# GREENHOUSE GAS REDUCTION PLAN

FOR THE

# WEST OAKLAND BART TOD PROJECT

**Prepared For:**
Project Applicant

**Reviewed and Accepted by:**
City of Oakland

JANUARY 2019

**Prepared By:**
Lamphier–Gregory
1944 Embarcadero
Oakland, CA 94606

# Table of Contents



## TABLES



## ATTACHMENTS

# INTRODUCTION

This Greenhouse Gas (GHG) Reduction Plan has been prepared to comply with the City of Oakland Standard Condition of Approval (City SCA-42) "Greenhouse Gas Reduction Plan", herein referred to as SCA-GHG-1, as identified in the *WOB TOD Project CEQA Analysis*. The information and technical analysis presented herein has been prepared by Rebecca Auld, Senior Planner and Air/GHG Specialist at Lamphier-Gregory, Inc.

## SUMMARY OF THE PROJECT

The project represents establishment of the transit-oriented development (TOD) as contemplated in the West Oakland Specific Plan (WOSP) on the site surrounding the West Oakland BART station. The project would demolish the existing 451-space West Oakland BART station surface parking lot and associated circulation and construct three new mid-rise and high-rise buildings and a row of townhomes housing a total of 762 residential units, 382,460 square feet of office space, and 59,800 square feet of ground-floor retail uses. The project also includes a 400-space underground parking lot and a BART surface plaza and circulation elements.

### TRANSIT PRIORITY PROJECT

The project site is located within a "Regional Center" Priority Development Area pursuant to the Plan Bay Area which represents the Sustainable Communities Strategy (SCS) for the greater San Francisco Bay Area (MTC, 2013). Per CEQA Guidelines Section 15183.5 (c), environmental documents for certain residential and mixed-use projects and transit priority projects, as defined in Section 21155 of the Public Resources Code, that are consistent with the general use designation, density, building intensity and applicable policies specified for the project area in an applicable SCS or alternative planning strategy, need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHGs from other sources, however, consistent with the CEQA Guidelines. Consequently, if a project meets the requirements of a transit priority project, its mobile sources need not be included in the assessment of GHG impacts.

## INTRODUCTION TO GHG CONCEPTS AND TERMS

GHGs are heat-trapping gasses in the Earth's atmosphere. Without GHGs, Earth's temperature would be too cold for life to exist. There is indisputable evidence that human activities such as electricity production and transportation are adding to the concentrations of greenhouse gases that are already naturally present in the atmosphere. The buildup of greenhouse gases in the atmosphere is very likely the cause of most of the recent observed increase in average temperatures, and contributes to other climate changes.

The Global Warming Potential (GWP) concept is used to compare the ability of each GHG to trap heat in the atmosphere relative to carbon dioxide ($CO_2$), which is the most abundant GHG. $CO_2$ has a GWP of 1, expressed as $CO_2$ equivalent ($CO_2e$). Other GHGs, such as $CH_4$ and $N_2O$ are commonly found in the atmosphere at much lower concentrations, but with higher warming potentials, having $CO_2e$ ratings of 21 and 310, respectively. Trace gases such as chlorofluorocarbons and hydrochlorofluorocarbons have much greater warming potential. GHG emissions estimates incorporate various heat-trapping gasses and are presented for consistency as $CO_2e$. $CO_2e$ is used as the standard for measurement of GHG emissions throughout this document.

# CITY OF OAKLAND GHG REDUCTION PLAN STANDARD CONDITION

SCA-GHG-1 applies to any project that meets one or more of the following three scenarios and has a net increase in GHG emissions:

**Scenario A: Projects which:**

(a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District [BAAQMD] to operate),

(b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND

(c) after a GHG analysis is prepared, would exceed both of the City's applicable thresholds of significance (1,100 metric tons of carbon dioxide equivalents [$CO_2e$] annually and 4.6 metric tons of $CO_2e$ per service population annually).

**Scenario B: Projects which:**

(a) involve a land use development,

(b) Exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines,

(c) after a GHG analysis is prepared, would exceed at least one of the City's applicable thresholds of significance (1,100 metric tons of $CO_2e$ annually or 4.6 metric tons of $CO_2e$ per service population annually), AND

(d) are considered to be "Very Large Projects."

A "Very Large Project" is defined as any of the following:

A. Residential development of more than 500 dwelling units;

B. Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

C. Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

D. Hotel/motel development of more than 500 rooms;

E. Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or

F. Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

**Scenario C: Projects which:**

(a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND

(b) after a GHG analysis is prepared, would exceed the City's applicable threshold of significance (10,000 metric tons of $CO_2e$ annually).

The WOB TOD Project is required to prepare a GHG Reduction Plan as it satisfies all the criteria under Scenario B. The project includes a mix of land uses that exceed the GHG screening criteria in Table 3-1 of the BAAQMD's 2017 CEQA Air Quality Guidelines. Project GHG emissions also

exceed the 1,100 metric tons of $CO_2e$ per year threshold AND meet the City's definition of a "Very Large Project."

The full text of SCA-GHG-1 is as follows:

**SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#42)**

*a. Greenhouse Gas (GHG) Reduction Plan Required*

The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan.

The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of $CO_2e$ per year or 4.6 metric tons of $CO_2e$ per year per service population) AND to reduce GHG emissions by 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions(as explained below) to help implement the City's Energy and Climate Action Plan (adopted in 2012) which calls for reducing GHG emissions by 36 percent below 2005 levels. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), and additional GHG reduction measures available to further reduce GHG emissions, and (c) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below.

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of

carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.

*b. GHG Reduction Plan Implementation During Construction*

The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).

*c. GHG Reduction Plan Implementation After Construction*

The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis.

The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Reduction Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent

below the project's 2005 "business-as-usual" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.

# GHG EMISSIONS INVENTORIES AND REDUCTION MEASURES

## METHODOLOGY AND ASSUMPTIONS

As part of this GHG Reduction Plan, Lamphier-Gregory prepared a detailed GHG emissions inventory for the project under a 2005 "business-as-usual" (BAU) scenario (hereafter called the "2005 BAU Project") without considering any of the regulatory standards adopted thereafter designed to reduce GHG emissions or other energy efficiencies. The 2005 BAU Project inventory is compared to a Project Buildout (2020) scenario (hereafter called the "2020 Project Buildout"), taking into consideration energy efficiencies included as part of the project (including the City's SCAs, project design features, other City requirements, and federal, state and other local regulatory standards enacted since 2005). Year 2005 is the baseline year because the City's GHG emissions reduction goal specified in its ECAP is based on what GHG emissions were in 2005. Year 2020 is the buildout year as it is the earliest possible project completion year. Consistent with the methodology used in the Oakland ECAP, Lamphier-Gregory analyzed the 2005 BAU Project as if it was operating in 2005 and consistent with the California Emissions Estimator Model (CalEEMod), version 2016.3.2.2. As discussed under the project summary above, the project qualifies as a Transit Priority Project (TPP); therefore, emissions for mobile sources are not considered in the inventories for both scenarios.

GHG emissions for both scenarios were estimated using CalEEMod version 2016.3.2. Assumptions for the emissions inventories were based on a combination of project-specific information and default assumptions of the model such as emission factors. CalEEMod results are included in full in Appendix A.

## GHG EMISSION SOURCES

### GHG EMISSION SOURCES INCLUDED IN THE INVENTORY

Emissions included in the updated BAAQMD Guidelines and therefore included in the baseline GHG emissions inventory for the project, as applicable, are:

- Construction Emissions. These are direct stationary and mobile source emissions resulting from construction activities at the site. To convert to a "per-year" emissions number that can be combined with operational emissions, the City's methodology adds the 40-year (assumed building lifetime) amortized construction-related GHG emissions to the project's total operational- related emissions. The same activity level and emission factors were used to estimate emissions in both the 2005 BAU Project and 2020 Project Buildout scenarios. This is a conservative approach as emission factors in 2005 would have been higher as they do not include characteristics that contribute to it being consistent with AB 32 GHG reduction goals during construction.

- Operational Area Sources. Area sources include architectural coatings, consumer products use, hearths, and landscaping equipment. Architectural coatings and consumer products are not substantial sources of GHG. Hearth emissions for the 2020 Project Buildout scenario were calculated using CalEEMod. BAAQMD Rule 6-3-306 does not allow wood stoves or wood-

burning fireplaces in new building construction after November 1, 2016, so the percentage of dwelling units with wood stoves was assumed to be zero. The CalEEMod default number of dwelling units with fireplaces was maintained but all units were assumed to have natural gas fireplaces. Hearth emissions for the 2005 BAU Project were calculated with CalEEMod, assuming the default mix of wood and natural gas hearths as the BAAQMD Rule 6-3-306 was still not in effect in 2005.

- Operational Energy Use. These are direct emissions from natural gas and furnaces used on site, and indirect emissions emitted off-site for energy generation and distribution. For estimating GHG emissions from electricity use for the 2020 Project Buildout scenario, the Pacific Gas and Electric Company (PG&E) $CO_2$ intensity factor for 2020 was used in place of the default carbon intensity in CalEEMod.[1] This intensity factor takes into account the State's Renewable Portfolio Standard (RPS) that requires 33 percent of electricity to be from renewable sources in 2020. The 2005 BAU Project uses the default CalEEMod $CO_2$ intensity factor. The default carbon intensity is from PG&E's 2008 carbon intensity for electricity. This intensity takes into consideration some benefit of the 2010 RPS goals due to the ramp up of renewables, so is a conservative assumption for year 2005.

- Operational Water and Wastewater Emissions. These indirect emissions are associated with the electricity used to convey water and convey and treat wastewater, due to increased water demand from the project. The water use estimate for the 2020 Project Buildout scenario is the CalEEMod default for the project land uses for Alameda County, minus a 20 percent reduction in indoor water consumption to comply with mandatory CalGreen requirements. Therefore, the indoor water demand is 20 percent higher for 2005 BAU Project than the 2020 Project Buildout scenario, while the outdoor water demand is the same for 2005 as for the 2020 Project Buildout scenario. Based on the design of the East Bay Municipal Utility District's wastewater treatment plant, emissions estimated from wastewater treatment assumed a process with 100 percent aerobic biodegradation and 100 percent anaerobic digestion.

- Operational Solid Waste Disposal Emissions. These are indirect emissions associated with waste transport and disposal. Landfills emit anthropogenic methane from the anaerobic breakdown of material. The Oakland ECAP accounts for the City of Oakland Zero Waste goal, which reduces GHG emissions from waste by 89 percent between 2005 and 2020. This reduction has been incorporated into the 2020 Project Buildout scenario as a calculation outside CalEEMod. Therefore, GHG emissions associated with waste disposal for the 2020 Project Buildout scenario are 11 percent of those estimated for the 2005 BAU Project using CalEEMod.

As discussed earlier, GHG emissions from mobile sources are not included in the comparison of the emission inventories for the two scenarios. However, mobile emissions are presented under both scenarios for informational purposes.

## CURRENT STATE AND LOCAL REQUIREMENTS THAT REDUCE GHG EMISSIONS

The following state programs and existing City requirements will reduce GHG emissions from the 2005 BAU Project and are incorporated in the GHG inventory for the 2020 Project Buildout scenario:

[1] Pacific Gas and Electric Company (PG&E). Greenhouse Gas Emission Factors: Guidance for PG&E Customers. November 2015. Available online at: http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

- The City of Oakland's Zero Waste goal will reduce GHG emissions from waste by 89 percent
- The State of California Renewable Portfolio Standard will reduce GHG from PG&E electricity generation
- BAAQMD Rule 6-3 prohibits wood-fired hearths in new homes, thereby reducing GHG emissions per hearth
- Increased residential and nonresidential building energy efficiency due to 2016 Title 24 standards

As discussed earlier, mobile source emissions are not included in either the 2005 BAU Project or the 2020 Project Buildout scenario as the 2020 Project qualifies as a TPP. Nevertheless, the following requirements reduce emissions from mobile sources from the 2005 BAU Project:

- The project Transportation Demand Management (TDM) program will reduce trips by 20 percent, which reduces on-road mobile source emissions (see SCA-TRANS-4 below)
- The Pavley Act and Advanced Clean Cars (ACC) programs reduce on-road vehicle fleet emissions
- Increased penetration of electric vehicles will reduce GHG emissions from on-road mobile sources, even without assuming mandated changes to charging infrastructure

City of Oakland SCAs are incorporated and required as part of a proposed project and are adopted as conditions of approval. In addition to SCA-GHG-1, which is the subject of this GHG Reduction Plan, the following SCAs (which are also identified in Attachment A, SCAMMRP of the CEQA Analysis) are required as part of the project resulting in a further reduction in project GHG emissions from the 2005 BAU Project:

- SCA-AES-3: Landscape Plan (#18). Addresses landscape requirements including tree plantings. This SCA reduces water use by requiring drought-tolerance and required landscaping/trees effect cooler climate, reduce excessive solar gain, and absorb $CO_2e$ emissions.
- SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#22). Includes many measures that will reduce or limit the amount of GHG emissions during construction, including limitations on vehicle idling, preference over electricity over petroleum-based combustion equipment, and accelerated use of off-road equipment with emissions control.
- SCA-BIO-2: Tree Planting (#31). Requires tree protection or tree replacement. Trees effect cooler climate, reduce excessive solar gain, and absorb $CO_2e$ emissions.
- SCA-TRANS-2: Bicycle Parking (#78). Requires provision of bicycle parking, which encourage mode shift from vehicles and their emissions to bicycles.
- SCA-TRANS-4: Transportation and Parking Demand Management (#80). Requires the project-specific TDM Plan containing strategies to reduce on-site parking demand and single occupancy vehicle (SOV) travel. GHG emissions reductions attributable to a TDM Plan assume 20 percent reduction in vehicle trip generation.

- SCA-TRANS-5: Plug-In Electric Vehicle (PEV) Charging Infrastructure (#84). Requires inclusion of PEV charging stations in parking areas. Electric vehicles result in fewer GHG emissions.

- SCA-UTIL-1: Construction and Demolition Waste Reduction and Recycling (#85). Requires a project-level Construction & Demolition Waste Reduction and Recycling Plan (WRRP) to reduce construction–related emissions from haul trips by reducing off-site disposal truck trips and/or trip lengths.

- SCA-UTIL-4: Green Building Requirements. Requires compliance with the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance, which would reduce energy and water use and related emissions.

- SCA-UTIL-7: Water Efficient Landscape Ordinance (WELO) (#93). Requires water-efficient landscaping, which reducing the emissions related to water use.

Implementation of City of Oakland Plans and Policies also reduce GHG emissions, and they are implemented through many of the mandated measures and SCAs listed above:

- 2012 Oakland ECAP. Oakland developed its ECAP using a GHG reduction target equivalent to 36 percent below 2005 BAU GHG emissions by 2020 (City of Oakland, Resolution No. 82129 C.M.S., 2009). Certain development projects must meet this target (see SCA-GHG-1, above).

- City of Oakland Sustainability Programs. The City has proactively adopted a number of sustainability programs in an effort to reduce the City's impact on climate change. Two main categories that address reducing GHG emissions from a development projects are renewable energy (for City facilities) and green building (see CalGreen/Green Building Requirements, above).

## COMPARISON OF 2005 BAU PROJECT AND 2020 PROJECT BUILDOUT SCENARIO EMISSIONS

**Table 1** shows the 2005 BAU Project and 2020 Project Buildout scenario GHG inventories, as well as the percent reduction in emissions from the 2005 BAU Project inventory by source category.

Emissions from area sources (hearths and landscaping) under the 2020 Project Buildout scenario decrease by 34 percent from the 2005 BAU Project scenario due to the replacement of wood-fired hearths with natural gas fireplaces, as required by BAAQMD Rule 6-3.

Emissions related to energy use (both electricity and natural gas) decrease by 43 percent, due to the combined impacts of increased building energy efficiency and reductions in the carbon intensity of electricity provided by PG&E. These reductions are from the Title 24 building energy efficiency standards and the state Renewables Portfolio Standard.

Emissions related to water use, which are from wastewater treatment and the purchased electricity used to supply, distribute, and treat the water, are reduced by 46 percent, due to the state Renewables Portfolio Standard lowering the carbon intensity of purchased electricity between the 2005 BAU Project and 2020 Project Buildout scenarios.

**Table 1: Comparison of Annual GHG Emissions – 2005 BAU Project Compared to 2020 Project Buildout**

| Emission Source Category | Total Annual $CO_2e$ Emissions (Metric Tons Per Year) [a] 2005 BAU Project | 2020 Project Buildout [b] | Reductions from 2005 BAU Scenario |
|---|---|---|---|
| Construction [c] | 21 | 21 | 0% |
| Operational Area | 61 | 40 | 34% |
| Operational Energy | 3,573 | 2,050 | 43% |
| Operational Mobile | 6,224 | 5,564 | 11% |
| Operational Waste | 387 | 43 | 89% |
| Operational Water | 438 | 238 | 46% |
| **Total Emissions** | **4,480** | **2,392** | **47%** |
| Total Emissions Threshold | 1,100 | 1,100 | -- |
| Threshold Exceeded? | Yes | Yes | -- |
| **Emissions Efficiency (per SP)** [d] | **1.1** | **0.6** | **--** |
| Emissions Efficiency Threshold (per SP) | 4.6 | 4.6 | -- |
| Threshold Exceeded? | No | No | -- |
| Reduction Requirement | -- | -- | 36% |
| Reduction Achieved? | -- | -- | Yes |

[a] Emissions estimates were made using CalEEMod, version 2016.3.2.
[b] Assumes 2021 energy and utility assumptions factoring in 2016 Title 24 standards and CalGreen compliance, actual PG&E emission factors, and compliance with City's waste reduction goals.
[c] In accordance with CEQA guidance from the City of Oakland, GHG emissions during construction are amortized over 40 years.
[d] The service population of 4,195 residents and employees was used, see subsection K, Population and Housing for details.
Source: Lamphier-Gregory, 2019

Compared to the 2005 BAU Project, the 2020 Project Buildout scenario emissions from solid waste are reduce by 89 percent taking into account implementation of Oakland's Zero Waste goal by 2020.

Though not included in the comparison, mobile source emissions (from project-related vehicle trips) decrease by 11 percent between the 2005 BAU Project scenario and the 2020 Project Buildout scenario. This is primarily due to the reduction in fleet average emission factors in CalEEMod as the vehicle fleet gets more efficient by 2020 with the adoption of Pavley and ACC standards as well as an increased penetration of electric vehicles into the fleet.

Overall, at 2020 Project Buildout, the total annual GHG emissions generated by the project (2,392 metric tons $CO_2e$ per year) is approximately 2,088 metric tons $CO_2e$ per year less than the project's estimated 2005 BAU scenario emissions (4,480 metric tons $CO_2e$ per year). This is a reduction of

approximately 47 percent – greater than the 36 percent reduction from 2005 BAU required pursuant to the ECAP and SCA-GHG-1.

## CONCLUSION

As presented in this GHG Reduction Plan and analyzed in the CEQA Analysis document for the project, GHG emissions from the proposed project result in a less than significant CEQA impact. Pursuant to SCA-GHG-1, Lamphier-Gregory prepared this GHG Reduction Plan to demonstrate achievement of a minimum 36 percent reduction of GHG emissions compared to the 2005 BAU scenario, and compliance with the City ECAP.

Table 1 of this GHG Reduction Plan shows that emissions estimated under the 2020 Project Buildout scenario are reduced 47 percent from those estimated for the 2005 BAU Project scenario. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions, in particular the City's ECAP (per SCA-GHG-1). Pursuant to SCA-GHG-1, the project is not required to identify and quantify additional specific GHG reduction measures to reduce project emissions for CEQA purposes; the project's emissions are already below one of the CEQA thresholds and exceed the 36 percent reduction from the project's 2005 BAU scenario. The project has fully implemented SCA-GHG-1, the GHG Reduction Plan, for CEQA purposes, as specified in SCA-GHG-1.

# ATTACHMENT 1: CALEEMOD RESULTS

WOB TOD 2005 - Alameda County, Annual

# WOB TOD 2005

**Alameda County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Office Building | 382.46 | 1000sqft | 1.27 | 382,460.00 | 0 |
| Enclosed Parking with Elevator | 400.00 | Space | 1.00 | 160,000.00 | 0 |
| Apartments High Rise | 500.00 | Dwelling Unit | 1.26 | 500,000.00 | 1430 |
| Apartments Low Rise | 22.00 | Dwelling Unit | 0.28 | 22,000.00 | 63 |
| Apartments Mid Rise | 240.00 | Dwelling Unit | 1.27 | 240,000.00 | 686 |
| Strip Mall | 59.80 | 1000sqft | 0.50 | 59,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 63 |
| **Climate Zone** | 5 | | | **Operational Year** | 2005 |
| **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 -

Land Use - Lot acreage totals site acreage.

Water And Wastewater - 100% aerobic treatment of wastewater assumed.

Vehicle Trips - Trip rate per Ferh & Peers non-CEQA analysis including 47% trip reduction for projects near a BART station.

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 8.78 | 1.27 |
| tblLandUse | LotAcreage | 3.60 | 1.00 |
| tblLandUse | LotAcreage | 8.06 | 1.26 |
| tblLandUse | LotAcreage | 1.38 | 0.28 |
| tblLandUse | LotAcreage | 6.32 | 1.27 |
| tblLandUse | LotAcreage | 1.37 | 0.50 |
| tblVehicleTrips | ST_TR | 4.98 | 2.80 |
| tblVehicleTrips | ST_TR | 7.16 | 3.14 |
| tblVehicleTrips | ST_TR | 6.39 | 3.01 |
| tblVehicleTrips | ST_TR | 2.46 | 1.20 |
| tblVehicleTrips | ST_TR | 42.04 | 35.65 |
| tblVehicleTrips | SU_TR | 3.65 | 2.05 |
| tblVehicleTrips | SU_TR | 6.07 | 2.66 |
| tblVehicleTrips | SU_TR | 5.86 | 2.76 |
| tblVehicleTrips | SU_TR | 1.05 | 2.49 |
| tblVehicleTrips | SU_TR | 20.43 | 17.32 |
| tblVehicleTrips | WD_TR | 4.20 | 2.36 |
| tblVehicleTrips | WD_TR | 6.59 | 2.89 |
| tblVehicleTrips | WD_TR | 6.65 | 3.13 |
| tblVehicleTrips | WD_TR | 11.03 | 5.40 |
| tblVehicleTrips | WD_TR | 44.32 | 37.58 |

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Year | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| 2018 | 0.0000 | 3.6245 | 3.6245 | 9.7000e-004 | 0.0000 | 3.6488 |
| 2019 | 0.0000 | 1,423.3708 | 1,423.3708 | 0.1317 | 0.0000 | 1,426.6638 |
| 2020 | 0.0000 | 139.6310 | 139.6310 | 0.0153 | 0.0000 | 140.0129 |
| **Maximum** | **0.0000** | **1,423.3708** | **1,423.3708** | **0.1317** | **0.0000** | **1,426.6638** |

**Mitigated Construction**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Year | MT/yr | | | | | |
| 2018 | 0.0000 | 3.6245 | 3.6245 | 9.7000e-004 | 0.0000 | 3.6488 |
| 2019 | 0.0000 | 1,423.3704 | 1,423.3704 | 0.1317 | 0.0000 | 1,426.6634 |
| 2020 | 0.0000 | 139.6310 | 139.6310 | 0.0153 | 0.0000 | 140.0128 |
| **Maximum** | **0.0000** | **1,423.3704** | **1,423.3704** | **0.1317** | **0.0000** | **1,426.6634** |

| | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

**Unmitigated Operational**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Area | 34.7394 | 23.5263 | 58.2657 | 0.0707 | 2.2800e-003 | 60.7121 |
| Energy | 0.0000 | 3,557.3378 | 3,557.3378 | 0.1406 | 0.0403 | 3,572.8511 |
| Mobile | 0.0000 | 6,201.1414 | 6,201.1414 | 0.9108 | 0.0000 | 6,223.9109 |
| Waste | 156.1001 | 0.0000 | 156.1001 | 9.2253 | 0.0000 | 386.7313 |
| Water | 38.7218 | 269.1799 | 307.9016 | 3.9893 | 0.0964 | 436.3683 |
| **Total** | **229.5612** | **10,051.1854** | **10,280.7466** | **14.3366** | **0.1390** | **10,680.5737** |

**Mitigated Operational**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Area | 34.7394 | 23.5263 | 58.2657 | 0.0707 | 2.2800e-003 | 60.7121 |
| Energy | 0.0000 | 3,557.3378 | 3,557.3378 | 0.1406 | 0.0403 | 3,572.8511 |
| Mobile | 0.0000 | 6,201.1414 | 6,201.1414 | 0.9108 | 0.0000 | 6,223.9109 |
| Waste | 156.1001 | 0.0000 | 156.1001 | 9.2253 | 0.0000 | 386.7313 |
| Water | 38.7218 | 269.1799 | 307.9016 | 3.9893 | 0.0964 | 436.3683 |
| **Total** | **229.5612** | **10,051.1854** | **10,280.7466** | **14.3366** | **0.1390** | **10,680.5737** |

| | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|
| **Percent Reduction** | **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 | 12/28/2018 | 1/24/2019 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 1/25/2019 | 2/7/2019 | 5 | 10 | |
| 3 | Grading | Grading | 2/8/2019 | 3/7/2019 | 5 | 20 | |
| 4 | Building Construction | Building Construction | 3/8/2019 | 1/23/2020 | 5 | 230 | |
| 5 | Paving | Paving | 1/24/2020 | 2/20/2020 | 5 | 20 | |
| 6 | Architectural Coating | Architectural Coating | 2/21/2020 | 3/19/2020 | 5 | 20 | |

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

**Acres of Grading (Grading Phase): 10**

**Acres of Paving: 1**

**Residential Indoor: 1,543,050; Residential Outdoor: 514,350; Non-Residential Indoor: 663,390; Non-Residential Outdoor: 221,130;**

## OffRoad Equipment

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

| | | | | | |
|---|---|---|---|---|---|
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |
| Paving | Pavers | 2 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 757.00 | 180.00 | 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 | 151.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2018

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 3.5124 | 3.5124 | 9.7000e-004 | 0.0000 | 3.5366 |
| **Total** | **0.0000** | **3.5124** | **3.5124** | **9.7000e-004** | **0.0000** | **3.5366** |

## Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.1121 | 0.1121 | 0.0000 | 0.0000 | 0.1122 |
| **Total** | **0.0000** | **0.1121** | **0.1121** | **0.0000** | **0.0000** | **0.1122** |

## Mitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 3.5124 | 3.5124 | 9.7000e-004 | 0.0000 | 3.5366 |
| **Total** | **0.0000** | **3.5124** | **3.5124** | **9.7000e-004** | **0.0000** | **3.5366** |

## Mitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Hauling | 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 |
| Worker | 0.0000 | 0.1121 | 0.1121 | 0.0000 | 0.0000 | 0.1122 |
| **Total** | **0.0000** | **0.1121** | **0.1121** | **0.0000** | **0.0000** | **0.1122** |

## 3.2 Demolition - 2019

### Unmitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 31.1637 | 31.1637 | 8.6700e-003 | 0.0000 | 31.3804 |
| **Total** | **0.0000** | **31.1637** | **31.1637** | **8.6700e-003** | **0.0000** | **31.3804** |

### Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.9791 | 0.9791 | 3.0000e-005 | 0.0000 | 0.9798 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **0.9791** | **0.9791** | **3.0000e-005** | **0.0000** | **0.9798** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 31.1637 | 31.1637 | 8.6700e-003 | 0.0000 | 31.3804 |
| **Total** | **0.0000** | **31.1637** | **31.1637** | **8.6700e-003** | **0.0000** | **31.3804** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.9791 | 0.9791 | 3.0000e-005 | 0.0000 | 0.9798 |
| **Total** | **0.0000** | **0.9791** | **0.9791** | **3.0000e-005** | **0.0000** | **0.9798** |

## 3.3 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.6528 | 0.6528 | 2.0000e-005 | 0.0000 | 0.6532 |
| **Total** | **0.0000** | **0.6528** | **0.6528** | **2.0000e-005** | **0.0000** | **0.6532** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.6528 | 0.6528 | 2.0000e-005 | 0.0000 | 0.6532 |
| **Total** | **0.0000** | **0.6528** | **0.6528** | **2.0000e-005** | **0.0000** | **0.6532** |

## 3.4 Grading - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 26.6423 | 26.6423 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0000** | **26.6423** | **26.6423** | **8.4300e-003** | **0.0000** | **26.8530** |

## Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

## Mitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 26.6422 | 26.6422 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0000** | **26.6422** | **26.6422** | **8.4300e-003** | **0.0000** | **26.8530** |

## Mitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

## 3.5 Building Construction - 2019

### Unmitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 250.3860 | 250.3860 | 0.0610 | 0.0000 | 251.9109 |
| **Total** | **0.0000** | **250.3860** | **250.3860** | **0.0610** | **0.0000** | **251.9109** |

### Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 510.6408 | 510.6408 | 0.0315 | 0.0000 | 511.4274 |
| Worker | 0.0000 | 584.7340 | 584.7340 | 0.0167 | 0.0000 | 585.1508 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **1,095.3747** | **1,095.3747** | **0.0481** | **0.0000** | **1,096.5782** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 250.3857 | 250.3857 | 0.0610 | 0.0000 | 251.9106 |
| **Total** | **0.0000** | **250.3857** | **250.3857** | **0.0610** | **0.0000** | **251.9106** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 510.6408 | 510.6408 | 0.0315 | 0.0000 | 511.4274 |
| Worker | 0.0000 | 584.7340 | 584.7340 | 0.0167 | 0.0000 | 585.1508 |
| **Total** | **0.0000** | **1,095.3747** | **1,095.3747** | **0.0481** | **0.0000** | **1,096.5782** |

## 3.5 Building Construction - 2020

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 19.6869 | 19.6869 | 4.8000e-003 | 0.0000 | 19.8069 |
| **Total** | **0.0000** | **19.6869** | **19.6869** | **4.8000e-003** | **0.0000** | **19.8069** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 40.4701 | 40.4701 | 2.3300e-003 | 0.0000 | 40.5283 |
| Worker | 0.0000 | 45.2252 | 45.2252 | 1.1700e-003 | 0.0000 | 45.2544 |
| **Total** | **0.0000** | **85.6953** | **85.6953** | **3.5000e-003** | **0.0000** | **85.7827** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Off-Road | 0.0000 | 19.6868 | 19.6868 | 4.8000e-003 | 0.0000 | 19.8069 |
| **Total** | **0.0000** | **19.6868** | **19.6868** | **4.8000e-003** | **0.0000** | **19.8069** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 40.4701 | 40.4701 | 2.3300e-003 | 0.0000 | 40.5283 |
| Worker | 0.0000 | 45.2252 | 45.2252 | 1.1700e-003 | 0.0000 | 45.2544 |
| **Total** | **0.0000** | **85.6953** | **85.6953** | **3.5000e-003** | **0.0000** | **85.7827** |

## 3.6 Paving - 2020

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 20.0282 | 20.0282 | 6.4800e-003 | 0.0000 | 20.1902 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **20.0282** | **20.0282** | **6.4800e-003** | **0.0000** | **20.1902** |

## Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0543 | 1.0543 | 3.0000e-005 | 0.0000 | 1.0550 |
| **Total** | **0.0000** | **1.0543** | **1.0543** | **3.0000e-005** | **0.0000** | **1.0550** |

## Mitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 20.0282 | 20.0282 | 6.4800e-003 | 0.0000 | 20.1901 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **20.0282** | **20.0282** | **6.4800e-003** | **0.0000** | **20.1901** |

## Mitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Hauling | 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 |
| Worker | 0.0000 | 1.0543 | 1.0543 | 3.0000e-005 | 0.0000 | 1.0550 |
| **Total** | **0.0000** | **1.0543** | **1.0543** | **3.0000e-005** | **0.0000** | **1.0550** |

## 3.7 Architectural Coating - 2020

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 2.5533 | 2.5533 | 2.0000e-004 | 0.0000 | 2.5582 |
| **Total** | **0.0000** | **2.5533** | **2.5533** | **2.0000e-004** | **0.0000** | **2.5582** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 10.6131 | 10.6131 | 2.7000e-004 | 0.0000 | 10.6200 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **10.6131** | **10.6131** | **2.7000e-004** | **0.0000** | **10.6200** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 2.5533 | 2.5533 | 2.0000e-004 | 0.0000 | 2.5582 |
| **Total** | **0.0000** | **2.5533** | **2.5533** | **2.0000e-004** | **0.0000** | **2.5582** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 10.6131 | 10.6131 | 2.7000e-004 | 0.0000 | 10.6200 |
| **Total** | **0.0000** | **10.6131** | **10.6131** | **2.7000e-004** | **0.0000** | **10.6200** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Mitigated | 0.0000 | 6,201.1414 | 6,201.1414 | 0.9108 | 0.0000 | 6,223.9109 |
| Unmitigated | 0.0000 | 6,201.1414 | 6,201.1414 | 0.9108 | 0.0000 | 6,223.9109 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments High Rise | 1,180.00 | 1,400.00 | 1025.00 | 2,746,783 | 2,746,783 |
| Apartments Low Rise | 63.58 | 69.08 | 58.52 | 146,990 | 146,990 |
| Apartments Mid Rise | 751.20 | 722.40 | 662.40 | 1,696,176 | 1,696,176 |
| Enclosed Parking with Elevator | 0.00 | 0.00 | 0.00 | | |
| General Office Building | 2,065.28 | 458.95 | 952.33 | 4,007,171 | 4,007,171 |
| Strip Mall | 2,247.28 | 2,131.87 | 1035.74 | 3,168,954 | 3,168,954 |
| Total | 6,307.35 | 4,782.30 | 3,733.98 | 11,766,073 | 11,766,073 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Apartments High Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Apartments Low Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Apartments Mid Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Enclosed Parking with Elevator | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| General Office Building | 9.50 | 7.30 | 7.30 | 33.00 | 48.00 | 19.00 | 77 | 19 | 4 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments High Rise | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |
| Apartments Low Rise | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |
| Apartments Mid Rise | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |
| Enclosed Parking with Elevator | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |
| General Office Building | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |
| Strip Mall | 0.540639 | 0.064683 | 0.171972 | 0.117999 | 0.030504 | 0.004760 | 0.020161 | 0.036194 | 0.001764 | 0.004728 | 0.005037 | 0.000261 | 0.001298 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Electricity Mitigated | 0.0000 | 2,779.4942 | 2,779.4943 | 0.1257 | 0.0260 | 2,790.3851 |
| Electricity Unmitigated | 0.0000 | 2,779.4942 | 2,779.4943 | 0.1257 | 0.0260 | 2,790.3851 |
| NaturalGas Mitigated | 0.0000 | 777.8436 | 777.8436 | 0.0149 | 0.0143 | 782.4660 |
| NaturalGas Unmitigated | 0.0000 | 777.8436 | 777.8436 | 0.0149 | 0.0143 | 782.4660 |

### 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | MT/yr | | | | | |
| Apartments High Rise | 4.36522e+006 | 0.0000 | 232.9445 | 232.9445 | 4.4600e-003 | 4.2700e-003 | 234.3288 |
| Apartments Low Rise | 447689 | 0.0000 | 23.8904 | 23.8904 | 4.6000e-004 | 4.4000e-004 | 24.0324 |
| Apartments Mid Rise | 2.0953e+006 | 0.0000 | 111.8134 | 111.8134 | 2.1400e-003 | 2.0500e-003 | 112.4778 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 7.39295e+006 | 0.0000 | 394.5161 | 394.5161 | 7.5600e-003 | 7.2300e-003 | 396.8605 |
| Strip Mall | 275080 | 0.0000 | 14.6793 | 14.6793 | 2.8000e-004 | 2.7000e-004 | 14.7666 |
| **Total** | | **0.0000** | **777.8436** | **777.8436** | **0.0149** | **0.0143** | **782.4660** |

**Mitigated**

| | NaturalGas Use | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | MT/yr | | | | | |
| Apartments High Rise | 4.36522e+006 | 0.0000 | 232.9445 | 232.9445 | 4.4600e-003 | 4.2700e-003 | 234.3288 |
| Apartments Low Rise | 447689 | 0.0000 | 23.8904 | 23.8904 | 4.6000e-004 | 4.4000e-004 | 24.0324 |
| Apartments Mid Rise | 2.0953e+006 | 0.0000 | 111.8134 | 111.8134 | 2.1400e-003 | 2.0500e-003 | 112.4778 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 7.39295e+006 | 0.0000 | 394.5161 | 394.5161 | 7.5600e-003 | 7.2300e-003 | 396.8605 |
| Strip Mall | 275080 | 0.0000 | 14.6793 | 14.6793 | 2.8000e-004 | 2.7000e-004 | 14.7666 |
| **Total** | | **0.0000** | **777.8436** | **777.8436** | **0.0149** | **0.0143** | **782.4660** |

## 5.3 Energy by Land Use - Electricity

### Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments High Rise | 2.111e+006 | 614.1127 | 0.0278 | 5.7500e-003 | 616.5189 |
| Apartments Low Rise | 92756 | 26.9838 | 1.2200e-003 | 2.5000e-004 | 27.0895 |
| Apartments Mid Rise | 1.01328e+006 | 294.7741 | 0.0133 | 2.7600e-003 | 295.9291 |
| Enclosed Parking with Elevator | 937600 | 272.7586 | 0.0123 | 2.5500e-003 | 273.8273 |
| General Office Building | 4.7731e+006 | 1,388.5498 | 0.0628 | 0.0130 | 1,393.9905 |
| Strip Mall | 626704 | 182.3154 | 8.2400e-003 | 1.7100e-003 | 183.0298 |
| **Total** | | **2,779.4942** | **0.1257** | **0.0260** | **2,790.3851** |

### Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments High Rise | 2.111e+006 | 614.1127 | 0.0278 | 5.7500e-003 | 616.5189 |
| Apartments Low Rise | 92756 | 26.9838 | 1.2200e-003 | 2.5000e-004 | 27.0895 |
| Apartments Mid Rise | 1.01328e+006 | 294.7741 | 0.0133 | 2.7600e-003 | 295.9291 |
| Enclosed Parking with Elevator | 937600 | 272.7586 | 0.0123 | 2.5500e-003 | 273.8273 |
| General Office Building | 4.7731e+006 | 1,388.5498 | 0.0628 | 0.0130 | 1,393.9905 |

| | | | | | |
|---|---|---|---|---|---|
| Strip Mall | 626704 | 182.3154 | 8.2400e-003 | 1.7100e-003 | 183.0298 |
| **Total** | | **2,779.4942** | **0.1257** | **0.0260** | **2,790.3851** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Mitigated | 34.7394 | 23.5263 | 58.2657 | 0.0707 | 2.2800e-003 | 60.7121 |
| Unmitigated | 34.7394 | 23.5263 | 58.2657 | 0.0707 | 2.2800e-003 | 60.7121 |

## 6.2 Area by SubCategory

**Unmitigated**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| SubCategory | MT/yr | | | | | |
| Architectural Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 34.7394 | 14.2691 | 49.0085 | 0.0558 | 2.2800e-003 | 51.0832 |
| Landscaping | 0.0000 | 9.2572 | 9.2572 | 0.0149 | 0.0000 | 9.6290 |
| **Total** | **34.7394** | **23.5263** | **58.2657** | **0.0707** | **2.2800e-003** | **60.7121** |

**Mitigated**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| SubCategory | MT/yr | | | | | |
| Architectural Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 34.7394 | 14.2691 | 49.0085 | 0.0558 | 2.2800e-003 | 51.0832 |
| Landscaping | 0.0000 | 9.2572 | 9.2572 | 0.0149 | 0.0000 | 9.6290 |
| **Total** | **34.7394** | **23.5263** | **58.2657** | **0.0707** | **2.2800e-003** | **60.7121** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 307.9016 | 3.9893 | 0.0964 | 436.3683 |
| Unmitigated | 307.9016 | 3.9893 | 0.0964 | 436.3683 |

### 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments High Rise | 32.577 / 20.5377 | 82.5266 | 1.0648 | 0.0257 | 116.8169 |
| Apartments Low Rise | 1.43339 / 0.903658 | 3.6312 | 0.0469 | 1.1300e-003 | 5.1399 |
| Apartments Mid Rise | 15.637 / 9.85809 | 39.6128 | 0.5111 | 0.0124 | 56.0721 |
| Enclosed Parking with Elevator | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 67.976 / 41.6627 | 170.9889 | 2.2218 | 0.0537 | 242.5350 |
| Strip Mall | 4.42954 / 2.71488 | 11.1422 | 0.1448 | 3.5000e-003 | 15.8044 |
| **Total** | | **307.9016** | **3.9893** | **0.0964** | **436.3683** |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments High Rise | 32.577 / 20.5377 | 82.5266 | 1.0648 | 0.0257 | 116.8169 |
| Apartments Low Rise | 1.43339 / 0.903658 | 3.6312 | 0.0469 | 1.1300e-003 | 5.1399 |
| Apartments Mid Rise | 15.637 / 9.85809 | 39.6128 | 0.5111 | 0.0124 | 56.0721 |
| Enclosed Parking with Elevator | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 67.976 / 41.6627 | 170.9889 | 2.2218 | 0.0537 | 242.5350 |
| Strip Mall | 4.42954 / 2.71488 | 11.1422 | 0.1448 | 3.5000e-003 | 15.8044 |

| | | | | | |
|---|---|---|---|---|---|
| **Total** | | **307.9016** | **3.9893** | **0.0964** | **436.3683** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 156.1001 | 9.2253 | 0.0000 | 386.7313 |
| Unmitigated | 156.1001 | 9.2253 | 0.0000 | 386.7313 |

### 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments High Rise | 230 | 46.6879 | 2.7592 | 0.0000 | 115.6674 |
| Apartments Low Rise | 10.12 | 2.0543 | 0.1214 | 0.0000 | 5.0894 |
| Apartments Mid Rise | 110.4 | 22.4102 | 1.3244 | 0.0000 | 55.5203 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| General Office Building | 355.69 | 72.2019 | 4.2670 | 0.0000 | 178.8770 |
| Strip Mall | 62.79 | 12.7458 | 0.7533 | 0.0000 | 31.5772 |
| **Total** | | **156.1001** | **9.2253** | **0.0000** | **386.7313** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments High Rise | 230 | 46.6879 | 2.7592 | 0.0000 | 115.6674 |
| Apartments Low Rise | 10.12 | 2.0543 | 0.1214 | 0.0000 | 5.0894 |
| Apartments Mid Rise | 110.4 | 22.4102 | 1.3244 | 0.0000 | 55.5203 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 355.69 | 72.2019 | 4.2670 | 0.0000 | 178.8770 |
| Strip Mall | 62.79 | 12.7458 | 0.7533 | 0.0000 | 31.5772 |
| **Total** | | **156.1001** | **9.2253** | **0.0000** | **386.7313** |

## 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

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

## 11.0 Vegetation

WOB TOD 2020 - Alameda County, Annual

# WOB TOD 2020

**Alameda County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Office Building | 382.46 | 1000sqft | 1.27 | 382,460.00 | 0 |
| Enclosed Parking with Elevator | 400.00 | Space | 1.00 | 160,000.00 | 0 |
| Apartments High Rise | 500.00 | Dwelling Unit | 1.26 | 500,000.00 | 1430 |
| Apartments Low Rise | 22.00 | Dwelling Unit | 0.28 | 22,000.00 | 63 |
| Apartments Mid Rise | 240.00 | Dwelling Unit | 1.27 | 240,000.00 | 686 |
| Strip Mall | 59.80 | 1000sqft | 0.50 | 59,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 63 |
| **Climate Zone** | 5 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

Project Characteristics - PG&E Emissions Factor for 2020.

Land Use - Lot acreage totals site acreage.

Woodstoves -

Water And Wastewater - 100% aerobic treatment of wastewater assumed.

Area Mitigation - Only natural gas fireplaces as required by BAAQMD Rule 6-3.

Water Mitigation - 20% Water reduction in indoor water use in compliance with CalGreen code.

Waste Mitigation - Waste Reduction per Oakland's Zero Waste 2020 goal.

Vehicle Trips - Trips per Fehr & Peers non-CEQA analysis including 47% reduction in trips near BART stations.

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 8.78 | 1.27 |
| tblLandUse | LotAcreage | 3.60 | 1.00 |
| tblLandUse | LotAcreage | 8.06 | 1.26 |
| tblLandUse | LotAcreage | 1.38 | 0.28 |
| tblLandUse | LotAcreage | 6.32 | 1.27 |
| tblLandUse | LotAcreage | 1.37 | 0.50 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | ST_TR | 4.98 | 2.80 |
| tblVehicleTrips | ST_TR | 7.16 | 3.14 |
| tblVehicleTrips | ST_TR | 6.39 | 3.01 |
| tblVehicleTrips | ST_TR | 2.46 | 1.20 |
| tblVehicleTrips | ST_TR | 42.04 | 35.65 |
| tblVehicleTrips | SU_TR | 3.65 | 2.05 |
| tblVehicleTrips | SU_TR | 6.07 | 2.66 |
| tblVehicleTrips | SU_TR | 5.86 | 2.76 |
| tblVehicleTrips | SU_TR | 1.05 | 2.49 |
| tblVehicleTrips | SU_TR | 20.43 | 17.32 |
| tblVehicleTrips | WD_TR | 4.20 | 2.36 |
| tblVehicleTrips | WD_TR | 6.59 | 2.89 |
| tblVehicleTrips | WD_TR | 6.65 | 3.13 |
| tblVehicleTrips | WD_TR | 11.03 | 5.40 |
| tblVehicleTrips | WD_TR | 44.32 | 37.58 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Year | MT/yr | | | | | |
| 2019 | 0.0000 | 820.4022 | 820.4022 | 0.0835 | 0.0000 | 822.4896 |
| 2020 | 0.0000 | 734.7303 | 734.7303 | 0.0621 | 0.0000 | 736.2836 |
| **Maximum** | **0.0000** | **820.4022** | **820.4022** | **0.0835** | **0.0000** | **822.4896** |

### Mitigated Construction

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Year | MT/yr | | | | | |
| 2019 | 0.0000 | 820.4020 | 820.4020 | 0.0835 | 0.0000 | 822.4894 |
| 2020 | 0.0000 | 734.7301 | 734.7301 | 0.0621 | 0.0000 | 736.2834 |
| **Maximum** | **0.0000** | **820.4020** | **820.4020** | **0.0835** | **0.0000** | **822.4894** |

| | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

### Unmitigated Operational

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Area | 34.7394 | 23.5263 | 58.2657 | 0.0649 | 2.2800e-003 | 60.5667 |
| Energy | 0.0000 | 2,034.6509 | 2,034.6509 | 0.1406 | 0.0403 | 2,050.1641 |
| Mobile | 0.0000 | 5,557.3470 | 5,557.3470 | 0.2652 | 0.0000 | 5,563.9758 |
| Waste | 156.1001 | 0.0000 | 156.1001 | 9.2253 | 0.0000 | 386.7313 |
| Water | 38.7218 | 121.7154 | 160.4372 | 3.9893 | 0.0964 | 288.9039 |
| **Total** | **229.5612** | **7,737.2396** | **7,966.8008** | **13.6851** | **0.1390** | **8,350.3417** |

**Mitigated Operational**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Area | 0.0000 | 39.6980 | 39.6980 | 9.6400e-003 | 5.6000e-004 | 40.1052 |
| Energy | 0.0000 | 2,034.6509 | 2,034.6509 | 0.1406 | 0.0403 | 2,050.1641 |
| Mobile | 0.0000 | 5,557.3470 | 5,557.3470 | 0.2652 | 0.0000 | 5,563.9758 |
| Waste | 17.1710 | 0.0000 | 17.1710 | 1.0148 | 0.0000 | 42.5404 |
| Water | 30.9774 | 104.3406 | 135.3180 | 3.1921 | 0.0773 | 238.1518 |
| **Total** | **48.1484** | **7,736.0365** | **7,784.1849** | **4.6223** | **0.1181** | **7,934.9372** |

| | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|
| **Percent Reduction** | **79.03** | **0.02** | **2.29** | **66.22** | **15.01** | **4.97** |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 5/13/2019 | 6/7/2019 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 6/8/2019 | 6/21/2019 | 5 | 10 | |
| 3 | Grading | Grading | 6/22/2019 | 7/19/2019 | 5 | 20 | |
| 4 | Building Construction | Building Construction | 7/20/2019 | 6/5/2020 | 5 | 230 | |
| 5 | Paving | Paving | 6/6/2020 | 7/3/2020 | 5 | 20 | |
| 6 | Architectural Coating | Architectural Coating | 7/4/2020 | 7/31/2020 | 5 | 20 | |

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

**Acres of Grading (Grading Phase): 10**

**Acres of Paving: 1**

**Residential Indoor: 1,543,050; Residential Outdoor: 514,350; Non-Residential Indoor: 663,390; Non-Residential Outdoor: 221,130; Striped Parking**

### OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |

| | | | | | |
|---|---|---|---|---|---|
| Grading | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |
| Paving | Pavers | 2 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 757.00 | 180.00 | 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 | 151.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Off-Road | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8672 |
| **Total** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8672** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8671 |
| **Total** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8671** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

## 3.3 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.6528 | 0.6528 | 2.0000e-005 | 0.0000 | 0.6532 |
| **Total** | **0.0000** | **0.6528** | **0.6528** | **2.0000e-005** | **0.0000** | **0.6532** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 0.6528 | 0.6528 | 2.0000e-005 | 0.0000 | 0.6532 |
| **Total** | **0.0000** | **0.6528** | **0.6528** | **2.0000e-005** | **0.0000** | **0.6532** |

### 3.4 Grading - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 26.6423 | 26.6423 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0000** | **26.6423** | **26.6423** | **8.4300e-003** | **0.0000** | **26.8530** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 26.6422 | 26.6422 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0000** | **26.6422** | **26.6422** | **8.4300e-003** | **0.0000** | **26.8530** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0879 | 1.0879 | 3.0000e-005 | 0.0000 | 1.0887 |
| **Total** | **0.0000** | **1.0879** | **1.0879** | **3.0000e-005** | **0.0000** | **1.0887** |

## 3.5 Building Construction - 2019

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 137.5360 | 137.5360 | 0.0335 | 0.0000 | 138.3736 |
| **Total** | **0.0000** | **137.5360** | **137.5360** | **0.0335** | **0.0000** | **138.3736** |

**Unmitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 280.4928 | 280.4928 | 0.0173 | 0.0000 | 280.9249 |
| Worker | 0.0000 | 321.1919 | 321.1919 | 9.1600e-003 | 0.0000 | 321.4209 |
| **Total** | **0.0000** | **601.6847** | **601.6847** | **0.0264** | **0.0000** | **602.3458** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 137.5358 | 137.5358 | 0.0335 | 0.0000 | 138.3734 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **137.5358** | **137.5358** | **0.0335** | **0.0000** | **138.3734** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 280.4928 | 280.4928 | 0.0173 | 0.0000 | 280.9249 |
| Worker | 0.0000 | 321.1919 | 321.1919 | 9.1600e-003 | 0.0000 | 321.4209 |
| **Total** | **0.0000** | **601.6847** | **601.6847** | **0.0264** | **0.0000** | **602.3458** |

## 3.5 Building Construction - 2020

**Unmitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 130.8596 | 130.8596 | 0.0319 | 0.0000 | 131.6578 |
| **Total** | **0.0000** | **130.8596** | **130.8596** | **0.0319** | **0.0000** | **131.6578** |

## Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 269.0070 | 269.0070 | 0.0155 | 0.0000 | 269.3938 |
| Worker | 0.0000 | 300.6148 | 300.6148 | 7.7600e-003 | 0.0000 | 300.8088 |
| **Total** | **0.0000** | **569.6218** | **569.6218** | **0.0232** | **0.0000** | **570.2025** |

## Mitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 130.8595 | 130.8595 | 0.0319 | 0.0000 | 131.6576 |
| **Total** | **0.0000** | **130.8595** | **130.8595** | **0.0319** | **0.0000** | **131.6576** |

## Mitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 269.0070 | 269.0070 | 0.0155 | 0.0000 | 269.3938 |
| Worker | 0.0000 | 300.6148 | 300.6148 | 7.7600e-003 | 0.0000 | 300.8088 |
| **Total** | **0.0000** | **569.6218** | **569.6218** | **0.0232** | **0.0000** | **570.2025** |

## 3.6 Paving - 2020

### Unmitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 20.0282 | 20.0282 | 6.4800e-003 | 0.0000 | 20.1902 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **20.0282** | **20.0282** | **6.4800e-003** | **0.0000** | **20.1902** |

### Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Worker | 0.0000 | 1.0543 | 1.0543 | 3.0000e-005 | 0.0000 | 1.0550 |
| **Total** | **0.0000** | **1.0543** | **1.0543** | **3.0000e-005** | **0.0000** | **1.0550** |

**Mitigated Construction On-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Off-Road | 0.0000 | 20.0282 | 20.0282 | 6.4800e-003 | 0.0000 | 20.1901 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **20.0282** | **20.0282** | **6.4800e-003** | **0.0000** | **20.1901** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 1.0543 | 1.0543 | 3.0000e-005 | 0.0000 | 1.0550 |
| **Total** | **0.0000** | **1.0543** | **1.0543** | **3.0000e-005** | **0.0000** | **1.0550** |

## 3.7 Architectural Coating - 2020

## Unmitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Archit. Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 2.5533 | 2.5533 | 2.0000e-004 | 0.0000 | 2.5582 |
| **Total** | **0.0000** | **2.5533** | **2.5533** | **2.0000e-004** | **0.0000** | **2.5582** |

## Unmitigated Construction Off-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 10.6131 | 10.6131 | 2.7000e-004 | 0.0000 | 10.6200 |
| **Total** | **0.0000** | **10.6131** | **10.6131** | **2.7000e-004** | **0.0000** | **10.6200** |

## Mitigated Construction On-Site

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Archit. Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 2.5533 | 2.5533 | 2.0000e-004 | 0.0000 | 2.5582 |
| **Total** | **0.0000** | **2.5533** | **2.5533** | **2.0000e-004** | **0.0000** | **2.5582** |

**Mitigated Construction Off-Site**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Hauling | 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 |
| Worker | 0.0000 | 10.6131 | 10.6131 | 2.7000e-004 | 0.0000 | 10.6200 |
| **Total** | **0.0000** | **10.6131** | **10.6131** | **2.7000e-004** | **0.0000** | **10.6200** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Mitigated | 0.0000 | 5,557.3470 | 5,557.3470 | 0.2652 | 0.0000 | 5,563.9758 |
| Unmitigated | 0.0000 | 5,557.3470 | 5,557.3470 | 0.2652 | 0.0000 | 5,563.9758 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments High Rise | 1,180.00 | 1,400.00 | 1025.00 | 2,746,783 | 2,746,783 |
| Apartments Low Rise | 63.58 | 69.08 | 58.52 | 146,990 | 146,990 |
| Apartments Mid Rise | 751.20 | 722.40 | 662.40 | 1,696,176 | 1,696,176 |
| Enclosed Parking with Elevator | 0.00 | 0.00 | 0.00 | | |
| General Office Building | 2,065.28 | 458.95 | 952.33 | 4,007,171 | 4,007,171 |
| Strip Mall | 2,247.28 | 2,131.87 | 1035.74 | 3,168,954 | 3,168,954 |
| Total | 6,307.35 | 4,782.30 | 3,733.98 | 11,766,073 | 11,766,073 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Apartments High Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Apartments Low Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Apartments Mid Rise | 10.80 | 4.80 | 5.70 | 31.00 | 15.00 | 54.00 | 86 | 11 | 3 |
| Enclosed Parking with Elevator | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| General Office Building | 9.50 | 7.30 | 7.30 | 33.00 | 48.00 | 19.00 | 77 | 19 | 4 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments High Rise | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |
| Apartments Low Rise | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |
| Apartments Mid Rise | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |
| Enclosed Parking with Elevator | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |
| General Office Building | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |
| Strip Mall | 0.558186 | 0.040947 | 0.190770 | 0.110456 | 0.017401 | 0.005228 | 0.022658 | 0.042795 | 0.002118 | 0.002805 | 0.005569 | 0.000308 | 0.000759 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| Category | MT/yr | | | | | |
| Electricity Mitigated | 0.0000 | 1,256.8072 | 1,256.8072 | 0.1257 | 0.0260 | 1,267.6981 |
| Electricity Unmitigated | 0.0000 | 1,256.8072 | 1,256.8072 | 0.1257 | 0.0260 | 1,267.6981 |
| NaturalGas Mitigated | 0.0000 | 777.8436 | 777.8436 | 0.0149 | 0.0143 | 782.4660 |
| NaturalGas Unmitigated | 0.0000 | 777.8436 | 777.8436 | 0.0149 | 0.0143 | 782.4660 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | MT/yr | | | | | |
| Apartments High Rise | 4.36522e+006 | 0.0000 | 232.9445 | 232.9445 | 4.4600e-003 | 4.2700e-003 | 234.3288 |
| Apartments Low Rise | 447689 | 0.0000 | 23.8904 | 23.8904 | 4.6000e-004 | 4.4000e-004 | 24.0324 |
| Apartments Mid Rise | 2.0953e+006 | 0.0000 | 111.8134 | 111.8134 | 2.1400e-003 | 2.0500e-003 | 112.4778 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 7.39295e+006 | 0.0000 | 394.5161 | 394.5161 | 7.5600e-003 | 7.2300e-003 | 396.8605 |
| Strip Mall | 275080 | 0.0000 | 14.6793 | 14.6793 | 2.8000e-004 | 2.7000e-004 | 14.7666 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Total** | | **0.0000** | **777.8436** | **777.8436** | **0.0149** | **0.0143** | **782.4660** |

**Mitigated**

| | NaturalGas Use | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | MT/yr | | | | | |
| Apartments High Rise | 4.36522e+006 | 0.0000 | 232.9445 | 232.9445 | 4.4600e-003 | 4.2700e-003 | 234.3288 |
| Apartments Low Rise | 447689 | 0.0000 | 23.8904 | 23.8904 | 4.6000e-004 | 4.4000e-004 | 24.0324 |
| Apartments Mid Rise | 2.0953e+006 | 0.0000 | 111.8134 | 111.8134 | 2.1400e-003 | 2.0500e-003 | 112.4778 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 7.39295e+006 | 0.0000 | 394.5161 | 394.5161 | 7.5600e-003 | 7.2300e-003 | 396.8605 |
| Strip Mall | 275080 | 0.0000 | 14.6793 | 14.6793 | 2.8000e-004 | 2.7000e-004 | 14.7666 |
| **Total** | | **0.0000** | **777.8436** | **777.8436** | **0.0149** | **0.0143** | **782.4660** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments High Rise | 2.111e+006 | 277.6841 | 0.0278 | 5.7500e-003 | 280.0903 |
| Apartments Low Rise | 92756 | 12.2013 | 1.2200e-003 | 2.5000e-004 | 12.3070 |
| Apartments Mid Rise | 1.01328e+006 | 133.2884 | 0.0133 | 2.7600e-003 | 134.4434 |

| | | | | | |
|---|---|---|---|---|---|
| Enclosed Parking with Elevator | 937600 | 123.3336 | 0.0123 | 2.5500e-003 | 124.4023 |
| General Office Building | 4.7731e+006 | 627.8622 | 0.0628 | 0.0130 | 633.3030 |
| Strip Mall | 626704 | 82.4378 | 8.2400e-003 | 1.7100e-003 | 83.1521 |
| **Total** | | **1,256.8072** | **0.1257** | **0.0260** | **1,267.6981** |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments High Rise | 2.111e+006 | 277.6841 | 0.0278 | 5.7500e-003 | 280.0903 |
| Apartments Low Rise | 92756 | 12.2013 | 1.2200e-003 | 2.5000e-004 | 12.3070 |
| Apartments Mid Rise | 1.01328e+006 | 133.2884 | 0.0133 | 2.7600e-003 | 134.4434 |
| Enclosed Parking with Elevator | 937600 | 123.3336 | 0.0123 | 2.5500e-003 | 124.4023 |
| General Office Building | 4.7731e+006 | 627.8622 | 0.0628 | 0.0130 | 633.3030 |
| Strip Mall | 626704 | 82.4378 | 8.2400e-003 | 1.7100e-003 | 83.1521 |
| **Total** | | **1,256.8072** | **0.1257** | **0.0260** | **1,267.6981** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|

| Category | MT/yr | | | | | |
|---|---|---|---|---|---|---|
| Mitigated | 0.0000 | 39.6980 | 39.6980 | 9.6400e-003 | 5.6000e-004 | 40.1052 |
| Unmitigated | 34.7394 | 23.5263 | 58.2657 | 0.0649 | 2.2800e-003 | 60.5667 |

## 6.2 Area by SubCategory

**Unmitigated**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| SubCategory | MT/yr | | | | | |
| Architectural Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 34.7394 | 14.2691 | 49.0085 | 0.0558 | 2.2800e-003 | 51.0832 |
| Landscaping | 0.0000 | 9.2572 | 9.2572 | 9.0500e-003 | 0.0000 | 9.4835 |
| **Total** | **34.7394** | **23.5263** | **58.2657** | **0.0649** | **2.2800e-003** | **60.5667** |

**Mitigated**

| | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|
| SubCategory | MT/yr | | | | | |
| Architectural Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hearth | 0.0000 | 30.4408 | 30.4408 | 5.8000e-004 | 5.6000e-004 | 30.6217 |
| Landscaping | 0.0000 | 9.2572 | 9.2572 | 9.0500e-003 | 0.0000 | 9.4835 |
| **Total** | **0.0000** | **39.6980** | **39.6980** | **9.6300e-003** | **5.6000e-004** | **40.1052** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 135.3180 | 3.1921 | 0.0773 | 238.1518 |
| Unmitigated | 160.4372 | 3.9893 | 0.0964 | 288.9039 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments High Rise | 32.577 / 20.5377 | 42.9781 | 1.0648 | 0.0257 | 77.2683 |
| Apartments Low Rise | 1.43339 / 0.903658 | 1.8910 | 0.0469 | 1.1300e-003 | 3.3998 |
| Apartments Mid Rise | 15.637 / 9.85809 | 20.6295 | 0.5111 | 0.0124 | 37.0888 |
| Enclosed Parking with Elevator | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 67.976 / 41.6627 | 89.1305 | 2.2218 | 0.0537 | 160.6767 |
| Strip Mall | 4.42954 / 2.71488 | 5.8080 | 0.1448 | 3.5000e-003 | 10.4702 |

| | | | | | |
|---|---|---|---|---|---|
| **Total** | | **160.4372** | **3.9893** | **0.0964** | **288.9039** |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments High Rise | 26.0616 / 20.5377 | 36.2736 | 0.8520 | 0.0206 | 63.7222 |
| Apartments Low Rise | 1.14671 / 0.903658 | 1.5960 | 0.0375 | 9.1000e-004 | 2.8038 |
| Apartments Mid Rise | 12.5096 / 9.85809 | 17.4113 | 0.4090 | 9.9000e-003 | 30.5866 |
| Enclosed Parking with Elevator | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 54.3808 / 41.6627 | 75.1407 | 1.7778 | 0.0430 | 132.4109 |
| Strip Mall | 3.54363 / 2.71488 | 4.8964 | 0.1159 | 2.8000e-003 | 8.6283 |
| **Total** | | **135.3180** | **3.1921** | **0.0773** | **238.1518** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|

| | MT/yr | | | |
|---|---|---|---|---|
| Mitigated | 17.1710 | 1.0148 | 0.0000 | 42.5404 |
| Unmitigated | 156.1001 | 9.2253 | 0.0000 | 386.7313 |

## 8.2 Waste by Land Use

### Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments High Rise | 230 | 46.6879 | 2.7592 | 0.0000 | 115.6674 |
| Apartments Low Rise | 10.12 | 2.0543 | 0.1214 | 0.0000 | 5.0894 |
| Apartments Mid Rise | 110.4 | 22.4102 | 1.3244 | 0.0000 | 55.5203 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 355.69 | 72.2019 | 4.2670 | 0.0000 | 178.8770 |
| Strip Mall | 62.79 | 12.7458 | 0.7533 | 0.0000 | 31.5772 |
| **Total** | | **156.1001** | **9.2253** | **0.0000** | **386.7313** |

### Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |

| | | | | | |
|---|---|---|---|---|---|
| Apartments High Rise | 25.3 | 5.1357 | 0.3035 | 0.0000 | 12.7234 |
| Apartments Low Rise | 1.1132 | 0.2260 | 0.0134 | 0.0000 | 0.5598 |
| Apartments Mid Rise | 12.144 | 2.4651 | 0.1457 | 0.0000 | 6.1072 |
| Enclosed Parking with Elevator | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| General Office Building | 39.1259 | 7.9422 | 0.4694 | 0.0000 | 19.6765 |
| Strip Mall | 6.9069 | 1.4020 | 0.0829 | 0.0000 | 3.4735 |
| **Total** | | **17.1710** | **1.0148** | **0.0000** | **42.5404** |

## 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

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

### Boilers

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

### User Defined Equipment

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

## 11.0 Vegetation