IV. ENVIRONMENTAL IMPACT ANALYSIS
G. GREENHOUSE GAS EMISSIONS

INTRODUCTION

This section describes the expected emissions of greenhouse gases (GHGs) generated during the construction and operational phases of the proposed project and has been prepared in accordance with the most recent version of the Butte County Air Quality Management District (BCAQMD) CEQA Guidelines.[1]

The BCAQMD CEQA Handbook details operational measures recommended by BCAQMD to reduce air emissions. Table IV-G.1 provides an analysis of the applicability of each project operational measure and where possible, details how implementation of the measure is quantified for the calculation of the mitigated operational criteria pollutant emissions conditions.

The project is consistent with the following operational measures recommended by BCAQMD to reduce air emissions.

Table IV.G-1. Project Environmental Commitments

BCAQMD's Standard Mitigation Measures	Applicability to Project	Quantification of Mitigation Measure
Provide a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe (including appropriate signalization and signage);	The project includes 5-foot wide sidewalks along all new and enhanced street frontages.	No emissions reductions were taken.
Provide good access to/from the development for pedestrians, bicyclists, and transit users	The project design supports multiple modes of travel by including bike paths, sidewalks, and bus stops as required by *Mitigation Measure TRANSPORTATION-5*	No emissions reductions were taken.
Pave and maintain the roads and parking areas;	All roads and parking areas will be paved as required by the City's Municipal Code.	No emissions reductions were taken.
Driveway design standards (e.g., speed bumps, curved driveway) for self-enforcing of reduced speed limits for unpaved driveways;	The project has been designed to meet City's Municipal Code, which includes streets designed for low speeds.	No emissions reductions were taken.
Development is within 1/4 mile of transit centers and transit corridors;	The project will create the ability for new bus lines, as required in *Mitigation Measure TRANSPORTATION-5.*	No emissions reductions were taken.

[1] *BCAQMD, 2014. CEQA Air Quality Handbook. October 23.*

Design and build compact communities in the urban core to prevent sprawl;	The project is located adjacent to existing residential and commercial uses and would connect these uses to create cohesive infill development.	No emissions reductions were taken.
Increase density within the urban core and urban reserve lines;	The project is located adjacent to existing residential and commercial uses and would connect these uses to create cohesive infill development.	No emissions reductions were taken.
For projects adjacent to high-volume roadways, plant vegetation between receptor and roadway;	The project includes a masonry wall and landscaping buffer that separates roadways from receptors.	No emissions reductions were taken.
No residential wood burning appliances;	The local air district prohibits wood burning appliances in new development.	No emissions reductions were taken.
Incorporate traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection designs that reduce vehicles speeds and encourage pedestrian and bicycle travel;	The project has been designed to meet City's Municipal Code, which includes narrow street width and low design speeds for local roads.	No emissions reductions were taken.
Increase number of connected bicycle routes/lanes in the vicinity of the project;	The project has been designed to meet City's Municipal Code, which includes provisions for bicycle lanes along new and existing streets.	No emissions reductions were taken.
Provide easements or land dedications and construct bikeways and pedestrian walkways;	The project has been designed to include the dedication and construction of bike paths and pedestrian walkways.	No emissions reductions were taken.
Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel to adjacent land uses;	The project has been designed to connect existing dead-end streets and minimizes creation of cul-de-sacs and dead-end streets.	No emissions reductions were taken.
Develop recreational facility (e.g., parks, gym, pool, etc.) within one-quarter of a mile from site;	The project includes a park and large public open space with viewing points.	No emissions reductions were taken.
If the project is located on an established transit route, provide improved public transit amenities (i.e., covered transit turnouts, direct pedestrian access, covered bench, smart signage, route information displays, lighting etc.);	*Mitigation Measure TRANSPORTATION-6* requires that the project applicant consult with BCAG to provide new transit route options. A future transit route is anticipated along Bruce Road.	No emissions reductions were taken.
Provide storage space in garage for bicycle and bicycle trailers, or covered racks / lockers to serve the residential units; and	Homes associated with the project would include the ability to securely store bicycles and bicycle trailers within their garages.	No emissions reductions were taken.
Develop core commercial areas within 1/4 to 1/2 miles of residential housing or industrial areas	The project includes commercial uses with its boundaries. Additional commercial areas are located with ½ mile of portions of the project site.	No emissions reductions were taken.

ENVIRONMENTAL SETTING

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by humankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect. The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or global climate change. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred because it implies that there are other consequences to the global climate in addition to rising temperatures. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- Carbon dioxide (CO_2), primarily a byproduct of fuel combustion;
- Nitrous oxide (N_2O), a byproduct of fuel combustion; also associated with agricultural operations such as the fertilization of crops;
- Methane (CH_4), commonly created by off-gassing from agricultural practices (e.g. livestock), wastewater treatment and landfill operations;
- Chlorofluorocarbons (CFCs) were used as refrigerants, propellants and cleaning solvents, but their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons (HFCs) are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and
- Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

These gases vary considerably in terms of Global Warming Potential (GWP), a term developed to compare the propensity of each GHG to trap heat in the atmosphere relative to another GHG. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time of gas remains in the atmosphere. The GWP of each GHG is measured relative to CO_2. Accordingly, GHG emissions are typically measured and reported in terms of equivalent CO_2 (CO_2e).

An expanding body of scientific research supports that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally-occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater

intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Effects of global climate change that adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

REGULATORY SETTING

Federal Regulations

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). At this time, there are no federal regulations or policies directly pertaining to GHG emissions from proposed actions like the project.

State Regulations

The State of California is concerned about GHG emissions and their effect on global climate change. The State recognizes that "there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures" and that "the evidence for climate change is overwhelming." The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, affecting the state's water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

Assembly Bill 1575 (1975)

In 1975, the Legislature created the California Energy Commission (CEC). The CEC regulates electricity production that is one of the major sources of GHGs.

Title 24, Part 6 of the California Code of Regulations (1978)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Assembly Bill 1493 (2002)

Assembly Bill (AB) 1493 required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks.

State of California Executive Order S-3-05 (2005)

The Governor's Executive Order established aggressive emissions reductions goals: by 2010, GHG emissions must be reduced to 2000 levels; by 2020, GHG emissions must be reduced to 1990 levels; and by 2050, GHG emissions must be reduced to 80 percent below 1990 levels.

In June 2005, the Governor of California signed Executive Order S-3-05, which identified Cal/EPA as the lead coordinating State agency for establishing climate change emission reduction targets in California. A "Climate Action Team," a multi-agency group of State agencies, was set up to implement Executive Order S-3-05. Under this order, the State plans to reduce GHG emissions to 80 percent below 1990 levels by 2050. GHG emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.

Assembly Bill 32 (AB 32), California Global Warming Solutions Act (2006)/Senate Bill 32 (SB 32, 2016)

AB 32, the Global Warming Solutions Act of 2006, codifies the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. The Scoping Plan recommends a GHG reduction target for local governments of 15 percent below 2005 emission levels by 2020, which is regarded as equivalent to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of carbon dioxide equivalent (MMT CO_2e) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 million metric tons of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 million metric tons of CO_2e. Thus, an estimated reduction of 80 million metric tons of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB published a second update to the Scoping Plan[2] to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. Plan Bay Area, adopted in 2013, is the first Bay Area Regional Transportation Plan (RTP) to incorporate the state-mandated Sustainable Communities Strategy (SCS). As a cooperative effort between MTC and ABAG, Plan Bay Area establishes performance targets for meeting the SCS Bay Area goals of a 7 percent per capita reduction in GHG emissions by 2020 and a 15 percent per capita reduction by 2035.

Executive Order S-13-08 (2008)

This Executive Order directed California agencies to assess and reduce the vulnerability of future development projects to impacts associated with sea-level rise.

SB 350 Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

[2] *CARB, 2017. California's 2017 Climate Change Scoping Plan. November.*

Statewide GHG Emissions Inventory

The California Greenhouse Gas Emission Inventory – 2017 Edition (released June 6, 2017) indicates that total California emissions in 2015 were 440.4 MMT of CO_2e[3]. Approximately 37 percent of these emissions were associated with transportation (i.e., all sectors), followed by the Industrial sector at 21 percent and the Electric Power sector at 19 percent. The statewide inventory was estimated to have peaked in 2004. The current 2015 inventory is estimated to represent an overall decrease of 10 percent from 2004 levels.

Regional Regulations

BCAQMD is the lead agency in developing plans to address air quality and GHG emissions in Butte County. The District also has permit authority over most types of stationary equipment. The BCAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

The BCAQMD *CEQA Air Quality Handbook*[4] was prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the County. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions.

Local Regulations

The Chico City Council adopted 2020 Climate Action Plan (CAP)(2011), which contains GHG emission reduction targets that exceed AB 32 goals. The CAP established an overall GHG reduction goal of 25 percent (as opposed to 15 percent) below 2005 base-year emission levels to be achieved by 2020. The City has subsequently tracked progress toward meeting this 25 percent reduction goal by conducting high-level community-wide emissions inventories, consistent with guidance contained in the *U.S. Community Protocol for Accounting & Reporting GHG Emissions* developed by the International Council for Local Environmental Initiatives.

According to a 2018 inventory report, the City's 2005 baseline emissions level was approximately 652,275 MT CO_2e, which corresponds to a per capita emissions rate of 8.25 MT CO_2e/person.[5] By 2015, emissions had been reduced to approximately 507,516 MT CO_2e, or 5.5 MT CO_2e/person Using the 2005 baseline level developed for the inventories, the minimum reduction target consistent with the goals of AB 32 for the year 2020 is 554,434 MT CO_2e, or approximately 5.9 MT CO_2e/person.

---

[3] *See https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2015/ghg_inventory_trends_00-15.pdf accessed June 8, 2017*

[4] *Butte County Air Quality Management District, 2014. CEQA Air Quality Handbook. October.*

[5] *City of Chico, 2018. Community-Wide Greenhouse Gas Emissions Inventory 2005-2015.*

Although the City's Climate Action Plan and subsequent progress reports do not identify an emissions reduction target beyond 2020, a 2030 target consistent with SB 32 can be calculated from the sources above. To meet an emissions target consistent with SB 32 (which is 40 percent below the 2020 target set forth by AB 32), the City would have to further reduce total emissions to 332,660 MT CO_2e by 2030. Using the estimated 2030 forecast population for Chico of 110,644 persons (see Population and Housing Chapter), the SB 32 target corresponds to a per capita emissions rate of 3.0 MT CO_2e/person.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

In accordance with Appendix G of Title 14, Chapter 3 of the California Code of Regulations (CCR's), the proposed project would have a significant environmental impact if it would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Since there is no adopted threshold by BCAQMD, this Draft EIR instead uses the thresholds of significance adopted by the Bay Area Air Quality Management District (BAAQMD in May 2010 (BAAQMD, 2010). The BAAQMD thresholds were originally developed for project operation impacts only. Therefore, combining both the construction emissions and operation emissions for comparison to the threshold represents a conservative analysis of total greenhouse gas impacts. GHG gas impacts are, by their nature, cumulative impacts.

The project would have a significant impact on climate change if it would do any of the following:

Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, specifically:

- Project-Level Impacts: For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO_2e annually **AND**[6] more than 4.6 metric tons of CO_2e per service population annually.[7] The project's impact would be cumulatively considerable if the emissions exceed the 1,100 metric tons threshold, and cumulatively significant if it exceeds the 4.6 metric tons threshold per service population. Accordingly, the impact would be considered less than significant if the project's emissions are below **EITHER** of these thresholds.

[6] *The BAAQMD CEQA Guidelines state that the project would have a less-than-significant impact if CO_2e emissions do not exceed the 1,100 metric tons threshold AND the 4.6 metric tons per service population threshold. Because Chico's thresholds are structured to indicate when a project would have a significant impact, the thresholds are presented here such that the project would have a significant impact if it exceeded the 1,100 metric tons threshold AND the 4.6 metric tons per service population threshold.*

[7] *The service population includes both the residents and the employees of the project. BAAQMD recommends use of the 4.6 metric tons per service population threshold for large and mixed-use projects. (2011 BAAQMD Update at D-22 and D-27.)*

Project Impacts and Mitigation Measures

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact (1,100 metric tons of CO_2e per year and at least 4.6 metric tons of CO_2e per service population) on the environment?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below.

CalEEMod Modeling

CalEEMod was used to estimate GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model. CalEEMod provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport.

Land Uses

The proposed project land uses were input into CalEEMod, which included: 469 dwelling units entered as "Single Family Housing," 233 dwelling units entered as "Apartments Low Rise," 205,000 square feet (sf) entered as "Medical Office Building"/commercial, and 240,000 sf entered as "Strip Mall"/retail. The CalEEmod input and output values are contained in Appendix C.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year estimated for full project build-out and operation is 2035.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate provided in the project traffic report. This included the trip reductions for mixed-use internal trips, shift to alternate modes of transportation (i.e., walk, bike and transit), and retail pass-by. The CalEEMod default trip lengths were modified based on ACS Census data and information provided by the Butte County Association of Governments (BCAG).[8] The CalEEMod defaults for fleet mix were adjusted based on data from multiple traffic counts collected by the Chico Public Works Department.

[8] *Available online: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed: March 12, 2018.*

Energy

CalEEMod defaults for energy use were used, which are assumed to include 2016 Title 24 Building Standards.

One adjustment was made to CalEEMod for GHG modeling. CalEEMod has a default rate of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The rate was adjusted to account for PG&E's projected 2020 CO_2 intensity rate. This 2020 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. The derived 2020 rate for PG&E was estimated at 290 pounds of CO_2 per megawatt of electricity delivered.[9]

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. No new wood-burning stoves or fireplaces are allowed in Butte County, but it was assumed that 25 percent of new single-family residences could include gas-powered fireplaces. The consumer products emission factor was updated to reflect the latest emission information from CARB.[10] The landfill capture rate was updated to 90 percent based on correspondence with Bill Mannel, Solid Waste Manager for Butte County.[11] Based on correspondence with Jason Mandly, Planner at BCAQMD, the interior and exterior architectural coatings factor was updated to 150 g/L.[12]

Per Capita Emissions

The project population is based on the number of future residents. The number of future residents was calculated as approximately 1,734 based on 2.47 average persons per household.

Construction Emissions

GHG emissions associated with construction were computed to be a maximum of 1,489 MT of CO_2e in 2022. Construction emissions would fluctuate over the heaviest anticipated build-out period (2022-2038), generally hovering around 1,350 MT CO_2e per year between 2028 and 2038. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BCAQMD has established a threshold of significance for construction-related GHG emissions.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to predict daily emissions associated with operation of the fully-developed site under the proposed project.

---

[9] *Pacific Gas & Electric, 2015. Greenhouse Gas Emission Factors: Guidance for PG&E Customers. November.*

[10] *CARB, 2013. The California Almanac of Emissions and Air Quality.*

[11] *Personal correspondence with Bill Mannel, Solid Waste Manager, Butte County.*

[12] *Personal correspondence with Jason Mandly, Associate Planner, BCAQMD.*

In 2035, as shown in Table IV.G-2, annual emissions resulting from operation of the proposed project are predicted to be 5.2 MT of CO_2e service population per capita, which would exceed the significance threshold of 4.6 MT of CO_2e service population per capita per year. Project GHG emissions would be considered ***significant***. Implementation of *Mitigation Measure GHG-1/AIR-2C* would reduce project GHG emissions (see Table IV.G-3), but not a level a level of less than significant. Therefore, this impact would remain ***significant and unavoidable***.

Table IV.G-2. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project 2035
Area	216
Energy Consumption	2,314
Mobile	9,485
Solid Waste Generation	1,459
Water Usage	206
Total	13,680
Threshold	**1,100 MT of CO_2e/per year**
Cumulatively Considerable?	***Yes***
Service Population Capita Emissions[1]	**5.2**
Threshold	**4.6 MT of CO_2e/capita**
Significant?	***Yes***

[1] Based on an estimated service population 1,734 Residents + 890 Employees, Total 2,624

Table IV.G-3. Mitigated Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project 2035
Area	216
Energy Consumption	2,300
Mobile	9,485
Solid Waste Generation	1,459
Water Usage	206
Mitigated Total	13,666
Threshold	**1,100 MT of CO_2e/per year**
Cumulatively Considerable?	***Yes***
Service Population Capita Emissions[1]	**5.2**
Threshold	**4.6 MT of CO_2e/capita**
Significant?	***Yes***

[1] Based on an estimated service population 1,734 Residents + 890 Employees, Total 2,624

Mitigation Measure AIR-2C/GHG-1:

The project applicant shall implement the following BCAQMD-recommended operational mitigation measures:

1. Incorporate outdoor electrical outlets to encourage the use of electric appliances and tools;
2. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles;
3. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible;
4. Final designs shall consider buildings that include roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows (passive solar design);
5. Utilize high efficiency gas or solar water heaters;
6. Utilize built-in energy efficient appliances (i.e., Energy Star);
7. Utilize double-paned windows;
8. Utilize low energy street lights (i.e. light-emitting diode);
9. Utilize energy-efficient interior lighting;
10. Utilize low-energy traffic signals (i.e., light-emitting diode);
11. The project shall meet all title 24 requirements, including but not limited to:
    a. Install door sweeps and weather stripping (if more efficient doors and windows are not available);
    b. Install energy-reducing programmable thermostats;
    c. Use roofing material with a solar reflectance values meeting the EPA/DOE Energy Star rating to reduce summer cooling needs.
12. Prior to the recordation of each Final Map, to the extent that cumulative project operational emissions exceed applicable thresholds the project applicant shall participate in an Off-site Mitigation Program coordinated through the Butte County Air Quality Management District (BCAQMD). The project applicant shall utilize a methodology based on the BCAQMD CEQA Handbook with final details to be approved by the BCAQMD and City for calculating the payment to the Off-site Mitigation Program.

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

The City of Chico adopted the City of Chico 2020 Climate Action Plan (2012), which contains greenhouse gas emission reduction targets consistent with AB 32.

For new developments in the City, the Climate Action Plan has provided the following list of measures in Table IV.G-4, which are to be applied on a project-by-project basis in order to ensure compliance with the Climate Action Plan.

Table IV.G-4. Consistency with Climate Action Plan Measures for New Development

Climate Action Plan Measure Project Conformance with Measure	Climate Action Plan Measure Project Conformance with Measure
Consistency with key General Plan goals, policies, and actions that address sustainability, smart growth principles, multi-modal circulation improvements, and quality community design;	As detailed in Section IV.J (Land Use) of the Draft EIR, the proposed project would be consistent with all applicable goals, policies, and actions that address sustainability, smart growth principles, multi-modal circulation improvements, and quality community design.
Compliance with California's Title 24 Building Energy Efficiency Standards for Residential and Non- Residential Buildings;	The proposed project will be designed to meet Title 24 building energy efficiency standards for residential and non-residential buildings.
Compliance with the City's tree preservation ordinance;	The project includes no tree removal.
Incorporation of street trees and landscaping consistent with the City's Municipal Code;	The new streets will include street trees and landscaping consistent with the City's Municipal Code.
Consistency with the City's Design Guidelines Manual;	Future commercial and multi-family residential uses within the project will be designed to be consistent with the City's Design Guidelines Manual.
Consistency with the State's Water Efficient Landscape Ordinance (AB 1881);	Landscape installations for the project will be consistent with the requirements of the State's Water Efficient Landscape Ordinance.
Compliance with the City's Residential Energy Conservation Ordinance, which requires energy and water efficiency upgrades at the point-of-sale, prior to transfer of ownership (e.g., attic insulation, programmable thermostats, water heater insulation, hot water pipe insulation, etc.);	Future development will be required to be consistent with the City's Residential Energy Conservation Ordinance
Provision of bicycle facilities and infrastructure as may be required by the City's Bicycle Master Plan;	The proposed project has been designed to be consistent with the City's Bicycle Master Plan.
Installation of bicycle and vehicle parking consistent with the City's Municipal Code;	Future development within the project site will include bicycle and vehicle parking consistent with the City's Municipal Code.
Coordination with the Butte County Association of Governments to provide high quality transit service and infrastructure, where appropriate;	*Mitigation Measure TRANSPORTATION-5* requires the developer to coordinate subdivision improvement plans with the local transit provider to include bus stops in conformance with Butte Regional Transit design standards.
Consistency with the Butte County Air Quality Management District's CEQA Handbook;	Impacts AIR-1 through AIR-4 have been provided in this DEIR, consist with the BCAQMD's CEQA Handbook guidance.
Adherence to Butte County Air Quality Management District mitigation requirements for construction sites (e.g., dust suppression measures, reducing idling equipment, maintenance of equipment per manufacturer specs, etc.);	Construction of the proposed project would adhere to all applicable rules and requirements, including BCAQMD's dust suppression measures, reductions in idling and equipment maintenance requirements.
Requirement for new employers of 100+ employees to submit a Transportation Demand Management Plan;	No large single employer with more than 100 employees is anticipated within the proposed project.
Diversion of fifty percent (50%) of construction waste;	The proposed project would meet all green building requirements as required by California Green

	Building Code requirements starting in 2018.
Compliance with the City's Capital Improvement Plan, which identifies new multi-modal facilities and connections;	The proposed project has been designed to be consistent with the City's Capital Improvement Plan, and most notably with the City's Bruce Road Widening Project.
Option to incorporate solar arrays in parking areas in lieu of tree shading requirements;	Future development of parking areas shall be consistent with municipal code requirements for shading, which can be achieved with trees or solar arrays.
Consistency with the City's Storm Drainage Master Plan.	The proposed storm drain system has been designed to be consistent with the City's Storm Drainage Master Plan and will be verified as such at each development phase when detailed improvement plans are submitted during project build-out.
Source: City of Chico, 2012; WRA 2018.	

As detailed in Table IV.G-3, the proposed project is generally consistent with the Climate Action Plan's new development measures. However, as discussed above project GHG emissions would exceed the significance threshold of 1,100 metric tons threshold and 4.6 MT of CO_2e per service population. Therefore, this impact would be considered ***significant and unavoidable***.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of *Mitigation Measure AIR-2C/GHG-1* would reduce the GHG operational impacts, but not a level a level of less than significant. Therefore, this impact would remain ***significant and unavoidable***.

THIS PAGE INTENTIONALLY LEFT BLANK