under California Fish and Game Code Section 3503.5. The EIR analysis includes measures for protection of all bird nests covered under this section, including preconstruction nesting bird surveys and establishment of protective buffers around active nests (see Mitigation Measure 4.3-1 on Draft EIR page 4.3-11). The additional special-status species listed by the commenter are not known to nest within the vicinity of the project site and are unlikely to occur on the project site due to a lack of suitable natural habitat (e.g., annual grasslands, salt marsh habitat, riparian habitat). Thus, no significant or cumulative impacts to biological resources are expected to occur as a result of the project.

BIRD STRIKES

As noted above, the commenter overstates the extent of suitable habitat and supporting populations for special-status species. The mid-rise apartment portion of the project would be of similar building heights of other development in the City (e.g., Downtown Specific Plan area) as well as development in the cities of Santa Clara and San Jose. The project area is also impacted through the operation of airports (Moffett Federal Airfield and the San Jose Airport). The commenter fails to acknowledge these existing conditions that already impact the presence of bird species. Thus, construction of the mid-rise apartments would not create a new bird strike to the existing environmental conditions that would result in significant new hazards to birds.

The City of Sunnyvale adopted Bird Safe Building Design Guidelines in 2014 to address bird deaths caused by collisions with windows; particularly windows on tall buildings. The commenter states that the mid-rise apartment portion of the project does not comply with these Design Guidelines based on review of the architectural renderings provided in the Draft EIR (Exhibits 3-5). The final architectural design and lighting plans of the project has not been completed and would be required to comply with these standards (see Draft EIR pages 3-17 and 4.1-16).

As shown in Exhibit 3-5, the mid-rise apartment building design would not consist of expansive glass areas as the window area would be broken up into individual window areas and further contrast between the windows through the architectural features/design of the building. Retained large trees would be adjacent to the mid-rise apartment buildings along its frontage with Stewart Drive but this area does not contain any large space areas. As identified on Draft EIR page 4.1-16, outdoor lighting would be installed in conformance with the City Municipal Code, applicable safety and illumination requirements, and California Title 24 requirements. Lighting would be installed at major intersections and mid-block pedestrian crossings, as appropriate for public safety, and along vertical curves where lighting is needed for public safety. Limited safety and security lighting and indirect shielded lighting would also be provided along jogging trail corridors consistent with City standards.

These guidelines, which apply to all new buildings in the City, include measures such as avoiding the use of reflective or transparent glass in the first 60 feet of the buildings, avoiding the use of glass adjacent to landscaped areas, prohibition of glass skyways or freestanding glass walls, and avoiding the use of night-time indoor lighting, among others. Implementation of these measures is expected to reduce the likelihood of birds strikes. Additionally, project plans are not expected to introduce features significantly taller or of different character than the buildings surrounding the project.

IMPACTS FROM RESIDENT CATS

The commenter suggests that the project would result in the introduction of hundreds of house cats that would result in significant bird deaths and water quality issues associated with the introduction of fecal pathogens, which would adversely impact wildlife. It is acknowledged that future project residents may have pets that could include a house cat. It is estimated that there are 95.6 million house cats in the U.S. in 2018 (Statista 2019). However, it would be speculative to estimate the number of project residents that may decide to have a house cat as a pet, whether the future residents would allow their house cats to be outdoors, or the method of feces disposal. The current trend for cat owners is to retain their pet indoors. U.S. cat experts (e.g., Cat Fanciers Association, humane organizations) agree that keeping cats indoors protects them from disease and all manner of dangers and have promoted this position with new owners (PetPlace 2019). Risks of outdoor life include exposure to infectious diseases, such as feline leukemia, feline immunodeficiency virus, feline infectious peritonitis, and rabies; injury or death occurring on busy roads; and attacks by predators. It should also be noted that the project area and City is urban that already contains an existing outdoor cat and feral cat population. The city addresses pets and animals discovered outdoors through its Animal Control Unit. Thus, the project would not introduce an outdoor cat population that does not already exist in the city.

As identified in Chapter 1, "Introduction," the project would connect with existing drainage infrastructure located within E. Duane Avenue and Stewart Drive and would include bioretention swales to treat and attenuate stormwater flows consistent with City requirements. The use of bioretention swales has been identified by the Minnesota Pollution Control Agency as an effective measure in addressing pathogens (Wiki. 2019). There would be no impact related to water quality.

1.3 NOISE

MAINTENANCE OF INTERIOR NOISE

The comment letter exhibit A (Indoor Environmental Engineering) states that more outdoor noise measurement on the project site are required to address the traffic noise impact and develop mitigation measures that would meet interior noise of 45 dBA or less. Ascent Environmental considers the number of outdoor noise measurements adequate to characterize existing conditions. The Draft EIR also conducts traffic noise modeling and analysis that identified no significant project or cumulative traffic noise impacts (see Draft EIR pages 4.8-19, 4.8-19, and 6-8). The commenter provides no analysis or modeling that counters these conclusions. No recirculation is required in response to this comment.

REFERENCES

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Summary Of Mitigated Construction Emissions

Phase	2018					2019					2020					2021					2022				
	ROG lb/day	NOx lb/day	PM10 lb/day	PM2.5 lb/day	MTCO2e	ROG lb/day	NOx lb/day	PM10 lb/day	PM2.5 lb/day	MTCO2e	ROG lb/day	NOx lb/day	PM10 lb/day	PM2.5 lb/day	MTCO2e	ROG lb/day	NOx lb/day	PM10 lb/day	PM2.5 lb/day	MTCO2e	ROG lb/day	NOx lb/day	PM10 lb/day	PM2.5 lb/day	MTCO2e
Phase 1	1	36	25	4	46																				
Phase 2						1	28	19	10	509	1	11	1	0	319	11	6	1	0	160					
Phase 3						3	23	19	10	1,199	2	22	5	1	1,274	11	21	5	1	540					
Phase 4&5																3	26	18	10	1412	16	25	6	2	1010
Total	1	36	25	4	46	4	51	38	20	1708	3	33	6	1	1593	25	53	24	11	2112	16	25	6	2	1010

Total CO2

6469

7010 1660

6469 1119

541

Construction Phase 2 ROG Adjustments

Paving	# of Days (CalEEMod default)	% of year	Adjusted # of Days
Site Prep	10	3%	30
Grading	30	8%	60
Building Const.	300	79%	550
Paving	20	5%	60
Arch Coating	20	5%	60
	380		760
Start Date	End Date		
1/1/2019	11/25/2021		

Total Working Days

758

Adjusted Arch Coating Days

based on 2/3
building days
plus paving
and arch

483 coating

5280

10.93167702 ROG lb/day

Construction Phase 3 ROG Adjustments

Phase	# of Days (CalEEMod default)	% of year	Adjusted # of Days
Site Prep	10	3%	30
Grading	30	8%	60
Building Const.	300	79%	650
Paving	20	5%	60
Arch Coating	20	5%	60
	380		860
Start Date	End Date		
1/1/2019	9/29/2021		

Total Working Days
717

Adjusted Arch Coating Days
549

based on
2/3 building
days plus
paving and
arch coating
5820
10.6010929 ROG lb/day

Construction Phase 4&5 ROG Adjustments

Phase	# of Days (CalEEMod default)	% of year	Adjusted # of Days
Site Prep	10	2%	15
Grading	35	8%	45
Building Cons	370	81%	450
Paving	20	4%	30
Arch Coating	20	4%	30
	455		570
Start Date	End Date		
1/1/2021	9/23/2022		

Total Working Days
451

Adjusted Arch Coating Days
357

based on
2/3 building
days plus
paving and
arch coating

5790
16.2184874 ROG lb/day

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Annual

Sunnyvale AMD 1 Phase 1 Construction
Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.32	1,800.00	3

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - This phase accounts for demolition only.

Construction Phase - Phase 1 would occur between late 2018 to 2020. Demolition would occur during this phase.

Demolition - Demolition of a 226,390 sf building.

Grading -

Construction Off-road Equipment Mitigation - Assumes a suite of Final Tier 3 and 4 diesel engines consistent with mitigation measure 4.2-1a

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Annual

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789
Energy	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			3.9047	1.4000e-004	5.0000e-005	3.9231
Mobile	2.5700e-003	0.0107	0.0300			9.0000e-005	8.2100e-003		9.0000e-005	2.2600e-003			8.5412	3.1000e-004	0.0000	8.5490
Waste						0.0000	0.0000		0.0000	0.0000			0.2558	0.0151	0.0000	0.6337
Water						0.0000	0.0000		0.0000	0.0000			0.1651	2.1300e-003	5.0000e-005	0.2336
Total	0.0172	0.0123	0.0466			1.4800e-003	9.6000e-003		1.4800e-003	3.6500e-003			13.0371	0.0180	1.1000e-004	13.5183

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789
Energy	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			3.9047	1.4000e-004	5.0000e-005	3.9231
Mobile	2.5700e-003	0.0107	0.0300			9.0000e-005	8.2100e-003		9.0000e-005	2.2600e-003			8.5412	3.1000e-004	0.0000	8.5490
Waste						0.0000	0.0000		0.0000	0.0000			0.2558	0.0151	0.0000	0.6337
Water						0.0000	0.0000		0.0000	0.0000			0.1651	2.1300e-003	5.0000e-005	0.2336
Total	0.0172	0.0123	0.0466			1.4800e-003	9.6000e-003		1.4800e-003	3.6500e-003			13.0371	0.0180	1.1000e-004	13.5183

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	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	11/1/2018	11/14/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

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Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; 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	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	1,030.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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3.2 Demolition - 2018

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						0.0000	0.1114		0.0000	0.0169			0.0000	0.0000	0.0000	0.0000
Off-Road	5.3200e-003	0.0472	0.0389			3.1100e-003	3.1100e-003		2.9700e-003	2.9700e-003			5.3041	1.0200e-003	0.0000	5.3297
Total	5.3200e-003	0.0472	0.0389			3.1100e-003	0.1145		2.9700e-003	0.0198			5.3041	1.0200e-003	0.0000	5.3297

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	4.9300e-003	0.1688	0.0328			6.7000e-004	9.4000e-003		6.5000e-004	3.0500e-003			40.0822	1.8900e-003	0.0000	40.1295
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.5800e-003			0.0000	4.0000e-004		0.0000	1.1000e-004			0.3618	1.0000e-005	0.0000	0.3621
Total	5.1300e-003	0.1690	0.0344			6.7000e-004	9.8000e-003		6.5000e-004	3.1600e-003			40.4440	1.9000e-003	0.0000	40.4915

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3.2 Demolition - 2018

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						0.0000	0.1114		0.0000	0.0169			0.0000	0.0000	0.0000	0.0000
Off-Road	1.0400e-003	0.0181	0.0397			1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003			5.3041	1.0200e-003	0.0000	5.3296
Total	1.0400e-003	0.0181	0.0397			1.1300e-003	0.1126		1.1300e-003	0.0180			5.3041	1.0200e-003	0.0000	5.3296

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	4.9300e-003	0.1688	0.0328			6.7000e-004	9.4000e-003		6.5000e-004	3.0500e-003			40.0822	1.8900e-003	0.0000	40.1295
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.5800e-003			0.0000	4.0000e-004		0.0000	1.1000e-004			0.3618	1.0000e-005	0.0000	0.3621
Total	5.1300e-003	0.1690	0.0344			6.7000e-004	9.8000e-003		6.5000e-004	3.1600e-003			40.4440	1.9000e-003	0.0000	40.4915

4.0 Operational Detail - Mobile

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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	2.5700e-003	0.0107	0.0300			9.0000e-005	8.2100e-003		9.0000e-005	2.2600e-003			8.5412	3.1000e-004	0.0000	8.5490
Unmitigated	2.5700e-003	0.0107	0.0300			9.0000e-005	8.2100e-003		9.0000e-005	2.2600e-003			8.5412	3.1000e-004	0.0000	8.5490

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	21,819	21,819
Total	9.52	9.91	8.62	21,819	21,819

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.604810	0.038204	0.185149	0.108513	0.015498	0.004981	0.012268	0.020156	0.002083	0.001571	0.005363	0.000620	0.000785

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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			2.3536	1.1000e-004	2.0000e-005	2.3629
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000			2.3536	1.1000e-004	2.0000e-005	2.3629
NaturalGas Mitigated	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602
NaturalGas Unmitigated	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602

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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					
Single Family Housing	29065.1	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602
Total		1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602

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					
Single Family Housing	29065.1	1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602
Total		1.6000e-004	1.3400e-003	5.7000e-004			1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004			1.5510	3.0000e-005	3.0000e-005	1.5602

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8090.57	2.3536	1.1000e-004	2.0000e-005	2.3629
Total		2.3536	1.1000e-004	2.0000e-005	2.3629

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8090.57	2.3536	1.1000e-004	2.0000e-005	2.3629
Total		2.3536	1.1000e-004	2.0000e-005	2.3629

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789
Unmitigated	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789

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	1.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0300e-003					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	5.8900e-003	1.3000e-004	8.5700e-003			1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003			0.1583	2.4000e-004	1.0000e-005	0.1665
Landscaping	2.3000e-004	9.0000e-005	7.4500e-003			4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005			0.0121	1.0000e-005	0.0000	0.0124
Total	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789

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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	1.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0300e-003					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	5.8900e-003	1.3000e-004	8.5700e-003			1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003			0.1583	2.4000e-004	1.0000e-005	0.1665
Landscaping	2.3000e-004	9.0000e-005	7.4500e-003			4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005			0.0121	1.0000e-005	0.0000	0.0124
Total	0.0144	2.2000e-004	0.0160			1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003			0.1705	2.5000e-004	1.0000e-005	0.1789

7.0 Water Detail

7.1 Mitigation Measures Water

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1651	2.1300e-003	5.0000e-005	0.2336
Unmitigated	0.1651	2.1300e-003	5.0000e-005	0.2336

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.065154 / 0.0410754	0.1651	2.1300e-003	5.0000e-005	0.2336
Total		0.1651	2.1300e-003	5.0000e-005	0.2336

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.065154 / 0.0410754	0.1651	2.1300e-003	5.0000e-005	0.2336
Total		0.1651	2.1300e-003	5.0000e-005	0.2336

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2558	0.0151	0.0000	0.6337
Unmitigated	0.2558	0.0151	0.0000	0.6337

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	1.26	0.2558	0.0151	0.0000	0.6337
Total		0.2558	0.0151	0.0000	0.6337

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	1.26	0.2558	0.0151	0.0000	0.6337
Total		0.2558	0.0151	0.0000	0.6337

9.0 Operational Offroad

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

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

Sunnyvale AMD 1 Phase 1 Construction
Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.32	1,800.00	3

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - This phase accounts for demolition only.

Construction Phase - Phase 1 would occur between late 2018 to 2020. Demolition would occur during this phase.

Demolition - Demolition of a 226,390 sf building.

Grading -

Construction Off-road Equipment Mitigation - Assumes a suite of Final Tier 3 and 4 diesel engines consistent with mitigation measure 4.2-1a

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

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	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654
Energy	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240
Mobile	0.0170	0.0595	0.1812			5.4000e-004	0.0490		5.1000e-004	0.0134			57.5866	2.0000e-003		57.6365
Total	1.1021	0.0877	1.6074			0.1911	0.2395		0.1911	0.2040			93.6582	0.0275	1.6100e-003	94.8259

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	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654
Energy	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240
Mobile	0.0170	0.0595	0.1812			5.4000e-004	0.0490		5.1000e-004	0.0134			57.5866	2.0000e-003		57.6365
Total	1.1021	0.0877	1.6074			0.1911	0.2395		0.1911	0.2040			93.6582	0.0275	1.6100e-003	94.8259

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	11/1/2018	11/14/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; 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	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	1,030.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	22.2848		0.0000	3.3741			0.0000			0.0000
Off-Road	1.0643	9.4295	7.7762			0.6228	0.6228		0.5943	0.5943			1,169.3502	0.2254		1,174.9857
Total	1.0643	9.4295	7.7762			0.6228	22.9075		0.5943	3.9684			1,169.3502	0.2254		1,174.9857

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

3.2 Demolition - 2018

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	0.9743	33.0593	6.3448			0.1338	1.9336		0.1280	0.6213			8,897.4160	0.4077		8,907.6094
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0421	0.0276	0.3440			5.3000e-004	0.0827		4.9000e-004	0.0223			85.7412	2.5500e-003		85.8050
Total	1.0164	33.0869	6.6888			0.1344	2.0163		0.1285	0.6436			8,983.1572	0.4103		8,993.4144

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	22.2848		0.0000	3.3741			0.0000			0.0000
Off-Road	0.2083	3.6097	7.9381			0.2270	0.2270		0.2270	0.2270			1,169.3502	0.2254		1,174.9857
Total	0.2083	3.6097	7.9381			0.2270	22.5118		0.2270	3.6011			1,169.3502	0.2254		1,174.9857

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

3.2 Demolition - 2018

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	0.9743	33.0593	6.3448			0.1338	1.9336		0.1280	0.6213			8,897.4160	0.4077		8,907.6094
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0421	0.0276	0.3440			5.3000e-004	0.0827		4.9000e-004	0.0223			85.7412	2.5500e-003		85.8050
Total	1.0164	33.0869	6.6888			0.1344	2.0163		0.1285	0.6436			8,983.1572	0.4103		8,993.4144

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0170	0.0595	0.1812			5.4000e-004	0.0490		5.1000e-004	0.0134			57.5866	2.0000e-003		57.6365
Unmitigated	0.0170	0.0595	0.1812			5.4000e-004	0.0490		5.1000e-004	0.0134			57.5866	2.0000e-003		57.6365

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	21,819	21,819
Total	9.52	9.91	8.62	21,819	21,819

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.604810	0.038204	0.185149	0.108513	0.015498	0.004981	0.012268	0.020156	0.002083	0.001571	0.005363	0.000620	0.000785

5.0 Energy Detail

Historical Energy Use: N

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

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	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240
NaturalGas Unmitigated	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240

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					
Single Family Housing	79.6304	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240
Total		8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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					
Single Family Housing	0.0796304	8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240
Total		8.6000e-004	7.3400e-003	3.1200e-003			5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004			9.3683	1.8000e-004	1.7000e-004	9.4240

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	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654
Unmitigated	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

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	6.9400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0363	0.0200	1.3403			0.1895	0.1895		0.1895	0.1895			26.5548	0.0252	1.4400e-003	27.6133
Landscaping	2.5200e-003	9.6000e-004	0.0828			4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004			0.1486	1.4000e-004		0.1522
Total	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

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	6.9400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0363	0.0200	1.3403			0.1895	0.1895		0.1895	0.1895			26.5548	0.0252	1.4400e-003	27.6133
Landscaping	2.5200e-003	9.6000e-004	0.0828			4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004			0.1486	1.4000e-004		0.1522
Total	1.0843	0.0209	1.4231			0.1900	0.1900		0.1900	0.1900			26.7034	0.0253	1.4400e-003	27.7654

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Sunnyvale AMD 1 Phase 1 Construction - Santa Clara County, Summer

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Sunnyvale AMD 1 Phase 2 Construction Emissions

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	447.00	Space	4.02	178,800.00	0
Apartments Low Rise	57.00	Dwelling Unit	2.41	104,979.00	163
Condo/Townhouse	22.00	Dwelling Unit	6.05	263,538.00	63

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase would involve construction of three low-rise apartment buildings (57 units) on 2.31 acres, 22 townhomes on 6.05 acres, and 447 total enclosed parking spaces.

Construction Phase - Demolition would occur during Phase 1. Phase 2 construction to occur over 2 years (2019-2021). Construction would occur 6 days a week.

Off-road Equipment - Assumes CalEEMod defaults.

Grading - Import of approximately 13,800 cubic yards of material for this phase

Construction Off-road Equipment Mitigation - Use of a suite of Tier 3 and 4 engines for all construction equipment consistent with guidance from Mitigation Measure 4.2-1a

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

tblGrading	MaterialImported	0.00	6,900.00
tblGrading	MaterialImported	0.00	6,900.00
tblLandUse	LandUseSquareFeet	57,000.00	104,979.00
tblLandUse	LandUseSquareFeet	22,000.00	263,538.00
tblLandUse	LotAcreage	3.56	2.41
tblLandUse	LotAcreage	1.38	6.05
tblTripsAndVMT	HaulingTripNumber	863.00	862.00

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-26-2019	6-25-2019	1.7598	0.5526
2	6-26-2019	9-25-2019	0.9586	0.4233
3	9-26-2019	12-25-2019	0.9537	0.4241
4	12-26-2019	3-25-2020	0.8709	0.4061
5	3-26-2020	6-25-2020	0.8700	0.4047
6	6-26-2020	9-25-2020	2.9774	2.7420
		Highest	2.9774	2.7420

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7300e-003	2.4000e-004	6.2858
Energy	5.3600e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			452.3306	0.0191	4.7100e-003	454.2103
Mobile	0.1161	0.4918	1.3484			3.9600e-003	0.4337		3.7000e-003	0.1187			426.7130	0.0144	0.0000	427.0735
Waste						0.0000	0.0000		0.0000	0.0000			7.3767	0.4360	0.0000	18.2754
Water						0.0000	0.0000		0.0000	0.0000			13.0392	0.1682	4.0700e-003	18.4571
Total	2.0358	0.5485	2.2102			0.0468	0.4765		0.0465	0.1616			905.5066	0.6444	9.0200e-003	924.3021

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7300e-003	2.4000e-004	6.2858
Energy	5.3600e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			452.3306	0.0191	4.7100e-003	454.2103
Mobile	0.1161	0.4918	1.3484			3.9600e-003	0.4337		3.7000e-003	0.1187			426.7130	0.0144	0.0000	427.0735
Waste						0.0000	0.0000		0.0000	0.0000			7.3767	0.4360	0.0000	18.2754
Water						0.0000	0.0000		0.0000	0.0000			13.0392	0.1682	4.0700e-003	18.4571
Total	2.0358	0.5485	2.2102			0.0468	0.4765		0.0465	0.1616			905.5066	0.6444	9.0200e-003	924.3021

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	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

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/26/2019	4/8/2019	5	10	
2	Grading	Grading	4/9/2019	5/20/2019	5	30	
3	Building Construction	Building Construction	5/21/2019	7/13/2020	5	300	
4	Paving	Paving	7/14/2020	8/10/2020	5	20	
5	Architectural Coating	Architectural Coating	8/11/2020	9/7/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 4.02

Residential Indoor: 746,247; Residential Outdoor: 248,749; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,728 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	862.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	682.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	132.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2019

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						0.0000	0.0907		0.0000	0.0497			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103			0.0120	0.0120		0.0110	0.0110			17.0843	5.4100e-003	0.0000	17.2195
Total	0.0217	0.2279	0.1103			0.0120	0.1027		0.0110	0.0607			17.0843	5.4100e-003	0.0000	17.2195

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.2 Site Preparation - 2019

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	3.9200e-003	0.1342	0.0265			5.2000e-004	7.8200e-003		4.9000e-004	2.5000e-003			33.2148	1.5600e-003	0.0000	33.2537
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.5100e-003			0.0000	7.2000e-004		0.0000	1.9000e-004			0.6319	2.0000e-005	0.0000	0.6323
Total	4.2500e-003	0.1344	0.0290			5.2000e-004	8.5400e-003		4.9000e-004	2.6900e-003			33.8467	1.5800e-003	0.0000	33.8860

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						0.0000	0.0907		0.0000	0.0497			0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043			3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004			17.0843	5.4100e-003	0.0000	17.2195
Total	2.3300e-003	0.0101	0.1043			3.1000e-004	0.0910		3.1000e-004	0.0500			17.0843	5.4100e-003	0.0000	17.2195

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.2 Site Preparation - 2019

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	3.9200e-003	0.1342	0.0265			5.2000e-004	7.8200e-003		4.9000e-004	2.5000e-003			33.2148	1.5600e-003	0.0000	33.2537
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.5100e-003			0.0000	7.2000e-004		0.0000	1.9000e-004			0.6319	2.0000e-005	0.0000	0.6323
Total	4.2500e-003	0.1344	0.0290			5.2000e-004	8.5400e-003		4.9000e-004	2.6900e-003			33.8467	1.5800e-003	0.0000	33.8860

3.3 Grading - 2019

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						0.0000	0.1301		0.0000	0.0540			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007			0.0357	0.0357		0.0329	0.0329			83.5520	0.0264	0.0000	84.2129
Total	0.0711	0.8178	0.5007			0.0357	0.1658		0.0329	0.0868			83.5520	0.0264	0.0000	84.2129

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.3 Grading - 2019

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	3.1000e-003	0.1062	0.0210			4.1000e-004	6.1900e-003		3.9000e-004	1.9800e-003			26.2790	1.2300e-003	0.0000	26.3098
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.0900e-003	8.1000e-004	8.3800e-003			2.0000e-005	2.4000e-003		1.0000e-005	6.5000e-004			2.1063	6.0000e-005	0.0000	2.1077
Total	4.1900e-003	0.1070	0.0294			4.3000e-004	8.5900e-003		4.0000e-004	2.6300e-003			28.3852	1.2900e-003	0.0000	28.4175

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						0.0000	0.1301		0.0000	0.0540			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1149	0.4950			4.8300e-003	4.8300e-003		4.8300e-003	4.8300e-003			83.5519	0.0264	0.0000	84.2128
Total	0.0133	0.1149	0.4950			4.8300e-003	0.1349		4.8300e-003	0.0588			83.5519	0.0264	0.0000	84.2128

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.3 Grading - 2019

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	3.1000e-003	0.1062	0.0210			4.1000e-004	6.1900e-003		3.9000e-004	1.9800e-003			26.2790	1.2300e-003	0.0000	26.3098
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.0900e-003	8.1000e-004	8.3800e-003			2.0000e-005	2.4000e-003		1.0000e-005	6.5000e-004			2.1063	6.0000e-005	0.0000	2.1077
Total	4.1900e-003	0.1070	0.0294			4.3000e-004	8.5900e-003		4.0000e-004	2.6300e-003			28.3852	1.2900e-003	0.0000	28.4175

3.4 Building Construction - 2019

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	0.1901	1.6968	1.3817			0.1038	0.1038		0.0976	0.0976			189.2589	0.0461	0.0000	190.4115
Total	0.1901	1.6968	1.3817			0.1038	0.1038		0.0976	0.0976			189.2589	0.0461	0.0000	190.4115

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.4 Building Construction - 2019

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
Vendor	0.0150	0.3863	0.1037			2.7800e-003	0.0229		2.6600e-003	8.4700e-003			80.4676	3.9900e-003	0.0000	80.5673
Worker	0.0386	0.0287	0.2969			5.6000e-004	0.0848		5.1000e-004	0.0229			74.6034	2.0300e-003	0.0000	74.6542
Total	0.0536	0.4150	0.4005			3.3400e-003	0.1077		3.1700e-003	0.0314			155.0709	6.0200e-003	0.0000	155.2215

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	0.0359	0.5394	1.4388			0.0239	0.0239		0.0239	0.0239			189.2587	0.0461	0.0000	190.4113
Total	0.0359	0.5394	1.4388			0.0239	0.0239		0.0239	0.0239			189.2587	0.0461	0.0000	190.4113

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.4 Building Construction - 2019

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
Vendor	0.0150	0.3863	0.1037			2.7800e-003	0.0229		2.6600e-003	8.4700e-003			80.4676	3.9900e-003	0.0000	80.5673
Worker	0.0386	0.0287	0.2969			5.6000e-004	0.0848		5.1000e-004	0.0229			74.6034	2.0300e-003	0.0000	74.6542
Total	0.0536	0.4150	0.4005			3.3400e-003	0.1077		3.1700e-003	0.0314			155.0709	6.0200e-003	0.0000	155.2215

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1473	1.3334	1.1710			0.0776	0.0776		0.0730	0.0730			160.9689	0.0393	0.0000	161.9507
Total	0.1473	1.3334	1.1710			0.0776	0.0776		0.0730	0.0730			160.9689	0.0393	0.0000	161.9507

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.3007	0.0801			1.4900e-003	0.0189		1.4200e-003	6.4500e-003			69.0470	3.1700e-003	0.0000	69.1262
Worker	0.0305	0.0219	0.2296			4.7000e-004	0.0732		4.3000e-004	0.0198			62.3969	1.5300e-003	0.0000	62.4352
Total	0.0409	0.3226	0.3097			1.9600e-003	0.0921		1.8500e-003	0.0262			131.4440	4.7000e-003	0.0000	131.5614

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	0.0310	0.4657	1.2422			0.0206	0.0206		0.0206	0.0206			160.9688	0.0393	0.0000	161.9505
Total	0.0310	0.4657	1.2422			0.0206	0.0206		0.0206	0.0206			160.9688	0.0393	0.0000	161.9505

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3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.3007	0.0801			1.4900e-003	0.0189		1.4200e-003	6.4500e-003			69.0470	3.1700e-003	0.0000	69.1262
Worker	0.0305	0.0219	0.2296			4.7000e-004	0.0732		4.3000e-004	0.0198			62.3969	1.5300e-003	0.0000	62.4352
Total	0.0409	0.3226	0.3097			1.9600e-003	0.0921		1.8500e-003	0.0262			131.4440	4.7000e-003	0.0000	131.5614

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465			7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003			20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	0.0136	0.1407	0.1465			7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003			20.0282	6.4800e-003	0.0000	20.1902

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.7500e-003			1.0000e-005	1.2000e-003		1.0000e-005	3.2000e-004			1.0202	3.0000e-005	0.0000	1.0209
Total	5.0000e-004	3.6000e-004	3.7500e-003			1.0000e-005	1.2000e-003		1.0000e-005	3.2000e-004			1.0202	3.0000e-005	0.0000	1.0209

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730			3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004			20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	2.8000e-003	0.0122	0.1730			3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004			20.0282	6.4800e-003	0.0000	20.1901

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3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.7500e-003			1.0000e-005	1.2000e-003		1.0000e-005	3.2000e-004			1.0202	3.0000e-005	0.0000	1.0209
Total	5.0000e-004	3.6000e-004	3.7500e-003			1.0000e-005	1.2000e-003		1.0000e-005	3.2000e-004			1.0202	3.0000e-005	0.0000	1.0209

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.6314					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183			1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003			2.5533	2.0000e-004	0.0000	2.5582
Total	2.6339	0.0168	0.0183			1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003			2.5533	2.0000e-004	0.0000	2.5582

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3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	6.2000e-004	6.5100e-003			1.0000e-005	2.0800e-003		1.0000e-005	5.6000e-004			1.7684	4.0000e-005	0.0000	1.7695
Total	8.6000e-004	6.2000e-004	6.5100e-003			1.0000e-005	2.0800e-003		1.0000e-005	5.6000e-004			1.7684	4.0000e-005	0.0000	1.7695

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	2.6314					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	5.9000e-004	0.0136	0.0183			9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004			2.5533	2.0000e-004	0.0000	2.5582
Total	2.6320	0.0136	0.0183			9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004			2.5533	2.0000e-004	0.0000	2.5582

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3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	6.2000e-004	6.5100e-003			1.0000e-005	2.0800e-003		1.0000e-005	5.6000e-004			1.7684	4.0000e-005	0.0000	1.7695
Total	8.6000e-004	6.2000e-004	6.5100e-003			1.0000e-005	2.0800e-003		1.0000e-005	5.6000e-004			1.7684	4.0000e-005	0.0000	1.7695

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1161	0.4918	1.3484			3.9600e-003	0.4337		3.7000e-003	0.1187			426.7130	0.0144	0.0000	427.0735
Unmitigated	0.1161	0.4918	1.3484			3.9600e-003	0.4337		3.7000e-003	0.1187			426.7130	0.0144	0.0000	427.0735

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	375.63	408.12	345.99	868,498	868,498
Condo/Townhouse	127.82	124.74	106.48	287,157	287,157
Enclosed Parking Structure	0.00	0.00	0.00		
Total	503.45	532.86	452.47	1,155,655	1,155,655

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Condo/Townhouse	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000			399.3275	0.0181	3.7400e-003	400.8922
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000			399.3275	0.0181	3.7400e-003	400.8922
NaturalGas Mitigated	5.3600e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			53.0031	1.0200e-003	9.7000e-004	53.3181
NaturalGas Unmitigated	5.3600e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			53.0031	1.0200e-003	9.7000e-004	53.3181

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

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	581334	3.1300e-003	0.0268	0.0114			2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003			31.0222	5.9000e-004	5.7000e-004	31.2066
Condo/Townhouse	411906	2.2200e-003	0.0190	8.0800e-003			1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003			21.9809	4.2000e-004	4.0000e-004	22.1115
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		5.3500e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			53.0031	1.0100e-003	9.7000e-004	53.3181

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	581334	3.1300e-003	0.0268	0.0114			2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003			31.0222	5.9000e-004	5.7000e-004	31.2066
Condo/Townhouse	411906	2.2200e-003	0.0190	8.0800e-003			1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003			21.9809	4.2000e-004	4.0000e-004	22.1115
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		5.3500e-003	0.0458	0.0195			3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003			53.0031	1.0100e-003	9.7000e-004	53.3181

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	247882	72.1116	3.2600e-003	6.7000e-004	72.3942
Condo/Townhouse	110999	32.2910	1.4600e-003	3.0000e-004	32.4175
Enclosed Parking Structure	1.0138e+006	294.9249	0.0133	2.7600e-003	296.0805
Total		399.3275	0.0181	3.7300e-003	400.8922

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	247882	72.1116	3.2600e-003	6.7000e-004	72.3942
Condo/Townhouse	110999	32.2910	1.4600e-003	3.0000e-004	32.4175
Enclosed Parking Structure	1.0138e+006	294.9249	0.0133	2.7600e-003	296.0805
Total		399.3275	0.0181	3.7300e-003	400.8922

6.0 Area Detail

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7300e-003	2.4000e-004	6.2858
Unmitigated	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7300e-003	2.4000e-004	6.2858

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

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	0.2631					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4508					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	0.1823	4.1900e-003	0.2510			0.0359	0.0359		0.0359	0.0359			5.0809	5.7900e-003	2.4000e-004	5.2960
Landscaping	0.0181	6.8100e-003	0.5913			3.2600e-003	3.2600e-003		3.2600e-003	3.2600e-003			0.9662	9.5000e-004	0.0000	0.9898
Total	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7400e-003	2.4000e-004	6.2858

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

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	0.2631					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4508					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	0.1823	4.1900e-003	0.2510			0.0359	0.0359		0.0359	0.0359			5.0809	5.7900e-003	2.4000e-004	5.2960
Landscaping	0.0181	6.8100e-003	0.5913			3.2600e-003	3.2600e-003		3.2600e-003	3.2600e-003			0.9662	9.5000e-004	0.0000	0.9898
Total	1.9143	0.0110	0.8423			0.0391	0.0391		0.0391	0.0391			6.0471	6.7400e-003	2.4000e-004	6.2858

7.0 Water Detail

7.1 Mitigation Measures Water

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	13.0392	0.1682	4.0700e-003	18.4571
Unmitigated	13.0392	0.1682	4.0700e-003	18.4571

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.71378 / 2.3413	9.4080	0.1214	2.9300e-003	13.3171
Condo/Townhouse	1.43339 / 0.903658	3.6312	0.0469	1.1300e-003	5.1399
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		13.0392	0.1682	4.0600e-003	18.4571

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.71378 / 2.3413	9.4080	0.1214	2.9300e-003	13.3171
Condo/Townhouse	1.43339 / 0.903658	3.6312	0.0469	1.1300e-003	5.1399
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		13.0392	0.1682	4.0600e-003	18.4571

8.0 Waste Detail

8.1 Mitigation Measures Waste

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3767	0.4360	0.0000	18.2754
Unmitigated	7.3767	0.4360	0.0000	18.2754

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	26.22	5.3224	0.3146	0.0000	13.1861
Condo/Townhouse	10.12	2.0543	0.1214	0.0000	5.0894
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		7.3767	0.4360	0.0000	18.2754

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	26.22	5.3224	0.3146	0.0000	13.1861
Condo/Townhouse	10.12	2.0543	0.1214	0.0000	5.0894
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		7.3767	0.4360	0.0000	18.2754

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Annual

11.0 Vegetation

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

Sunnyvale AMD 1 Phase 2 Construction Emissions
Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	447.00	Space	4.02	178,800.00	0
Apartments Low Rise	57.00	Dwelling Unit	2.41	104,979.00	163
Condo/Townhouse	22.00	Dwelling Unit	6.05	263,538.00	63

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase would involve construction of three low-rise apartment buildings (57 units) on 2.31 acres, 22 townhomes on 6.05 acres, and 447 total enclosed parking spaces.

Construction Phase - Demolition would occur during Phase 1. Phase 2 construction to occur over 2 years (2019-2021). Construction would occur 6 days a week.

Off-road Equipment - Assumes CalEEMod defaults.

Grading - Import of approximately 13,800 cubic yards of material for this phase

Construction Off-road Equipment Mitigation - Use of a suite of Tier 3 and 4 engines for all construction equipment consistent with guidance from Mitigation Measure 4.2-1a

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

tblGrading	MaterialImported	0.00	6,900.00
tblGrading	MaterialImported	0.00	6,900.00
tblLandUse	LandUseSquareFeet	57,000.00	104,979.00
tblLandUse	LandUseSquareFeet	22,000.00	263,538.00
tblLandUse	LotAcreage	3.56	2.41
tblLandUse	LotAcreage	1.38	6.05
tblTripsAndVMT	HaulingTripNumber	863.00	862.00

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

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	42.0824	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375
Energy	0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1400e-003	5.8700e-003	322.0445
Mobile	0.7847	2.8028	8.3377			0.0233	2.6416		0.0217	0.7206			2,935.0539	0.0947		2,937.4216
Total	42.8964	3.8475	57.9399			6.1736	8.7920		6.1721	6.8710			4,221.0909	1.0174	0.0526	4,262.2035

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	42.0824	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375
Energy	0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1400e-003	5.8700e-003	322.0445
Mobile	0.7847	2.8028	8.3377			0.0233	2.6416		0.0217	0.7206			2,935.0539	0.0947		2,937.4216
Total	42.8964	3.8475	57.9399			6.1736	8.7920		6.1721	6.8710			4,221.0909	1.0174	0.0526	4,262.2035

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	3/26/2019	4/8/2019	5	10	
2	Grading	Grading	4/9/2019	5/20/2019	5	30	
3	Building Construction	Building Construction	5/21/2019	7/13/2020	5	300	
4	Paving	Paving	7/14/2020	8/10/2020	5	20	
5	Architectural Coating	Architectural Coating	8/11/2020	9/7/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 4.02

Residential Indoor: 746,247; Residential Outdoor: 248,749; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,728 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	862.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	682.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	132.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.1443		0.0000	9.9425			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630			2.3904	2.3904		2.1991	2.1991			3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630			2.3904	20.5347		2.1991	12.1416			3,766.4529	1.1917		3,796.2445

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.2 Site Preparation - 2019

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	0.7742	26.2861	5.1262			0.1022	1.6085		0.0978	0.5106			7,373.9313	0.3358		7,382.3264
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0685	0.0435	0.5508			9.4000e-004	0.1488		8.7000e-004	0.0401			149.7561	4.0500e-003		149.8574
Total	0.8427	26.3296	5.6769			0.1031	1.7573		0.0986	0.5507			7,523.6873	0.3399		7,532.1838

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.1443		0.0000	9.9425			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690			0.0621	0.0621		0.0621	0.0621			3,766.4529	1.1917		3,796.2445
Total	0.4656	2.0175	20.8690			0.0621	18.2064		0.0621	10.0046			3,766.4529	1.1917		3,796.2445

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.2 Site Preparation - 2019

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	0.7742	26.2861	5.1262			0.1022	1.6085		0.0978	0.5106			7,373.9313	0.3358		7,382.3264
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0685	0.0435	0.5508			9.4000e-004	0.1488		8.7000e-004	0.0401			149.7561	4.0500e-003		149.8574
Total	0.8427	26.3296	5.6769			0.1031	1.7573		0.0986	0.5507			7,523.6873	0.3399		7,532.1838

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	8.6733		0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768			2.3827	2.3827		2.1920	2.1920			6,140.0195	1.9426		6,188.5854
Total	4.7389	54.5202	33.3768			2.3827	11.0560		2.1920	5.7885			6,140.0195	1.9426		6,188.5854

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.3 Grading - 2019

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	0.2042	6.9324	1.3519			0.0269	0.4242		0.0258	0.1347			1,944.7104	0.0886		1,946.9244
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083
Total	0.2802	6.9807	1.9639			0.0280	0.5896		0.0267	0.1792			2,111.1060	0.0931		2,113.4327

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	8.6733		0.0000	3.5965			0.0000			0.0000
Off-Road	0.8886	7.6628	32.9991			0.3218	0.3218		0.3218	0.3218			6,140.0195	1.9426		6,188.5854
Total	0.8886	7.6628	32.9991			0.3218	8.9951		0.3218	3.9183			6,140.0195	1.9426		6,188.5854

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.3 Grading - 2019

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	0.2042	6.9324	1.3519			0.0269	0.4242		0.0258	0.1347			1,944.7104	0.0886		1,946.9244
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083
Total	0.2802	6.9807	1.9639			0.0280	0.5896		0.0267	0.1792			2,111.1060	0.0931		2,113.4327

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638			1.2899	1.2899		1.2127	1.2127			2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638			1.2899	1.2899		1.2127	1.2127			2,591.5802	0.6313		2,607.3635

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2019

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
Vendor	0.1831	4.7314	1.2123			0.0343	0.2915		0.0328	0.1068			1,113.541 2	0.0528		1,114.8623
Worker	0.5020	0.3191	4.0389			6.9100e-003	1.0913		6.3700e-003	0.2940			1,098.2111	0.0297		1,098.954 4
Total	0.6850	5.0505	5.2512			0.0412	1.3828		0.0392	0.4008			2,211.752 4	0.0826		2,213.816 7

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4464	6.7001	17.8738			0.2968	0.2968		0.2968	0.2968			2,591.580 2	0.6313		2,607.363 5
Total	0.4464	6.7001	17.8738			0.2968	0.2968		0.2968	0.2968			2,591.580 2	0.6313		2,607.363 5

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2019

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
Vendor	0.1831	4.7314	1.2123			0.0343	0.2915		0.0328	0.1068			1,113.541 2	0.0528		1,114.8623
Worker	0.5020	0.3191	4.0389			6.9100e-003	1.0913		6.3700e-003	0.2940			1,098.2111	0.0297		1,098.954 4
Total	0.6850	5.0505	5.2512			0.0412	1.3828		0.0392	0.4008			2,211.752 4	0.0826		2,213.816 7

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485			1.1171	1.1171		1.0503	1.0503			2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485			1.1171	1.1171		1.0503	1.0503			2,553.063 1	0.6229		2,568.634 5

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.1476	4.2733	1.0823			0.0213	0.2786		0.0204	0.0944			1,106.9358	0.0486		1,108.1498
Worker	0.4588	0.2817	3.6304			6.7600e-003	1.0911		6.2300e-003	0.2939			1,063.9284	0.0260		1,064.5794
Total	0.6065	4.5550	4.7127			0.0281	1.3697		0.0266	0.3883			2,170.8642	0.0746		2,172.7291

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4464	6.7001	17.8738			0.2968	0.2968		0.2968	0.2968			2,553.0631	0.6229		2,568.6345
Total	0.4464	6.7001	17.8738			0.2968	0.2968		0.2968	0.2968			2,553.0631	0.6229		2,568.6345

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.1476	4.2733	1.0823			0.0213	0.2786		0.0204	0.0944			1,106.9358	0.0486		1,108.1498
Worker	0.4588	0.2817	3.6304			6.7600e-003	1.0911		6.2300e-003	0.2939			1,063.9284	0.0260		1,064.5794
Total	0.6065	4.5550	4.7127			0.0281	1.3697		0.0266	0.3883			2,170.8642	0.0746		2,172.7291

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521			0.7528	0.7528		0.6926	0.6926			2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521			0.7528	0.7528		0.6926	0.6926			2,207.7334	0.7140		2,225.5841

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0521	0.0320	0.4126			7.7000e-004	0.1240		7.1000e-004	0.0334			120.9010	2.9600e-003		120.9749
Total	0.0521	0.0320	0.4126			7.7000e-004	0.1240		7.1000e-004	0.0334			120.9010	2.9600e-003		120.9749

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	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.7334	0.7140		2,225.5841

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0521	0.0320	0.4126			7.7000e-004	0.1240		7.1000e-004	0.0334			120.9010	2.9600e-003		120.9749
Total	0.0521	0.0320	0.4126			7.7000e-004	0.1240		7.1000e-004	0.0334			120.9010	2.9600e-003		120.9749

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	263.1434					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314			0.1109	0.1109		0.1109	0.1109			281.4481	0.0218		281.9928
Total	263.3856	1.6838	1.8314			0.1109	0.1109		0.1109	0.1109			281.4481	0.0218		281.9928

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0904	0.0555	0.7151			1.3300e-003	0.2149		1.2300e-003	0.0579			209.5617	5.1300e-003		209.6899
Total	0.0904	0.0555	0.7151			1.3300e-003	0.2149		1.2300e-003	0.0579			209.5617	5.1300e-003		209.6899

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	263.1434					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0218		281.9928
Total	263.2029	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0218		281.9928

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0904	0.0555	0.7151			1.3300e-003	0.2149		1.2300e-003	0.0579			209.5617	5.1300e-003		209.6899
Total	0.0904	0.0555	0.7151			1.3300e-003	0.2149		1.2300e-003	0.0579			209.5617	5.1300e-003		209.6899

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.7847	2.8028	8.3377			0.0233	2.6416		0.0217	0.7206			2,935.0539	0.0947		2,937.4216
Unmitigated	0.7847	2.8028	8.3377			0.0233	2.6416		0.0217	0.7206			2,935.0539	0.0947		2,937.4216

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	375.63	408.12	345.99	868,498	868,498
Condo/Townhouse	127.82	124.74	106.48	287,157	287,157
Enclosed Parking Structure	0.00	0.00	0.00		
Total	503.45	532.86	452.47	1,155,655	1,155,655

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Condo/Townhouse	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

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	0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1400e-003	5.8700e-003	322.0445
NaturalGas Unmitigated	0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1400e-003	5.8700e-003	322.0445

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

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	1592.7	0.0172	0.1468	0.0625			0.0119	0.0119		0.0119	0.0119			187.3761	3.5900e-003	3.4400e-003	188.4896
Condo/Townhouse	1128.51	0.0122	0.1040	0.0443			8.4100e-003	8.4100e-003		8.4100e-003	8.4100e-003			132.7659	2.5400e-003	2.4300e-003	133.5549
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1300e-003	5.8700e-003	322.0445

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	1.5927	0.0172	0.1468	0.0625			0.0119	0.0119		0.0119	0.0119			187.3761	3.5900e-003	3.4400e-003	188.4896
Condo/Townhouse	1.12851	0.0122	0.1040	0.0443			8.4100e-003	8.4100e-003		8.4100e-003	8.4100e-003			132.7659	2.5400e-003	2.4300e-003	133.5549
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0294	0.2508	0.1067			0.0203	0.0203		0.0203	0.0203			320.1420	6.1300e-003	5.8700e-003	322.0445

6.0 Area Detail

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

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	42.0824	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375
Unmitigated	42.0824	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

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	1.4419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	32.4896	0.7183	42.9251			6.0939	6.0939		6.0939	6.0939			954.0616	0.9050	0.0467	990.6145
Landscaping	0.2013	0.0757	6.5703			0.0362	0.0362		0.0362	0.0362			11.8335	0.0116		12.1230
Total	42.0823	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

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	1.4419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	32.4896	0.7183	42.9251			6.0939	6.0939		6.0939	6.0939			954.0616	0.9050	0.0467	990.6145
Landscaping	0.2013	0.0757	6.5703			0.0362	0.0362		0.0362	0.0362			11.8335	0.0116		12.1230
Total	42.0823	0.7939	49.4954			6.1301	6.1301		6.1301	6.1301			965.8950	0.9165	0.0467	1,002.7375

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Sunnyvale AMD 1 Phase 2 Construction Emissions - Santa Clara County, Summer

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

Sunnyvale AMD 1 Phase 3 Construction Emissions
Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	825.00	Space	7.42	330,000.00	0
Apartments Mid Rise	444.00	Dwelling Unit	9.19	400,316.00	1270

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase 3 would include construction of two mid-rise apartment buildings (444 units) on 9.19 acres and 825 parking spaces (half of 1,650)

Construction Phase - Demolition would occur in Phase 1. Construction to occur over 2 years (2019-2021) 6 days a week

Off-road Equipment - Assumes CalEEMod Defaults.

Off-road Equipment - Assumes CalEEMod Defaults

Grading - Assumes import of 13,40 cubic yards of material

Construction Off-road Equipment Mitigation - Use of a suite of Tier 3 and 4 engines for all construction equipment consistent with guidance from Mitigation Measure 4.2-1a

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	30.00	60.00
tblConstructionPhase	NumDays	300.00	650.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	150.00	75.00
tblGrading	MaterialImported	0.00	13,400.00
tblLandUse	LandUseSquareFeet	444,000.00	400,316.00
tblLandUse	LotAcreage	11.68	9.19

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

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					
2019	0.7209	6.4524	5.1232			0.2650	1.2550		0.2471	0.6340			1,195.3632	0.1601	0.0000	1,199.3659
2020	0.6351	5.0072	4.9304			0.1881	0.8637		0.1769	0.3591			1,271.3704	0.1199	0.0000	1,274.3682
2021	3.1469	2.0725	2.2537			0.0801	0.3487		0.0750	0.1474			538.8522	0.0624	0.0000	540.4116
Maximum	3.1469	6.4524	5.1232			0.2650	1.2550		0.2471	0.6340			1,271.3704	0.1601	0.0000	1,274.3682

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					
2019	0.3436	3.1768	5.1893			0.0833	1.0732		0.0826	0.4695			1,195.3627	0.1601	0.0000	1,199.3653
2020	0.3827	3.4738	5.0914			0.0910	0.7666		0.0903	0.2724			1,271.3700	0.1199	0.0000	1,274.3677
2021	3.0344	1.2636	2.4067			0.0349	0.3035		0.0347	0.1071			538.8520	0.0624	0.0000	540.4114
Maximum	3.0344	3.4738	5.1893			0.0910	1.0732		0.0903	0.4695			1,271.3700	0.1601	0.0000	1,274.3677

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	16.48	41.52	-3.09	0.00	0.00	60.77	13.13	0.00	58.41	25.56	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	3-26-2019	6-25-2019	1.7358	0.8942
2	6-26-2019	9-25-2019	1.5566	1.0240
3	9-26-2019	12-25-2019	1.5603	1.0334
4	12-26-2019	3-25-2020	1.4222	0.9730
5	3-26-2020	6-25-2020	1.4105	0.9620
6	6-26-2020	9-25-2020	1.4093	0.9608
7	9-26-2020	12-25-2020	1.4113	0.9677
8	12-26-2020	3-25-2021	1.2731	0.9054
9	3-26-2021	6-25-2021	0.9358	0.5033
10	6-26-2021	9-25-2021	2.9434	2.7928
11	9-26-2021	9-30-2021	0.1688	0.1682
		Highest	2.9434	2.7928

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

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	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958
Energy	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			1,282.2606	0.0527	0.0138	1,287.6992
Mobile	0.6693	2.8363	7.7770			0.0228	2.5015		0.0213	0.6848			2,461.1733	0.0832	0.0000	2,463.2525
Waste						0.0000	0.0000		0.0000	0.0000			41.4589	2.4502	0.0000	102.7126
Water						0.0000	0.0000		0.0000	0.0000			73.2837	0.9455	0.0229	103.7334
Total	3.6883	3.0747	12.5707			0.2571	2.7357		0.2556	0.9190			3,892.1325	3.5693	0.0380	3,992.6935

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

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	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958
Energy	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			1,282.2606	0.0527	0.0138	1,287.6992
Mobile	0.6693	2.8363	7.7770			0.0228	2.5015		0.0213	0.6848			2,461.1733	0.0832	0.0000	2,463.2525
Waste						0.0000	0.0000		0.0000	0.0000			41.4589	2.4502	0.0000	102.7126
Water						0.0000	0.0000		0.0000	0.0000			73.2837	0.9455	0.0229	103.7334
Total	3.6883	3.0747	12.5707			0.2571	2.7357		0.2556	0.9190			3,892.1325	3.5693	0.0380	3,992.6935

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	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

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	2/4/2019	6	30	
2	Grading	Grading	2/5/2019	4/15/2019	6	60	
3	Building Construction	Building Construction	4/16/2019	5/12/2021	6	650	
4	Paving	Paving	5/13/2021	7/21/2021	6	60	
5	Architectural Coating	Architectural Coating	7/22/2021	9/29/2021	6	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 7.42

Residential Indoor: 810,640; Residential Outdoor: 270,213; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 19,800 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	1,325.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	458.00	102.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	92.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2019

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						0.0000	0.2716		0.0000	0.1491			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0650	0.6836	0.3310			0.0359	0.0359		0.0330	0.0330			51.2530	0.0162	0.0000	51.6584
Total	0.0650	0.6836	0.3310			0.0359	0.3075		0.0330	0.1820			51.2530	0.0162	0.0000	51.6584

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0200e-003	0.2063	0.0407			7.9000e-004	0.0120		7.6000e-004	3.8400e-003			51.0552	2.3900e-003	0.0000	51.1150
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	7.3000e-004	7.5400e-003			1.0000e-005	2.1600e-003		1.0000e-005	5.8000e-004			1.8956	5.0000e-005	0.0000	1.8969
Total	7.0000e-003	0.2070	0.0483			8.0000e-004	0.0142		7.7000e-004	4.4200e-003			52.9508	2.4400e-003	0.0000	53.0120

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						0.0000	0.2716		0.0000	0.1491			0.0000	0.0000	0.0000	0.0000
Off-Road	6.9800e-003	0.0303	0.3130			9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004			51.2530	0.0162	0.0000	51.6584
Total	6.9800e-003	0.0303	0.3130			9.3000e-004	0.2725		9.3000e-004	0.1500			51.2530	0.0162	0.0000	51.6584

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0200e-003	0.2063	0.0407			7.9000e-004	0.0120		7.6000e-004	3.8400e-003			51.0552	2.3900e-003	0.0000	51.1150
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	7.3000e-004	7.5400e-003			1.0000e-005	2.1600e-003		1.0000e-005	5.8000e-004			1.8956	5.0000e-005	0.0000	1.8969
Total	7.0000e-003	0.2070	0.0483			8.0000e-004	0.0142		7.7000e-004	4.4200e-003			52.9508	2.4400e-003	0.0000	53.0120

3.3 Grading - 2019

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						0.0000	0.2204		0.0000	0.1036			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1422	1.6356	1.0013			0.0715	0.0715		0.0658	0.0658			167.1040	0.0529	0.0000	168.4257
Total	0.1422	1.6356	1.0013			0.0715	0.2919		0.0658	0.1694			167.1040	0.0529	0.0000	168.4257

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.1800e-003	1.6200e-003	0.0168			3.0000e-005	4.7900e-003		3.0000e-005	1.2900e-003			4.2125	1.1000e-004	0.0000	4.2154
Total	2.1800e-003	1.6200e-003	0.0168			3.0000e-005	4.7900e-003		3.0000e-005	1.2900e-003			4.2125	1.1000e-004	0.0000	4.2154

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						0.0000	0.2204		0.0000	0.1036			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0291	0.3135	1.0062			0.0129	0.0129		0.0129	0.0129			167.1038	0.0529	0.0000	168.4255
Total	0.0291	0.3135	1.0062			0.0129	0.2333		0.0129	0.1165			167.1038	0.0529	0.0000	168.4255

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.1800e-003	1.6200e-003	0.0168			3.0000e-005	4.7900e-003		3.0000e-005	1.2900e-003			4.2125	1.1000e-004	0.0000	4.2154
Total	2.1800e-003	1.6200e-003	0.0168			3.0000e-005	4.7900e-003		3.0000e-005	1.2900e-003			4.2125	1.1000e-004	0.0000	4.2154

3.4 Building Construction - 2019

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	0.2633	2.3503	1.9138			0.1438	0.1438		0.1352	0.1352			262.1412	0.0639	0.0000	263.7377
Total	0.2633	2.3503	1.9138			0.1438	0.1438		0.1352	0.1352			262.1412	0.0639	0.0000	263.7377

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3.4 Building Construction - 2019

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
Vendor	0.0558	1.4362	0.3855			0.0103	0.0851		9.8700e-003	0.0315			299.1688	0.0148	0.0000	299.5399
Worker	0.1855	0.1381	1.4266			2.6700e-003	0.4077		2.4600e-003	0.1102			358.5329	9.7600e-003	0.0000	358.7769
Total	0.2412	1.5743	1.8121			0.0130	0.4928		0.0123	0.1417			657.7017	0.0246	0.0000	658.3168

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	0.0571	1.0502	1.9929			0.0556	0.0556		0.0556	0.0556			262.1409	0.0639	0.0000	263.7374
Total	0.0571	1.0502	1.9929			0.0556	0.0556		0.0556	0.0556			262.1409	0.0639	0.0000	263.7374

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3.4 Building Construction - 2019

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
Vendor	0.0558	1.4362	0.3855			0.0103	0.0851		9.8700e-003	0.0315			299.1688	0.0148	0.0000	299.5399
Worker	0.1855	0.1381	1.4266			2.6700e-003	0.4077		2.4600e-003	0.1102			358.5329	9.7600e-003	0.0000	358.7769
Total	0.2412	1.5743	1.8121			0.0130	0.4928		0.0123	0.1417			657.7017	0.0246	0.0000	658.3168

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3328	3.0122	2.6452			0.1754	0.1754		0.1649	0.1649			363.6277	0.0887	0.0000	365.8455
Total	0.3328	3.0122	2.6452			0.1754	0.1754		0.1649	0.1649			363.6277	0.0887	0.0000	365.8455

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3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0635	1.8234	0.4856			9.0300e-003	0.1144		8.6400e-003	0.0391			418.6745	0.0192	0.0000	419.1545
Worker	0.2389	0.1716	1.7995			3.6800e-003	0.5740		3.3900e-003	0.1551			489.0683	0.0120	0.0000	489.3682
Total	0.3023	1.9950	2.2852			0.0127	0.6884		0.0120	0.1942			907.7428	0.0312	0.0000	908.5227

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	0.0804	1.4788	2.8062			0.0783	0.0783		0.0783	0.0783			363.6272	0.0887	0.0000	365.8451
Total	0.0804	1.4788	2.8062			0.0783	0.0783		0.0783	0.0783			363.6272	0.0887	0.0000	365.8451

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3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0635	1.8234	0.4856			9.0300e-003	0.1144		8.6400e-003	0.0391			418.6745	0.0192	0.0000	419.1545
Worker	0.2389	0.1716	1.7995			3.6800e-003	0.5740		3.3900e-003	0.1551			489.0683	0.0120	0.0000	489.3682
Total	0.3023	1.9950	2.2852			0.0127	0.6884		0.0120	0.1942			907.7428	0.0312	0.0000	908.5227

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1074	0.9849	0.9365			0.0542	0.0542		0.0509	0.0509			130.8751	0.0316	0.0000	131.6644
Total	0.1074	0.9849	0.9365			0.0542	0.0542		0.0509	0.0509			130.8751	0.0316	0.0000	131.6644

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3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0188	0.5922	0.1576			1.3100e-003	0.0392		1.2600e-003	0.0122			149.2786	6.5100e-003	0.0000	149.4413
Worker	0.0797	0.0552	0.5920			1.2900e-003	0.2065		1.1900e-003	0.0558			169.8933	3.8600e-003	0.0000	169.9899
Total	0.0985	0.6474	0.7496			2.6000e-003	0.2458		2.4500e-003	0.0680			319.1720	0.0104	0.0000	319.4312

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	0.0289	0.5322	1.0099			0.0282	0.0282		0.0282	0.0282			130.8749	0.0316	0.0000	131.6643
Total	0.0289	0.5322	1.0099			0.0282	0.0282		0.0282	0.0282			130.8749	0.0316	0.0000	131.6643

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3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0188	0.5922	0.1576			1.3100e-003	0.0392		1.2600e-003	0.0122			149.2786	6.5100e-003	0.0000	149.4413
Worker	0.0797	0.0552	0.5920			1.2900e-003	0.2065		1.1900e-003	0.0558			169.8933	3.8600e-003	0.0000	169.9899
Total	0.0985	0.6474	0.7496			2.6000e-003	0.2458		2.4500e-003	0.0680			319.1720	0.0104	0.0000	319.4312

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0377	0.3876	0.4396			0.0203	0.0203		0.0187	0.0187			60.0704	0.0194	0.0000	60.5561
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	0.0377	0.3876	0.4396			0.0203	0.0203		0.0187	0.0187			60.0704	0.0194	0.0000	60.5561

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3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561
Total	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561

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	8.4100e-003	0.0365	0.5189			1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003			60.0704	0.0194	0.0000	60.5561
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	8.4100e-003	0.0365	0.5189			1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003			60.0704	0.0194	0.0000	60.5561

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3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561
Total	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8868					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	6.5700e-003	0.0458	0.0545			2.8200e-003	2.8200e-003		2.8200e-003	2.8200e-003			7.6598	5.3000e-004	0.0000	7.6729
Total	2.8934	0.0458	0.0545			2.8200e-003	2.8200e-003		2.8200e-003	2.8200e-003			7.6598	5.3000e-004	0.0000	7.6729

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3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-003	5.8900e-003	0.0631			1.4000e-004	0.0220		1.3000e-004	5.9500e-003			18.1206	4.1000e-004	0.0000	18.1309
Total	8.5000e-003	5.8900e-003	0.0631			1.4000e-004	0.0220		1.3000e-004	5.9500e-003			18.1206	4.1000e-004	0.0000	18.1309

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	2.8868					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	1.7800e-003	0.0407	0.0550			2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003			7.6598	5.3000e-004	0.0000	7.6729
Total	2.8886	0.0407	0.0550			2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003			7.6598	5.3000e-004	0.0000	7.6729

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3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-003	5.8900e-003	0.0631			1.4000e-004	0.0220		1.3000e-004	5.9500e-003			18.1206	4.1000e-004	0.0000	18.1309
Total	8.5000e-003	5.8900e-003	0.0631			1.4000e-004	0.0220		1.3000e-004	5.9500e-003			18.1206	4.1000e-004	0.0000	18.1309

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6693	2.8363	7.7770			0.0228	2.5015		0.0213	0.6848			2,461.173 3	0.0832	0.0000	2,463.252 5
Unmitigated	0.6693	2.8363	7.7770			0.0228	2.5015		0.0213	0.6848			2,461.173 3	0.0832	0.0000	2,463.252 5

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,952.60	2,837.16	2601.84	6,665,527	6,665,527
Enclosed Parking Structure	0.00	0.00	0.00		
Total	2,952.60	2,837.16	2,601.84	6,665,527	6,665,527

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

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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			1,077.5615	0.0487	0.0101	1,081.7837
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000			1,077.5615	0.0487	0.0101	1,081.7837
NaturalGas Mitigated	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
NaturalGas Unmitigated	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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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 Mid Rise	3.83592e+006	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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 Mid Rise	3.83592e+006	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.83299e+006	533.2371	0.0241	4.9900e-003	535.3264
Enclosed Parking Structure	1.8711e+006	544.3244	0.0246	5.0900e-003	546.4573
Total		1,077.5615	0.0487	0.0101	1,081.7837

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.83299e+006	533.2371	0.0241	4.9900e-003	535.3264
Enclosed Parking Structure	1.8711e+006	544.3244	0.0246	5.0900e-003	546.4573
Total		1,077.5615	0.0487	0.0101	1,081.7837

6.0 Area Detail

6.1 Mitigation Measures Area

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

	ROG	NOx	CO	SO2	Fugitive 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	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958
Unmitigated	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958

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	0.2887					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5848					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	1.0245	0.0236	1.4107			0.2017	0.2017		0.2017	0.2017			28.5561	0.0325	1.3300e-003	29.7650
Landscaping	0.1004	0.0381	3.3079			0.0183	0.0183		0.0183	0.0183			5.3999	5.2300e-003	0.0000	5.5308
Total	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

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	0.2887					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5848					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	1.0245	0.0236	1.4107			0.2017	0.2017		0.2017	0.2017			28.5561	0.0325	1.3300e-003	29.7650
Landscaping	0.1004	0.0381	3.3079			0.0183	0.0183		0.0183	0.0183			5.3999	5.2300e-003	0.0000	5.5308
Total	2.9983	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9561	0.0378	1.3300e-003	35.2958

7.0 Water Detail

7.1 Mitigation Measures Water

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	73.2837	0.9455	0.0229	103.7334
Unmitigated	73.2837	0.9455	0.0229	103.7334

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.9284 / 18.2375	73.2837	0.9455	0.0229	103.7334
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		73.2837	0.9455	0.0229	103.7334

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.9284 / 18.2375	73.2837	0.9455	0.0229	103.7334
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		73.2837	0.9455	0.0229	103.7334

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.4589	2.4502	0.0000	102.7126
Unmitigated	41.4589	2.4502	0.0000	102.7126

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	204.24	41.4589	2.4502	0.0000	102.7126
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		41.4589	2.4502	0.0000	102.7126

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	204.24	41.4589	2.4502	0.0000	102.7126
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		41.4589	2.4502	0.0000	102.7126

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
----------------	--------

11.0 Vegetation

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

Sunnyvale AMD 1 Phase 3 Construction Emissions
Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	825.00	Space	7.42	330,000.00	0
Apartments Mid Rise	444.00	Dwelling Unit	9.19	400,316.00	1270

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase 3 would include construction of two mid-rise apartment buildings (444 units) on 9.19 acres and 825 parking spaces (half of 1,650)

Construction Phase - Demolition would occur in Phase 1. Construction to occur over 2 years (2019-2021) 6 days a week

Off-road Equipment - Assumes CalEEMod Defaults.

Off-road Equipment - Assumes CalEEMod Defaults

Grading - Assumes import of 13,40 cubic yards of material

Construction Off-road Equipment Mitigation - Use of a suite of Tier 3 and 4 engines for all construction equipment consistent with guidance from Mitigation Measure 4.2-1a

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	30.00	60.00
tblConstructionPhase	NumDays	300.00	650.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	150.00	75.00
tblGrading	MaterialImported	0.00	13,400.00
tblLandUse	LandUseSquareFeet	444,000.00	400,316.00
tblLandUse	LotAcreage	11.68	9.19

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

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					
2019	4.8150	59.0846	34.4316			2.4437	21.4696		2.2501	12.4376			9,391.019 1	1.9471	0.0000	9,412.927 4
2020	4.1081	31.6340	32.3500			1.1977	5.6506		1.1266	2.3234			9,215.820 9	0.8436	0.0000	9,236.909 5
2021	96.7424	28.6752	30.7301			1.0044	5.4574		0.9443	2.1410			9,060.570 2	0.8197	0.0000	9,081.061 7
Maximum	96.7424	59.0846	34.4316			2.4437	21.4696		2.2501	12.4376			9,391.019 1	1.9471	0.0000	9,412.927 4

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					
2019	2.7452	23.2262	35.1416			0.6145	19.1413		0.6086	10.3005			9,391.019 1	1.9471	0.0000	9,412.927 4
2020	2.5004	21.8669	33.3753			0.5791	5.0320		0.5748	1.7715			9,215.820 9	0.8436	0.0000	9,236.909 5
2021	96.5829	20.6620	32.0287			0.5443	4.9973		0.5415	1.7382			9,060.570 2	0.8197	0.0000	9,081.061 7
Maximum	96.5829	23.2262	35.1416			0.6145	19.1413		0.6086	10.3005			9,391.019 1	1.9471	0.0000	9,412.927 4

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	3.63	44.93	-3.11	0.00	0.00	62.59	10.46	0.00	60.08	18.29	0.00	0.00	0.00	0.00	0.00	0.00

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

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	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449
Energy	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Mobile	4.3231	15.4413	45.9341			0.1281	14.5532		0.1197	3.9701			16,169.7951	0.5218		16,182.8394
Total	198.4168	20.8703	324.3506			34.6583	49.0834		34.6499	38.5003			22,834.3955	5.6956	0.2854	23,061.8267

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	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449
Energy	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Mobile	4.3231	15.4413	45.9341			0.1281	14.5532		0.1197	3.9701			16,169.7951	0.5218		16,182.8394
Total	198.4168	20.8703	324.3506			34.6583	49.0834		34.6499	38.5003			22,834.3955	5.6956	0.2854	23,061.8267

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	1/1/2019	2/4/2019	6	30	
2	Grading	Grading	2/5/2019	4/15/2019	6	60	
3	Building Construction	Building Construction	4/16/2019	5/12/2021	6	650	
4	Paving	Paving	5/13/2021	7/21/2021	6	60	
5	Architectural Coating	Architectural Coating	7/22/2021	9/29/2021	6	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 7.42

Residential Indoor: 810,640; Residential Outdoor: 270,213; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 19,800 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	1,325.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	458.00	102.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	92.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.1062		0.0000	9.9367			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630			2.3904	2.3904		2.1991	2.1991			3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630			2.3904	20.4966		2.1991	12.1359			3,766.4529	1.1917		3,796.2445

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.2 Site Preparation - 2019

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	0.3967	13.4683	2.6265			0.0524	0.8242		0.0501	0.2616			3,778.2130	0.1721		3,782.5145
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0685	0.0435	0.5508			9.4000e-004	0.1488		8.7000e-004	0.0401			149.7561	4.0500e-003		149.8574
Total	0.4652	13.5118	3.1773			0.0533	0.9730		0.0510	0.3017			3,927.9691	0.1761		3,932.3719

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.1062		0.0000	9.9367			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690			0.0621	0.0621		0.0621	0.0621			3,766.4529	1.1917		3,796.2445
Total	0.4656	2.0175	20.8690			0.0621	18.1683		0.0621	9.9988			3,766.4529	1.1917		3,796.2445

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.2 Site Preparation - 2019

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	0.3967	13.4683	2.6265			0.0524	0.8242		0.0501	0.2616			3,778.2130	0.1721		3,782.5145
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0685	0.0435	0.5508			9.4000e-004	0.1488		8.7000e-004	0.0401			149.7561	4.0500e-003		149.8574
Total	0.4652	13.5118	3.1773			0.0533	0.9730		0.0510	0.3017			3,927.9691	0.1761		3,932.3719

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	7.3477		0.0000	3.4534			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768			2.3827	2.3827		2.1920	2.1920			6,140.0195	1.9426		6,188.5854
Total	4.7389	54.5202	33.3768			2.3827	9.7304		2.1920	5.6454			6,140.0195	1.9426		6,188.5854

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083
Total	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	7.3477		0.0000	3.4534			0.0000			0.0000
Off-Road	0.9698	10.4484	33.5400			0.4300	0.4300		0.4300	0.4300			6,140.0195	1.9426		6,188.5854
Total	0.9698	10.4484	33.5400			0.4300	7.7777		0.4300	3.8833			6,140.0195	1.9426		6,188.5854

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083
Total	0.0761	0.0484	0.6120			1.0500e-003	0.1653		9.6000e-004	0.0445			166.3956	4.5000e-003		166.5083

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638			1.2899	1.2899		1.2127	1.2127			2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638			1.2899	1.2899		1.2127	1.2127			2,591.5802	0.6313		2,607.3635

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2019

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
Vendor	0.4914	12.7001	3.2541			0.0920	0.7825		0.0880	0.2868			2,988.9791	0.1418		2,992.5250
Worker	1.7417	1.1071	14.0137			0.0240	3.7864		0.0221	1.0201			3,810.4598	0.1032		3,813.0389
Total	2.2330	13.8073	17.2679			0.1160	4.5688		0.1101	1.3068			6,799.4390	0.2450		6,805.5639

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	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,591.5802	0.6313		2,607.3635
Total	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,591.5802	0.6313		2,607.3635

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2019

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
Vendor	0.4914	12.7001	3.2541			0.0920	0.7825		0.0880	0.2868			2,988.9791	0.1418		2,992.5250
Worker	1.7417	1.1071	14.0137			0.0240	3.7864		0.0221	1.0201			3,810.4598	0.1032		3,813.0389
Total	2.2330	13.8073	17.2679			0.1160	4.5688		0.1101	1.3068			6,799.4390	0.2450		6,805.5639

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485			1.1171	1.1171		1.0503	1.0503			2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485			1.1171	1.1171		1.0503	1.0503			2,553.0631	0.6229		2,568.6345

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.3963	11.4704	2.9050			0.0571	0.7477		0.0547	0.2535			2,971.2486	0.1304		2,974.5073
Worker	1.5920	0.9776	12.5965			0.0235	3.7858		0.0216	1.0196			3,691.5093	0.0903		3,693.7678
Total	1.9882	12.4480	15.5015			0.0806	4.5335		0.0763	1.2730			6,662.7579	0.2207		6,668.2751

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	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.0631	0.6229		2,568.6345
Total	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.0631	0.6229		2,568.6345

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.3963	11.4704	2.9050			0.0571	0.7477		0.0547	0.2535			2,971.2486	0.1304		2,974.5073
Worker	1.5920	0.9776	12.5965			0.0235	3.7858		0.0216	1.0196			3,691.5093	0.0903		3,693.7678
Total	1.9882	12.4480	15.5015			0.0806	4.5335		0.0763	1.2730			6,662.7579	0.2207		6,668.2751

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752			0.9586	0.9586		0.9013	0.9013			2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752			0.9586	0.9586		0.9013	0.9013			2,553.3639	0.6160		2,568.7643

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.3252	10.3692	2.6134			0.0229	0.7135		0.0219	0.2207			2,943.9165	0.1227		2,946.9837
Worker	1.4749	0.8738	11.5416			0.0229	3.7852		0.0211	1.0190			3,563.2898	0.0810		3,565.3138
Total	1.8001	11.2431	14.1549			0.0458	4.4987		0.0430	1.2397			6,507.2063	0.2037		6,512.2974

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	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.3639	0.6160		2,568.7643
Total	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.3639	0.6160		2,568.7643

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.3252	10.3692	2.6134			0.0229	0.7135		0.0219	0.2207			2,943.9165	0.1227		2,946.9837
Worker	1.4749	0.8738	11.5416			0.0229	3.7852		0.0211	1.0190			3,563.2898	0.0810		3,565.3138
Total	1.8001	11.2431	14.1549			0.0458	4.4987		0.0430	1.2397			6,507.2063	0.2037		6,512.2974

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532			0.6777	0.6777		0.6235	0.6235			2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532			0.6777	0.6777		0.6235	0.6235			2,207.2109	0.7139		2,225.0573

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0483	0.0286	0.3780			7.5000e-004	0.1240		6.9000e-004	0.0334			116.7016	2.6500e-003		116.7679
Total	0.0483	0.0286	0.3780			7.5000e-004	0.1240		6.9000e-004	0.0334			116.7016	2.6500e-003		116.7679

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	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.2109	0.7139		2,225.0573

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0483	0.0286	0.3780			7.5000e-004	0.1240		6.9000e-004	0.0334			116.7016	2.6500e-003		116.7679
Total	0.0483	0.0286	0.3780			7.5000e-004	0.1240		6.9000e-004	0.0334			116.7016	2.6500e-003		116.7679

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	96.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176			0.0941	0.0941		0.0941	0.0941			281.4481	0.0193		281.9309
Total	96.4461	1.5268	1.8176			0.0941	0.0941		0.0941	0.0941			281.4481	0.0193		281.9309

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.2963	0.1755	2.3184			4.5900e-003	0.7604		4.2300e-003	0.2047			715.7700	0.0163		716.1766
Total	0.2963	0.1755	2.3184			4.5900e-003	0.7604		4.2300e-003	0.2047			715.7700	0.0163		716.1766

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	96.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0193		281.9309
Total	96.2866	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0193		281.9309

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.2963	0.1755	2.3184			4.5900e-003	0.7604		4.2300e-003	0.2047			715.7700	0.0163		716.1766
Total	0.2963	0.1755	2.3184			4.5900e-003	0.7604		4.2300e-003	0.2047			715.7700	0.0163		716.1766

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	4.3231	15.4413	45.9341			0.1281	14.5532		0.1197	3.9701			16,169.79 51	0.5218		16,182.83 94
Unmitigated	4.3231	15.4413	45.9341			0.1281	14.5532		0.1197	3.9701			16,169.79 51	0.5218		16,182.83 94

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,952.60	2,837.16	2601.84	6,665,527	6,665,527
Enclosed Parking Structure	0.00	0.00	0.00		
Total	2,952.60	2,837.16	2,601.84	6,665,527	6,665,527

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

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	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
NaturalGas Unmitigated	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

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 Mid Rise	10509.4	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

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 Mid Rise	10.5094	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

6.0 Area Detail

6.1 Mitigation Measures Area

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449
Unmitigated	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449

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	1.5818					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.6837					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	182.5995	4.0368	241.2500			34.2490	34.2490		34.2490	34.2490			5,362.0675	5.0860	0.2627	5,567.5043
Landscaping	1.1154	0.4237	36.7544			0.2029	0.2029		0.2029	0.2029			66.1378	0.0641		67.7405
Total	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

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	1.5818					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.6837					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	182.5995	4.0368	241.2500			34.2490	34.2490		34.2490	34.2490			5,362.0675	5.0860	0.2627	5,567.5043
Landscaping	1.1154	0.4237	36.7544			0.2029	0.2029		0.2029	0.2029			66.1378	0.0641		67.7405
Total	193.9804	4.4605	278.0044			34.4519	34.4519		34.4519	34.4519			5,428.2053	5.1502	0.2627	5,635.2449

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Sunnyvale AMD 1 Phase 3 Construction Emissions - Santa Clara County, Summer

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions
Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	6.50	Acre	6.50	283,140.00	0
Apartments Mid Rise	444.00	Dwelling Unit	9.19	400,316.00	1270
Enclosed Parking Structure	825.00	Space	7.42	330,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase 4 and 5 would include construction of two mid-rise apartment buildings (443 units) on 9.19 acres, 825 parking spaces (half of 1,650), and the 6.5-acre community park

Construction Phase - Demolition would occur in Phase 1. Construction to occur between 2021-2022, 6 days a week.

Off-road Equipment - Assumes CalEEMod Defaults.

Construction Off-road Equipment Mitigation - Desel-powered off-road equipment to use a suite of Tier 3 and Final Tier 4 Engines as required by Mitigation Measure 4.2-1a.

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	35.00	45.00
tblConstructionPhase	NumDays	370.00	450.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	1/14/2021	1/18/2021
tblConstructionPhase	PhaseEndDate	3/4/2021	3/11/2021
tblConstructionPhase	PhaseEndDate	8/4/2022	8/18/2022
tblConstructionPhase	PhaseEndDate	9/1/2022	9/22/2022
tblConstructionPhase	PhaseEndDate	9/29/2022	10/27/2022
tblConstructionPhase	PhaseStartDate	1/15/2021	1/19/2021
tblConstructionPhase	PhaseStartDate	3/5/2021	3/12/2021
tblConstructionPhase	PhaseStartDate	8/5/2022	8/19/2022
tblConstructionPhase	PhaseStartDate	9/2/2022	9/23/2022
tblGrading	AcresOfGrading	112.50	87.50
tblLandUse	LandUseSquareFeet	444,000.00	400,316.00
tblLandUse	LotAcreage	11.68	9.19

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.8018	0.5250
2	4-1-2021	6-30-2021	1.4746	1.1079
3	7-1-2021	9-30-2021	1.4908	1.1201
4	10-1-2021	12-31-2021	1.5116	1.1409
5	1-1-2022	3-31-2022	1.3573	1.0722
6	4-1-2022	6-30-2022	1.3538	1.0656
7	7-1-2022	9-30-2022	1.5807	1.2638
		Highest	1.8018	1.2638

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	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959
Energy	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			1,282.2606	0.0527	0.0138	1,287.6992
Mobile	0.6796	2.8791	7.8926			0.0232	2.5379		0.0216	0.6948			2,497.2018	0.0844	0.0000	2,499.3119
Waste						0.0000	0.0000		0.0000	0.0000			41.5726	2.4569	0.0000	102.9942
Water						0.0000	0.0000		0.0000	0.0000			81.1692	0.9459	0.0229	111.6498
Total	3.7012	3.1176	12.6864			0.2574	2.7721		0.2559	0.9290			3,936.1602	3.5776	0.0381	4,036.9511

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

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	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959
Energy	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			1,282.2606	0.0527	0.0138	1,287.6992
Mobile	0.6796	2.8791	7.8926			0.0232	2.5379		0.0216	0.6948			2,497.2018	0.0844	0.0000	2,499.3119
Waste						0.0000	0.0000		0.0000	0.0000			41.5726	2.4569	0.0000	102.9942
Water						0.0000	0.0000		0.0000	0.0000			81.1692	0.9459	0.0229	111.6498
Total	3.7012	3.1176	12.6864			0.2574	2.7721		0.2559	0.9290			3,936.1602	3.5776	0.0381	4,036.9511

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/18/2021	6	15	
2	Grading	Grading	1/19/2021	3/11/2021	6	45	
3	Building Construction	Building Construction	3/12/2021	8/18/2022	6	450	
4	Paving	Paving	8/19/2022	9/22/2022	6	30	
5	Architectural Coating	Architectural Coating	9/23/2022	10/27/2022	6	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 7.42

Residential Indoor: 810,640; Residential Outdoor: 270,213; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 19,800 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	577.00	148.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	115.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 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						0.0000	0.1355		0.0000	0.0745			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587			0.0153	0.0153		0.0141	0.0141			25.0768	8.1100e-003	0.0000	25.2796
Total	0.0292	0.3037	0.1587			0.0153	0.1508		0.0141	0.0886			25.0768	8.1100e-003	0.0000	25.2796

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.2 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.9000e-004	3.0900e-003			1.0000e-005	1.0800e-003		1.0000e-005	2.9000e-004			0.8863	2.0000e-005	0.0000	0.8868
Total	4.2000e-004	2.9000e-004	3.0900e-003			1.0000e-005	1.0800e-003		1.0000e-005	2.9000e-004			0.8863	2.0000e-005	0.0000	0.8868

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						0.0000	0.1355		0.0000	0.0745			0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0151	0.1565			4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004			25.0768	8.1100e-003	0.0000	25.2795
Total	3.4900e-003	0.0151	0.1565			4.7000e-004	0.1360		4.7000e-004	0.0750			25.0768	8.1100e-003	0.0000	25.2795

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.2 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.9000e-004	3.0900e-003			1.0000e-005	1.0800e-003		1.0000e-005	2.9000e-004			0.8863	2.0000e-005	0.0000	0.8868
Total	4.2000e-004	2.9000e-004	3.0900e-003			1.0000e-005	1.0800e-003		1.0000e-005	2.9000e-004			0.8863	2.0000e-005	0.0000	0.8868

3.3 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						0.0000	0.1819		0.0000	0.0795			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0943	1.0440	0.6948			0.0447	0.0447		0.0411	0.0411			122.6137	0.0397	0.0000	123.6051
Total	0.0943	1.0440	0.6948			0.0447	0.2266		0.0411	0.1206			122.6137	0.0397	0.0000	123.6051

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.3 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561
Total	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561

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						0.0000	0.1819		0.0000	0.0795			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0218	0.2351	0.7547			9.6700e-003	9.6700e-003		9.6700e-003	9.6700e-003			122.6136	0.0397	0.0000	123.6050
Total	0.0218	0.2351	0.7547			9.6700e-003	0.1916		9.6700e-003	0.0892			122.6136	0.0397	0.0000	123.6050

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.3 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561
Total	1.3900e-003	9.6000e-004	0.0103			2.0000e-005	3.5900e-003		2.0000e-005	9.7000e-004			2.9544	7.0000e-005	0.0000	2.9561

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2405	2.2052	2.0968			0.1213	0.1213		0.1140	0.1140			293.0212	0.0707	0.0000	294.7885
Total	0.2405	2.2052	2.0968			0.1213	0.1213		0.1140	0.1140			293.0212	0.0707	0.0000	294.7885

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0611	1.9239	0.5121			4.2700e-003	0.1274		4.0800e-003	0.0397			484.9548	0.0211	0.0000	485.4832
Worker	0.2249	0.1557	1.6697			3.6400e-003	0.5825		3.3500e-003	0.1573			479.2132	0.0109	0.0000	479.4856
Total	0.2859	2.0796	2.1818			7.9100e-003	0.7100		7.4300e-003	0.1970			964.1680	0.0320	0.0000	964.9688

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	0.0648	1.1915	2.2610			0.0631	0.0631		0.0631	0.0631			293.0208	0.0707	0.0000	294.7881
Total	0.0648	1.1915	2.2610			0.0631	0.0631		0.0631	0.0631			293.0208	0.0707	0.0000	294.7881

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0611	1.9239	0.5121			4.2700e-003	0.1274		4.0800e-003	0.0397			484.9548	0.0211	0.0000	485.4832
Worker	0.2249	0.1557	1.6697			3.6400e-003	0.5825		3.3500e-003	0.1573			479.2132	0.0109	0.0000	479.4856
Total	0.2859	2.0796	2.1818			7.9100e-003	0.7100		7.4300e-003	0.1970			964.1680	0.0320	0.0000	964.9688

3.4 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	0.1681	1.5381	1.6118			0.0797	0.0797		0.0750	0.0750			228.2494	0.0547	0.0000	229.6164
Total	0.1681	1.5381	1.6118			0.0797	0.0797		0.0750	0.0750			228.2494	0.0547	0.0000	229.6164

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

3.4 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
Vendor	0.0444	1.4161	0.3756			2.8900e-003	0.0988		2.7600e-003	0.0305			374.0004	0.0157	0.0000	374.3933
Worker	0.1634	0.1088	1.1950			2.7700e-003	0.4535		2.5500e-003	0.1224			359.5883	7.6100e-003	0.0000	359.7786
Total	0.2078	1.5248	1.5706			5.6600e-003	0.5523		5.3100e-003	0.1529			733.5888	0.0233	0.0000	734.1719

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	0.0505	0.9278	1.7606			0.0491	0.0491		0.0491	0.0491			228.2491	0.0547	0.0000	229.6161
Total	0.0505	0.9278	1.7606			0.0491	0.0491		0.0491	0.0491			228.2491	0.0547	0.0000	229.6161

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3.4 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
Vendor	0.0444	1.4161	0.3756			2.8900e-003	0.0988		2.7600e-003	0.0305			374.0004	0.0157	0.0000	374.3933
Worker	0.1634	0.1088	1.1950			2.7700e-003	0.4535		2.5500e-003	0.1224			359.5883	7.6100e-003	0.0000	359.7786
Total	0.2078	1.5248	1.5706			5.6600e-003	0.5523		5.3100e-003	0.1529			733.5888	0.0233	0.0000	734.1719

3.5 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0165	0.1669	0.2187			8.5200e-003	8.5200e-003		7.8400e-003	7.8400e-003			30.0413	9.7200e-003	0.0000	30.2842
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	0.0165	0.1669	0.2187			8.5200e-003	8.5200e-003		7.8400e-003	7.8400e-003			30.0413	9.7200e-003	0.0000	30.2842

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3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.3000e-004	4.7300e-003			1.0000e-005	1.8000e-003		1.0000e-005	4.8000e-004			1.4236	3.0000e-005	0.0000	1.4243
Total	6.5000e-004	4.3000e-004	4.7300e-003			1.0000e-005	1.8000e-003		1.0000e-005	4.8000e-004			1.4236	3.0000e-005	0.0000	1.4243

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.2100e-003	0.0182	0.2594			5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004			30.0413	9.7200e-003	0.0000	30.2842
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	4.2100e-003	0.0182	0.2594			5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004			30.0413	9.7200e-003	0.0000	30.2842

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3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.3000e-004	4.7300e-003			1.0000e-005	1.8000e-003		1.0000e-005	4.8000e-004			1.4236	3.0000e-005	0.0000	1.4243
Total	6.5000e-004	4.3000e-004	4.7300e-003			1.0000e-005	1.8000e-003		1.0000e-005	4.8000e-004			1.4236	3.0000e-005	0.0000	1.4243

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8868					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0211	0.0272			1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003			3.8299	2.5000e-004	0.0000	3.8361
Total	2.8899	0.0211	0.0272			1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003			3.8299	2.5000e-004	0.0000	3.8361

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3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.9600e-003	3.3000e-003	0.0363			8.0000e-005	0.0138		8.0000e-005	3.7200e-003			10.9140	2.3000e-004	0.0000	10.9197
Total	4.9600e-003	3.3000e-003	0.0363			8.0000e-005	0.0138		8.0000e-005	3.7200e-003			10.9140	2.3000e-004	0.0000	10.9197

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	2.8868					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	8.9000e-004	0.0204	0.0275			1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003			3.8299	2.5000e-004	0.0000	3.8361
Total	2.8877	0.0204	0.0275			1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003			3.8299	2.5000e-004	0.0000	3.8361

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3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.9600e-003	3.3000e-003	0.0363			8.0000e-005	0.0138		8.0000e-005	3.7200e-003			10.9140	2.3000e-004	0.0000	10.9197
Total	4.9600e-003	3.3000e-003	0.0363			8.0000e-005	0.0138		8.0000e-005	3.7200e-003			10.9140	2.3000e-004	0.0000	10.9197

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6796	2.8791	7.8926			0.0232	2.5379		0.0216	0.6948			2,497.2018	0.0844	0.0000	2,499.3119
Unmitigated	0.6796	2.8791	7.8926			0.0232	2.5379		0.0216	0.6948			2,497.2018	0.0844	0.0000	2,499.3119

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,952.60	2,837.16	2601.84	6,665,527	6,665,527
City Park	12.29	147.88	108.81	97,017	97,017
Enclosed Parking Structure	0.00	0.00	0.00		
Total	2,964.89	2,985.04	2,710.65	6,762,544	6,762,544

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
City Park	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

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			1,077.5615	0.0487	0.0101	1,081.7837
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000			1,077.5615	0.0487	0.0101	1,081.7837
NaturalGas Mitigated	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
NaturalGas Unmitigated	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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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 Mid Rise	3.83592e+006	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
City Park	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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 Mid Rise	3.83592e+006	0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155
City Park	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.0207	0.1768	0.0752			0.0143	0.0143		0.0143	0.0143			204.6991	3.9200e-003	3.7500e-003	205.9155

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.83299e+006	533.2371	0.0241	4.9900e-003	535.3264
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	1.8711e+006	544.3244	0.0246	5.0900e-003	546.4573
Total		1,077.5615	0.0487	0.0101	1,081.7837

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.83299e+006	533.2371	0.0241	4.9900e-003	535.3264
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	1.8711e+006	544.3244	0.0246	5.0900e-003	546.4573
Total		1,077.5615	0.0487	0.0101	1,081.7837

6.0 Area Detail

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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	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959
Unmitigated	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959

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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	0.2887					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5874					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	1.0245	0.0236	1.4107			0.2017	0.2017		0.2017	0.2017			28.5561	0.0325	1.3300e-003	29.7650
Landscaping	0.1004	0.0381	3.3080			0.0183	0.0183		0.0183	0.0183			5.4001	5.2300e-003	0.0000	5.5309
Total	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959

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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	0.2887					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5874					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Hearth	1.0245	0.0236	1.4107			0.2017	0.2017		0.2017	0.2017			28.5561	0.0325	1.3300e-003	29.7650
Landscaping	0.1004	0.0381	3.3080			0.0183	0.0183		0.0183	0.0183			5.4001	5.2300e-003	0.0000	5.5309
Total	3.0010	0.0617	4.7186			0.2199	0.2199		0.2199	0.2199			33.9562	0.0378	1.3300e-003	35.2959

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	81.1692	0.9459	0.0229	111.6498
Unmitigated	81.1692	0.9459	0.0229	111.6498

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.9284 / 18.2375	73.2837	0.9455	0.0229	103.7334
City Park	0 / 7.74463	7.8855	3.6000e-004	7.0000e-005	7.9164
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		81.1692	0.9459	0.0229	111.6498

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.9284 / 18.2375	73.2837	0.9455	0.0229	103.7334
City Park	0 / 7.74463	7.8855	3.6000e-004	7.0000e-005	7.9164
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		81.1692	0.9459	0.0229	111.6498

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.5726	2.4569	0.0000	102.9942
Unmitigated	41.5726	2.4569	0.0000	102.9942

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	204.24	41.4589	2.4502	0.0000	102.7126
City Park	0.56	0.1137	6.7200e-003	0.0000	0.2816
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		41.5725	2.4569	0.0000	102.9942

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	204.24	41.4589	2.4502	0.0000	102.7126
City Park	0.56	0.1137	6.7200e-003	0.0000	0.2816
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		41.5725	2.4569	0.0000	102.9942

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

User Defined Equipment

Equipment Type	Number
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Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Annual

11.0 Vegetation

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions

Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	6.50	Acre	6.50	283,140.00	0
Apartments Mid Rise	444.00	Dwelling Unit	9.19	400,316.00	1270
Enclosed Parking Structure	825.00	Space	7.42	330,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model runs for construction emissions only.

Land Use - Phase 4 and 5 would include construction of two mid-rise apartment buildings (443 units) on 9.19 acres, 825 parking spaces (half of 1,650), and the 6.5-acre community park

Construction Phase - Demolition would occur in Phase 1. Construction to occur between 2021-2022, 6 days a week.

Off-road Equipment - Assumes CalEEMod Defaults.

Construction Off-road Equipment Mitigation - Desel-powered off-road equipment to use a suite of Tier 3 and Final Tier 4 Engines as required by Mitigation Measure 4.2-1a.

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	35.00	45.00
tblConstructionPhase	NumDays	370.00	450.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	1/14/2021	1/18/2021
tblConstructionPhase	PhaseEndDate	3/4/2021	3/11/2021
tblConstructionPhase	PhaseEndDate	8/4/2022	8/18/2022
tblConstructionPhase	PhaseEndDate	9/1/2022	9/22/2022
tblConstructionPhase	PhaseEndDate	9/29/2022	10/27/2022
tblConstructionPhase	PhaseStartDate	1/15/2021	1/19/2021
tblConstructionPhase	PhaseStartDate	3/5/2021	3/12/2021
tblConstructionPhase	PhaseStartDate	8/5/2022	8/19/2022
tblConstructionPhase	PhaseStartDate	9/2/2022	9/23/2022
tblGrading	AcresOfGrading	112.50	87.50
tblLandUse	LandUseSquareFeet	444,000.00	400,316.00
tblLandUse	LotAcreage	11.68	9.19

2.0 Emissions Summary

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

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	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464
Energy	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Mobile	4.5346	16.1841	48.0960			0.1341	15.2270		0.1253	4.1539			16,922.5620	0.5464		16,936.2222
Total	198.6430	21.6130	326.5132			34.6643	49.7572		34.6555	38.6841			23,587.1638	5.7203	0.2854	23,815.2109

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	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464
Energy	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
Mobile	4.5346	16.1841	48.0960			0.1341	15.2270		0.1253	4.1539			16,922.5620	0.5464		16,936.2222
Total	198.6430	21.6130	326.5132			34.6643	49.7572		34.6555	38.6841			23,587.1638	5.7203	0.2854	23,815.2109

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	1/1/2021	1/18/2021	6	15	
2	Grading	Grading	1/19/2021	3/11/2021	6	45	
3	Building Construction	Building Construction	3/12/2021	8/18/2022	6	450	
4	Paving	Paving	8/19/2022	9/22/2022	6	30	
5	Architectural Coating	Architectural Coating	9/23/2022	10/27/2022	6	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 7.42

Residential Indoor: 810,640; Residential Outdoor: 270,213; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 19,800 (Architectural Coating – sqft)

OffRoad Equipment

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	577.00	148.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	115.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.0663		0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543			2.0445	2.0445		1.8809	1.8809			3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543			2.0445	20.1107		1.8809	11.8116			3,685.6569	1.1920		3,715.4573

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.2 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0580	0.0343	0.4536			9.0000e-004	0.1488		8.3000e-004	0.0401			140.0420	3.1800e-003		140.1215
Total	0.0580	0.0343	0.4536			9.0000e-004	0.1488		8.3000e-004	0.0401			140.0420	3.1800e-003		140.1215

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	18.0663		0.0000	9.9307			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690			0.0621	0.0621		0.0621	0.0621			3,685.6569	1.1920		3,715.4573
Total	0.4656	2.0175	20.8690			0.0621	18.1283		0.0621	9.9928			3,685.6569	1.1920		3,715.4573

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.2 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0580	0.0343	0.4536			9.0000e-004	0.1488		8.3000e-004	0.0401			140.0420	3.1800e-003		140.1215
Total	0.0580	0.0343	0.4536			9.0000e-004	0.1488		8.3000e-004	0.0401			140.0420	3.1800e-003		140.1215

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	8.0842		0.0000	3.5329			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785			1.9853	1.9853		1.8265	1.8265			6,007.0434	1.9428		6,055.6134
Total	4.1912	46.3998	30.8785			1.9853	10.0695		1.8265	5.3594			6,007.0434	1.9428		6,055.6134

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.3 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0644	0.0382	0.5040			1.0000e-003	0.1653		9.2000e-004	0.0445			155.6022	3.5400e-003		155.6906
Total	0.0644	0.0382	0.5040			1.0000e-003	0.1653		9.2000e-004	0.0445			155.6022	3.5400e-003		155.6906

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	8.0842		0.0000	3.5329			0.0000			0.0000
Off-Road	0.9698	10.4484	33.5400			0.4300	0.4300		0.4300	0.4300			6,007.0434	1.9428		6,055.6134
Total	0.9698	10.4484	33.5400			0.4300	8.5141		0.4300	3.9629			6,007.0434	1.9428		6,055.6134

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.3 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
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0644	0.0382	0.5040			1.0000e-003	0.1653		9.2000e-004	0.0445			155.6022	3.5400e-003		155.6906
Total	0.0644	0.0382	0.5040			1.0000e-003	0.1653		9.2000e-004	0.0445			155.6022	3.5400e-003		155.6906

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752			0.9586	0.9586		0.9013	0.9013			2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752			0.9586	0.9586		0.9013	0.9013			2,553.3639	0.6160		2,568.7643

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.4719	15.0455	3.7919			0.0333	1.0353		0.0318	0.3203			4,271.5651	0.1780		4,276.0155
Worker	1.8581	1.1009	14.5404			0.0288	4.7687		0.0265	1.2838			4,489.1228	0.1020		4,491.6726
Total	2.3299	16.1464	18.3323			0.0621	5.8040		0.0583	1.6041			8,760.6879	0.2800		8,767.6881

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	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.3639	0.6160		2,568.7643
Total	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,553.3639	0.6160		2,568.7643

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.4719	15.0455	3.7919			0.0333	1.0353		0.0318	0.3203			4,271.5651	0.1780		4,276.0155
Worker	1.8581	1.1009	14.5404			0.0288	4.7687		0.0265	1.2838			4,489.1228	0.1020		4,491.6726
Total	2.3299	16.1464	18.3323			0.0621	5.8040		0.0583	1.6041			8,760.6879	0.2800		8,767.6881

3.4 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			0.8090	0.8090		0.7612	0.7612			2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634			0.8090	0.8090		0.7612	0.7612			2,554.3336	0.6120		2,569.6322

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.4 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
Vendor	0.4402	14.2325	3.5712			0.0289	1.0310		0.0276	0.3161			4,230.9945	0.1700		4,235.2456
Worker	1.7314	0.9879	13.3987			0.0282	4.7681		0.0259	1.2832			4,325.8889	0.0916		4,328.1789
Total	2.1716	15.2204	16.9699			0.0571	5.7991		0.0536	1.5993			8,556.8834	0.2616		8,563.4245

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	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,554.3336	0.6120		2,569.6322
Total	0.5121	9.4189	17.8738			0.4985	0.4985		0.4985	0.4985			2,554.3336	0.6120		2,569.6322

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.4 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
Vendor	0.4402	14.2325	3.5712			0.0289	1.0310		0.0276	0.3161			4,230.9945	0.1700		4,235.2456
Worker	1.7314	0.9879	13.3987			0.0282	4.7681		0.0259	1.2832			4,325.8889	0.0916		4,328.1789
Total	2.1716	15.2204	16.9699			0.0571	5.7991		0.0536	1.5993			8,556.8834	0.2616		8,563.4245

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805			0.5679	0.5679		0.5225	0.5225			2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1028	11.1249	14.5805			0.5679	0.5679		0.5225	0.5225			2,207.6603	0.7140		2,225.5104

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0450	0.0257	0.3483			7.3000e-004	0.1240		6.7000e-004	0.0334			112.4581	2.3800e-003		112.5177
Total	0.0450	0.0257	0.3483			7.3000e-004	0.1240		6.7000e-004	0.0334			112.4581	2.3800e-003		112.5177

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	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.2805	1.2154	17.2957			0.0374	0.0374		0.0374	0.0374			2,207.6603	0.7140		2,225.5104

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0450	0.0257	0.3483			7.3000e-004	0.1240		6.7000e-004	0.0334			112.4581	2.3800e-003		112.5177
Total	0.0450	0.0257	0.3483			7.3000e-004	0.1240		6.7000e-004	0.0334			112.4581	2.3800e-003		112.5177

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	192.4544					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136			0.0817	0.0817		0.0817	0.0817			281.4481	0.0183		281.9062
Total	192.6589	1.4085	1.8136			0.0817	0.0817		0.0817	0.0817			281.4481	0.0183		281.9062

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.3451	0.1969	2.6705			5.6100e-003	0.9503		5.1700e-003	0.2558			862.1789	0.0183		862.6353
Total	0.3451	0.1969	2.6705			5.6100e-003	0.9503		5.1700e-003	0.2558			862.1789	0.0183		862.6353

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	192.4544					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0183		281.9062
Total	192.5138	1.3570	1.8324			0.0951	0.0951		0.0951	0.0951			281.4481	0.0183		281.9062

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.3451	0.1969	2.6705			5.6100e-003	0.9503		5.1700e-003	0.2558			862.1789	0.0183		862.6353
Total	0.3451	0.1969	2.6705			5.6100e-003	0.9503		5.1700e-003	0.2558			862.1789	0.0183		862.6353

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	4.5346	16.1841	48.0960			0.1341	15.2270		0.1253	4.1539			16,922.56 20	0.5464		16,936.22 22
Unmitigated	4.5346	16.1841	48.0960			0.1341	15.2270		0.1253	4.1539			16,922.56 20	0.5464		16,936.22 22

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,952.60	2,837.16	2601.84	6,665,527	6,665,527
City Park	12.29	147.88	108.81	97,017	97,017
Enclosed Parking Structure	0.00	0.00	0.00		
Total	2,964.89	2,985.04	2,710.65	6,762,544	6,762,544

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
City Park	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Enclosed Parking Structure	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

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	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
NaturalGas Unmitigated	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

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 Mid Rise	10509.4	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
City Park	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

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 Mid Rise	10.5094	0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424
City Park	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		0.1133	0.9685	0.4121			0.0783	0.0783		0.0783	0.0783			1,236.3951	0.0237	0.0227	1,243.7424

6.0 Area Detail

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

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	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464
Unmitigated	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

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	1.5818					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.6982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	182.5995	4.0368	241.2500			34.2490	34.2490		34.2490	34.2490			5,362.0675	5.0860	0.2627	5,567.5043
Landscaping	1.1155	0.4237	36.7550			0.2029	0.2029		0.2029	0.2029			66.1392	0.0641		67.7420
Total	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

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	1.5818					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.6982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	182.5995	4.0368	241.2500			34.2490	34.2490		34.2490	34.2490			5,362.0675	5.0860	0.2627	5,567.5043
Landscaping	1.1155	0.4237	36.7550			0.2029	0.2029		0.2029	0.2029			66.1392	0.0641		67.7420
Total	193.9950	4.4605	278.0050			34.4519	34.4519		34.4519	34.4519			5,428.2067	5.1502	0.2627	5,635.2464

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Sunnyvale AMD 1 Phase 4 and 5 Construction Emissions - Santa Clara County, Summer

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation
