CITY OF WHEATLAND DRAFT CLIMATE ACTION PLAN

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City of Wheatland
Community Development Department
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City of Wheatland
Draft Climate Action Plan

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I. INTRODUCTION

California has affirmed the need for action to reduce statewide greenhouse gas (GHG) emissions through the adoption of multiple executive orders under Governors Arnold Schwarzenegger and Jerry Brown as well as legislative actions including Assembly Bill (AB) 32 and Senate Bill (SB) 32. Both AB 32 and SB 32 establish statewide GHG reduction goals. The majority of the statewide reductions mandated by AB 32 and SB 32 would be accomplished through statewide programs; however, implementation of local measures to reduce GHG emissions will likely be needed to achieve the statewide reductions mandated by AB 32 and SB 32. The City of Wheatland's efforts regarding GHG emissions reductions are intended to work in concert with the efforts being undertaken on a statewide level. Thus, the City has prepared a Climate Action Plan (CAP), implementation of which would establish consistency between the City of Wheatland's policies and statewide reduction requirements.

PURPOSE AND SCOPE OF THE CAP

This CAP is intended to streamline future environmental review of development projects in the City of Wheatland by following the California Environmental Quality Act (CEQA) Guidelines and meeting the Feather River Air Quality Management District's (FRAQMD) expectations for a Qualified GHG Reduction Strategy. The CAP will also identify how the City will achieve consistency with the statewide emissions limits and the 2017 Scoping Plan Update prepared by the California Air Resources Board (CARB).

The following sections summarize the content included in subsequent chapters of the CAP.

EXPECTED REGIONAL CLIMATE CHANGE IMPACTS

The City of Wheatland has identified potential climate change impacts specific to the City and the surrounding region. Impact areas to be considered may include, but not necessarily be limited to, agriculture, public health, and water resources. An in-depth discussion of such regional impacts is included in Chapter 3 of this CAP, Regional Climate Change Impacts.

GHG 2010 BASELINE INVENTORY

In 2014, the Sierra Business Council prepared a preliminary GHG Baseline for the City of Wheatland. The preliminary GHG Baseline was presented before the Planning Commission on April 22, 2014, and was subsequently approved. Consequently, the Sierra Business Council, in collaboration with the City of Wheatland, prepared a 2010 Baseline Greenhouse Gas Emissions Inventories report (2010 Inventory).[1] Included in the 2010 Inventory are estimates of the City's GHG emissions resulting from community activities and sources as a whole in 2010, as well as emissions specifically from the City's municipal operations in 2010. The report is intended to guide local GHG emissions reduction efforts, including the identification of GHG emissions reduction goals for the City.

[1] City of Wheatland. Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories, Final Report. March 2014.

EMISSIONS FORECASTING AND GHG REDUCTION GOALS

In order to quantify the anticipated emissions that would occur if the City's current emission trends continue without the implementation of GHG-reducing policies and programs, the City of Wheatland has forecasted emissions associated with the full buildout of the City in the absence of the CAP for the years 2030 and 2050. The assumptions for growth within the City to the years 2030 and 2050 are provided in Chapter 4, Emissions Quantification and Thresholds.

As further discussed in Chapter 4 of this CAP, California's 2017 Scoping Plan recommends per capita emissions goals that may be used during the preparation of local action strategies to address climate change. The per capita emissions goals represent statewide emissions levels that would achieve consistency with AB 32 and SB 32 reduction goals. Using the 2017 Scoping Plan's per capita emissions goals and the estimated year 2030 and 2050 population estimates for the City, emissions goals have been established for the aforementioned years.

Therefore, the forecasted emissions from the years 2030 and 2050 can be compared to emissions goals for the corresponding year. Through the use of the foregoing methodology, the CAP includes an identification of the gap between the forecasted emissions and the emissions goals. The size of the gap has informed the intensity and scope of the GHG reductions strategies identified in this CAP.

GHG EMISSIONS REDUCTION STRATEGIES AND IMPLEMENTATION

Based upon the aforementioned GHG reduction goals, the City of Wheatland has identified and quantified GHG emissions reduction strategies, which include climate change adaptation strategies, measures, and actions. The reduction strategies include strategies to be implemented by new development, the municipal government, and existing development to meet the reduction goals. Reduction strategies have been organized into the following four focus areas:

- Transportation and Land Use;
- Energy;
- Solid Waste; and
- Water Sector.

Each reduction strategy includes specific actions and the parties responsible for taking such actions, which will allow for an orderly and flexible approach to future CAP implementation.

The CAP also creates a framework for documenting, coordinating, measuring, and adapting efforts moving forward. The ultimate goal of the CAP is to achieve the identified reductions in emissions by the target years: 2030 and 2050. As the City implements this CAP over the years, mid-course corrections will almost certainly be necessary to achieve the State's emissions reduction goal. By providing the flexibility for future updates to the CAP, the City allows itself the ability to realize unforeseen opportunities and work around difficulties that could be encountered during CAP implementation. To keep this CAP relevant, updates of the CAP have been scheduled to allow the City to take stock of the progress the City has made and realign local efforts to achieve sustained results.

PLAN AREA AND LOCAL SETTING

From the City's nineteenth century agrarian roots to the community of today, Wheatland has remained valued by its residents for its small-town atmosphere and rural setting. The City is located in Northern California's Central Valley along State Route 65 in Yuba County, and is approximately one mile north of the Bear River and the tri-county boundary of Sutter, Placer, and Yuba Counties. Marysville (the county seat) and Yuba City are both located approximately twelve miles to the north of the City of Wheatland, and are the closest relatively large cities. The City of Sacramento is approximately 40 miles to the south of the City and Beale Air Force Base is located eight miles to the northeast of the City.

LOCAL AND REGIONAL PLANNING

New development and redevelopment within the City of Wheatland must adhere to a number of City policy documents, building code requirements, development standards, design guidelines, and standard practices that collectively further the goals and actions included in the CAP. Below is a list of those measures which are applied on a project-by-project basis, and which aid in implementing the CAP:

- Compliance with California's Title 24 Building Energy Efficiency Standards for Residential and Non-Residential Buildings;
- Compliance with the City's tree preservation ordinance;
- Incorporation of street trees and landscaping consistent with the City's Municipal Code;
- Consistency with the State's Water Efficient Landscape Ordinance (AB 1881);
- Provision of bicycle facilities and infrastructure as may be required by the City's Bicycle Master Plan; and
- Diversion of 50 percent of construction waste.

Further discussion with regard to the efficacy of the foregoing measures to reduce GHG emissions is provided in Chapter 5, Emissions Reductions Strategies of the CAP.

In addition to the above, all development within the City is subject to the goals, policies, and regulations contained within the City's General Plan and Municipal Code. Both the City's General Plan and Municipal Code regulate the substance and form of development throughout the City.

On June 7th, 2011, the County of Yuba adopted the Yuba County General Plan, which contains various goals, policies, and actions intended to reduce GHG emissions within the County. In addition, the Yuba County General Plan included a requirement to develop a Greenhouse Gas Reduction Plan to address compliance with AB 32 and SB 375. However, the Greenhouse Gas Reduction Plan has not yet been adopted. Although land within the City is not subject to County standards or development regulations, the future adoption of a Countywide plan to reduce GHG emissions would provide an opportunity for the City to partner with the County in organizing large scale GHG emissions reductions strategies.

In addition to the City and County, various other local agencies provide guidance and regulations pertaining to air quality and greenhouse gasses. The FRAQMD is a bi-county District that was formed in 1991 to administer local, state, and federal air quality management programs for Yuba and Sutter counties. The mission of the FRAQMD is to promote and improve the air quality of Sutter and Yuba counties. The FRAQMD's mission is accomplished through air quality monitoring, evaluation, public education, implementation of control measures to reduce emissions from

stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

The City of Wheatland is also within the jurisdiction of the Sacramento Area Council of Governments (SACOG). The SACOG is an association of local governments in the six-county Sacramento Region. Its members include the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba and the 22 cities within. As the designated metropolitan planning organization for the region, SACOG is responsible for ensuring that transportation projects and plans do not impede the region's clean air goals. As part of the region's overall effort to meet clean air standards and achieve conformity with transportation plans, SACOG partners with the air districts to promote clean-fuel vehicles and develop mobile source control measures through the Sacramento Emergency Clean Air and Transportation (SECAT) program.

USING THE CAP

To ensure the success of this CAP, the City will integrate the goals and strategies of this Plan into other local and regional plans, programs, and activities. As the City moves forward with any future General Plan updates, updates to the City's Municipal Code, approvals of new Specific Plans, Housing Element updates, and other such planning documents, staff will ensure that these documents support and are consistent with the CAP. CAP implementation will also require City leadership to execute strategies and report on the progress of implementation. The City's Community Development Director will be responsible for coordinating GHG reduction efforts between departments and will designate staff to monitor and report on the progress of the CAP. This CAP identifies the responsible department for each measure and offers specific actions for implementing each strategy. Lastly, successful implementation requires regular monitoring and reporting. Staff should monitor the CAP's implementation progress on an annual basis and report to the City Council on the Plan's progress each year.

Responsible entities as well as implementation timeframes are identified in Chapter 5, Emissions Reduction Strategies, of this CAP. Further steps towards using this CAP are presented in Chapter 6, Implementation.

II. CLIMATE CHANGE SCIENCE AND REGULATORY SETTING

PRINCIPLES OF THE EARTH'S CLIMATE

The following chapter will provide a brief overview of the scientific understanding of the Earth's climate system, with specific focus on the principles of climate change.

CLIMATE VS. WEATHER

Although sometimes used interchangeably, the terms "climate" and "weather" represent two related, but different concepts. Weather refers to the immediate state of the atmosphere. Questions such as, is it hot or cold outside right now; what is the humidity today; and how cloudy will it be this afternoon, are all concerned with the day-to-day conditions of the atmosphere. Climate, on the other hand, is the average of a given location's weather over time. Because climate information is considered on a longer temporal time scale than weather, climate is often discussed in statistical terms and can be used to answer such questions as what is the average temperature in Wheatland during the month of June; how many inches of rain does the City of Wheatland receive each year; and what month is usually the coldest month of the year in Wheatland. Because climate is the pattern of weather over a given time, questions regarding climate can be spatially and temporally broad. For instance, discussions on climate can focus on Wheatland, California, North America, or the entire globe, and can concern periods of weeks, years, decades, millennia, and beyond.[2]

Understanding a region's climate provides important insights into a regions average weather, as well as a region's likelihood of experiencing extreme weather events such as heat waves, storms, floods and droughts.[3] Extreme weather events are often the most attention-grabbing features of a region's climate, consider drought in California or hurricanes in Florida; however, average climactic conditions can also greatly impact a region's suitability for agriculture, forestry, and general human habitation. For instance, California's Mediterranean type climate, with mild wet winters and dry summers, makes the State uniquely suited for agricultural activities.

FACTORS CONTROLLING EARTH'S CLIMATE

Considering the importance of the region's climate to our society, we must understand the factors that affect climate. The City of Wheatland's climate is interconnected with the climate of the State, continent, and globe in what is called a climate system. The main driver of the earth's climate system, and thus the continent's, state's and City's climate, is energy radiated by the sun hitting the earth.[4] Several factors can alter the amount of solar energy hitting the earth such as: the

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2 National Snow & Ice Data Center. *All About Climatology and Meteorology*. Accessible at https://nsidc.org/cryosphere/arctic-meteorology/climate_vs_weather.html. Accessed on January 20, 2017.

3 U.S. Global Change Research Program. *GlobalChange.gov*. Accessible at http://www.globalchange.gov/. Accessed January 2017.

4 Masson-Delmotte, V., M. Schulz, A. Abe-Ouchi, J. Beer, A. Ganopolski, J.F. González Rouco, E. Jansen, K. Lambeck, J. Luterbacher, T. Naish, T. Osborn, B. Otto-Bliesner, T. Quinn, R. Ramesh, M. Rojas, X. Shao and A. Timmermann, 2013: *Information from Paleoclimate Archives. In: Climate Change*

distance of the earth from the sun, the intensity of solar activity, and the tilt of the earth on the earth's axis. However, these factors are generally stable, and act on what is known as a geologic timescale, often discussed in hundreds of thousands, to millions and billions of years. Because such factors are stable and predictable, the amount of solar energy hitting the earth is known and has been relatively constant over much of human history.[5]

Although humans cannot change the amount of solar energy reaching the earth, humans have discovered how the earth retains, and distributes solar energy. Generally speaking, the amount of solar energy being retained in the earth's climate system is based on a naturally occurring phenomena within the earth's atmosphere. Of principle concern is the process known as the greenhouse effect. The greenhouse effect acts to trap or release incoming solar radiation, and outgoing thermal energy radiated from the earth. Certain atmospheric constituents, such as water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and chlorofluorocarbons (CFCs), act as the glass walls of a greenhouse, the higher concentrations of these greenhouse gases (GHGs) that exist in the atmosphere, the thicker the glass walls of the greenhouse, and the more energy and heat that gets trapped within the earth's system.[6]

The greenhouse effect acts as a natural heat regulation system on earth, and has been functioning as such since long before humans existed. Although the greenhouse effect has been functioning on earth for millennia, the impact of the greenhouse effect has not always been the same. Sometimes, GHG concentrations in the atmosphere have naturally declined, and the greenhouse effect has lessened, leading to periods of glaciation that we can think of as ice ages. Other times, natural phenomena have increased GHG concentrations, heating the earth's system, melting glaciers, raising sea levels, and leading to periods of time where tropical conditions existed throughout the globe. Such large fluctuations in earth's climate happened over geologic timescales of tens or hundreds of thousands of years and show a link between the amount of greenhouse gases in the atmosphere and the earth's average temperature and climactic conditions.[7]

While the amount of GHGs in the atmosphere has fluctuated naturally in earth's past, human activities such as the burning of fossil fuels (i.e. natural gas, coal, oil), land conversion, industrial processes (e.g. cement production and artificial nitrogen fixation for fertilizer), food production, and many other daily activities are releasing vast quantities of GHG emissions into the

2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

5 National Aeronautics and Space Administration. *Paleoclimatology: Explaining the Evidence*. Available at http://earthobservatory.nasa.gov/Features/Paleoclimatology_Evidence/. Accessed on March 10, 2017.

6 Masson-Delmotte, V., M. Schulz, A. Abe-Ouchi, J. Beer, A. Ganopolski, J.F. González Rouco, E. Jansen, K. Lambeck, J. Luterbacher, T. Naish, T. Osborn, B. Otto-Bliesner, T. Quinn, R. Ramesh, M. Rojas, X. Shao and A. Timmermann, 2013: *Information from Paleoclimate Archives. In: Climate Change 2013: The Physical Science Basis.* Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

7 *Ibid*.

atmosphere.[8] The on-going release of GHG emissions from human activities is constantly increasing GHG levels in the atmosphere, and has been increasing such concentrations rapidly since the industrial revolution (Figure 1). Such increases can be thought of as thickening the glass walls of the earth's greenhouse, causing more and more energy as heat to be trapped within the earth's system, which in turn contributes to sea level rise, global temperature increases and global changes to earth's climate (Figure 1).

In conclusion, human society depends on stable, predictable climate patterns. GHGs naturally act to hold heat within the earth's climate system and are responsible for providing the stable climate that humans rely on. However, human activities across the globe are changing the earth's atmospheric composition by causing large increases in GHG concentrations, namely CO_2. Such human induced changes to atmospheric GHG concentrations are increasing the earth's average land and ocean temperatures, contributing to rising sea levels (Figure 1), and threaten to alter the earth's climate system.[9]

The City's CAP will chart a course forward for Wheatland, which will focus on measures that will encourage growth, and economic opportunity, while also encouraging climate change protection throughout the community. In balancing the economic needs of today with the safety and prosperity of future generations, the actions of the City of Wheatland, combined with statewide and global initiatives to reduce GHG emissions, will allow for on-going prosperity without diminishing the ability of future generations to enjoy the same standard of living.

REGULATORY SETTING

GHG emissions are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating GHG emissions within the Wheatland Planning Area are discussed below.

FEDERAL REGULATIONS

The most prominent federal regulation related to GHG emissions is the Federal Clean Air Act (FCAA), which is implemented and enforced by the United States Environmental Protection Agency (USEPA).

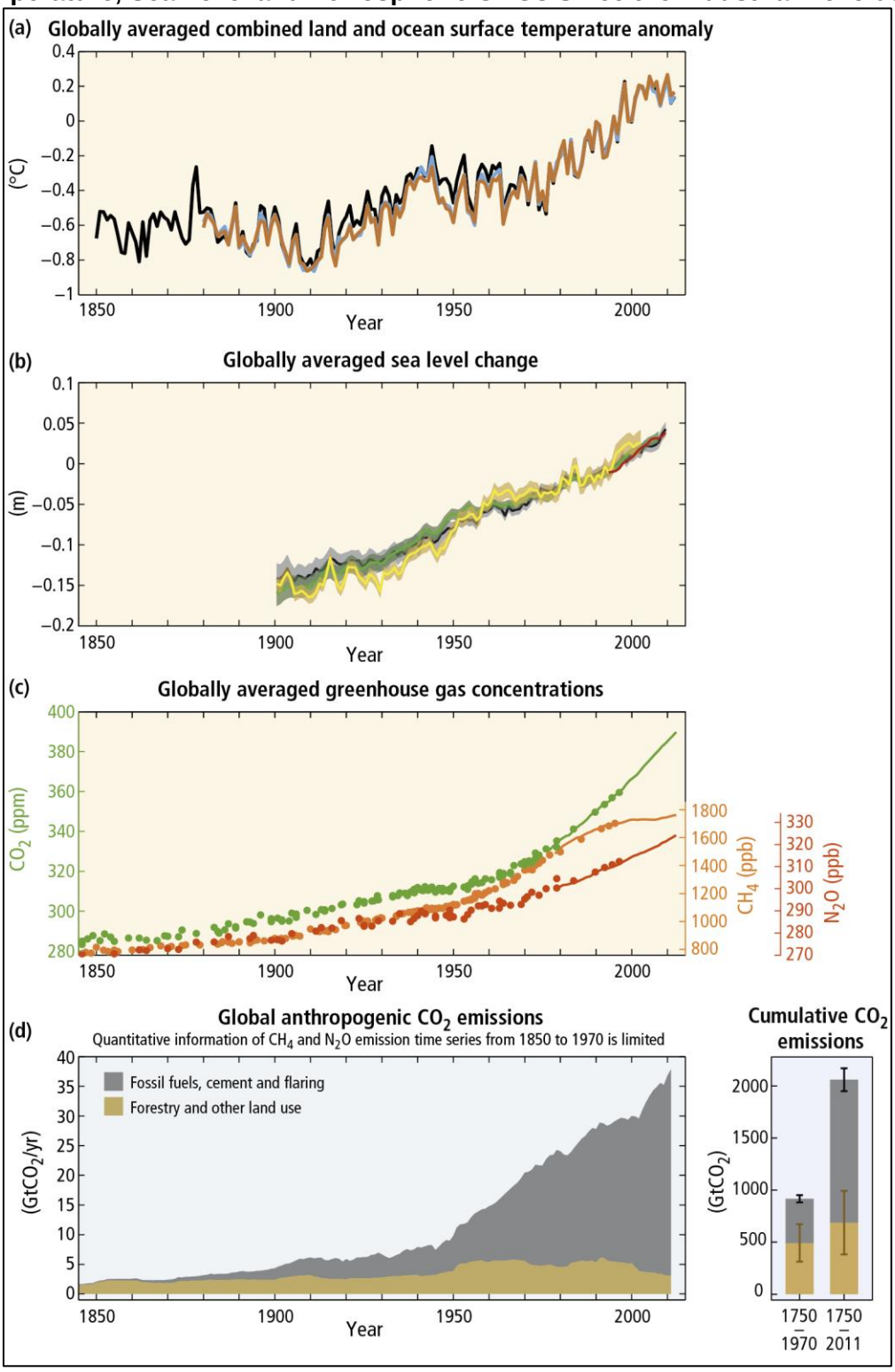
FCAA and USEPA

On December 7, 2009, USEPA issued findings under Section 202(a) of the CAA concluding that GHGs are pollutants that could endanger public health. Under the so-called Endangerment Finding, USEPA found that the current and projected concentrations of the six key, well-mixed GHGs – CO_2, CH_4, N_2O, PFCs, SF_6, and HFCs – in the atmosphere threaten the public health and welfare of current and future generations. These findings do not, by themselves, impose any requirements on industry or other entities.

[8] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

[9] *Ibid*.

Figure 1
Temperature, Sea Level and Atmospheric GHGs Since the Industrial Revolution



Source: IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

The USEPA has been directed to develop regulations to address the GHG emissions of cars and trucks. The Mandatory Reporting of Greenhouse Gases Rule requires reporting of GHG emissions from large sources and suppliers in the U.S., and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHG, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the USEPA. To track the national trend in emissions and removals of GHG since 1990, USEPA develops the official U.S. GHG inventory each year.

STATE REGULATIONS

California has adopted a variety of regulations aimed at reducing GHG emissions. The adoption and implementation of the key State legislation described in further detail below demonstrates California's leadership in addressing global climate change. Only the most prominent and applicable California GHG-related legislation are included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the California Air Resources Board (CARB) website.[36]

Assembly Bill (AB) 1007

AB 1007, State Alternative Fuels Plan (Pavley, Chapter 371, Statutes of 2005), required development and adoption of a State plan to increase the use of alternative fuels. The final *State Alternative Fuels Plan* was adopted on December 5, 2007 and presents strategies and actions California must take to increase the use of alternative, non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality. The Plan recommends goals for alternative fuel use of nine percent by 2012, 11 percent by 2017, and 26 percent by 2022, and lays a foundation for building a multi-fuel transportation energy future for California by 2050.

AB 1493

California AB 1493 (Stats. 2002, ch. 200) (Health & Safety Code, §42823, 43018.5), known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state." On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State's GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allows for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government's. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The second phase of the Pavley regulations (Pavley II) is expected to affect model year vehicles from 2016 through 2020. The CARB estimates that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

[36] California Air Resources Board. *Laws and Regulations*. Available at: http://www.arb.ca.gov/html/lawsregs.htm. Accessed February 2018.

Renewable Portfolio Standard (RPS)

Established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Since the inception of the RPS program, the program has been extended and enhanced multiple times. In 2015, SB 350 extended the State's RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. The requirements of SB 350 were expanded and intensified in 2018 through the adoption of SB 100, which mandated that all electricity generated within the State by publicly owned utilities be generated through carbon-free sources by 2045. In addition, SB 100 increased the previous renewable energy requirement for the year 2030 by 10 percent; thus requiring that 60 percent of electricity generated by publicly owned utilities originate from renewable sources by 2030.

Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission goals. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission goals; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

To comply with the Executive Order, the Secretary of the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

Assembly Bill 32

In September 2006, Assembly Bill (AB) 32, the California Climate Solutions Act of 2006, was enacted (Stats. 2006, ch. 488) (Health & Saf. Code, §38500 et seq.). AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008 and updated in 2014 and 2017.[37] The following sections present further information regarding plans and programs that have been introduced in order to meet the statutory requirements of AB 32.

[37] California Air Resources Board. *AB 32 Scoping Plan*. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed February 2018.

California Scoping Plan

The 2008 Scoping Plan identified GHG reduction measures that would be necessary to reduce statewide emissions as required by AB 32. Many of the GHG reduction measures identified in the 2008 Scoping Plan have been adopted, such as the Low Carbon Fuel Standard, Pavley, Advanced Clean Car standards, RPS, and the State's Cap-and-Trade system.

Building upon the 2008 Scoping Plan, the 2013 and 2017 Scoping Plan Updates introduced new strategies and recommendations to continue GHG emissions reductions. The 2013 Scoping Plan Update created a framework for achievement of 2020 GHG reduction goals and identified actions that may be built upon to continue GHG reductions past 2020, as required by AB 32. Following the 2013 Scoping Plan, the 2017 Scoping Plan sets a path for the achievement of California's year 2030 GHG reduction goals.

California GHG Cap-and-Trade Program

California's GHG Cap-and-Trade Program was originally envisioned in the 2008 Scoping Plan as a key strategy to achieve GHG emissions reductions mandated by AB 32. The Cap-and-Trade Program is intended to put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors has been established and facilities or industries subject to the cap are be able to trade permits (allowances) to emit GHGs. The CARB designed the California Cap-and-Trade Program to be enforceable and to meet the requirements of AB 32.[38] The Program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. On January 1, 2014 California linked the state's cap-and-trade plan with Quebec's, and on January 1, 2015 the program expanded to include transportation and natural gas fuel suppliers.[39] AB 398 was adopted by the State's legislature in July 2017, which reauthorized the Cap-and-Trade program through December 31, 2030. The reauthorization and continued operation of the Cap-and-Trade program represents a key strategy within the State's 2017 Scoping Plan Update for the achievement of California's year 2030 GHG reduction goals.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020. The Order also requires that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

SB 375

In September 2008, SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, was enacted, which is intended to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction goals to be achieved by the State's 18 metropolitan planning organizations (MPOs), including the Sacramento Area Council of

[38] California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 2018.
[39] *Ibid*.

Governments (SACOG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction goals. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

Executive Order S-13-08

Then-Governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

AB 197 and SB 32

On September 8, 2016, AB 197 and SB 32 were enacted with the goal of providing further control over GHG emissions in the State. SB 32 built on previous GHG reduction goals by requiring that the CARB ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. Additionally, SB 32 emphasized the critical role that reducing GHG emissions would play in protecting disadvantaged communities and the public health from adverse impacts of climate change. Enactment of SB 32 was predicated on the enactment of AB 197, which seeks to make the achievement of SB 32's mandated GHG emission reductions more transparent to the public and responsive to the Legislature. Transparency to the public is achieved by AB 197 through the publication of an online inventory of GHG and TAC emissions from facilities required to report such emissions pursuant to Section 38530 of California's Health and Safety Code. AB 197 further established a six-member Joint Legislative Committee on Climate Change Policies, which is intended to provide oversight and accountability of the CARB, while also adding two new legislatively-appointed, non-voting members to the CARB. Additionally, AB 197 directs the CARB to consider the "social costs" of emission reduction rules and regulations, with particular focus on how such measures may impact disadvantaged communities.

California Building Standards Code

California's building codes (California Code of Regulations [CCR], Title 24) are published on a triennial basis, and contain standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of

a building or other improvement to real property. The California Building Standards Commission (CBSC) is responsible for the administration and implementation of each code cycle, which includes the proposal, review, and adoption process. Supplements and errata are issued throughout the cycle to make necessary mid-term corrections. The 2016 code has been prepared and became effective January 1, 2017. The California building code standards apply State-wide; however, a local jurisdiction may amend a building code standard if the jurisdiction makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

California Green Building Standards Code

The 2016 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which became effective with the rest of the CBSC on January 1, 2017. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California.

The CALGreen Code encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction. The City of Davis has adopted Tier 1 standards as mandatory for all new construction within the City.

Building Energy Efficiency Standards

The 2016 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy efficiency measures from the 2013 Building Energy Efficiency Standards resulting in a 28 percent reduction in energy consumption from the 2013 standards for residential structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

LOCAL REGULATIONS

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Feather River Air Quality Management District

Various local, regional, State and federal agencies share the responsibility for air quality management in Yuba and Sutter counties. The Feather River Air Quality Management District (FRAQMD) operates at the local level with primary responsibility for attaining and maintaining the federal and State Ambient Air Quality Standards (AAQS) in Yuba and Sutter counties. The FRAQMD is tasked with implementing programs and regulations required by the FCAA and the California Clean Air Act (CCAA), including preparing plans to attain federal and State AAQS. The FRAQMD works jointly with the USEPA, CARB, SACOG, other air districts in the region, county

and city transportation and planning departments, and various non-governmental organizations to improve air quality through a variety of programs. Programs include the adoption of regulations, policies and guidance, extensive education and public outreach programs, as well as emission reducing incentive programs.

The FRAQMD maintains Rules and Regulations related to the control of pollutant emissions throughout the district. In addition, the FRAQMD plays a role in monitoring and controlling indirect sources of pollution and emissions, including emissions from new development and the open burning of agricultural material. The California Environmental Quality Act (CEQA) requires that public agencies evaluate potential air quality impacts from new projects within the District's area. In order to help public agencies evaluate air quality impacts, the FRAQMD has developed the *Indirect Source Review Guidelines*.[40] Chapter 8 of the FRAQMD's guidelines presents information regarding the analysis of GHG emissions within CEQA. In order to maintain consistency with the statewide approach to GHG analysis, the FRAQMD recommends that lead agencies refer to resources from the California Air Pollution Control Officers Association, the California Natural Resources Agency, the CARB, and the Office of the Attorney General of the State of California. The District recommends that local agencies use information from the foregoing sources when analyzing GHG emissions from projects, but the District has not established specific thresholds of significance for the emission of GHGs from plans, projects, or other activities within Yuba and Sutter counties.

Sacramento Area Council of Governments

Under SB 375, SACOG adopted the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS).[41] The MTP/SCS applies the goals of SB 375, and is intended to reduce GHG emissions through coordination between transportation and land use planning. One of the key goals of the MTP/SCS, is the reduction of GHG emissions from passenger vehicles. To accomplish such reductions, the MTP/SCS seeks to improve connections between the housing stock and employment centers within the planning area through compact and mixed-use developments. Should development within the SACOG region advance in a manner consistent with the MTP/SCS forecasts, SACOG anticipates that the region would meet the GHG emissions reductions goals for the region while simultaneously reducing the emissions of certain criteria pollutants.

[40] Feather River Air Quality Management District. *Indirect Review Guidelines*. June 7, 2010.

[41] Sacramento Area Council of Governments. *2016 Metropolitan Transportation Plan/Sustainable Communities Strategy*. February 18, 2016.

III. REGIONAL IMPACTS OF CLIMATE CHANGE

Executive Order S-13-08 directed the Natural Resources Agency to prepare a climate adaptation strategy identifying the potential risks to California posed by climate change.[42] In 2014, the Natural Resources Agency updated the original 2009, Statewide Adaptation Strategy with the publication titled *Safeguarding California: Reducing Climate Risk*, known as the Safeguarding California Plan.[43]

The Safeguarding California Plan focuses on the increasingly visible effects of climate change, with specific focus on how climate change is currently impacting, and will continue to impact, some of California's most valuable assets. While many of the climate change impacts identified in the Safeguarding California Plan act on a statewide or global scale, this section of the CAP will focus on those impacts that would directly impact the City of Wheatland and the surrounding region. In particular, the topics of agriculture, public health, and water resources will be further discussed in the context of Wheatland and the surrounding region.

AGRICULTURE

In 2014, agricultural activities such as processing, transporting, and marketing farm goods produced over $1,126,368,000 in Yuba County, or about $15,358 per Yuba County resident.[44] Wheatland's history as an agriculturally focused community within Yuba County is well established, and much of the historic and future development of the City has been, and is likely to continue to be, tied to agriculture. The City and County have California's unique Mediterranean climate to thank for the region's agricultural productivity; mild winters allow for a wide diversity of commodities to be cultivated year-round.

Farmers and ranchers within Yuba County are intimately familiar with natural variability in weather from year to year; however, climate change has the potential to overwhelm previous climate trends that farmers and ranchers have come to rely upon. For example, changing weather patterns throughout the State, including drought, loss of chill hours, and increased frequency of heat waves or extreme hot weather days all have the potential to directly affect agricultural activities.[45]

California's recent historic drought, between 2011 and 2015, provides a troubling example of what could lie in the State's agricultural future if climate change impacts increase. A recent economic analysis conducted by researchers at the University of California Davis determined that in the year 2015 alone, the State suffered a total agricultural economic loss of $2.7 billion with approximately 21,000 agricultural jobs lost throughout the State, due to the drought. Economic impacts to agriculture were anticipated to become increasingly severe with the persistence of the

[42] State of California, Office of Governor Edmund G. Brown Jr. *Executive Order S-3-08*. Available at https://www.gov.ca.gov/news.php?id=11036. Accessed May 3,2017.
[43] State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk*. July 2014.
[44] The County of Yuba. *2014 Crop Report*. August 2015.
[45] State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk* [pgs. 19-41]. July 2014.

drought.[46] Undoubtedly, Yuba County and Wheatland shared a portion of this revenue and job loss, and increased prevalence of droughts would continue to threaten the agricultural livelihoods of many Wheatland residents.

Impacts of drought and severe weather events, such as flooding, create easily identifiable threats to agricultural; however, some impacts to agriculture in the region and City may be more nuanced. For instance, climate change is anticipated to change the patterns of temperature fluctuations both day to night and seasonally, with impacts differing by region. One potential outcome of temperature pattern changes in the Wheatland area is the loss of chill hours. Evening chill hours signal many of California's most profitable fruit and nut crops to bloom. Irregular blooming caused by decreased chill hours could lead to irregular and depressed yields. Such changes to yields would impact agricultural revenues, threatening livelihoods within the region.

Irregular blooming patterns caused by the loss of chill hours represents one side of the spectrum of impacts due to increasing average temperatures. The reverse side of the spectrum related to increasing average temperatures is the increased prevalence of extreme hot weather days, and the overall increase in hot weather days. Persistent and extreme hot weather has the potential to cause significant health problems for livestock and humans alike. Increased air temperatures can decrease livestock yields, pregnancy rates, and milk production, thus threatening revenues for Wheatland residents involved in livestock production.

Finally, the human toll of a changing climate in Wheatland would be felt by employees working outdoors during extreme heat events. Heat stress in workers reduces productivity, and can lead to extreme outcomes such as illness, disability, and, in the most serious cases, death.[47]

Given the State's recent experience with severe drought, the potential economic damage to the agricultural industry from changing precipitation patterns is evident. Moreover, Wheatland's agricultural industry would not suffer from changing precipitation patterns alone; indeed, the community could be hit with the concurrent impacts of irregular blooming patterns, decreased livestock production, and decreased worker productivity. All of which would contribute to decreased agricultural revenues. Considering Wheatland's prominence as an agricultural community, the economic and human impacts of climate change present a danger to the way of life of many residents of the community.

PUBLIC HEALTH

Climate change poses multiple threats to public health in the City of Wheatland in regards to risks related to extreme heat events, air quality, flooding, and infectious diseases.

As discussed above, agricultural workers would be vulnerable to reduced productivity related to increased heat stress. However, agricultural workers are not the only group of Wheatland residents who would be vulnerable to heat stress. Increases in average and maximum air temperatures would contribute to increased risk of dehydration, heat exhaustion, heat stroke, and other heat related illnesses throughout the City's entire population. While all residents of the City would be potentially vulnerable to heat related impacts, children, elderly residents, and residents

[46] Howitt, Richard; MacEwan, Duncan; Medellín-Acuara, Josué; Lund, Jay; Sumner, Daniel. *Economica Analysis of the 2015 Drought for California Agriculture*. August 17, 2015.

[47] State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk* [pgs. 19-41]. July 2014.

without access to air conditioning or medical assistance would be especially impacted by increased heat stress.[48]

Higher temperatures would have the potential to degrade air quality by increasing the formation of unhealthy air pollution such as ozone and particulate matter. Moreover, the potential for climate change to increase the frequency and severity of wildfires throughout the State would further contribute to degraded air quality through increased wildfire smoke related particulate matter pollution. Ozone and particulate matter contribute to a variety of health problems such as asthma, acute respiratory diseases, cardiovascular diseases, and decreased lung capacity. Children and elderly residents of Wheatland again find themselves as a particularly vulnerable segment of the City's population in regards to potential air quality impacts related to climate change.[49] However, any resident that works or recreates outside would be impacted by decreased air quality.

Finally, warmer temperatures could allow for greater dispersal of infectious diseases. Diseases such as West Nile Virus, Lyme disease, and human hantavirus cardiopulmonary syndrome, could all be impacted through changes in weather patterns and environmental factors that may aid the dispersion of mosquitoes, rodents, and ticks that carry the disease. It should also be noted that certain food-borne diseases, such as Salmonella and Camplyobacter show seasonal patterns that respond to climate variability. Because these foodborne illnesses respond to climate patterns, climate change may alter the frequency of food-borne diseases from an agricultural production and consumer prevalence point of view.[50] Thus, climate change has the potential to increase the prevalence and threat of certain diseases within the City.

Therefore, climate change would have the potential to impact public health within Wheatland by increasing extreme weather events, contributing to degraded air quality, and potentially altering the distribution and frequency of infectious diseases.

WATER

California's water system is intensively managed to provide the optimal balance between flood protection and water supply. Although the City of Wheatland obtains water from well sources, the Camp Far West Reservoir, is located to the east of the City, upstream on Bear River. Camp Far West Reservoir and dam contribute flood protection service and irrigation water to the Wheatland area. Both flood protection and water supply services rely on California's cycle of winter precipitation falling as snow in the Sierras, which slowly melts and feeds downstream reservoirs into the dry season. Climate change threatens this cycle by increasing the proportion of precipitation that falls as rain in the region. Precipitation falling as rain on the Sierras does not provide the slow release that snow melt does, and, instead, stormwater runs off immediately to rivers, which quickly fill or overfill reservoirs. Shifting precipitation patterns complicate the management of dams and could lead to more frequent flooding related emergency situations,[51] such as the emergency evacuations involving the Oroville Dam in February of 2016.

The City of Wheatland relies on groundwater to meet municipal water demand. Groundwater used in the City originates in the South Yuba Subbasin of the Sacramento Valley Groundwater Basin.

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48 State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk* [pgs. 193-216]. July 2014.

49 *Ibid.*

50 *Ibid.*

51 State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk* [pgs. 230-257]. July 2014.

Groundwater in South Yuba Subbasin is recharged by surface waters from the Yuba, Feather, and Bear Rivers. Historically, groundwater pumping led to falling groundwater levels throughout the subbasin area; however, by 1990, the increased use of surface water for irrigation supplies reduced groundwater pumping.[52] Climate change within the region could threaten the stability of the South Yuba Subbasin groundwater supply through changes in precipitation patterns. As discussed above, changing precipitation patterns would alter the management strategy for dams and surface waters in the area. Changes to surface water management could lead to decreased availability of surface water for irrigation, which would increase reliance on groundwater, and/or decreased recharge of groundwater, both of which would lead to decreases in groundwater levels.[53] Falling groundwater levels would threaten the security and quality of the City's water supply. Additionally, falling groundwater tables can lead to subsidence, or the depression of ground levels, as the subsurface soils compress into spaces previously filled with groundwater. Subsidence can cause damage to infrastructure such as roads, bridges, and levees, and permanently impacts an area's groundwater storage capability. Thus, changes to precipitation patterns caused by climate change could impact the City's groundwater supply, change the availability of agricultural water supplies, and lead to costly infrastructure and property damage related to subsidence.

CONCLUSION

Communities across the state would experience impacts resulting from climate change similar to those discussed above. In recognition of the potential for such impacts to occur across the State, recent governors of California as well as the State legislature have adopted executive orders and legislation mandating that the State reduce GHG emissions reductions targets. The City of Wheatland is responding to existing legislation, specifically AB 32 and SB 32, by implementing this CAP. The actions of the City through this CAP, taken on a community level, will work in concert with the actions taken by the County, the State, and the vast majority of countries on earth, to reduce the threat of climate change.

[52] California Department of Water Resources. *Sacramento Valley Groundwater Basin, south Yuba Subbasin; Bulletin 118*. Updated January 20, 2006.

[53] State of California, Natural Resources Agency. *Safeguarding California: Reducing Climate Risk* [pgs. 230-257]. July 2014.

IV. EMISSIONS QUANTIFICATION AND THRESHOLDS

The following chapter presents information related to the need for quantifying the City's GHG emissions, past efforts to quantify the City's existing levels of GHG emissions, the methodology used for quantifying future emissions within the City, and the development of emissions thresholds based on Statewide emissions reductions goals.

EMISSIONS FORECASTING AND REDUCTION TARGETING

California's GHG emissions reduction goals were articulated in the CARB's *First Update to the Climate Change Scoping Plan*.[54] The First Update advised that emissions reduction goals be based on estimated baseline emissions for the year 1990. On January 20, 2017, the CARB released *The 2017 Climate Change Scoping Plan Update*. The 2017 Scoping Plan Update included new recommendations regarding emissions reduction goals. Rather than basing emissions reductions on estimated baseline emissions in the year 1990, the 2017 Scoping Plan Update recommends that local governments set future emissions goals on a per capita basis. Specifically, the 2017 Scoping Plan Update endorses the use of community-wide goals of per capita emissions not to exceed six metric tons of CO_2e per year (MT CO_2e/yr) by 2030, and per capita emissions not to exceed two MT CO_2e/yr by 2050. Per capita emissions as included in the 2017 Scoping Plan Update are considered consistent with the statewide emissions limits established by AB 32, SB 32, SB 391, and Executive Order S-3-05 and B-30-15.[55]

Considering that the State's most up-to-date guidance recommends the use of per capita emissions goals, the City must estimate future emissions related to citywide operations in the years 2030 and 2050, and the population of the City in each year. Thus, buildout potential for the City must be estimated for both years. Buildout potential for the City must include both public and private development such as residential development, expanded government facilities, and increased employment type development. By drafting buildout potential estimates for the years 2030 and 2050, the City may estimate both the likely population levels during those target years and the future emissions levels. Using the estimated future population and emissions levels, the City's compliance with the per capita emissions goals discussed above may be further analyzed.

QUANTIFYING CITYWIDE EMISSIONS

The following section will discuss previous efforts to quantify the City's GHG emissions as well as the CAP's quantification of future emissions.

PREVIOUS EMISSIONS QUANTIFICATION

In 2014, the Sierra Business Council prepared a GHG Baseline Inventory for the City of Wheatland. The preliminary GHG Baseline Inventory was presented before the City's Planning Commission on April 22, 2014, and was subsequently adopted. In 2016, the City conducted a review of the GHG Baseline Inventory, to ensure continued accuracy of the Inventory.

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54 California Air Resources Board. *First Update to the Climate Change Scoping Plan*. May 15, 2014.
55 California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.

The 2014 Inventory estimated municipal and community-wide GHG emissions in the year 2010, using a calculation-based methodology. The inventory relied on a population estimate of 3,519 residents in 2010, and an employment estimate of 1,000 jobs within the City at that time.[56] Both the population estimate and employment estimate were reasonable and accurate to the best knowledge of the City.

Emissions estimations included in the 2010 Inventory were based off both GHG emissions sources and GHG emitting activities within the City. Sources of GHG emissions within the City included physical processes inside Wheatland's jurisdictional boundaries that release GHG emissions into the atmosphere (i.e., natural gas combustion at homes or businesses, the combustion of fossil fuels in vehicles). GHG emitting activities include the use of energy, materials, and/or services within the community. An example of a GHG emitting activity is the use of electricity within the City. Energy consumption is considered an activity not a source because while electricity consumption occurs within the City, the GHG emissions related to electricity consumption occur at the fossil fueled power plant outside of the City, where such electricity originates. Therefore, although the GHG emissions related to the activity of using electricity occur outside of the City, because the activity of using electricity occurs within the City, the GHG emissions related to electricity are considered within the scope of the City's total GHG emissions.[57]

The results of the 2010 Inventory for community GHG emissions are presented in Figure 2 below, while the results of the 2010 Inventory for municipal GHG emissions are presented in Figure 3 below.

In addition to the figures below, the total community and municipal GHG emissions are presented in Table 1 below.

Table 1
City of Wheatland 2010 Community and Municipal GHG Emissions

Source	GHG Emissions (MT CO_2e/yr)
Community	13,595
Municipal	347
Total	13,942

Source: Sierra Business Council. City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories. March 2014

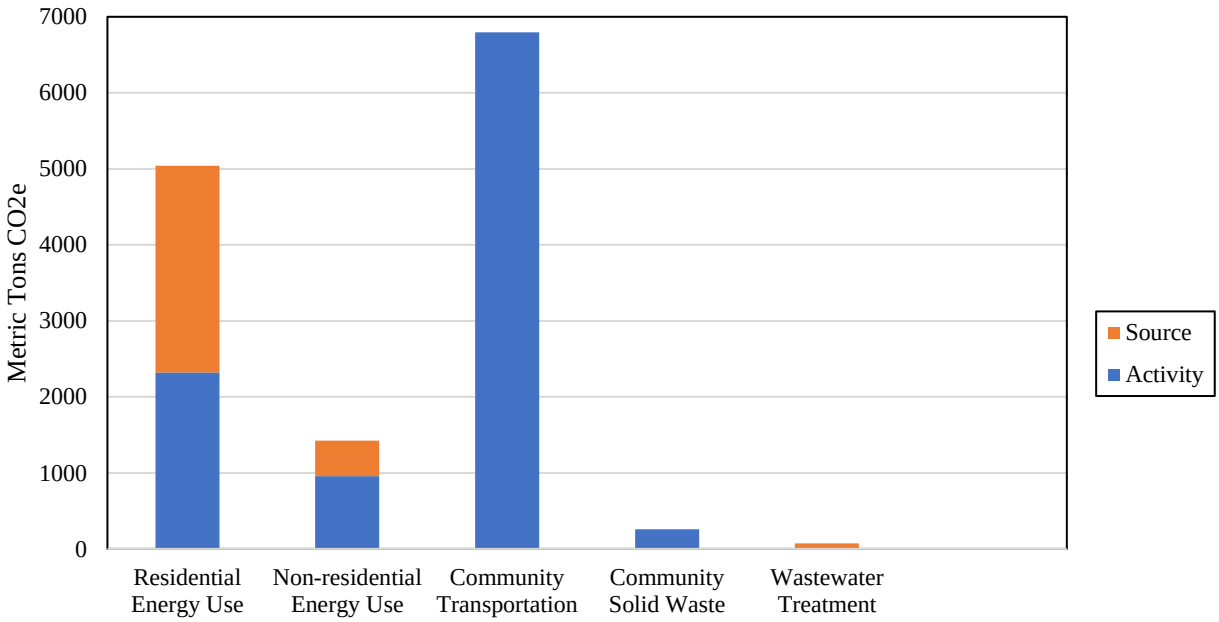
As shown in Table 1, the City's total emissions in 2010 were approximately 13,942 MT CO_2e/yr. Of the total emissions, approximately 97.5 percent of the total emissions were from the community while the remaining 2.5 percent occurred because of municipal activities. Within the community emissions, community transportation (such as single passenger vehicle trips and large truck trips) accounted for the largest share of emissions with approximately 6,796 MT CO_2e/yr, or 50 percent of the community emissions. Residential energy use was the second largest source of emissions in 2010.[58]

[56] Sierra Business Council. *City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories*. March 2014.

[57] Sierra Business Council. City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories. March 2014.

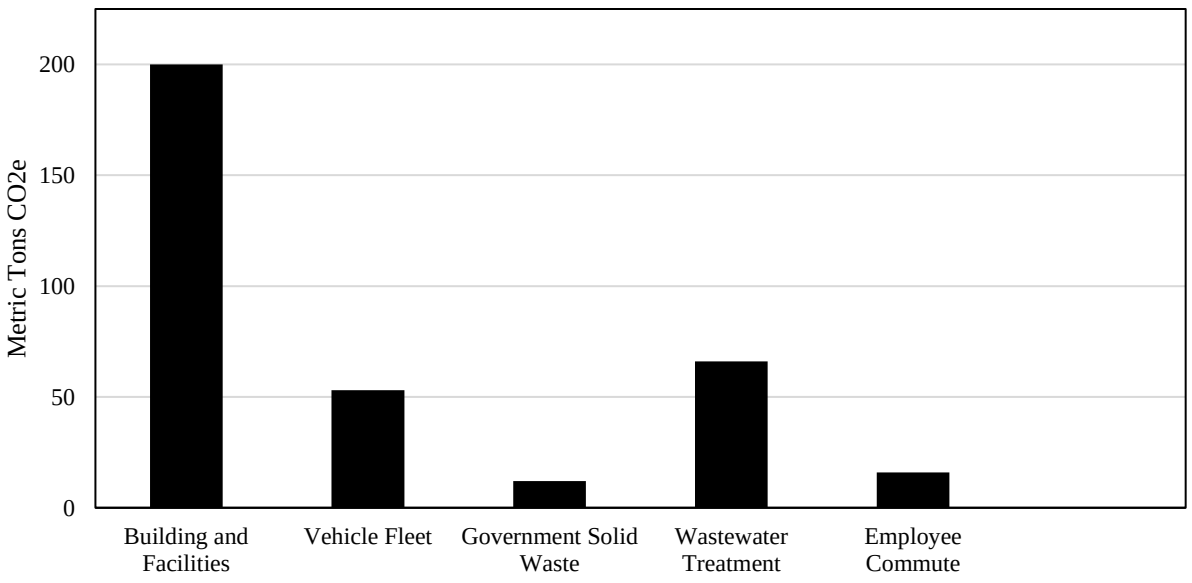
[58] Sierra Business Council. *City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories*. March 2014.

Figure 2
2010 Community GHG Emissions Summary



Source: Sierra Business Council. City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories. March 2014

Figure 3
2010 Municipal GHG Emissions Summary



Source: Sierra Business Council. City of Wheatland Community and Municipal-Operations 2010 Baseline Greenhouse Gas Emissions Inventories. March 2014

With a population of 3,559 residents the City's total 2010 emissions of 13,942 MT CO_2e/yr result in a per capita emissions rate of 3.96 MT CO_2e/yr per person.

QUANTIFYING FUTURE EMISSIONS

The City of Wheatland's population grew by approximately 40 residents between 2010 and 2016 (from 3,519 residents in 2010 to 3,559 residents in 2016). Changes in population between 2010 and 2016 were attributable to annexation of areas into the City, and were not a result of significant changes to the City's built environment. Furthermore, 40 new residents represent a one percent growth in population; such a growth rate would not be anticipated to significantly change the citywide GHG emissions. Accounting for the population of the City in 2016, the per capita emissions rate for the City would be approximately .92 MT CO_2e/yr per person. Consequently, the 2010 GHG Inventory continues to provide a useful baseline for citywide GHG emissions. Based on the existing emissions level, future emissions have been forecasted using the methodologies discussed below.

Estimating Buildout Potential

Although the City's growth between 2010 and 2016 was minimal, the City's recently completed annexations have expanded the City's potential for future growth. In order to quantify the anticipated emissions that would result from buildout of the City, including the recently annexed areas, this CAP assumes maximum buildout of the City's Planning Area with the land use designations prescribed in the City's adopted General Plan, including residential, commercial, employment, and public/quasi-public. In recognition of the 2017 Scoping Plan's per capita emissions goals target years of 2030 and 2050, buildout estimations for both years were prepared. Table 2 and Table 3 below present buildout summaries for the City in the years 2030 and 2050, respectively. It should be noted that the City's General Plan assumes buildout through the year 2025. Therefore, in order to produce growth estimations for the years 2030 and 2050, City staff considered recent annexation activity, land use designations, and existing constraints to development.

As shown in Table 2 and Table 3 below, the City of Wheatland is anticipated to experience large amounts of growth through the buildout year of 2050. This CAP provides an analysis of the GHG emissions that would occur as a result of such buildout. It should be noted that in addition to forecasting growth to the target dates, Table 2 and Table 3 include growth related to the annexation activity that occurred between 2010 and 2016. However, the tables do not include the existing development within the City, which was previously accounted for in the baseline emissions quantification.

Quantifying Buildout Emissions

The City's anticipated GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects.[33] The model applies inherent default values for various land uses, including electricity and natural gas usage, water supply and distribution, wastewater treatment, transportation, and solid waste disposal.

[33] ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.2*. November 2017.

Table 2
2030 Buildout Summary[1]

Land use	Acres	Square Feet	Units
Single-Family	2,942.02		11,421
Multi-Family[2]	43.91		1,120
		Total Unit Potential	*12,541*
Commercial	102.54	4,466,642.40	
Employment/Office	401.28	17,479,756.80	
Parks	135.31	-	
Public/Quasi Public	116.24	5,063,414.40	
Elementary School	50.04	2,179,742.40	
Middle School	20.00	871,200.00	
High School	37.60	1,637,856.00	
Water Well Site	1.26	54,885.60	
Sewer Lift Station	0.30	13,068.00	
Fire Station	2.00	87,120.00	
Church	5.04	219,542.40	

1 Buildout summary does not include existing development within the City
2 Multi-family includes mixed-use units.

Source: City of Wheatland, Community Development Department.

Table 3
2050 Buildout Summary[1]

Land use	Acres	Square Feet	Units
Single-Family	4,534.12		19,672
Multi-Family[2]	66.81		1,601
		Total Unit Potential	*21,273*
Commercial	198.04	8,626,622.40	
Employment/Office	478.58	20,846,944.80	
Parks	318.41	-	
Public/Quasi Public	219.14	9,545,738.40	
Elementary School	90.04	3,922,142.40	
Middle School	56.90	2,478,564.00	
High School	37.60	1,637,856.00	
Water Well Site	3.26	142,005.60	
Sewer Lift Station	0.30	13,068.00	
Fire Station	2.00	87,120.00	
Church	5.04	219,542.40	

1 Buildout summary does not include existing development within the City
2 Multi-family includes mixed-use units.

Source: City of Wheatland, Community Development Department.

The initial modeling for the buildout of the City was completed by entering basic project information including the City's location, the target year dates of 2030 and 2050, and the land uses anticipated to be developed during future growth within the City. However, the baseline run does not give consideration of any inherent design or site features (e.g., compliance with any State or local regulations, design enhancements, vehicle miles traveled [VMT] reductions, etc.). The initial modeling run serves as a baseline, which can then be used to compare GHG emission reductions achieved through emissions reductions strategies discussed later in this CAP. All project modeling results are included as the appendix to this document.

The estimated citywide GHG emissions for the year 2030 are presented in Table 4 below, while the estimated citywide emissions for the year 2050 are presented in Table 5 below.

Table 4
2030 Operational GHG Emissions Forecast

Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Existing Emissions[1]	
City of Wheatland 2010	13,942
Projected New 2030 Emissions	
Area	19,146
Energy	144,589
Mobile	471,072
Solid Waste	20,448
Water	16,208
Projected New 2030 Subtotal	671,463
Citywide Total Emissions	**685,405**

[1] Citywide 2010 emissions from Sierra Business Council 2010 Inventory.

Source: CalEEMod, 2018 (see appendix).

Table 5
2050 Operational GHG Emissions Forecast

Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Existing Emissions[1]	
City of Wheatland 2010	13,942
Projected New 2050 Emissions	
Area	32,477
Energy	208,895
Mobile	675,936
Solid Waste	33,796
Water	22,913
Projected New 2050 Subtotal	974,016
Citywide Total Emissions	**987,958**

[1] Citywide 2010 emissions from Sierra Business Council 2010 Inventory.

Source: CalEEMod, 2018 (see appendix).

As shown in Table 4 and Table 5 above, buildout of the City is anticipated to result in large increases in annual GHG emissions. While emissions in all sectors are anticipated to increase, emissions from mobile sources (i.e., cars and trucks) would continue to be the largest source of GHG in the community, with energy consumption representing the second largest amount.

Setting Communitywide GHG Emissions Goals and Reduction Goals

The 2017 Scoping Plan sets per capita emissions goals for the years 2030 and 2050 at six MT CO_2e/yr per capita and two MT CO_2e/yr per capita, respectively. The per capita emissions goals were designed to comply with statewide emissions reductions requirements.[34]

Wheatland's per capita emissions rate during the year 2010 was approximately 3.96 MT CO_2e/yr per capita. Thus, the City is currently within the allotted per capita emissions for the year 2030. However, as discussed above, the City is anticipated to experience significant growth through 2030 and into 2050. Such growth would result in citywide emissions as shown in Table 4 and Table 5 above.

To analyze the City's anticipated attainment of the State's per capita emissions goals, the future population of Wheatland must be estimated for the years 2030 and 2050. In 2016, the City of Wheatland had an estimated population of 3,559 with 1,251 housing units; thus, the City had an average of 2.84 persons per household in 2016 (3,559 residents / 1,251 units = 2.84 persons per household). Although the average persons per household rate may fluctuate as the City develops, in the absence of other available methods, the City has chosen to estimate future populations based on the number of housing units expected during the target years, and the 2016 average persons per households.[35] Table 6 below presents the estimated population of the City in 2030 and 2050.

Table 6
City of Wheatland Estimated Population

Target Year	Number of Housing Units[1]	Estimated population[2]
2030	13,792	39,169
2050	22,524	63,968

1 Number of Housing Units includes all units existing in Wheatland in 2016
2 Estimated population based on 2016 persons per household rate of 2.84

Considering that the 2017 Scoping Plan recommends the use of per capita thresholds, the estimated population for the City can be used to calculate the maximum amount of emissions that would be allowable under the 2017 Scoping Plan.[36] It should be noted that the City's estimated population for the target years are based off of the most accurate and up-to-date information available; nonetheless, there is inherent uncertainty in the population estimates, and the City's actual population during the target years may be different from what is presented in Table 6. Despite the uncertainty of the population estimates, multiplying the estimated population, presented in Table 6, by the per capita emissions goals for the respective target year, produces estimates of the goal emissions for the years 2030 and 2050, as shown in Table 7. Should operations within the City during the years 2030 and 2050 result in GHG emissions below the emissions level goals presented in Table 7, the City would be in compliance with the State's 2017 Scoping Plan.

34 California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.
35 City of Wheatland. *Housing Element Update, 2013-2021*. Adopted June 28, 2017.
36 California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.

Table 7 **Community Wide Emissions Goals**			
Target Year / Per Capita Emissions Goal (MT CO_2e/yr/capita)	**Estimated Population**	**Per Capita Emissions Goals (MT CO_2e/yr/capita)**	**Communitywide Emissions Goals (MT CO_2e/yr)[1]**
2030 / 6	39,169	6	235,014
2050 / 2	63,968	2	127,936
[1] The Maximum Allowable Communitywide Emissions presented in this table are calculated based on the estimated population for the target years, and are used for analysis purposes only.			

Although the accuracy of the emissions goals presented in Table 7 are limited by the accuracy of the population estimates, the emissions goals are useful in this CAP to determine the magnitude of emissions reductions that would be needed to meet the State's per capita emissions goals. To that end, Table 8 below, presents the estimated emissions, the emissions goal, and the required reductions for the target years.

Table 8 **Emissions Reduction Goals**				
Target Year	**Communitywide Emissions Goals (MT CO_2e/yr)**	**Estimated Communitywide Emissions (MT CO_2e/yr)**	**Emissions Reduction Required (MT CO_2e/yr)**	**Percent Reduction Required**
2030	235,014	685,405	450,391	65.7%
2050	127,936	987,958	860,022	87.1%

As shown in Table 8, the City of Wheatland would be required to reduce GHG emissions by approximately 65.7 percent by 2030 and 87.1 percent by 2050. The required emissions reductions would be in comparison to the baseline emissions estimated using CalEEMod. The emissions reductions presented above represent the total communitywide emissions reductions that would be needed for the City to achieve State emissions reductions goals.

The following sections will break down the communitywide GHG emissions reductions by emissions sectors and present GHG emissions reduction thresholds for new development within the City.

SECTOR-BASED GHG EMISSIONS ANALYSIS

In order to develop project-level emissions goal standards, the required emissions reductions have been applied to residential and non-residential sectors in the City's inventory, and categorized into mobile-source and non-mobile emissions (see Table 9 and Table 10 below). Non-mobile emissions include area source, energy, waste, and water emissions. By multiplying the percent reduction requirements (presented in Table 8 above) by the total estimated emissions for both the residential and non-residential sectors separately, an emissions goal for each sector was generated, for each target year. Similar to the communitywide emissions goals discussed above, should City emissions remain at or below the emissions goal for each sector, the City would attain the per capita emissions goals within the State's 2017 Scoping Plan.

Table 9
Mobile-Source GHG Emissions by Sector

Sector	Estimated Mobile-Source Emissions (MT CO_2e/yr)		Mobile-Source Emissions Goal (MT CO_2e/yr)[1]	
	2030 Target Year	2050 Target Year	2030 Target Year	2050 Target Year
Residential	131,715	195,635	45,178	25,237
Non-Residential	325,806	480,301	111,751	61,959

[1] Based on a required 65.7 percent reduction for 2030 and an 87.1 percent reduction for 2050.

Table 10
Non-Mobile GHG Emissions by Sector

Sector	Estimated Non-Mobile Emissions (MT CO_2e/yr)		Non-Mobile Emissions Goal (MT CO_2e/yr)[1]	
	2030 Target Year	2050 Target Year	2030 Target Year	2050 Target Year
Residential	82,121	129,346	28,168	16,685
Non-Residential	116,245	168,733	39,872	21,767

[1] Based on a required 65.7 percent reduction for 2030 and an 87.1 percent reduction for 2050.

Dividing the estimated amount of total residential and non-residential development for the target years by the sector specific emissions goals presented in Table 9 and Table 10 produces emissions thresholds that may be applied at a project level based on the project type within the City. The unit chosen for each sector was based on the project type expected to dominate the sector.

For example, residential energy use will primarily comprise energy use associated with future single- and multi-family housing developments. Providing a per capita emissions threshold allows scaling to a wide range of residential development projects based on the number of residents that the project would accommodate. Similarly, square footage-based emissions thresholds may be applied to new non-residential development projects based on the size of the building being developed. The per capita/ksf emissions thresholds are presented in Table 11 (mobile-source) Table 12 (non-mobile) and below.

Table 11
Project-Level Emissions Thresholds for Mobile-Source GHG Emissions

Sector	Mobile-Source Emissions Goal (MT CO_2e/yr)[1]		Estimated Total Population/Non-Residential Development		Per Capita/Per ksf Emissions Threshold (MT CO_2e/yr/unit amount)	
	2030	2050	2030	2050	2030	2050
Residential	45,178	25,237	39,169 residents	63,968 residents	1.153	0.395
Non-Residential	111,751	61,959	32,836 ksf	52,734 ksf	3.403	1.17

Table 12 **Project-Level Emissions Thresholds for Non-mobile GHG Emissions**						
	Non-Mobile Source Emissions Goal(MT CO_2e/yr)[1]		**Estimated Total Population/Non-Residential Development**		**Per Capita/Per ksf Emissions Threshold (MT CO_2e/yr/unit amount)**	
Sector	**2030**	**2050**	**2030**	**2050**	**2030**	**2050**
Residential	28,168	16,685	39,169 residents	63,968 residents	0.719	0.26
Non-Residential	39,872	21,767	32,836 ksf	52,734 ksf	1.214	0.413

Limitations of Sector-Based Per Capita/ksf Emissions Calculations

Per capita emissions goals established by 2017 Scoping Plan represent tangible emissions goals that would ensure that the City complies with all State laws concerning GHG emissions reductions.[37] However, the comparison of future emissions and the per capita emissions goals presents significant challenges. One of the inherent challenges of using per capita goals, is that the goals rely not only on predicting future GHG emissions, but also on predicting the size of the population that will be producing the emissions. As a result, factors such as the City's growth rate, changes in the City's population per household rate, and the balance between employment type development (such as commercial or industrial development) and residential development can affect the City's future population, GHG emissions, and per capita/ksf emissions rate. However, given the information currently available, the project-level emissions thresholds presented in Table 11 and Table 12 above represent reasonable and conservative tools to be used in measuring the contribution of future projects to the City's overall GHG emissions.

The project-level emissions thresholds have been designed to apply to the majority of the project types anticipated for development within the City of Wheatland; however, the thresholds may not adequately capture emissions from certain project types. For example, some projects, such as infrastructure improvements, may not include construction of buildings or housing of residents. In such cases, projects would be required to implement applicable emissions reduction strategies specified by this CAP (see Chapter 5, Emissions Reduction Strategies).

Threshold Updates

In order to accommodate future changes associated with ongoing development and growth within the City of Wheatland, as well as future changes to federal and State regulations, periodic updates to the project-level emissions thresholds are necessary. The City understands that project proponents require a reasonable level of certainty in the City's emissions thresholds in order to reduce potential conflicts associated with new thresholds. As such, revisions to this document should occur once every five years. Applications received prior to the date of threshold publication will be required to use the updated threshold only if an environmental document has not been released; any project for which an Exemption, Negative Declaration, Mitigated Negative Declaration, or Notice of Preparation has already been released may continue to use the version of the thresholds applicable at the time of publication. The City will strive to publish any updates to the thresholds a minimum of one calendar month prior to the date the thresholds become effective.

[37] California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.

V. EMISSIONS REDUCTION STRATEGIES

The following chapter outlines the proposed GHG emissions reduction strategies and includes a discussion of climate change adaptation strategies.

COMMUNITY ENHANCEMENT & RESOURCE CONSERVATION STRATEGIES

Reduction strategies are separated into five categories, Transportation, Land Use, Energy, Solid Waste, and Water Sectors.

For each strategy presented below, specific implementation actions are identified. Additionally, the party responsible for implementation of such actions is identified. Implementing parties are broken into three categories: Existing, representing actions that would reduce existing emissions within the City or be implemented within existing developments; Municipal, representing actions that would be implemented by the City and would reduce emissions related to operations of the municipal government or the larger community; and Future Development, which represents actions that would be implemented by new development or redevelopment projects within the City.

REDUCTION MEASURE QUANTIFICATION

In addition to identifying the responsible parties, the quantified efficacy of each reduction measure is also specified. In most cases, the efficacy of each reduction measure was quantified using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software. However, as noted in the section below, in some cases emissions reductions from particular measures could not be quantified using CalEEMod and were instead quantified using side calculations discussed in further depth below. To the maximum extent feasible each emissions reduction strategy was quantified individually. However, due to the limitations of the CalEEMod software, not all of the emissions reduction strategies could be quantified independently. In other cases, the feasibility of implementation or the efficacy of the strategy is not currently known with sufficient certainty to provide quantification.

It should be noted that the reduction measures take into account statewide programs that would work to reduce emissions simultaneous to the City's efforts. For instance, the State's Renewable Portfolio Standard (RPS) for publicly owned utilities was included in the CalEEMod emissions modeling for all reduction strategies. Other state programs, such as reductions to vehicle emissions due to fleet improvements and the Low Carbon Fuel Standard, are inherently included in the CalEEMod program, and, thus, are included in the emissions forecasting. Because reduction other state programs are inherently included in the CalEEMod program, the emissions reductions from such programs have already been accounted for and are not recounted in the following section.

All Emissions quantification is presented as the appendix to this CAP.

Key

Existing — *Existing*: Represents actions that would reduce existing emissions within the City or be implemented within existing developments.

Municipal — *Municipal*: Represents actions that would be implemented by the City and would reduce emission related to operations of the municipal government or the larger community.

Future Development — *Future Development*: Represents actions that would be implemented by new development or redevelopment projects within the City.

Transportation Related Measures

Transportation Measure 1:

Future Development

Municipal

Bicycle and Pedestrian Infrastructure Improvement. Improve bicycle and pedestrian infrastructure within the community to increase non-motorized travel.

Actions:

- Fulfill the Implementation Measures included in the City of Wheatland Bikeway Master Plan.

Quantification: Emissions reductions for Transportation Measure 1 were quantified independently assuming that existing and future bicycle and pedestrian infrastructure would be connected and constructed as anticipated in the City of Wheatland's Bikeway Master Plan.

Transportation Measure 1 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
9,070	10,827

Transportation Measure 2:

Existing

Municipal

Future Development

Congestion Management. The City of Wheatland previously considered adoption of the Downtown Corridor Improvement Plan. The proposed plan included strategies to reduce congestion and calm traffic within downtown Wheatland. The plan included strategies intended to reduce vehicle speeds through the City such as the installation of raised median islands, raised crosswalks, chicanes, and rumble strips, as well as the construction of two roundabouts to ease congestion at intersections and provide gateways to the City. The combined effect of the Downtown Corridor Improvement Plan was intended to be the easing of congestion in downtown Wheatland, and the creation of a unique sense of place for travelers and residents entering the City. In addition to the stated goals of the Plan, reductions in congestion would reduce vehicle related emissions of GHGs, and traffic calming throughout downtown would promote the use of alternative means of transportation, such as walking or bicycling, which are

GHG emission free forms of transportation. Although the Downtown Corridor Improvement Plan has not been formally adopted by the City, the implementation of the foregoing strategies was drafted through extensive public review and internal City review. Inclusion of similar congestion reduction and traffic calming strategies in future development would promote alternative modes of transportation and reduce congestion, that may otherwise be caused by new development, while creating a cohesive circulation network throughout the City.

Actions:

- Synchronize traffic lights installed in future developments to ease traffic flow, which minimizes vehicle stopping and idling.
- Require new developments to include traffic calming and congestion management measures on 25 percent of all proposed streets and intersections.

Quantification: Emissions reductions for Transportation Measure 2 were estimated assuming that 25 percent of all future streets and intersections within the City would include traffic calming and congestion management features.

Transportation Measure 2 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
22,674	27,066

Transportation Measure 3:

Existing

Municipal

Future Development

Increase Use of Alternative Transportation. In consultation with Yuba Transit Authority and SACOG, the City shall seek to upgrade existing infrastructure for alternative transportation, and require new development to include infrastructure for alternative transportation. Such upgrades may include extension of sidewalks, establishment of safe-routes to schools, re-striping of roads to include bike lanes, and posting of “Share the Road” street signs. Additionally, the City shall comply with the California Complete Streets Act, which requires planning for “complete streets” as a component of future General Plan updates. In order to ensure proper implementation of such future policies, the City shall consider future adoption of a Complete Streets Ordinance.

Furthermore, new developments should be required to construct alternative transportation infrastructure on-site and connecting off-site, such as bicycle parking, and sidewalk connections.

Actions:

- Comply with the requirements of the California Complete Streets Act.
- Pending an update to the City’s General Plan, consider adoption of a Complete Streets Ordinance.

- Establish/enforce minimum standards for bicycle parking.
- Require new developments to connect to bicycle and pedestrian path connections.
- Periodically consider feasibility of allowing bike share programs within Wheatland based on changes in technologies and the City's population.
- Promote destination facilities such as lockers and showers at new development through voluntary development design guidelines.
- Continue to implement Safe Routes to School program, tailor new bicycle and pedestrian infrastructure to promote active transportation to school for Wheatland students.
- In concert with the Yuba Transit Authority, seek to increase the frequency of existing bus service within the City.
- Through consultation with Yuba Transit Authority, establish a timeline for potential future expansion of bus service within the City based on development within the City and population growth.

Quantification: Emissions reductions resulting from Transportation Measure 3 were separated into two modeling runs. The first modeling run, Transportation Measure 3a, represents potential GHG emissions reductions that would result from an increase in the area covered by transit services within the City to 50 percent of the City, compared to a continuation of existing services during with citywide growth through the years 2030 and 2050. The emissions reductions for Transportation Measure 3a are presented in the table below.

Transportation Measure 3a (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
2,265	2,381

The second modeling run, Transportation Measure 3b, represents potential GHG emissions reductions that would result from an increase in transit service frequency, by 25 percent, compared to a continuation of existing services during with citywide growth through the years 2030 and 2050.

Transportation Measure 3b (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
572	361

Considering the above, the total emissions reductions that would result from implementation of Transportation Measure 3 are presented in the table below.

Transportation Measure 3 Total Emissions Reductions (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
2,837	2,742

Transportation Measure 4:

Future Development

Promote Alternative Transportation Through Updated Parking Standards. Updated parking standards can be used to discourage the use of single-passenger traditionally fueled vehicles. Such preference may be established through requirements for reserved parking for motorcycles, car share, carpool, and low emissions vehicles; adjustments to the minimum and maximum parking requirements to limit overall parking supply required for new development, thus encouraging carpooling and alternative modes of transportation; allow for shared parking areas between land uses; and require bicycle parking in proportion to vehicle parking. Encouraging the use of alternative fueled vehicles, ride sharing, and alternative modes of transportation would reduce the vehicle miles travelled associated with City residents and municipal operations.

Actions:

- Implement development parking standards as described above in the City's Design Standards.
- Update Municipal Code to reflect such standards.

Quantification: Emissions reductions for Transportation Measure 4 were estimated assuming that the City's parking requirements would be reduced to be 10 percent lower than the standard parking estimates used by the Institute of Transportation Engineers. The resulting GHG emissions reductions that would result from reducing parking requirements for new development are shown in the table below.

Transportation Measure 4 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
22,944	27,066

Transportation Measure 5:

Municipal

Optimize City Fleet. To the extent feasible, the City shall consider focusing the purchase of new fleet vehicles to hybrid vehicles, electric vehicles, or alternative fuel vehicles. Such fleet improvements would likely occur over a long period of time as the City grows and expands the fleets used by the Public Works Department and Police Department.

Actions:

- Consult with Feather River Air Quality Management District to seek grant funding opportunities.
- Set goal increase in miles per gallon for entire fleet.
- Implement policies for use of alternative fuel vehicles.

- By 2030 require that 50 percent of new vehicles purchased for the City fleet be zero emissions vehicles, and by 2050 all vehicles purchased for the City fleet shall be zero emissions vehicles.
- Encourage a reduction in idling time for City vehicles through education of City field crews.
- Encourage the Wheatland School District and the Wheatland Union High School District to replace diesel-powered school buses with CNG buses, hybrid buses, or other emissions-reducing alternatives.

Quantification: Due to limitations within the CalEEMod software, emissions reductions from Transportation Measure 5 could not be directly quantified using CalEEMod. However, GHG emissions from the use of the City's existing fleet are known. Following comparative analyses for municipal vehicle fleet sizes and growth with population, the assumption was made that the City's municipal fleet of vehicles, would grow in proportion to the growth in the City's population. Therefore, the City's existing vehicle fleet of 15 vehicles was assumed to grow to 152 vehicles in 2030 and 258 vehicles in 2050. Thus, using the emissions rates for the City's existing fleet as well as the anticipated growth in the City's fleet and the requirements of Transportation Measure 5, the potential emissions reductions were quantified and are presented in the table below.

Transportation Measure 5 ($MT CO_2e$)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
219	605

Transportation Measure 6:

Existing

Future Development

Municipal

Support Electric Vehicle Charging Infrastructure. Encourage installation of electric vehicle (EV) charging stations at existing and future commercial developments within the City, particularly along State Route 65. Locating a charging station within the community will encourage intra-community electric vehicle use as well as EV use along State Route 65.

Actions:

- Seek funding to support electric vehicle charging technology.
- Identify potential sites for an Electric Vehicle charging station within City Limits.
- Update Municipal Code to require Electric Vehicle charging stations as part of new development.
- Target the installation of at least five Electric Vehicle charging stations by the year 2030 and at least 10 by the year 2050.
- Require installation of Electric Vehicle charging stations at all new municipal facilities that include vehicle parking.

- The City shall identify existing municipal facilities where Electric Vehicle charging stations could be installed. Once feasible sites are identified, the City shall pursue grant funding for installation of public Electric Vehicle charging infrastructure.

Quantification: Due to limitations within the CalEEMod software, emissions reductions from Transportation Measure 6 could not be directly quantified using CalEEMod. However, the City of Chico previously quantified the emissions reductions that would occur through the installation of individual electric vehicle charging station. Using the data provided in Appendix D-1 of the City of Chico's CAP, the GHG emissions reductions that would result through implementation of Transportation Measure 6 were quantified and are presented in the table below.

Transportation Measure 6 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
8.5	17.0

Land Use

Land Use Measure 1:

Existing

Future Development

Encourage Reuse. The City shall encourage adaptive reuse of existing buildings, vacant lots, and underutilized areas of the City. Such reuse should be focused on increasing the density of development within the City, while providing community amenities and opportunities for innovative site developments.

Actions:

- Consider reducing impact fees for development that includes reuse of existing structures or infill development.
- Provide for streamlined project review of projects including reuse of existing structures or infill development.

Quantification: The emissions reductions related to encouragement of reusing structures and land within the City have significant overlap with the emissions reductions related to the sustainable growth principals discussed in Land Use Measure 3 below. Therefore, to avoid double-counting such emissions reductions and to provide a conservative approach to emissions reduction estimation, this CAP has combined the emissions reductions of Land Use Measure 1 and Land Use Measure 3, and emissions reductions are presented under Land Use Measure 3, below.

Land Use Measure 2:

Future Development

Comply with State Affordable Housing Requirements. The City shall comply with existing State law related to the provision of affordable housing.

Actions:

- Consider future updates to the City's Municipal Code to allow for increased density through density bonuses based on inclusion of affordable housing units in proposed developments.

Quantification: Emissions reductions for Land Use Measure 2 were quantified based on the City's affordable housing goals within the City's of Wheatland's Draft Housing Element Update 2013-2021. Assuming future development within the City meets regional affordable housing requirements, Land Use Measure 2 would result in GHG emissions as shown in the table below.

Land Use Measure 2 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
4,370	4,894

Land Use Measure 3:

Future Development

Sustainable Growth. The City shall encourage new development within the City to use sustainable growth principles, such as encouraging mixed uses and infill development, locating higher-density developments near existing services and amenities, and encourage alternative modes of transportation.

Actions:

- Continue to integrate SACOG's Blueprint Growth Principles into the City's Development Guidelines.
- Establish standards for "walkable neighborhoods", where new residential development shall be located within one half-mile of a combination of at least two of the following amenities: a park, a school, a grocery store, or a commercial development. The placement of any new multi-family residential developments within "walkable neighborhoods" should be a focus of future review for such projects.
- Provide streamlined permitting process for developments demonstrating consistency with SACOG's Blueprint Growth Principles.

Quantification: As noted under Land Use Measure 1, significant overlap between Land Use Measures 1 and 3 exists, and, accordingly, the two emissions strategies were modeled together. Sustainable growth is understood to include reuse of existing areas within the City, as well as ensuring that new development outside of the City's existing development footprint would occur in a manner that encourages alternative modes of transportation and reduces GHG future GHG emissions. The GHG emissions reductions for Land Use Measures 1 and 3 were quantified using CalEEMod, and such reductions are presented in the table below.

Land Use Measure 3 ($MT CO_2e$)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
45,619	54,133

Land Use Measure 4:

Urban Tree Program. The City shall seek funding for the preparation of an Urban Tree Management Plan. The plan shall include provisions for the maintenance of existing trees, the planting of new trees, tree planting requirements for new developments, methods of improving the existing urban forest, and tree protection guidelines. The Urban Tree Management Plan shall formalize the City's goal of establishing and maintaining a robust urban forest that provides shade, aesthetic value, mitigation for the urban heat island effect, reduction of stormwater runoff, protection of City assets, and air quality benefits.[38] The City's Urban Tree Management Plan shall be designed in compliance with California's Urban Forestry Act of 1978, making the Plan eligible to seek grant funding through the State's Urban & Community Forestry Program.

Actions:

- Pursue grant funding from CAL FIRE, USFS, California's Urban & Community Forestry Program, or other agencies to fund urban forestry planning within the City.
- Prepare and implement Urban Tree Management Plan.
- Update landscape standards to require shade over at least 25 percent of area in City parks and parking lots.
- Seek opportunities for partnerships with agencies promoting urban forestry such as ReLeaf California, and the California Urban Forests Council.

Quantification: Due to limitations within the CalEEMod software, emissions reductions resulting from implementation of Land Use Measure 4 could not be quantified using CalEEMod. Although attempts to quantify emissions reductions from Land Use Measure 4 were made outside of CalEEMod, considering the significant level of uncertainty regarding the future number of trees and area of canopy coverage, suitable methodologies for quantifying emissions reductions were not available during the drafting of the City's CAP. Therefore, while Land Use Measure 4 is anticipated to result in reductions in existing and future GHG emissions, such reductions could not be quantified during this iteration of the City's CAP. As discussed in further depth in Chapter 6, Implementation, the City anticipates periodic updates to the CAP in the future. During such times as the City's CAP is updated, the City shall endeavor to quantify the GHG emissions reductions resulting from Land Use Measure 4, as more data and methodologies related to the measure become available.

[38] California Urban Forest Council. *Growing Trees As City Assets*. August 2017.

Land Use Measure 5:

Safe Routes to School. Continue implementation of the City's Safe Routes to School program. Work with local school districts to enhance pedestrian crossings, encourage activities such as a walking school bus, and create educational programs that teach students bicycle safety.

Actions:

- Fulfill the Implementation Measures included in the City of Wheatland Bikeway Master Plan.
- Ensure future expansion of school campuses include designations of Safe Routes to School for each new school site.

Quantification: Due to limitations within the CalEEMod software, emissions reductions from Land Use Measure 5 could not be directly quantified using CalEEMod. However, the City of Chico previously quantified the emissions reductions that would occur through the implementation of a Safe Routes to School Program. The City of Chico's CAP included a determination of the GHG emissions reductions resulting from a Safe Routes to School Program on a per student basis. Using the City of Chico's per student method, and student generation rates per households in the City of Wheatland's General Plan, the GHG emissions reductions that would result through implementation of Land Use Measure 5 were quantified. Per the quantification included in the appendix to this CAP, the Safe Routes to School Program would reduce existing GHG emissions by 91 MT CO_2e, while the future emissions reductions are presented in the table below.

Land Use Measure 5 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
798	1,247

Energy Actions

Energy Measure 1:

Renewable Energy Production Plan. The City shall seek to identify the existing stock of renewable energy sources within the City, including the significant Photovoltaic (PV) installations conducted by the Wheatland School District at Bear River Middle School and Wheatland Elementary School. Once existing production sources are quantified the City shall identify new City facilities/properties where solar panel installation is feasible. Based on the availability of City facilities or land, the City shall establish a renewable energy production goal for the year 2030. The City shall include consideration of opportunities for "Community Solar" projects, Power Purchase Agreements, as well as municipal solar projects. The Renewable Energy Production Plan shall also identify measures the City has taken to encourage private installation of solar panels. In drafting the Renewable Energy Production Plan the

City shall consider the potential for central, City supported renewable energy installations to assist individual private developments to meet the renewable energy standards required by the California Building Standards Code.

Actions:

- Encourage future commercial development, as well existing large consumers of electricity (e.g., Wheatland Wastewater Treatment Plant) to install solar panel infrastructure.
- Work with local utility providers and other concerned parties to acquire funding sources for solar energy projects.
- Promote participation in Energy Upgrade California other State, federal, and utility incentive programs for improving home and business energy efficiency.
- Quantify existing solar power generation within the City.
- Inventory City facilities and properties that could be developed with solar power installations.
- Establish a year 2030 production goal based on available installation sites.
- Produce a Renewable Energy Production Plan summarizing the City's efforts, and establishing the 2030 production goal.

Quantification: Although Energy Measure 1 includes specific actions for implementation and the future production of renewable energy within the City, the amount of renewable energy that may be produced under Energy Measure 1 is currently unknown. Therefore, future emissions reductions under Energy Measure 1 were not quantified. However, the City currently contains several notable renewable energy installations, primarily those installations within the Wheatland School District owned properties. The existing renewable energy installations were estimated to reduce GHG emissions by 179 MT CO_2e.

Energy Measure 2:

Municipal

Resource Efficiency Improvements for City Buildings. At the time of preparation of the 2010 Baseline Inventory, City buildings and facilities operations accounted for approximately 58 percent of municipal emissions; thus, reducing emissions from this sector would greatly reduce overall municipal emissions. The City has conducted energy audits for existing facilities, and the City shall implement all recommendations for energy efficiency improvements for municipal buildings. In addition, the City shall conduct resource efficiency audits for all City buildings and facilities focused on improving water efficiency, improving interior building climate controls, upgrading building and facility appliances, prioritizing equipment and appliance replacement to improve energy efficiency, educating employees on reducing energy demand, increasing renewable energy production in municipal facilities.

Actions:

- Assess energy use for all existing municipal facilities.
- Establish a goal for increasing energy efficiency throughout all municipal facilities by 30 percent.
- Conduct systematic energy audits of municipal facilities, prioritize largest energy consuming facilities.
- Investigate means of reducing energy demand from Wheatland's Wastewater Treatment Plant or
- Produce an Energy Efficiency Plan that shall include targeted measures to reduce energy demand within existing City facilities. The Energy Efficiency Plan shall include results of energy audits, recommendations for increasing energy efficiency following the facility audits, and updates for the City's progress in achieving the recommendations of the energy audits.
- Apply energy efficiency recommendations from municipal facility audits and Energy Efficiency Plan.

Quantification: Based on existing emissions related to energy consumption by municipal facilities, a 30 percent improvement in energy efficiency throughout all municipal facilities is anticipated to result in a reduction of approximately 25 MT CO_2e.

Energy Measure 3:

Future Development

Renewable Energy Requirement for Private Development. The City shall implement the requirements of the 2019 California Building Standards Code related to PV systems for new residential development. Specifically, all low-rise residential buildings (including single-family units, duplex units, and multi-family units that are three stories or fewer) shall have a solar PV system with an annual electrical output equal to or greater than the dwelling's annual electrical usage. In addition, the City shall implement development requirements for commercial facilities larger than 3,000 sf that at least 15 percent of the estimated energy demand of the project must be satisfied through renewable sources. Renewable energy may either be included on-site, as part of the project, or may be attained through off-site options such as community solar projects or other methods as approved by the City or comply with future requirements of the California Building Standards Code.

Actions:

- Update the City's Municipal Code to incorporate the most recent California Building Standards Code.
- Adopt minimum renewable energy standards for new commercial developments.
- Implement applicable Design Review standards that include renewable energy standards.

Quantification: Emissions reductions for Energy Measure 3 were quantified based on full compliance with the 2019 California

Building Standards Code in all future residential development, as well as the standards for commercial facilities presented above. The results of emissions reductions quantifications are presented in the table below. It should be noted that because California utilities will be required to produce 100 percent of electricity supplies through renewable sources by 2045, the inclusion of on-site renewable energy systems would not result in the avoidance of GHG emissions beyond the year 2045. Therefore, emissions reductions for the year 2050 for Energy Measure 3 are 0 MT CO_2e.

Energy Measure 3 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
13,647	0

Energy Measure 4:

Existing

Participate in Assembly Bill 811 Energy Programs. AB 811 allows California Cities to designate areas within Cities where property owners may enter voluntary agreements to help finance the installation of renewable energy and increases in energy efficiency through low-interest loans. Repayment of the loans is included in the property owner's property tax bill. Yuba County maintains a Property Assessed Clean Energy (PACE) program under AB 811.

In addition, Pacific Gas & Electric Company (PG&E) maintains energy-savings programs. PG&E programs include rebates for home upgrades, design support, low-income weatherization programs, and programs to reduce peak energy demand.

Actions:

- The City shall encourage local homeowners to participate in the PACE program as a means to finance solar panel installations, roofing and installation upgrades, and other energy-saving home improvements.
- Advertise energy saving programs on the City's website and at community facilities.

Quantification: Weatherization and energy efficiency upgrades are proven techniques to reduce energy consumption, which reduces GHG emissions related to energy production. However, the extent to which Energy Measure 4 would result in reductions to citywide energy consumption now and in the future is uncertain. Due to the considerable uncertainty surrounding implementation of Energy Measure 4, emissions reductions for the strategy could not be quantified at the time of analysis.

Energy Measure 5:

Future Development

Enforce CALGreen. The City shall ensure that all building plan checks include a check for consistency with the State's most up-to-date California Green Building Standards Code (CALGreen). The CALGreen Code promotes environmentally responsible, cost-effective building methods that are intended to save energy and

water, while increasing the environmental safety of new developments. Additionally, the City shall consider the feasibility of adopting Tier 1 voluntary standards for new construction.

Actions:

- All building plan checks shall include consistency checks to ensure new development is constructed in compliance with the CALGreen Code effective at the time of the plan check.
- The City Council shall consider and make a public finding on the viability of adopting CALGreen Tier 1 standards for new development. If the CALGreen Tier 1 standards are found to be viable, the City shall adopt the CALGreen Tier 1 standards, and the CALGreen Tier 1 standards shall be updated along with the triennial update of the CALGreen Standards. If the CALGreen Tier 1 standards are found not to be viable, the City Council shall provide a written memorandum summarizing the reasons why such standards are infeasible for the City, and provide alternative standards that can be used to ensure new development is constructed in an energy efficient manner.

Quantification: Structures built to the specifications of the Tier 1 CALGreen Standards consume at least 15 percent less energy than structures built to standard CALGreen specifications. The GHG emissions reductions that would occur through implementation of Energy Measure 5 are presented in the table below. It should be noted that some overlap occurs between the energy efficient design of structures, discussed in further depth in Energy Measure 6, the efficient use of water resources, discussed in further depth in Water Measure 1, and the compliance with the Tier 1 standards of the CALGreen Code. Thus, for modeling purposes, the emissions reductions achieved through general energy efficiency upgrades and water efficiency upgrades were captured in the modeling conducted for Energy Measure 5, while the emissions reductions resulting from the use of efficient lighting fixtures are presented under Energy Measure 6.

Energy Measure 5 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
6,366	9,786

Energy Measure 6:

Future Development

Energy Efficient Design. The City shall update design guidelines and design review standards to encourage the use of energy efficient building design techniques. Such building design measures may include features not explicitly discussed in the CALGreen Code, such as the use of passive solar, solar water heaters for structures and swimming pools, efficient water heating requirements, green roofs, and other innovative techniques to reduce building energy demands.

Actions:

- Implement energy efficient design recommendations within the City's Community Design Standards, including recommendations related to low-flow fixtures.
- Update design review standards to encourage energy efficient design recommendations.
- Encourage the use of cool roofs during building renovations.
- Encourage the use of solar water heaters on new structures and during building renovations.

Quantification: As noted under Energy Measure 5, the quantification for Energy Measure 6 focused on the use of energy efficient lighting, while other aspects of energy efficient design were captured under the quantification for Energy Measure 5. The emissions reductions resulting from the lighting efficiency improvements within Energy Measure 6 are presented in the table below. It should be noted that the magnitude of emissions reductions diminishes between the year 2030 and 2050 due to the reduction in electricity related emissions resulting from implementation of the State's RPS program. Therefore, while Energy Measure 6 would continue to result in energy efficiency improvements through the year 2050, the GHG emissions reductions from such efficiency improvements would diminish.

Energy Measure 6 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
4,703	64

Energy Measure 7:

Municipal

Efficient Design of City Structures. During design of new municipal structures, the feasibility and cost-effectiveness of designing new municipal structures to the Tier 2 standards of the CALGreen Code shall be formally evaluated. Should the evaluation show that implementation of the Tier 2 CALGreen standards for the new municipal building be feasible and cost-effective, the City shall construct the new building to such standards.

Actions:

- During preliminary City evaluation of design considerations for new municipal structures, the City shall incorporate a feasibility and cost-effectiveness evaluation for designing new structures in compliance with the Tier 2 CALGreen standards.

Quantification: The emissions reductions resulting from full implementation of Energy Measure 7, assuming all future City buildings would be constructed to CALGreen Tier 2 Standards or better, are presented in the table below.

Energy Measure 5 ($MT CO_2e$)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
25	234

Energy Measure 8:

Municipal

Future Development

Improve Lighting Efficiency. As part of its LED Streetlight Replacement Program, PG&E recently replaced conventional high-pressure sodium-vapor (HSVP) and metal halide lamps in City streetlights with LED lamps. LED lamps are more efficient than traditional lighting technologies and have a much longer lifespan, among other benefits. Future municipal and private development constructed with the use of LED fixtures in all outdoor lighting would save energy and reduce operating costs.

Action:

- Require use of LED streetlights and other outdoor light fixtures for future development projects within the City.
- Where feasible, pursue replacement of existing exterior lighting on government-owned facilities with LED light fixtures.
- Pursue grant funding for placement of solar installations of varying sizes to provide renewable energy sources for City-owned light fixtures.

Quantification: Significant overlap occurs between Energy Measure 8 and Energy Measure 6. Therefore, potential emissions reductions through improved lighting efficiency in future development were assumed to be captured in Energy Measure 6, and were not re-quantified for Energy Measure 8. However, Energy Measure 6 does not capture the replacement of standard streetlights with more energy efficient models. Per the City of Chico's CAP, the replacement of each streetlight with energy efficient models results in annual emissions reductions of 0.1402 MT CO_2e. The City of Wheatland currently contains 234 streetlights; therefore, Energy Measure 8 would result in a reduction of 33 MT CO_2e.

Water Conservation

Water Measure 1:

Existing

Municipal

Future Development

Communitywide Water Use Efficiency. The City's Public Works Department provides potable water for the City. As water purveyor, the City is uniquely situated to encourage water use efficiency throughout the community. To measure progress towards increasing community water use efficiency, the City shall set a goal per capita water consumption goal, based on the existing water consumption in City, and in compliance with Senate Bill X7-7 (Water Conservation Act of 2009). To achieve the water use efficiency goal, the City should consider methods of reducing community-wide water use such as offering free water audits to community members, facilitating community use of statewide programs, such

as the Save Our Water Rebates, and recommending conservation measures for implementation throughout the City.

Actions:

- Seek funding sources relating to the promotion of water use efficiency and the State's 20x2020 program.
- Identify current per capita water consumption within the City.
- Establish per capita water use reduction goal.
- Implement strategies to achieve required water use reduction.
- Periodically assess progress towards per capita water consumption goals, and adjust goals as needed.

Quantification: The Tier 1 standards of the CALGreen code include requirements for water efficiency measures in new developments. Thus, potential emissions reductions that would result from water efficiency requirements for future developments would have been quantified in Energy Measure 5. As such, emissions reductions for Water Measure 1 were not independently estimated.

Water Measure 2:

Municipal

Future Development

Water Efficient Landscaping. At such time as the City undergoes an update to its Municipal Code, the City shall draft and adopt a water efficient landscaping ordinance, at least as stringent as the State's Model Water Efficient Landscaping Ordinance, and in compliance with AB 1881 as well as Policy 5.C.3 from the City's General Plan. Following adoption of the City's water efficient landscaping ordinance, all new private development, new municipal facilities, and public areas shall be landscaped using water efficient designs. Additionally, the City shall include in the water efficient landscaping ordinance, provisions that encourage the use of low maintenance landscaping. Water efficient landscaping and low maintenance landscaping reduce water demand from landscaping by up to 20 percent, save money in maintenance costs, and reduce the GHG emissions related to landscape maintenance.

Actions:

- Draft and adopt a water efficient landscaping ordinance.
- Once adopted, the water efficient landscaping ordinance shall be periodically reviewed and updated as necessary to reflect a balanced approach to water conservation and conservation of biological resources.

Quantification: The City of San Ramon's CAP concluded that implementation of the State's Model Water Efficient Landscape Ordnance would result in a 20 percent reduction in outdoor water usage. Such a reduction in outdoor water usage was applied to future development and the resulting emissions reductions due to implementation of Water Measure 2 are presented the table below. It should be noted that the magnitude of emissions reductions diminishes between the year 2030 and 2050 due to the reduction in

electricity related emissions resulting from implementation of the State's RPS program. Therefore, while Water Measure 2 would continue to result in water use reductions through the year 2050, the GHG emissions reductions from water use reductions would diminish because the energy used to extract and transport the water would increasingly originate from renewable sources.

Water Measure 2 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
224	4

Water Measure 3:

Future Development

Sustainable Wastewater Service. In the event that the City elects to construct a new wastewater treatment plant, the new plant shall be designed to incorporate methane gas recovery and energy co-generation systems or other technologies that could reduce GHG emissions related to wastewater treatment. Furthermore, if feasible, treated wastewater from the treatment plant should be used for landscaping irrigation purposes within the City. Should the City continue to operate the existing wastewater treatment plant, the City shall investigate the feasibility of incorporating renewable energy systems to provide a GHG free source of electricity to the treatment plant.

Actions:

- Prioritize GHG emissions reductions during design and operation of City Wastewater Treatment Plant(s).
- Consider the feasibility of future use of recycled water to meet landscaping irrigation needs and target reuse of 10 percent of total wastewater.
- Update Municipal Code to allow for grey water capture and reuse within private developments.
- The City should investigate the feasibility of incorporating a renewable energy system at the City's Wastewater Treatment Plant to provide a source of renewable energy that can meet the electrical needs of the Plant.

Quantification: Emissions reductions resulting from Water Measure 3 were separated into two modeling runs. The first modeling run, Water Measure 3a, represents potential GHG emissions reductions that would result from a reuse of 10 percent of the City's treated wastewater rather than discharge of such treated water. The emissions reductions resulting from Water Measure 3a are presented in the table below. Similar to Water Measure 2 above, although Water Measure 3 would continue to result in water use efficiency improvements through 2050, emissions related to water use energy demand would diminish due to implementation of the State's RPS program, and, thus, the efficacy of this measure related to direct GHG emissions reductions would similarly diminish.

Water Measure 3a (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
315	1

The second modeling run, Water Measure 3b, represents potential GHG emissions reductions that would result from the use of grey water systems to meet 10 percent of the City's water needs (assumed to be used for outdoor water requirements). The emissions reductions resulting from Water Measure 3b are presented in the table below.

Water Measure 3b (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
112	2

Due to the uncertainty regarding the feasibility of the use of renewable energy systems to power operations at the City's wastewater plant, the use of renewable energy systems to meet the plant's energy needs have not been quantified within this CAP. However, should renewable energy installations be pursued to provide electricity to the City's existing and/or any future wastewater plants, the GHG emissions reductions from wastewater treatment in the City would be substantially reduced.

Solid Waste

Waste Measure 1:

Municipal

Expand Municipal Recycling Program. Increase the use of recycling bins at municipal facilities such as public parks, community center, school facilities, and in the downtown area of the City.

Actions:

- Identify areas in the City where municipal trash and recycling collection receptacles are located.
- Establish a plan for expanding municipal recycling services through collocating recycling receptacles with trash receptacles.

Quantification: Waste Measures 1 and 2 would jointly increase the City's diversion of solid waste from landfills. In compliance with the Statewide reduction requirements for waste reduction, the GHG emissions resulting from the combined implementation of Waste Measures 1 and 2 are presented in the table below.

Waste Measure 1 and 2 (MT CO_2e)	
Year 2030 Emissions Reductions	**Year 2050 Emissions Reductions**
5,111	16,898

Waste Measure 2:

Expand Yard Waste and Other Organics Composting. Currently, waste management planning within the City is administered by the Yuba-Sutter Regional Waste Management Authority, a Joint Powers Agreement (JPA) between Sutter and Yuba Counties and the cities of Live Oak, Marysville, Yuba City, and Wheatland. The Yuba-Sutter Regional Waste Management Authority works with Recology Yuba-Sutter to provide yard waste, recycling, and garbage collection throughout the City of Wheatland. Yard waste is disposed of at the Ostrom Road Landfill.

The City should investigate expanding the yard waste service to include composting services for organic wastes such as residential and commercial food waste. Expanding organics composting would reduce the amount of waste produced within the City, and reduce the amount of GHG emissions from waste disposal. If expansion of the City's organics program is found not to be feasible, the City shall encourage residents to begin home composting.

Actions:

- The City shall discuss potential expansion of composting services with the City's waste disposal service provider, Recology.
- The City should promote Recology's existing yard waste program, and any future expansion of organics collections.
- The City should consider innovative new technologies for facilitating composting, such as the use of biodigesters or City-operated composting facilities.
- If the City finds expansion of organics collections programs infeasible at this time, the City shall instead encourage home composting programs by seeking subsidies and rebates for residents that purchase home composting equipment. Alternatively, the City could provide home composting equipment at low or no cost to residents through the use of State rebates or subsidy programs.
- The City shall establish waste reduction goals in-line with Statewide waste reduction requirements (AB 87, AB 1572, AB 939).

Quantification: As discussed under Waste Measure 1 above, the GHG emissions reductions that would result from implementation of Waste Measure 1 and Waste Measure 2 were quantified together and presented under Waste Measure 1.

Sustainability Webpage

To aid in the implementation of the above reduction strategies, the City shall create a specific page on the City's website that describes the City's sustainability efforts, identifies partnerships, and provides educational resources and opportunities for community members. The site will also serve as a clearinghouse for information on Wheatland's climate action program.

New Development Emissions Thresholds

In addition to the foregoing reduction strategies, and as further discussed in Chapter 6, Implementation, future development must comply with emissions thresholds. The methodology used to generate the emissions reduction thresholds is discussed in further depth in Chapter 4, Emissions Quantification and Thresholds. The City's emissions thresholds are presented in Table 13 below.

Table 13
New Development Emissions Thresholds

Sector	Year 2030	Year 2050
Residential Non-mobile	0.719 MT CO_2e/yr/unit	0.287 MT CO_2e/yr/unit
Residential Mobile	1.153 MT CO_2e/yr/unit	0.401 MT CO_2e/yr/unit
Non-Residential Non-mobile	1.214 MT CO_2e/yr/ksf	0.755 CO_2e/yr/ksf
Non-Residential Mobile	3.403 MT CO_2e/yr/ksf	1.642 MT CO_2e/yr/ksf

Notes:
- MT CO_2e = Metric Tons of carbon dioxide equivalents; a standard unit of measurement for GHG emissions
- Ksf = 1,000 square feet

The emissions thresholds presented in Table 13 are sufficient to ensure that future GHG emissions due to new development within the City would not exceed the State's recommended emissions goals of six MT CO_2e/capita/yr by 2030 and two MT CO_2e/capita/yr by 2050.

REDUCTION STRATEGY SUMMARY

Full implementation of the foregoing reduction strategies, including the new development thresholds, would result in GHG emissions reductions as shown in Table 14 below. In addition, to the GHG emissions reductions that would occur due to the City's implementation of the Reduction Strategies presented above and summarized in Table 14, statewide legislation and programs would result in further GHG emissions reductions. As such, Table 14 includes GHG emissions reductions that would occur due to the State's Renewable Portfolio Standards program, which, as discussed in Chapter 2 of this CAP, requires publicly-owned utilities to generate electricity using an increasingly large proportion of GHG free sources. PG&E, the utility provider for the City, is subject to RPS requirements. It should be noted that CalEEMod inherently includes GHG emissions reductions due to various other state programs, such as those that improve the performance of the vehicle fleet in the state, and, as such, specific quantification of the GHG reductions due to statewide programs other than the RPS requirements are not specifically included in the emissions reductions calculations presented in Table 14 below.

In addition to the GHG emissions reductions that would be achieved by the reduction strategies related to Transportation, Land Use, Energy, Solid Waste, and Water, which are presented in Table 14 below, the CAP includes emissions thresholds for new development, as presented in Table 13 above. As further discussed in Chapter 6, the majority of new development would be subject to review under the emissions thresholds. Table 15 and Table 16 present the emissions that would be anticipated under the buildout estimates discussed in Chapter 4. Such future emissions are compared on a per capita basis to the per capita emissions goals from the 2017 Scoping Plan.

Table 14
Emission Reduction Strategy Quantification

Measure	GHG Emissions Reduction (MT CO_2e)					
	Year 2030			Year 2050		
	Existing	Future Development	Total	Existing	Future Development	Total
Statewide RPS	1,559	70,878	72,437	3,095	162,501	165,596
TM-1	0	9,070	9,070	0	10,827	10,827
TM-2	0	22,674	22,674	0	27,066	27,066
TM-3a	0	2,265	2,265	0	2,381	2,381
TM-3b	0	572	572	0	361	361
TM-4	0	22,944	22,944	0	27,066	27,066
TM-5	0	219	219	0	605	605
TM-6	0	8.5	8.5	0	17.0	17.0
LU-1	See LU-3	See LU-3	See LU-3	See LU-3	See LU-3	See LU-3
LU-2	0	4,370	4,370	0	4,894	4,894
LU-3	0	45,619	45,619	0	54,133	54,133
LU-4	NQ	NQ	NQ	NQ	NQ	NQ
LU-5	91	707	798	91	1,156	1,247
EM-1	179	0	179	179	0	179
EM-2	25	-	25	25	-	25
EM-3	0	13,647	13,647	0	0	0
EM-4	NQ	NQ	NQ	NQ	NQ	NQ
EM-5	0	6,366	6,366	0	9,786	9,786
EM-6	0	4,703	4,703	0	64	64
EM-7	0	25	25	0	234	234
EM-8	33	0	33	33	0	33
WM-1	See EM-5	See EM-5	See EM-5	See EM-5	See EM-5	See EM-5
WM-2	0	224	224	0	4	4
WM-3a	0	315	315	0	1	1
WM-3b	0	112	112	0	2	2
SWM-1	0	5,111	5,111	0	16,898	16,898
SWM-2	See SWM-1	See SWM-1	See SWM-1	See SWM-1	See SWM-2	See SWM-1
Total	1,887	209,828	211,715	3,423	317,994	321,417

Notes:
NQ = Not Quantified; TM = Transportation Measure; LU = Land Use Measure; EM = Energy Measure; WM = Water Measure; SWM = Solid Waste Measure

Source: CalEEMod, October 2018 (see appendix)

Table 15 **Year 2030 GHG Emissions Under New Development Thresholds**			
Sector	**Estimated Total Population/Non-Residential Development**	**Per Capita/Per ksf Emissions Threshold (MT CO_2e/yr/unit amount)**	**Estimated Emissions (MT CO_2e/yr)**
Mobile			
Residential	39,169 residents	1.153	45,161
Non-Residential	32,836 ksf	3.403	111,741
Non-Mobile			
Residential	39,169 residents	0.719	28,163
Non-Residential	32,836 ksf	1.214	39,863
		Total	224,928

Table 16 **Year 2050 GHG Emissions Under New Development Thresholds**			
Sector	**Estimated Total Population/Non-Residential Development**	**Per Capita/Per ksf Emissions Threshold (MT CO_2e/yr/unit amount)**	**Estimated Emissions (MT CO_2e/yr)**
Mobile			
Residential	63,968 residents	0.395	25,267
Non-Residential	52,734 ksf	1.17	61,699
Non-Mobile			
Residential	63,968 residents	0.26	16,632
Non-Residential	52,734 ksf	0.413	21,779
		Total	125,377

As shown in Table 17, the per capita emissions resulting from buildout under the proposed thresholds would be below the per capita emissions goals within the 2017 Scoping Plan. Consequently, buildout of the City using the new development thresholds would result in citywide emissions in compliance with the 2017 Scoping Plan, AB 32, and SB 32.

Table 17 **Estimated Future Per Capita GHG Emissions Under New Development Thresholds**				
Year	**Estimated Citywide Emissions (MT CO_2e/yr)**	**Estimated Total Population/Non-Residential Development**	**Citywide Per Capita Emissions Rate (MT CO_2e/yr/capita)**	**2017 Scoping Plan Per Capita Emissions Goal (MT CO_2e/yr/capita)**
2030	224,928	39,169 residents	5.74	6
2050	125,377	63,968 residents	1.96	2

Considering that the new development emissions thresholds would be sufficient to ensure that development within the City complies with the 2017 Scoping Plan requirements, simultaneous implementation of the other reduction strategies within this chapter would result in citywide emissions being reduced beyond the requirements of the 2017 Scoping Plan.

CLIMATE CHANGE ADAPTATION STRATEGIES

The foregoing emissions reduction strategies are not only intended to reduce GHG emissions from existing and future development within the City, rather, the City intends many of the emissions reduction strategies to serve as adaptation strategies in the case the regional impacts of climate change, discussed in Chapter 3 of this CAP, occur. For instance, the implementation of an Urban Tree Management Plan would play a role in reducing the urban heat island effect, lowering temperatures within the City, and would allow for more efficient stormwater management, which may contribute to greater groundwater recharge during storm events. Furthermore, congestion management and the use of alternatively fueled vehicles would reduce the emission of ozone precursors, which would improve air quality during future extreme hot weather events. Retrofits and continued improvements in water use efficiency within municipal government facilities and throughout the community would contribute to the resiliency of the City's groundwater drinking supplies, which would help mitigate the impacts of severe or prolonged droughts.

VI. IMPLEMENTATION

The Implementation section describes how the City will generally proceed to implement the reduction strategies and the new development emissions thresholds presented in Chapter 5. In addition, this chapter identifies potential funding sources and resources related to project funding that the City may pursue to achieve the emissions goals presented in Chapter 4.

IMPLEMENTATION

The reduction strategies presented in Chapter 5 include specific actions that delineate the timeline for strategy implementation, and, the party or parties responsible for strategy implementation. In addition to the emissions reduction strategies presented in Chapter 5, the new development emissions thresholds, which, when implemented, would ensure that the City's buildout emissions would meet the 2017 Scoping Plan's recommended per capita emissions goals.

As further discussed in Chapter 4 of this CAP, the emissions quantification and emissions goals for the City are based on development projections and population projections for future growth within the City. The development projections for City growth were designed to capture an aggressive development scenario. Although the growth projections analyzed within this CAP represent a higher growth rate than has previously occurred within the City, such growth would be allowable under the City's existing General Plan following recent annexations of adjacent land into the City. Nevertheless, significant uncertainty exists with regard to the actual amount of growth that will occur within the City by the years 2030 and 2050.

Therefore, depending on the rate of future growth within the City, some reduction strategies identified within this CAP may be infeasible, or unnecessary. For instance, should the City's emissions remain constant, and new development does not occur within the City through the year 2030, with a citywide emissions rate of 3.96 MT CO_2e/yr per capita, the City would meet the emissions goal of six MT CO_2e/yr per capita by 2030 without implementation of any reduction strategies. However, the emissions rate of 3.96 MT CO_2e/yr per capita would exceed the year 2050 emissions goal of two MT CO_2e/yr per capita. Thus, in order for the City to maintain compliance with State standards, even assuming that the City does not experience additional growth, implementation of some reduction strategies would be necessary.

Considering the uncertainty surrounding the rate of future growth within the City and the potential for future regulations to place further requirements on the City, future updates to this CAP will be necessary in order to ensure that the emissions goals, emissions reduction strategies, and development thresholds keep pace with growth within the City and the evolving regulatory environment. Therefore, the City shall seek to update the CAP at least once within each ten-year period following the adoption of the CAP, with a preferred update schedule of once per every five years. Updating the City's CAP on the foregoing schedule would ensure that the City is enable to adapt the CAP to any changes in the regulatory environment, and incorporate updated methodologies or approaches to emissions control technologies.

Prior to updating any portions of this CAP, the City shall pursue implementation of the emissions reduction strategies and development thresholds laid out within this CAP. The following sections

provide further discussion related to the implementation of the CAP emissions reduction strategies and implementation of the CAP's new development thresholds.

IMPLEMENTATION OF REDUCTION STRATEGIES

Chapter 5, Emissions Reduction Strategies, of this CAP presents various information related to specific strategies designed to aid the City of Wheatland in reducing present and future GHG emissions. Each emissions reduction strategy presented in Chapter 5 includes specific actions to be taken as well as an identification of the party or parties responsible for measure implementation.

As noted in Chapter 5, some of the emissions reduction strategies would be implemented through municipal actions, while other strategies would be implemented by private developers within the City, under the guidance and direction of City staff. For instance, while Energy Measure 2 requires the City to increase resource efficiency within City-owned facilities, Energy Measure 3 would require future development to incorporate renewable energy systems in compliance with California Building Code Standards. To assist developers in determining which reduction strategies must be implemented within private developments in the City, the City shall draft a sustainability checklist that will be used during the review of future project proposals. The sustainability checklist shall include a succinct list of measures required to be implemented by future development, which will ensure that future development complies with the emissions reduction strategies included in this CAP.

The sustainability checklist would be implemented during the City's development review process for all new development proposals within the City. Development requirements within the sustainability checklist will adapt the emissions reduction strategies presented in Chapter 5, for all types of new development within the city, including reuse of existing developments, infill development, and new development in currently undeveloped portions of the City. Completion of the sustainability checklist will be a requirement of the City's development approval process for all proposed developments within the City in the future.

IMPLEMENTATION OF NEW DEVELOPMENT THRESHOLDS

Chapter 4 of this CAP presents emissions thresholds for new development within the City. Implementation of the new development thresholds within this CAP would work in concert with the emissions reduction strategies discussed above to ensure that future development within the City helps the City to achieve the per capita emissions goals established in the 2017 Scoping Plan.

The sustainability checklist discussed above would include a requirement that certain types of new development achieve the thresholds presented within Chapter 4. Developments required to show compliance with the emissions thresholds would be able to simply complete the sustainability checklist, and in so doing, provide a quantification of anticipated GHG emissions resulting from the proposed development. If the proposed development is shown to result in GHG emissions below the City's thresholds in the years 2030 and 2050, the development would satisfy the requirements of the CAP and further analysis would not be required. Should the development be shown to result in emissions in excess of the City's development thresholds, the new development would be required to show how further design elements could be incorporated into the proposed project to directly reduce GHG emissions in compliance with the City's thresholds, or the applicants for new development could provide documentation proving that sufficient GHG

reduction credits had been purchased from an authorized source of such credits to off-set any project-related emissions in excess of the amount allowed by the thresholds.

Although all new development within the City would be subject to the requirements of the CAP, as discussed in Land Use Measures 1 and 3, in Chapter 5 of this CAP, the City should seek to provide a streamlined development process for certain projects involving the reuse of existing developments, infill development, and other types of sustainable growth. As shown in Chapter 5, implementation of Land Use Measures 1 and 3 would result in significant GHG emissions reductions, and could allow for further support of other strategies such as Transportation Measures 1 and 3 and Land Use Measure 4. Therefore, development within the City has been divided into two general development zones, Development Zone A and Development Zone B. As shown in Figure 4, Development Zone A generally corresponds to the existing development footprint of the City, while Development Zone B corresponds to areas of the City that have not been previously developed, but are anticipated for future development within the City. Development within Development Zone A would inherently comply with Land Use Measure 3, and may comply with Land Use Measure 1 and/or various other reduction strategies. Thus, in order to provide regulatory streamlining to developments that would comply with the City's CAP, the sustainability checklist should only require that developments within Development Zone A comply with applicable emissions reduction strategies. Development within Development Zone B is not considered to inherently comply with the City's CAP, and such development is, therefore, required to comply with the applicable emissions reduction strategies and demonstrate compliance with the City's development thresholds.

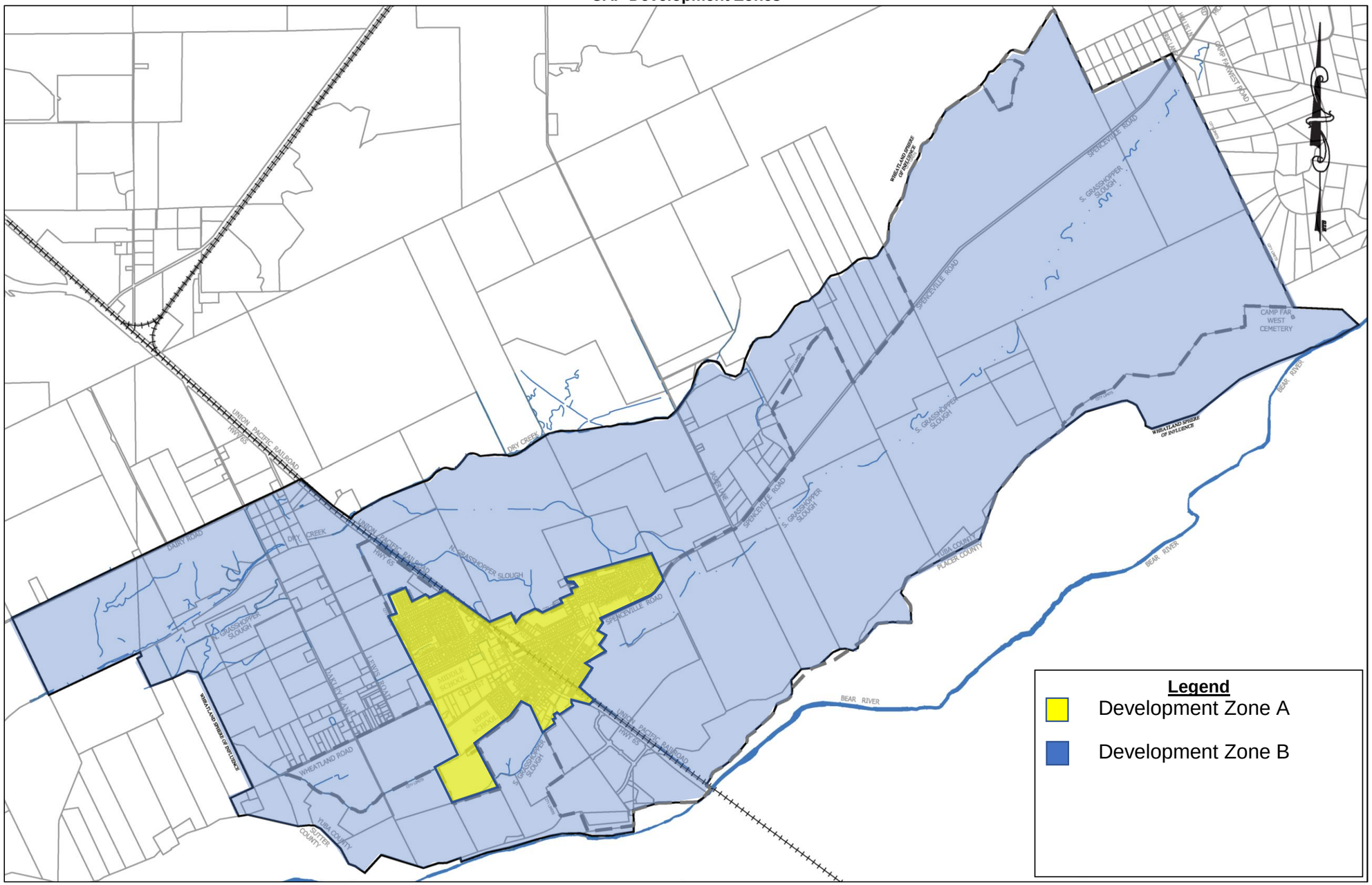
Overall, development within Development Zone B is anticipated to represent the majority of future development activity through the years 2030 and 2050. Therefore, by requiring all future development within Development Zone B to meet the CAP's new development thresholds, the CAP would be applying such thresholds to the majority of new development within the City.

FUNDING

Preparation of this CAP was funded by the Sacramento Area Council of Governments (SACOG) under the Community Design Funding Program, which seeks to enable local governments to complete planning projects that improve walkability, bicycle infrastructure, and energy efficiency in a manner that helps to achieve air quality standards. This CAP includes reduction measures that would achieve the goals of the Community Design Funding Program and meet state regulatory requirements for GHG emissions reductions.

Using this CAP as a starting block, the City will be able to pursue funding through various federal, state, and regional programs that fund GHG emissions reducing activities and measures. For instance, the State's Cap-and-Trade program for GHG emissions creates annual auction proceeds, which are then directed into various programs aimed at reducing GHG emissions on a local and statewide basis.

Figure 4
CAP Development Zones



Such programs include the Transformative Climate Communities Program, which is a California Climate Investment program administered by the Strategic Growth Council, and implemented by the Department of Conservation. The Transformative Climate Communities Program seeks to make funds available to cities embarking on neighborhood-level projects that include multiple coordinated GHG emissions reductions. Using the reduction measures included in Chapter 5 for example, depending on the requirements of the program at the time the City is applying, the City could combine Energy Measure 1, Renewable Energy Production Plan, with Energy Measure 2, Resource Efficiency Improvements for City Buildings, and Land Use Measure 4, Urban Tree Program, to create a citywide program to reduce energy costs through local renewable energy production while increasing resource efficiency through City efficiency measures and urban tree plantings. Additionally, the City may choose to pursue individual programs such as the Community Solar Pilot Program, funding for urban forestry through the California Department of Forestry and Fire Protection, or other programs.

The California Environmental Protection Agency (CalEPA) maintains a database of available funding opportunities through the CoolCalifornia.org. Through the CoolCalifornia.org program the CalEPA promulgates best practices for emissions reductions, examples of such emissions reductions practices, and funding sources. Through the continued distribution of Cap-and-Trade program funds and legislative action on the State level, diverse funding sources are anticipated to remain available into the foreseeable future.

APPENDIX
EMISSIONS MODELING