

3.8 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section describes the environmental and regulatory setting for GHG emissions. It also describes existing conditions and potential impacts relative to GHG emissions that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.8.1 Environmental Setting

Greenhouse Gases

GHGs and climate change are cumulative global issues. The CARB and USEPA regulate GHG emissions within the State of California and the U.S., respectively. While the CARB has the primary regulatory responsibility within the state for GHG emissions, local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the earth's atmosphere act as GHGs, as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected back into the atmosphere as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the Earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [CO₂], methane [CH₄], and nitrous oxide [N₂O]), while others are exclusively human-made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below:

Carbon Dioxide

CO₂ enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO₂ is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane

CH₄ is emitted during the production and transport of coal, natural gas, and oil. CH₄ emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

Nitrous Oxide

N₂O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.



Fluorinated Gases

Hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

Potential Environmental Impacts

For California, climate change in the form of warming has the potential to incur or exacerbate environmental impacts, including but not limited to changes to precipitation and runoff patterns, increased agricultural demand for water, inundation of low-lying coastal areas by sea-level rise, and increased incidents and severity of wildfire events. Cooling of the climate may have the opposite effect. Although certain environmental effects are widely accepted to be potential hazards to certain locations, such as rising sea level for low-lying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. A project's GHG emissions are at a micro-scale relative to global emissions but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

3.8.2 Regulatory Setting

State Regulations

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several EOs related to the state's evolving climate change policy. Of particular importance are the following:

Assembly Bill 32

AB 32, also known as the Global Warming Solutions Act of 2006 (codified in Health and Safety Code, Division 25.5), requires the CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required the CARB to adopt regulations that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and the CARB is authorized to enforce compliance with the program. Under AB 32, the CARB was also required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels set in 1990, which must be achieved by 2020. The 2020 GHG emissions limit is 431 million metric tons of carbon dioxide equivalent (MMT_{CO₂e}), and California reached this goal in 2016.



Toward achieving the maximum technologically feasible and cost-effective GHG emission reductions, AB 32 permits the use of market-based compliance mechanisms and requires the CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. The CARB has adopted nine Early Action Measures for implementation, including:

- Ship electrification at ports
- Reduction of high global-warming-potential gases in consumer products
- Heavy-duty vehicle GHG emission reduction (aerodynamic efficiency)
- Reduction of perfluorocarbons from semiconductor manufacturing
- Improved landfill gas capture, reduction of hydroflouorocarbon-134a from do-it-yourself motor vehicle servicing
- Sulfur hexafluoride reductions from the non-electric sector, a tire inflation program, and a low-carbon fuel standard

Senate Bill 32

On September 8, 2016, Senate Bill (SB) 32 was signed by California Governor Edmund Gerald Brown Jr.; this bill requires the state board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030.

B-30-15

B-30-15 provides an interim 2030 goal with the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050. The B-30-15 interim 2030 emission reduction goal is consistent with SB 32 and represents substantial progress towards the 2050 emissions reduction goal.

Executive Order S-03-05

EO S-03-05 directs the state to reduce GHG emissions to 80 percent below 1990 levels by 2050.

Climate Change Scoping Plan

In December 2008, the CARB approved the AB 32 Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 MMTCO_{2e} (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every five years to evaluate the implementation of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. The First Update to the Climate Change Scoping Plan was approved by the CARB on May 22, 2014. In 2016, the legislature passed SB 32, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017, the CARB approved the Second Update to the Climate Change Scoping Plan, the 2017 Climate



Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (CARB 2018).

Assembly Bill 1493 – Clean Car Standards (Pavley)

This bill was passed in 2002 and requires the CARB to develop and implement regulations to reduce automobile and light truck GHG emissions through mandating gradual reductions in global warming pollutants from cars and light trucks sold in California from 2009 through 2016. The average gram-per-mile reduction of GHG emissions from new California cars and light trucks is required to be about 30 percent in 2016, compared to model year 2004 vehicles.

The CARB adopted the ACC program in 2012, in coordination with the USEPA and NHTSA. The ACC program combined the control of criteria pollutants and GHG emissions into a single coordinated set of requirements for model years 2015 through 2025. The CARB adopted a new approach to passenger vehicles—cars and light trucks—by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also included efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. The new standard drops GHG emissions to 166 grams per mile, a reduction of 34 percent compared to 2016 levels, through 2025.

Renewable Portfolio Standard

The Renewable Portfolio Standard (RPS) promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "initial RPS"), the goals have been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, the Governor signed SB 2 (1X) codifying California's 33 percent RPS goal; Section 399.19 requires the CPUC, in consultation with the CEC, to report to the legislature on the progress and status of RPS procurement and other benchmarks. The purpose of the RPS upon full implementation is to provide 33 percent of the state's electricity needs through renewable energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

SB 375

SB 375 Sustainable Communities Act was signed into law in September 2008 and requires ARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations to adopt a Sustainable Communities Strategy or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that Metropolitan Planning Organization's RTP.

Senate Bill 97

Senate Bill 97 acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The California Natural Resources Agency adopted amendments to the CEQA Guidelines to address GHG emissions, consistent with the legislature's directive in PRC Section 21083.05.



Title 20 and Title 24, California Code of Regulations

New buildings constructed in California must comply with the standards in Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards, of the CCR. Title 20 contains a range of standards, such as power plant procedures and siting, energy efficiency standards for appliances, and ensuring reliable energy sources are provided and diversified through energy-efficiency and renewable energy resources. Title 24 (AB 970) contains energy-efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy-efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope, such as windows, doors, skylights, wall/floor/ceiling assemblies, attics, and roofs. In addition, the new 2019 standards require rooftop solar on all new residential development under three stories.

Part 11 of Title 24 is the CalGreen code, which sets minimum and mandatory sustainability requirements to reduce environmental impact through better planning, design, and construction practices. CalGreen works along with the mandatory construction codes of Title 24 and is enforced at the local level. Any project-related construction would be required to comply with the Title 24 codes currently in place, including CalGreen. The existing 2019 standards became effective in January 2020.

Local

North Coast Unified Air Quality Management District

The NCUAQMD attains and maintains air quality conditions in the County and administers a series of air pollution reduction programs, including open burning permits, grants, permitting of stationary sources, emission inventory and air quality monitoring, and planning and rule development. The NCUAQMD adopted Rule 111 in 2015, which evaluates stationary sources subject to NSR and Title V permitting. Pursuant to Rule 111, stationary sources emitting less than 25,000 tons per year of CO₂ equivalent are exempt from compliance determination.

Humboldt County Policies and Ordinances

The Humboldt County General Plan contains the following goals, policies, and standards relevant to GHG emissions and the proposed project:

Goal AQ-G3: Greenhouse Gas Emissions. Successful mitigation of greenhouse gas emissions associated with this Plan to levels of non-significance as established by the Global Warming Solutions Act and subsequent implementation of legislation and regulations.

- **Policy AQ-P11: Review of Projects for Greenhouse Gas Emission Reductions.** The County shall evaluate the GHG emissions of new large scale residential, commercial and industrial projects for compliance with state regulations and require feasible mitigation measures to minimize GHG emissions.
- **Policy AQ-P17: Preservation and Replacement of On-Site Trees.** Projects requiring discretionary review should preserve large trees, where possible, and mitigate for carbon storage losses attributable to significant removal of trees.
- **Standard AQ-S2: Evaluate Greenhouse Gas Emission Impacts.** During environmental review of large scale residential, commercial and industrial projects, include an assessment of the project's GHG emissions and require feasible mitigation consistent with best practices



documented by the California Air Pollution Control Officers Association in their 2008 white paper “CEQA & Climate Change” or successor documents.

- **Standard AQ-S6: Preservation and Replacement of On-site Trees.** Large scale residential, commercial and industrial projects which remove a significant number of large trees (for example, more than 50 trees of greater than 12 inches DBH) shall plant replacement trees on-site or provide offsetting carbon mitigations.

3.8.3 Methodology for Analysis

The proposed project would result in both short- and long-term emissions of GHGs. Construction emissions would be generated from the exhaust of equipment, the exhaust of construction hauling trips, and worker commuter trips. Long-term, operational GHG emissions would result from vehicular traffic, onsite combustion of natural gas, operation of any landscaping equipment, offsite generation of electrical power over the life of the project, the energy required to convey water to and wastewater from the project site, the emissions associated with the hauling and disposal of solid waste from the project site, and any fugitive refrigerants from air conditioning or refrigerators.

Construction and operational emissions were estimated using the CalEEMod (version 2016.3.2). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model was developed in collaboration with the air districts in California. Default data (emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA documents. Information used in the emission modeling is documented in Section 2.0, Project Description, and Appendix B. The CalEEMod module used regulatory compliance reductions for certain existing regulatory requirements that are termed “mitigation” within the model, and the mitigated output from CalEEMod is used; however, those modeling components are not considered mitigation under CEQA, but rather are treated as part of the baseline conditions.

3.8.4 Thresholds of Significance

The CEQA Guidelines’ Appendix G Environmental Checklist was assessed during the NOP scoping process to identify the proposed project components that have the potential to cause a significant impact. The following thresholds of significance were used to determine if further evaluation within this EIR was warranted to ascertain whether the proposed project may:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.



A number of expert agencies throughout the state have drafted or adopted varying threshold approaches and guidelines for analyzing GHG emissions in CEQA documents. The different thresholds include the following: (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, (3) numeric “bright-line” thresholds, and (4) efficiency-based thresholds.

Efficiency-based thresholds represent the rate of emission reductions needed to achieve a fair share of California’s GHG emissions reduction target established under AB 32 and SB 32, EO B-30- 15, and EO S-03-05. As noted earlier:

- AB 32 is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020
- SB 32 requires statewide GHG emissions to 40 percent below 1990 levels by 2030
- B-30-15 provides an interim 2030 goal with the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050. The B-30-15 interim 2030 emission reduction goal is consistent with SB 32 and represents ‘substantial progress’ towards the 2050 emissions reduction goal.
- EO S-03-05 directs the state to reduce GHG emissions to 80 percent below 1990 levels by 2050.

The NCUAQMD has not identified or recommended any GHG standards or thresholds of significance for the evaluation of development projects. NCUAQMD Rule 111, adopted in 2015, evaluates stationary sources subject to NSR and Title V permitting. Pursuant to Rule 111, stationary sources emitting less than 25,000 tons per year of CO₂ equivalent are exempt from compliance determination.

Utilizing stationary source compliance rules is not recommended for the evaluation of projects subject to CEQA review and therefore we look to other jurisdictions that have developed thresholds, namely other California air districts, to show the emissions associated with this project in a state-wide context. These thresholds are as follows:

- South Coast Air Quality Management District (SCAQMD): SCAQMD’s GHG Working Group has proposed a significance screening level of 3,000 MT CO₂ per year for residential and commercial projects (SCAQMD 2015).
- BAAQMD has adopted an project-level, operational threshold of significance that requires compliance with a qualified GHG reduction strategy or similar plan, maximum annual emissions of 1,100 MT CO₂e per year or less, or achievement of a GHG efficiency rate of no more than 4.6 MT CO₂e per service population per year (BAAQMD 2017). BAAQMD has not adopted a project-level threshold of significance for construction-related GHG emissions.
- Sacramento Metro Air Quality Management District (SMAQMD): SMAQMD has adopted construction and operational GHG thresholds of 1,100 MT CO₂e per year for land development and construction projects (SMAQMD 2015).

In the absence of NCUAQMD thresholds, the GHG emissions from this project will be compared to the SMAQMD threshold of 1,100 MT CO₂e per year for operational emissions because the SMAQMD has updated their guideline to account for the SB 32 2030 targets for GHG emissions. While utilized for comparative purposes, significance of the project’s potential impact is ultimately based on its long-term interaction with the state’s GHG reduction goals as stated in the CARB’s 2017 Scoping Plan.



Post-2020

Given the recent legislative attention and case law regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through 2050 to stabilize CO₂ concentrations, the Association of Environmental Professionals' Climate Change Committee (2015) recommended in its Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California (AEP 2015) white paper that CEQA analyses for most land use development projects can continue to rely on current thresholds for the immediate future, but that long-term projects should consider "post-2020 emissions consistent with 'substantial progress' along a post-2020 reduction trajectory toward meeting the 2050 target." The Beyond 2020 white paper further recommends that the "significance determination... should be based on consistency with 'substantial progress' along a post-2020 trajectory." Therefore, it is assumed that the bright line and project efficiency thresholds developed by SMAQMD, which are consistent with the 2030 targets, are appropriate for this analysis.

3.8.5 Project Impact Analysis and Mitigation Measures

This section discusses potential impacts related to GHG emissions associated with the proposed project and provides mitigation measures where necessary.

Generation of Greenhouse Gases

Impact GHG-1 **The proposed project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

Impact Analysis

Constructions Emission Inventory

The project would emit GHG emissions during construction from off-road equipment, worker vehicles, and any hauling that may occur. The SMAQMD recommends that GHGs be quantified and disclosed and has developed an operational significant threshold for land use development projects. Construction emissions would be generated from the exhaust of equipment, the exhaust of construction hauling trips, and worker commuter trips. The construction phases include site preparation, site grading, paving, building construction, and architectural coating. Metric tons of CO₂ equivalent (MTCO_{2e}) emissions during construction of the project are shown in Table 3.8-1.

Table 3.8-1: Construction Greenhouse Gas Emissions

Construction Year	MTCO _{2e}
2021	441
2022	451
2023	450
2024	450
2025	361
2026	320
2027	374



Construction Year	MTCO ₂ e
2028	372
2029	376
2030	338
Total	3,933
SMAQMD Construction significance threshold	1,100 per year
Exceed Threshold?	No

Notes:

MTCO₂e = metric tons of CO₂ equivalent

Source: CalEEMod Output (Appendix B)

As shown in Table 3.8-1, the project’s estimated maximum yearly construction emissions would be 451 MTCO₂e, which is below the SMAQMD construction threshold of 1,100 MTCO₂e per year. In addition to the potential GHG emission modeled in CalEEMod, the project requires tree removal that would result in a loss of carbon sequestration and a release of carbon that is currently stored in the trees. The Center for Urban Forest Research Carbon Calculator was used to estimate the amount of CO₂ that would be released as a result of the tree removal. Approximately 59.27 acres of forest trees, of which approximately 95 percent are coast redwood with an average diameter at breast height (DBH) of 20 inches, would be permanently removed from the project site. Assuming that 100 percent of the carbon stored would be emitted as CO₂, the Carbon Calculator estimated that removal of each tree would result in 1.48 tons of carbon emission. Additionally, the removal of trees would result in a loss of carbon sequestration potential. The Carbon Calculator estimated that coast redwoods with an average DBH of 20 inches sequester 0.156 tons per tree per year of CO₂. Commercial projects typically have a lifespan of 30 years; therefore, the sequestration loss over the life of the project would be 4.68 tons of CO₂ per tree removed. The Humboldt County Standard AQ-S6: Preservation and Replacement of On-site Trees requires that proposed projects that would remove a large number of trees (i.e., more than 50 trees of greater than 12 inches DBH), either plant replacement trees onsite or provide offsetting for carbon mitigations. Since replanting trees on the proposed project site is not feasible, carbon offsets would be required in order to comply with this General Plan standard. As such, MM GHG-1 would be required in order to implement the carbon offset program from the proposed project. MM GHG-1 would require a payment of \$14 per ton of carbon emitted or loss of sequestration potential. Therefore, the average payment would be \$82.24 per tree removed from the site that is greater than 12 inches DBH. MM GHG-1 is required for consistency with Humboldt County Standard AQ-S6 and would ensure that the loss of trees onsite would be adequately mitigated for through purchasing of local carbon credits. Therefore, with the implementation of MM GHG-1, the proposed project would not have a significant GHG impact during construction.

Operational Emission Inventory

Long-term operational GHG emissions would result from proposed project-generated vehicular traffic, onsite combustion of natural gas, operation of any landscaping equipment, offsite generation of electrical power over the life of the project, the energy required to convey water to and wastewater from the project site, the emissions associated with the hauling and disposal of solid waste from the project site, and any fugitive refrigerants from air conditioning or refrigerators.



Annual operational GHG emissions were determined by modelling the proposed project emissions at the project site. As shown in Table 3.8-2, the total annualized project emissions in 2030 are estimated to be 2,066 MTCO_{2e}. Therefore, the project's emissions would exceed the bright-line SMAQMD threshold of 1,100 MTCO_{2e} per year. To reduce operational mobile GHG emissions, the project would implement MM GHG-2 which requires catalytic converters on all woodburning stoves and the EPA-certified woodburning fireplaces and the prohibition of woodburning devices in the multifamily residential. MM GHG-2 was applied to the CalEEMod modeling and represents approximately 528 MTCO_{2e} per year reduction, as shown in Appendix B. As required by Title 24, the project would install solar panels on the residential units. Motor vehicle emissions associated with the proposed project would be reduced through compliance with State regulations on fuel efficiency and fuel carbon content. As shown in Table 3.8-3, these measures would bring the annual total to 1,538 MTCO_{2e} – still over the SMAQMD bright-line threshold. Therefore, the project would result in a significant and unavoidable impact.

Table 3.8-2: Unmitigated Operational Greenhouse Gas Emissions 2030

Source Category	MTCO _{2e}
Area	856
Energy Consumption	131
Mobile	931
Solid Waste Generation	72
Water Usage	48
Truck Mobile	28
Total Operational Emissions	2,066
<i>SMAQMD Threshold</i>	1,100 tons per year
Significant Impact?	Yes

Notes:

Includes CalEEMod "mitigation" for locational features, compliance with regulatory measure

MTCO_{2e} = metric tons of CO₂ equivalent

Source: CalEEMod Output (Appendix B)

Table 3.8-3: Mitigated Operational Greenhouse Gas Emissions 2030

Source Category	MTCO _{2e}
Area	328
Energy Consumption	131
Mobile	931
Solid Waste Generation	72
Water Usage	48
Truck Mobile	28
Total Operational Emissions	1,538
<i>SMAQMD Threshold</i>	1,100 tons per year
Significant Impact?	Yes

Notes:

Includes CalEEMod "mitigation" for locational features, compliance with regulatory measure

Construction emissions annualized over an anticipated 30-year project lifespan.

MTCO_{2e} = metric tons of CO₂ equivalent

Source: CalEEMod Output (Appendix B)



As described in Section 3.3.4, CEQA Guidelines Section 15064.4 calls for a lead agency to make a “good-faith effort” to “describe, calculate, or estimate” GHG emissions in CEQA environmental documents, and, in assessing significant impacts, should consider the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, and whether the project emissions would exceed a locally applicable threshold of significance. Table 3.8-3 above provides a quantification and description of the mitigated GHG emissions associated with operation of the proposed project. The majority of the operational emissions are generated by mobile sources. The NCAQMD has not developed significance thresholds; therefore, this analysis uses the SMAQMD threshold when considering the significance determination for GHG emissions. The proposed project represents a local development adjacent to an existing community and is designed in response to normal growth and accommodating housing need. However, even with implementation of MM GHG-2, the proposed project exceeds the SMAQMD threshold, and operational GHG impacts would be significant and unavoidable.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM GHG-1 Carbon Offsets. The proposed project shall enter into a carbon offset agreement with the City of Arcata, which has a verified forest carbon offsets from the Arcata Community Forest (Climate Action Reserve 935 and 575), Climate Reserve Tonnes. Carbon offsets for this program are \$14/metric tonne (City of Arcata ND). The Applicant will receive proof of purchase prior to issuance of any building or grading permits for the proposed project.

MM GHG-2 Stoves and Woodburning Devices. If woodburning heating is used for the residential development, the project shall install woodburning stoves with catalytic converters and/or EPA-certified woodburning fireplaces. Woodburning devices shall be prohibited in the multifamily residential.

Level of Significance After Mitigation

Significant Unavoidable Impact.

Conflict with an Applicable Plan, Policy, or Regulation

Impact GHG-2 The proposed project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impact Analysis

The following analysis assesses the proposed project’s consistency with local and regional adopted plans to reduce GHG emissions. The Humboldt County General Plan commits to concrete actions to further reduce countywide GHG emissions. The County is currently preparing a Climate Action Plan (CAP). Although not yet finalized, the County is suggesting GHG reduction targets of 40 percent below 1990 levels by 2030, and 60 percent below 1990 levels by 2040. Additionally, the state has developed the Climate Change Scoping Plan, which was updated in 2017, and outlines the strategy for achieving



California's 2030 GHG target of 40 percent emissions reductions below 1990 levels. The following provides a project-specific consistency analysis with each of these local, regional, and statewide plans.

Humboldt County General Plan

The County includes the following relevant goals and reduction measures developed to assist the state in meeting its GHG reduction goals. Those that are applicable to the proposed project, along with the project-specific consistency with each of the goals, are presented below in Table 3.8-4.

Table 3.8-4: Consistency with Humboldt County General Plan

Humboldt County General Plan Provision	Project Consistency
<p>Goal AQ-G3: Greenhouse Gas Emissions. Successful mitigation of greenhouse gas emissions associated with this Plan to levels of non-significance as established by the Global Warming Solutions Act and subsequent implementation of legislation and regulations.</p>	<p>Consistent. The project would be consistent with the growth projected in the County General Plan.</p>
<p>Policy AQ-P11: Review of Projects for Greenhouse Gas Emission Reductions. The County shall evaluate the GHG emissions of new large scale residential, commercial and industrial projects for compliance with state regulations and require feasible mitigation measures to minimize GHG emissions.</p>	<p>Consistent. GHG emissions were evaluated and all feasible mitigation measure to minimize GHG emissions were implemented.</p>
<p>Policy AQ-P17: Preservation and Replacement of On-Site Trees. Projects requiring discretionary review should preserve large trees, where possible, and mitigate for carbon storage losses attributable to significant removal of trees.</p>	<p>Consistent. Large trees will be preserved where possible and over 20 acres of untouched open space will be preserved. In addition, the Applicant will purchase verified forest carbon offsets from the Arcata Community Forest (CAR 935 and 575), Climate Reserve Tonnes.</p>
<p>Standard AQ-S2: Evaluate Greenhouse Gas Emission Impacts. During environmental review of large scale residential, commercial and industrial projects, include an assessment of the project's GHG emissions and require feasible mitigation consistent with best practices documented by the California Air Pollution Control Officers Association in their 2008 white paper "CEQA & Climate Change" or successor documents.</p>	<p>Consistent. GHG emissions were evaluated and all feasible MMs to minimize GHG emissions were implemented.</p>
<p>Standard AQ-S6: Preservation and Replacement of On-site Trees. Large scale residential, commercial and industrial projects which remove a significant number of large trees (for example, more than 50 trees of greater than 12 inches DBH) shall plant replacement trees on-site or provide offsetting carbon mitigations.</p>	<p>Consistent. The proposed project would result in a loss of carbon sequestration from removal of the existing trees onsite. Approximately 59.27 acres of forest trees would be permanently removed from the project site, which would equate to the loss of 6.16 tons per tree removed. This standard requires that proposed projects that would remove a large number of trees (i.e., more than 50 trees of greater than 12 inches DBH), either plant replacement trees onsite or provide offsetting for carbon mitigations. Since replanting trees on the proposed project site is not feasible, carbon offsets would be required in order to comply with this General Plan standard. As such, MM GHG-1 would be required in order to implement the carbon offset program from the proposed project. MM GHG-1 would ensure that the loss of trees onsite would be adequately mitigated for through purchasing of local carbon credits.</p>



California Climate Change Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan in 2008, which outlines actions recommended to obtain that goal. Scoping Plan Measures that are applicable to the proposed project, along with the project-specific consistency with each of the measures, are presented below in Table 3.8-5.

Table 3.8-5: AB 32 Scoping Plan Consistency Analysis

Scoping Plan Measure	Project Consistency
Transportation	
California Cap-and-Trade Program	Consistent. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Therefore, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.
California Light-Duty Vehicle Greenhouse Gas Standards	Consistent. This measure applies to all new vehicles starting with model year 2012. Passenger vehicles model year 2012 and later associated with construction and operation of the project would be required to comply with the Pavley emissions standards. Therefore, the project would not conflict with implementation.
Low Carbon Fuel Standard	Consistent. The project would not conflict with implementation of this measure because motor vehicles associated with construction and operation of the project would utilize low-carbon transportation fuels as required under this measure.
Medium/Heavy-Duty Vehicles	Consistent. Medium- and heavy-duty vehicles associated with construction and operation of the project would be required to comply with the requirements of this regulation. Therefore, the project would not conflict with implementation of this measure.
Electricity and Natural Gas	
Energy Efficiency	Consistent. The proposed project would be consistent with both City and state minimum green building requirements.
Renewable Portfolio Standard/Renewable Electricity Standard	Consistent. PG&E obtained 33 percent of its power supply from renewable sources, such as solar and geothermal, in 2017; and about 70 percent of the electricity it delivers is carbon-free, including nuclear and large hydroelectric facilities. In addition, the proposed project would be built as solar ready.
Million Solar Roofs Program	Consistent. This measure is intended to increase solar energy generation throughout California by means of a variety of electricity providers and existing solar programs. Projects within the plan area will be able to take advantage of incentives that are in place at the time of construction. The project will meet the "solar ready" requirements of the Green Building Code Standards.



Greenhouse Gas Emissions And Climate Change

Scoping Plan Measure	Project Consistency
Water	
Water	Consistent. The project will comply with CalGreen, which requires a 20 percent reduction in indoor water use.
Green Building	
Green Building Strategy	Consistent. The proposed project would be consistent with both City and state minimum green building requirements.
Recycling and Waste Management	
Recycling and Waste	Consistent. The project is required to achieve the recycling mandates via compliance with CalGreen.

Notes:

City = City of Santa Rosa

PG&E = Pacific Gas and Electric

The Scoping Plan contains a variety of strategies to reduce the state’s emissions. As shown in Table 3.8-6, the project is consistent with the strategies applicable to the proposed project. The 2017 Scoping Plan Update strategies primarily rely on increasing the stringency of existing regulations for which the project would continue to comply with and support through the project’s design and implementation.

Table 3.8-6: SB 32 Scoping Plan Consistency Analysis

2017 Scoping Plan Measures	Project Consistency
SB 350 to reduce GHG emissions in the electricity section through the implementation of the 50 percent Renewable Portfolio Standard.	Consistent. PG&E obtained 33 percent of its power supply from renewable sources, such as solar and geothermal, in 2017; and about 70 percent of the electricity it delivers is carbon-free, including nuclear and large hydroelectric facilities. In addition, the proposed project install solar on all residential development less than three stories.
Low-Carbon Fuel Standard Transition to cleaner/less polluting fuels that have a lower carbon footprint.	Consistent. The project would not conflict with implementation of this measure because motor vehicles associated with construction and operation of the project would utilize low-carbon transportation fuels as required under this measure.
SB 1383 Approve and implement Short-Lived Climate Pollution strategy to reduce highly potent GHGs	Consistent. As part of MM GHG-3, the project would require catalytic converters for all woodburning heat sources.
Post-2020 Cap-and-Trade Program	Consistent. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Therefore, GHG emissions associated with CEQA projects’ electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program’s first compliance period.

Notes:

PG&E = Pacific Gas and Electric

SB = Senate Bill



EO S-3-05 established a reduction of GHG emissions to 80 percent below 1990 levels by 2050. Regarding the proposed project consistency with EO S-3-05, it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed. Because of the technological shifts required and the unknown parameters of the regulatory framework in 2050, quantitatively analyzing the proposed project's impacts further relative to the 2050 goals is speculative for purposes of CEQA. However, it can be anticipated that operation of the project would comply with measures that are enacted to meet an 80 percent reduction below 1990 levels by 2050. The proposed project would be consistent with the California GHG Plans and would further the state's goals of reducing GHG emissions to 1990 levels by 2020, and 40 percent below 1990 levels by 2030, and does not obstruct their attainment.

In addition to the Plan level consistency analysis presented in Tables 3.8-5, 3.8-6, and 3.8-7, the proposed project would be subject to Title 24 energy efficiency standards. Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The proposed project would comply with CalGreen, which includes requirements to increase recycling, reduce waste, reduce water use, increase bicycle use, and other measures that would reduce GHG emissions. In addition, as required by Title 24, the project would install solar panels on the residential units. Motor vehicle emissions associated with the proposed project would be reduced through compliance with state regulations on fuel efficiency and fuel carbon content. The proposed project would not conflict with the County General Plan or regulations adopted by the state to reduce GHG emissions. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM GHG-1 would be required.

Level of Significance After Mitigation

Less Than Significant with Mitigation.



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