CITY OF CHINO

FINAL CLIMATE ACTION PLAN UPDATE

2020 – 2030

Approved on November 17, 2020

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FINAL CLIMATE ACTION PLAN UPDATE

2020 –2030

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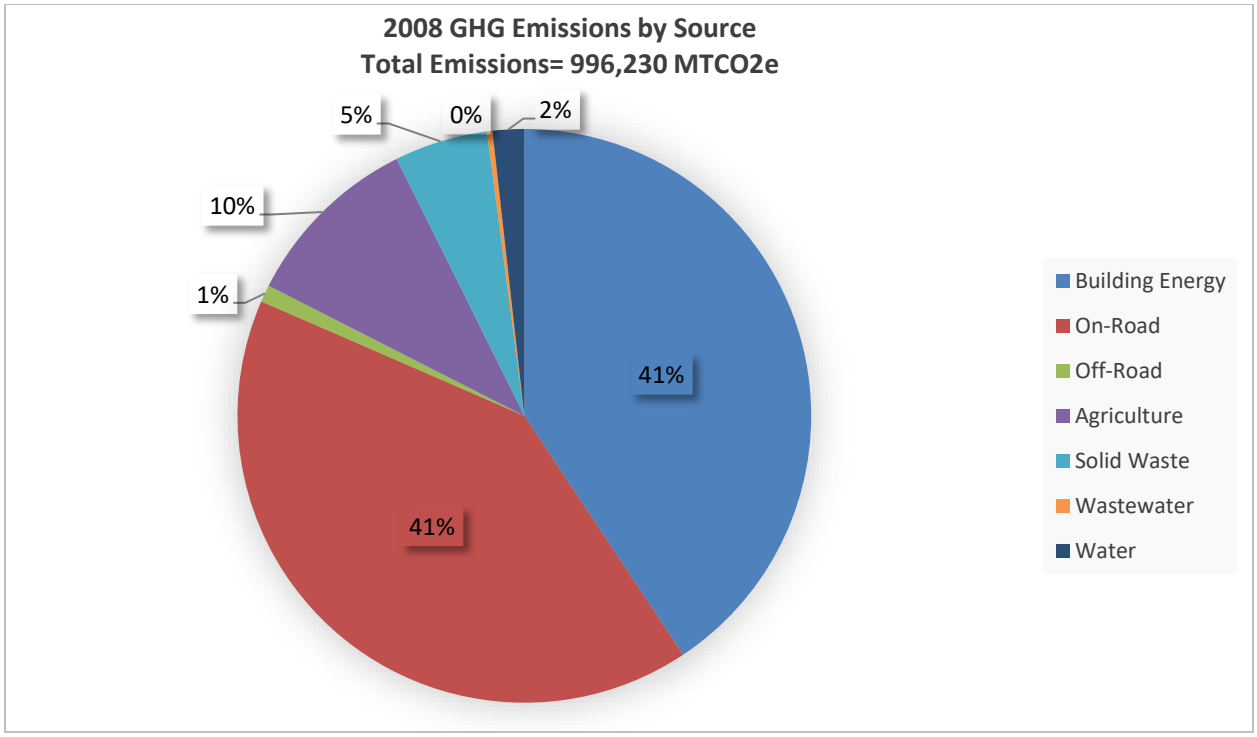
Executive Summary

The City of Chino (City) is committed to providing a more livable, equitable, and economically vibrant community through the reduction of greenhouse gas (GHG) emissions and enhancing the community resilience with regard to vulnerabilities and risks posed by climate change. By using energy more efficiently, harnessing renewable energy to power buildings, recycling waste, and enhancing access to sustainable transportation modes, the City will keep dollars in the local economy, create jobs, and improve the community's quality of life. The efforts toward increasing the reduction of citywide GHG emissions described in this report would occur in coordination with the City's other planning and land use decisions. Through the Climate Action Plan (CAP) Update, the City has established goals and policies that incorporate environmental responsibility into the everyday management of its community operations. The following presents a brief summary of the steps taken to prepare this CAP Update.

S.1 Inventory

The first step in completing the CAP Update was to update the City's GHG emissions inventory. The City completed a baseline year 2008 GHG inventory as part of the Chino Climate Action Plan that was adopted in 2013. For the CAP Update, the 2008 GHG inventory was updated to ensure consistency in data analysis and methodologies. The City emitted approximately 996,230 metric tons carbon dioxide equivalent (MMT CO_2e) in 2008. The largest portion of the City's 2008 emissions was from transportation, followed by emissions from electricity and natural gas use in buildings. For the purposes of the CAP Update, the City completed a 2016 emissions inventory for communitywide sectors. Figure ES-1 shows a sector level comparison of results for the 2008 and 2016 inventories.

The 2016 inventory showed that the City emitted approximately 736,215 MMT CO_2e, which is approximately 15 percent lower than 2008 levels of emissions. The largest portion of emissions in the 2016 inventory came from the transportation sector, which was 53 percent of the City's total GHG emissions. Commercial and residential energy (both electricity and natural gas) uses were the second largest contributor of GHG emissions with 33 percent of total emissions. Solid waste accounted for 7 percent of total GHG emissions in 2016. Water-related GHG emissions accounted for approximately 1.5 percent of total GHG emissions, off-road was 1.4 percent, and wastewater sector emitted less than 1 percent. These levels of emissions are approximately the same when compared with the 2008 emissions inventory.



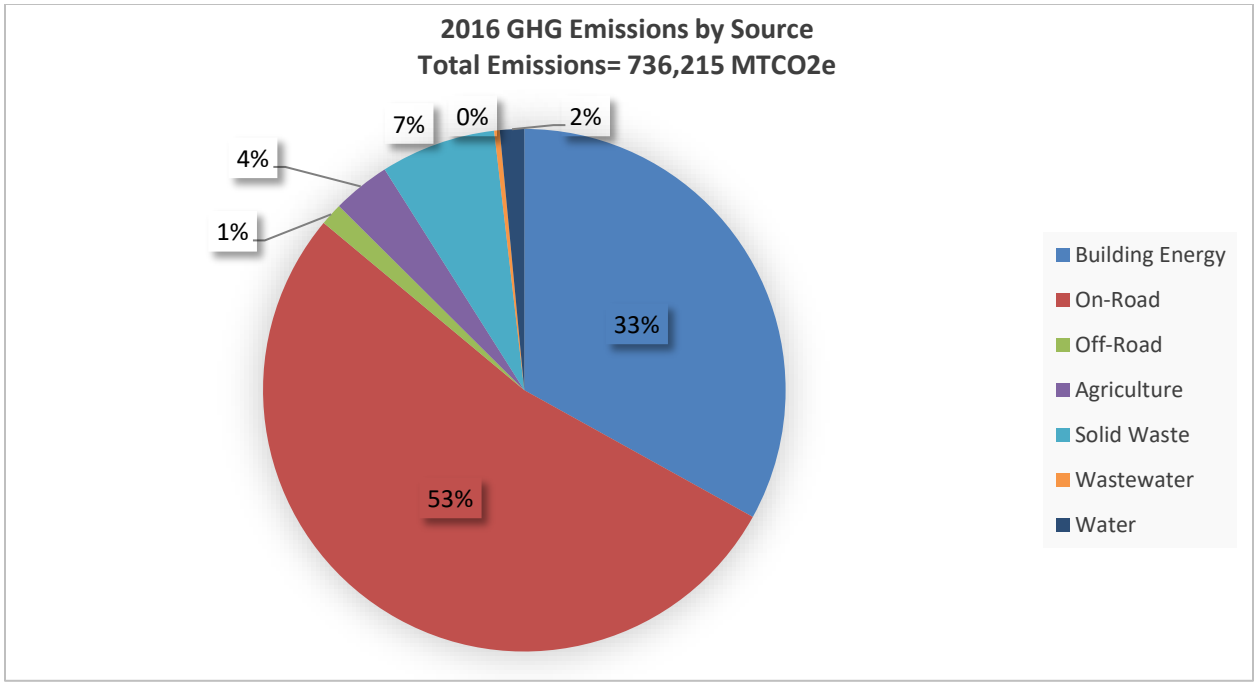


Figure ES-1: Community GHG Emissions by Sector for Years 2008 and 2016

S.2 Forecast and Target Setting

The next step after conducting the 2016 GHG inventory update was to estimate future emissions from different sectors in the City and to establish GHG reduction targets.

The City's future emissions were estimated using demographic indicators, such as households and jobs growth. Demographic indicators used are shown by sector in Table ES-A.

Table ES-A: Demographic Indicators for 2016, 2020 and 2030

Sector	Demographic Indicator	2016	2020	2030
Residential Energy	Households	23,227	24,586	27,983
Commercial/Industrial Energy	Jobs	50,408	51,376	53,796
N/A	Population	81,294	86,051	97,940
Solid Waste, Water, Wastewater, and Off-road Sources	Service Population (Population + Jobs)	131,702	137,427	151,736
Transportation	VMT	906,903,238	912,470,853	926,389,370

Source: Southern California Association of Government RTP/SCS Demographic Growth Projections. 2019
Not applicable (NA). Population data are shown for informational purposes but are not used for forecasting any sector.
VMT = vehicle miles traveled

Future emissions estimates also included reductions that would happen with implementation of legislation adopted at the State level. That is, some level of emission reduction is anticipated within Chino as a result of policies implemented at the State level, including:

- Low Carbon Fuel Standards
- Assembly Bill (AB) 1493 and Advanced Clean Cars
- California Building Code Title 24
- Renewable Portfolio Standard

The resulting projected emissions are considered an "adjusted" business-as-usual forecast. Table ES-B and ES-C show historic Business as Usual (BAU) emissions and Adjusted BAU (ABAU) forecasts.

Consistent with the State's adopted AB 32 (Year 2006) GHG reduction target, the City set a goal to reduce emissions to 1990 levels by 2020. This target was calculated as a 15 percent decrease from 2008 levels, as recommended in the AB 32 Scoping Plan. Chino achieved this 2020 GHG reduction target that was set in the City's existing 2013 CAP. This CAP Update presents a target for the next 10 years (2030), which is to reduce emissions to 46 percent below 2008 levels, as shown in Table ES-D. This goal would put the City on a path toward the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045.

Table ES-B: Chino Business as Usual (BAU) Emissions

Sector	2016 (MT CO_2e)	2020 (MT CO_2e)	Percent Change 2016–2020	2030 (MT CO_2e)	Percent Change 2016–2030
Building Energy	243,393	250,881	3%	269,596	11%
On-Road Vehicles	390,212	396,397	2%	407,741	4%
Off-Road Equipment	10,210	11,156	9%	14,314	40%
Agriculture	26,295	22,315	-15%	14,804	-44%
Solid Waste Management	52,509	55,582	6%	63,261	20%
Wastewater Treatment	2,547	2,696	6%	3,068	20%
Water Transport, Distribution and Treatment	11,049	11,695	6%	12,770	16%
Total	**736,215**	**750,722**	**2%**	**785,554**	**7%**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2019
MT CO_2e = metric tons carbon dioxide equivalent

Table ES-C: Chino Adjusted Business as Usual (ABAU) Emissions

Sector	2016 (MT CO_2e)	2020 (MT CO_2e)	2020 Percent of Total	2030 (MT CO_2e)	2030 Percent of Total
Building Energy	243,393	250,881	33%	91,097	20%
On-Road Vehicles	390,212	396,397	53%	279,704	63%
Off-Road Equipment	10,210	11,156	1%	14,314	3%
Agriculture	26,295	22,315	3%	14,804	3%
Solid Waste Management	52,509	55,582	7%	31,530	7%
Wastewater Treatment	2,547	2,696	0%	3,068	1%
Water Transport, Distribution and Treatment	11,049	11,695	2%	12,770	3%
Total	**736,215**	**750,722**	**100%**	**447,287**	**100%**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2019
MT CO_2e = metric tons carbon dioxide equivalent

Table ES-D: Mass GHG Reduction Targets for Community Emissions

Strategy	Target
2020 Target	15% below 2008 levels
2020 Emissions Goal (MT CO_2e)	877,108 Target Met
2030 Target	46% below 2008 levels
2030 Emissions Goal (MT CO_2e)	537,964

Source Draft San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO_2e = metric tons of carbon dioxide equivalent

S.3 Reduction Measures

The City has demonstrated its commitment to conserve energy and reduce emissions through a variety of programs and policies. In addition to State measures, the City would implement the additional local reduction measures described in this report. These measures encourage energy efficiency, water conservation, alternative transportation, solid waste reduction, and clean energy. Table ES-E summarizes the reductions from measures that would be implemented to meet the Community GHG reduction goals for 2030.

Table ES-E: Summary of Community GHG Reduction Strategies and Emission Reductions

Local Measures	2030 Emission Reductions (MT CO_2e)
Energy	
Energy-1: Building Energy Efficiency	
Measure E-1	2,243
Measure E-2	443
Measure E-3	1,758
Energy-2: Lighting Efficiency	N/A
Energy-7: Solar Installation, Existing Housing	8,687
Energy-8: Solar Installation, Existing Commercial/Industrial	N/A
Total:	**13,131**
On-Road Transportation	
On-Road-2: Encourage Use of Mass Transit, Carpooling, Ridesharing, Telecommuting	N/A
On-Road-3: Transportation Demand Management and Signal Synchronization	2,797
On-Road-4: Expand Bike Routes	3,047
On-Road-5: Community Charging Station Installation	N/A
Total:	**5,844**
Solid Waste Management	
Waste-2: Waste Diversion and Reduction	15,111
Total:	**15,111**
Wastewater Treatment	
Wastewater-3: Promote Usage of Recycled Water	N/A
Total:	**N/A**
Water Consumption	
Water-2: Voluntary Implementation CALGreen Water Efficiency Measures for Existing Construction	N/A
Water-3: Water-Efficient Landscaping Practices	994
Total:	**994**
GHG Performance Standard for New Development	
DRP-1: Development Review Process Setting Standards for New Development	6,051
TOTAL:	**41,131**

MT CO_2e = metric tons of carbon dioxide equivalent SB = Senate Bill
N/A=Quantification not available, per the Draft San Bernardino Regional GHG Reduction Plan Update 2020
Energy-2 is implemented through the Screening Tables and quantified in the GHG Performance Standard.
On-Road-2 is implemented through the Screening Tables and quantified in the GHG Performance Standard.
On-Road-5 Installation of community electric vehicle charging stations is an option within the Screening Tables and is quantified under the GHG Performance Standard.
Wastewater-3 is implemented through the Screening Tables and is quantified under the GHG Performance Standard.
Water-2 is implemented through the Screening Tables and is quantified under the GHG Performance Standard.

S.4 Adaptation

The City recognizes that planning sustainably is more than reducing GHG emissions; it also requires being prepared for changes that would affect the community's quality of life, its use of resources, and its economy. Preparedness, or adaptation, efforts seek to reduce vulnerability and increase the local capacity to adapt to changes. Chino may expect increased temperatures, variable precipitation, and increased extreme weather events. The City has developed adaptation strategies to reduce potential impacts and build resiliency among the communities. The adaptation strategies focus on public health and safety, electricity demand, water availability, infrastructure damage, wildfire, and social equity.

S.5 Implementation

Finally, the CAP in itself is not enough to meet the reduction goals without a commitment to implementation. The Implementation Chapter of the CAP Update identifies the process for implementing and monitoring the identified strategies. Figure ES-2 summarizes the five-step process.

Figure ES-2: Process of Implementing the Climate Action Plan Update

The CAP Update, will allow City to foster economic development by providing a straightforward approach to address climate change during the environmental review process required by the State per section 15183.5 of the California Environmental Quality Act (CEQA) Guidelines. Through successful implementation of this CAP Update, the City will demonstrate the potential economic, social, and environmental benefits of reducing GHG emissions and providing environmental stewardship within the community.

1.0 Introduction

The City of Chino (City) is committed to planning sustainably for the future while ensuring a livable, equitable, and economically vibrant community. Planning sustainably includes acknowledging the local role in climate change and how the City can mitigate its GHG emissions and prepare for (i.e., adapt to) anticipated climate-related changes. The City adopted its first Climate Action Plan (CAP) in November 2013 (Chino CAP 2013). The CAP provided the greenhouse gas (GHG) emissions inventory for the year 2008, and target for reducing GHG emissions 15 percent below 2008 levels by 2020. The City has implemented strategies to reduce its GHG emissions identified in the 2013 CAP, which has helped the City meet its 2020 GHG reduction targets. Since the adoption of City's CAP, the State has enacted new climate change regulations, most notably the Senate Bill (SB) 32, which provides statewide targets to reduce GHG emissions to 40 percent below 1990 levels by 2030. To ensure conformity with the latest State climate change regulations, the City is currently updating its 2013 CAP. This CAP Update serves as a comprehensive roadmap to outline strategies that the City will implement to continue achieving its GHG emissions reductions into the year 2030 and beyond, thereby ensuring sustainable and healthy growth.

1.1 Climate Change Science

Climate change is a term used to describe large-scale shifts in historically observed patterns in earth's climate system. Although the climate has historically responded to natural drivers, recent climate change has been unequivocally linked to increasing concentrations of greenhouse gases (GHGs) in earth's atmosphere.

Gases that trap heat in the atmosphere are called GHGs because they transform the light of the sun into heat, similar to the glass walls of a greenhouse. Human-generated GHG emissions significantly contribute to the changes in the global climate, which have a number of physical and environmental effects. Effects associated with global climate change include sea level rise, an increase in the frequency and intensity of droughts, and increased temperature. Increased GHG emissions are largely the result of the increase in the combustion of fossil fuels.

The Intergovernmental Panel on Climate Change (IPCC)[1] assesses scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC identifies six key GHG compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and hydrofluorocarbons (HFC). Each GHG has a different capacity to trap heat, and therefore, GHG emissions are generally reported in metric tons (MT) of carbon dioxide equivalent (CO_2e). Non-CO_2 emissions are converted to a CO_2e using each GHG's Global Warming Potential (GWP). IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e, which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition). Common GHGs included in the CAP are CO_2, CH_4, and N_2O, which are the GHGs that most commonly result from human activities, and are detailed below.

[1] Intergovernmental Panel on Climate Change (IPCC) https://www.ipcc.ch/ (accessed on November 15, 2018).

Carbon Dioxide is the most important anthropogenic GHG and accounts for more than 75 percent of all GHG emissions caused by humans. Its atmospheric lifetime of 50–200 years ensures that atmospheric concentrations of CO_2 will remain elevated for decades, even after mitigation efforts to reduce GHG concentrations are implemented. The primary sources of anthropogenic CO_2 in the atmosphere include the burning of fossil fuels (including motor vehicles), gas flaring, cement production, and land use changes (e.g., deforestation, oxidation of elemental carbon). Transportation, which primarily consists of on-road travel, is the single largest source of CO_2 in California. Electricity production, industrial, and residential sources also contribute to CO_2 emissions in California.[2] CO_2 can be removed from the atmosphere by photosynthetic organisms (e.g., plants and certain bacteria). Atmospheric CO_2 has increased from a preindustrial concentration of 280 parts per million (ppm) to approximately 416 ppm in 2020.[3]

Methane (CH_4), the main component of natural gas, is the second most abundant GHG and has a GWP of 25. Agriculture accounts for the majority of methane emissions in California, resulting primarily from livestock enteric fermentation and manure management. Industrial sources and landfills are also sources of CH_4. Other sources contribute only a small fraction to CH_4 emissions including residential, transportation, electricity generation, and commercial sources.[4]Certain land uses also function as a both a source and sink for CH_4. For example, the primary terrestrial source of CH_4 is wetlands, whereas undisturbed, aerobic soils act as a CH_4 sink (i.e., they remove CH_4 from the atmosphere). Atmospheric CH_4 has increased from a preindustrial concentration of 715 parts per billion (ppb) to 1,873 ppb in 2020.[5]

Nitrous Oxide (N_2O) is a powerful GHG, with a GWP of 298. In the United States, more than 70 percent of N_2O emissions are related to agricultural soil management practices, particularly fertilizer application. Agriculture accounts for the majority of N_2O emissions, primarily from fertilizer and manure added to soil. Commercial and residential use of nitrogen fertilizer on turf and transportation (through the combustion of fossil fuels) are also major sources of N_2O. Industrial sources of N_2O include solid waste and wastewater treatment, manufacturing, refining and other sources.[6] N_2O concentrations in the atmosphere have increased nearly 21 percent, from preindustrial levels of 270 ppb to 332.5 ppb in 2020.[7]

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2 California Air Resources Board, 2016 Carbon Dioxide (CO_2) https://www.arb.ca.gov/cc/inventory/background/co2.htm (accessed February 13, 2020)

3 National Oceanic and Atmospheric Administration (NOAA). Annual Greenhouse Gas Index, Recent Monthly Average CO2. Website: https://www.esrl.noaa.gov/gmd/ccgg/trends/ (accessed January 26, 2020).

4 California Air Resources Board, 2016 Methane (CH_4) https://www.arb.ca.gov/cc/inventory/background/ch4.htm (accessed February 13, 2020)

5 NOAA, Annual Greenhouse Gas Index, Recent Monthly Mean CH_4. Website: https://www.esrl.noaa.gov/gmd/ccgg/trends_ch4/ (accessed January 26, 2020).

6 California Air Resources Board, 2016 Nitrous Oxide (N_2O) https://www.arb.ca.gov/cc/inventory/background/n2o.htm (accessed February 13, 2019)

7 NOAA, Annual Greenhouse Gas Index, Graph of N_2O Concentration. Website: https://www.esrl.noaa.gov/gmd/aggi/aggi.fig2.png (accessed January 26, 2020).

1.2 Benefits of the CAP Update

This CAP Update, while addressing climate change, also benefits the City in many direct and indirect ways.

- **Local Control:** This CAP Update allows the City to identify strategies to reduce resource consumption, costs, and GHG emissions in all economic sectors in a way that maintains local control over the issues and fits the character of the community. It also may position Chino for funding to implement programs tied to climate goals.
- **Energy and Resource Efficiency:** This CAP Update identifies opportunities for the City to increase energy efficiency and lower GHG emissions in a manner that is most feasible in the community. Reducing energy consumption through increasing the efficiency of energy technologies, reducing energy use, and using alternative sustainable sources of energy are effective ways to reduce GHG emissions. Energy efficiency also provides opportunities for cost savings.
- **Improved Public Health:** Many of the GHG reduction strategies identified in this CAP Update also have local public health benefits. Benefits include local air quality improvements; creating a more active community through implementing sustainable living practices; and reducing health risks, such as heat stroke, elevated by climate change impacts such as increased extreme heat days.
- **Demonstrating Consistency with State GHG Reduction Goals:** The CAP Update may be used as GHG mitigation in a General Plan to demonstrate that Chino's GHG reduction targets are aligned with State goals for reducing GHG emissions to a level less than cumulatively considerable.
- **Enhanced Community Resilience:** The CAP also presents a City-level climate change risk and vulnerability assessment and identifies strategies to help the City adapt to those risks. The results of the vulnerability and risk analysis will satisfy all the State requirements on addressing climate change in General Plan Safety Elements per Senate Bill379.

1.3 Regulatory Setting

In an effort to stabilize GHG emissions and to reduce impacts associated with climate change, international agreements, as well as federal and State actions were implemented beginning as early as 1988. The government agencies discussed below work jointly, as well as individually, to address climate change and GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The policies and regulations provide important policy drivers and context for the City's CAP Update.

1.3.1 Federal

1.3.1.1 Clean Air Act

In 2007, through *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), the United States Supreme Court held that the United States Environmental Protection Agency (EPA) has authority to regulate GHGs. As such, the United States Supreme Court ruled that the EPA should be

required to regulate carbon dioxide and other GHGs as pollutants under Section 202(a)(1) of the Federal Clean Air Act.

1.3.2 State

1.3.2.1 California Air Resources Board Standards and Programs

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and State air pollution control and climate change programs within California. In this capacity, CARB conducts research, sets State ambient air quality standards (California Ambient Air Quality Standards or CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment.

1.3.2.2 Executive Order S-3-05

On June 1, 2005, California Governor Arnold Schwarzenegger announced through Executive Order S-3-05, the following GHG emissions targets:

- By 2010, California shall reduce GHG emissions to 2000 levels.
- By 2020, California shall reduce GHG emissions to 1990 levels.
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-3-05 also laid out responsibilities among State agencies for implementation and for reporting on progress toward the targets.

1.3.2.3 Executive Order B-30-15

On April 29, 2015, California Governor Jerry Brown announced through Executive Order B-30-15, the following GHG emissions target:

- By 2030, California shall reduce GHG emissions to 40 percent below 1990 levels.

The emission reduction target of 40 percent below 1990 levels by 2030 is an interim-year goal to make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050. The order directs the CARB to provide a plan with specific regulations to reduce statewide sources of GHG emissions. The Executive Order does not include a specific guideline for local governments.

1.3.2.4 Senate Bill 32

In 2016, Governor Brown signed Senate Bill (SB) 32 into law, which established a new reduction target. SB 32 codifies Executive Order B-30-15's year 2030 goal by requiring the State Board to ensure that statewide GHG emissions be reduced to 40 percent below 1990 levels by 2030. The new 2030 target places California on a trajectory toward meeting its long term-goal, which is to bring emissions down to 80 percent below 1990 levels by 2050.

1.3.2.5 Assembly Bill 32, the California Global Warming Solutions Act of 2006

AB 32 requires CARB to reduce statewide GHG emissions to 1990 level by 2020. As part of this legislation, CARB was required to prepare a "Scoping Plan" that demonstrates how the State will achieve this goal. The Scoping Plan was adopted in 2011 and in it, local governments were described as "essential partners" in meeting the statewide goal, recommending a GHG reduction level 15 percent below 2005–2008 levels, depending on when a full emissions inventory is available, by 2020.

CARB released the 2017 Scoping Plan Update on January 20, 2017. The 2017 Scoping Plan Update provides strategies for achieving the 2030 target established by Executive Order B-30-15 and codified in SB 32 (40 percent below 1990 levels by 2030). The 2017 Scoping Plan Update recommends local plan level GHG emissions reduction goals. CARB recommends that local governments aim to achieve emissions of no more than 6 metric tons (MT) of CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050.

1.3.2.6 Executive Order B-55-18

On September 12, 2018, California Governor Jerry Brown announced, through Executive Order B-55-18, the following GHG emissions target:

- By 2045, California shall achieve statewide net carbon neutrality.

The emission reduction target of net carbon neutrality is a long-term goal. The order includes specific CARB actions including setting a goal of five million zero emission vehicles and doubling the reduction of carbon fuels by 2030 and developing a forest carbon plan with specific regulations to reduce statewide sources of GHG emissions toward carbon neutrality. The Executive Order does not include a specific guideline for local governments.

1.3.2.7 Assembly Bill 1493, Clean Car Standards

Also known as "Pavley I," Assembly Bill (AB) 1493 standards were the nation's first GHG standards for automobiles. AB 1493 requires CARB to adopt vehicle standards that will lower GHG emissions from new light-duty autos to the maximum extent feasible. In January 2012, CARB adopted the Advanced Clean Cars Program to achieve additional GHG emission reductions for passenger vehicles for model years 2017–2025. The program includes low-emission vehicle regulations and zero-emission vehicle regulations. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 (and more for years beyond 2020).

1.3.2.8 Assembly Bill 341 (Commercial Recycling)

AB 341 sets a statewide goal of 75 percent recycling, composting, or source reduction of solid waste by the year 2020. As required by AB 341, the California Department of Resources Recycling and Recovery (CalRecycle) adopted the Mandatory Commercial Recycling Regulation on January 17, 2012. The regulation was approved by the Office of Administrative Law on May 7, 2012. It became effective immediately and clarifies the responsibilities in implementing mandatory commercial recycling. The Mandatory Commercial Recycling Regulation focuses on increased commercial waste diversion as a method to reduce GHG emissions. The regulation is designed to achieve a reduction in GHG emissions

of 5 million MT of CO_2, which equates to roughly an additional 2 to 3 MT of currently disposed commercial solid waste being recycled by 2020 and thereafter.

1.3.2.9 Senate Bill 97

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. The legislation directed the California Office of Planning and Research to develop draft *CEQA Guidelines* "for the mitigation of GHG emissions or the effects of GHG emissions" and directed the Resources Agency to certify and adopt the *State CEQA Guidelines*. *CEQA Guidelines* Section 15183.5, Tiering and Streamlining the Analysis of GHG Emissions, was added as part of the *CEQA Guidelines* amendments that became effective in 2010 and describes the criteria needed in a GHG reduction plan that would allow for the tiering and streamlining of CEQA analysis for development projects.

1.3.2.10 Executive Order S-1-07, Low Carbon Fuel Standard

California Executive Order S-01-07 mandates (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and (2) that a low carbon fuel standard (LCFS) for transportation fuels be established in California. CARB developed the LCFS regulation pursuant to the authority under AB 32 and adopted it in 2009.

1.3.2.11 Executive Order S-13-08, The Climate Adaptation and Sea Level Rise Planning Directive

Executive Order S-13-08 provides clear direction for how the State should plan for future climate impacts. Executive Order S-13-08 calls for the implementation of four key actions to reduce the vulnerability of California to climate change:

- Initiate California's first statewide Climate Adaptation Strategy that will assess the State's expected climate change impacts, identify where California is most vulnerable, and recommend climate adaptation policies.
- Request that the National Academy of Sciences establish an expert panel to report on sea level rise impacts in California in order to inform State planning and development efforts.
- Issue interim guidance to State agencies for how to plan for sea level rise in designated coastal and floodplain areas for new and existing projects.
- Initiate studies on critical infrastructure and land-use policies vulnerable to sea level rise.

1.3.2.12 California Code of Regulations Title 24, Part 6

California Code of Regulations (CCR) Title 24, Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings) (Title 24), was established in 1978 to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels and natural gas use result in GHG emissions and energy-efficient buildings require less electricity and natural gas. Therefore, increased energy efficiency results in decreased GHG emissions.

The California Energy Commission (CEC) adopted 2008 Standards on April 23, 2008, in response to AB 32. The Standards were adopted to provide California with an adequate, reasonably priced, and environmentally sound supply of energy; to pursue California energy policy, which states that energy efficiency is the resource of first choice for meeting California's energy needs; to meet the West Coast Governors' Global Warming Initiative commitment to include aggressive energy efficiency measures into updates of State building codes every three years; and to meet the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards. The latest update of CCR Title 24, Part 6 went into effect July 1, 2014, which significantly increases the energy efficiency of new residential buildings. The 2019 Title 24 standards, which became effective on January 1, 2020, are estimated to result in new buildings that use 7 percent less energy for lighting, heating, cooling, ventilation, and water heating than the previous 2016 Standards. The 2019 updates to Title 24 are focused on moving closer to zero net energy (ZNE) homes by increasing energy efficiency and requiring solar photovoltaic (PV) systems for new homes. The 2019 Title 24 standards also encourage demand responsive technologies including battery storage and heat pump water heaters and improving buildings' thermal envelopes through high performance attics, walls, and windows to improve comfort and energy savings. Chino adopted the 2019 building Code in December 2019.

1.3.2.13 Senate Bill 375, Sustainable Communities Strategy

SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations to incorporate a sustainable communities strategy in their regional transportation plans. The goal of the sustainable communities strategy is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development.

1.3.2.14 CALGreen Building Code

CCR Title 24, Part 11 (California's Green Building Standard Code [CALGreen]), was adopted in 2010 and went into effect January 1, 2011. CALGreen is the first statewide mandatory green building code and significantly raises the minimum environmental standards for construction of new buildings in California. The mandatory provisions in CALGreen will reduce the use of volatile organic compound-emitting materials, will strengthen water conservation, and will require construction waste recycling.

1.3.2.15 Renewable Portfolio Standard

The Renewable Portfolio Standard requires energy providers to derive 33 percent of their electricity from qualified renewable sources by 2020. In 2018, the State Legislature passed and Governor Jerry Brown signed SB 100, which requires energy providers to derive 60 percent of their electricity from qualified renewable sources by 2030, and 100 percent by 2045. The Renewable Portfolio Standard is anticipated to lower emission factors (i.e., fewer GHG emissions per kilowatt-hour used) from utilities across the State, including Southern California Edison (SCE).

1.3.2.16 Senate Bill 100 California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases

SB 100 established a landmark policy requiring renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045. It requires the CEC, California Public Utilities Commission (CPUC), and CARB to prepare a report.

1.3.2.17 Senate Bill 379 Land Use: General Plan: Safety Element

SB 379 requires all cities and counties to include climate adaptation and resiliency strategies in the safety elements of their general plans upon the next revision beginning January 1, 2017. The bill requires the climate adaptation update to include a set of goals, policies, and objectives for their communities based on the vulnerability assessment, as well as implementation measures, including the conservation and implementation of natural infrastructure that may be used in adaptation projects. Specifically, the bill requires that upon the next revision of a general plan or local hazard mitigation plan, the safety element is to be updated as necessary to address climate adaptation and resiliency strategies applicable to the city or county.

1.3.2.18 Senate Bill 350 Clean Energy and Pollution Reduction Act

SB 350 requires the State to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. The CEC, working with State agencies, including the CPUC, CARB, California Independent System Operator, large utilities, and electrical corporations, is the responsible entity to implement this measure.

1.3.2.19 Assembly Bill 1470 (Huffman)/Assembly Bill 797 Solar Water Heating

AB 1470 created a $25 million per year, 10-year incentive program to encourage the installation of 200,000 solar water heating systems that offset natural gas use in homes and businesses throughout the state. AB 797 extended the operation of the program through July 31, 2020, reserving 50 percent of the total program budget for the installation of solar thermal systems in low-income residential housing or in buildings in disadvantaged communities and expanding the program to homeowners that lack access to natural gas among other things.

1.3.2.20 Senate Bill 743

SB 743 required Governor's Office of Planning and Research (OPR) to provide an alternative to Level of Service (LOS) for evaluating traffic impacts of a project. In December of 2018, after years of research and public comment, OPR released guidelines on evaluating traffic impacts in CEQA. The new guidelines replace the previous LOS metric with a VMT metric for determining a significant environmental impact under CEQA as they relate to traffic.

1.4 City Setting

The City of Chino is in the western end of San Bernardino County near the western convergence of Los Angeles County. Chino covers approximately 30 square miles and is bounded on the south by Chino Hills. The average high temperatures in Chino ranges from 68-90 degrees. The average low temperatures range from 40-60 degrees. The City offers a range of public buildings for the community, which include educational, recreational, and business events. Chino is a community of more than

88,000 residents. The median age in Chino is 36 years and 49 percent of the population is married. Chino's ethnicity is approximately 54 percent White, 6.7 percent African American, 1 percent Native American, 11.5 percent Asian,22.3percent are some other race, 0.2 percent Native Hawaiin and other Pacific Isl. and 4.7 percent are two or more races. Chino has approximately 24,567 housing units, including single-family, multifamily units, mobile home, and other units[8].

1.5 Organization of the CAP Update

The remainder of this CAP Update includes four additional chapters:

- **Chapter 2.0** summarizes Chino's historic and future GHG emissions and the reduction targets the City has established.
- **Chapter 3.0** details the local reduction strategies that will be implemented at the community level to meet the reduction targets identified in Chapter 2.0. Measures also include the local co-benefits of the measures.
- **Chapter 4.0** discusses how Chino may be affected by climate change and how it can adapt and become more resilient to climate change effects.
- **Chapter 5.0** includes the implementation of the measures, potential funding sources, and how the CAP Update will be monitored and updated over time. It also summarizes the outreach and CEQA review process conducted as part of this CAP Update.
- **Chapter 6.0** comprises a list of references cited.

[8] Southern California Association of Governments, City of Chino Statistical Summary Profile 2018

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2.0 GHG Emissions Inventory, Forecast, and Targets

2.1 GHG Emissions Inventory

GHG emissions inventories are the foundation of planning for future reductions. Establishing an inventory of emissions helps to identify and categorize the major sources of emissions produced over a single calendar year. A community inventory includes GHG emissions that result from the activities of Chino's residents and businesses. The inventories identify the major sources of GHGs emissions caused by activities in sectors that are specific to community activities.

In its previous CAP, the City prepared community inventory for the year 2008. The 2008 inventory is considered the baseline year. A baseline year is established as a starting point against which other inventories may be compared and targets may be set and is generally the earliest year with a full emissions inventory. Table A provides the sectors evaluated in the City's 2008 baseline inventory.

Table A: Community Sectors Evaluated in the 2008 Baseline Inventory

Community Sectors
Building Energy
On-Road Transportation
Off-Road Equipment
Solid Waste Management
Wastewater Treatment
Agriculture
Water Conveyance

The 2008 GHG inventory was based mostly on actual 2008 activity data and year 2008 emission factors and includes all significant contributing sectors to GHG emissions, according to the guidelines of the ICLEI U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions[9] and the CARB Local Governments Operations Protocol (LGOP) (2010).

As part of the 2016 GHG inventory update, a revision to the 2008 baseline GHG inventory was conducted to ensure consistency in the data and analysis methodologies. This resulted in some changes in the baseline 2008 inventory, particularly in the solid waste management, off-road equipment, and building energy sectors. The changes to the 2008 baseline inventory are summarized below and Table B compares the previous 2008 baseline inventory, with the adjusted 2008 baseline inventory. The following are the list of changes that were made to the City's original 2008 baseline GHG inventory:

- **Off-road Equipment:** The OFFROAD model output from the 2008 baseline GHG emissions resulted in numbers much higher than the current model output; therefore, the OFFROAD model was rerun for 2008 and the emissions were adjusted accordingly.

[9] ICLEI. 2012. Local Governments for Sustainability US Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol)

- **Solid Waste Management:** In the 2008 baseline GHG inventory, more of a waste-in-place method was used at the landfills where the cities send their waste. For the current inventory, a waste generation approach (i.e., future methane commitment) was used. To make the inventories consistent, the 2008 baseline GHG inventory was adjusted by using the waste generation emission factor and the 2008 population values.
- **Building Energy-Residential Stationary Sources:** The 2008 baseline GHG emissions from residential stationary sources were grouped into the residential natural gas sector for the adjusted 2008 baseline GHG emissions.

Table B: 2008 Baseline GHG Inventory and the Adjusted 2008 Baseline GHG Inventory

Sector	Total Emissions (MT CO_2e)	
	2008 Baseline GHG Inventory	2008 Adjusted Baseline GHG inventory
Building Energy	403,585	405,113
On-Road Vehicles	407,132	407,133
Off-Road Equipment	82,908	9,572
Agriculture	101,287	101,287
Solid Waste Management	16,239	52,384
Wastewater Treatment	3,057	3,057
Water Transport, Distribution, and Treatment	17,684	17,684
Total	**1,031,892**	**996,230**
Per Capita Emissions	13.7	13.2

Source: Chino 2013 Climate Action Plan and Draft San Bernardino Regional GHG Reduction Plan Update 2020
MT CO_2e = metric tons of carbon dioxide equivalent

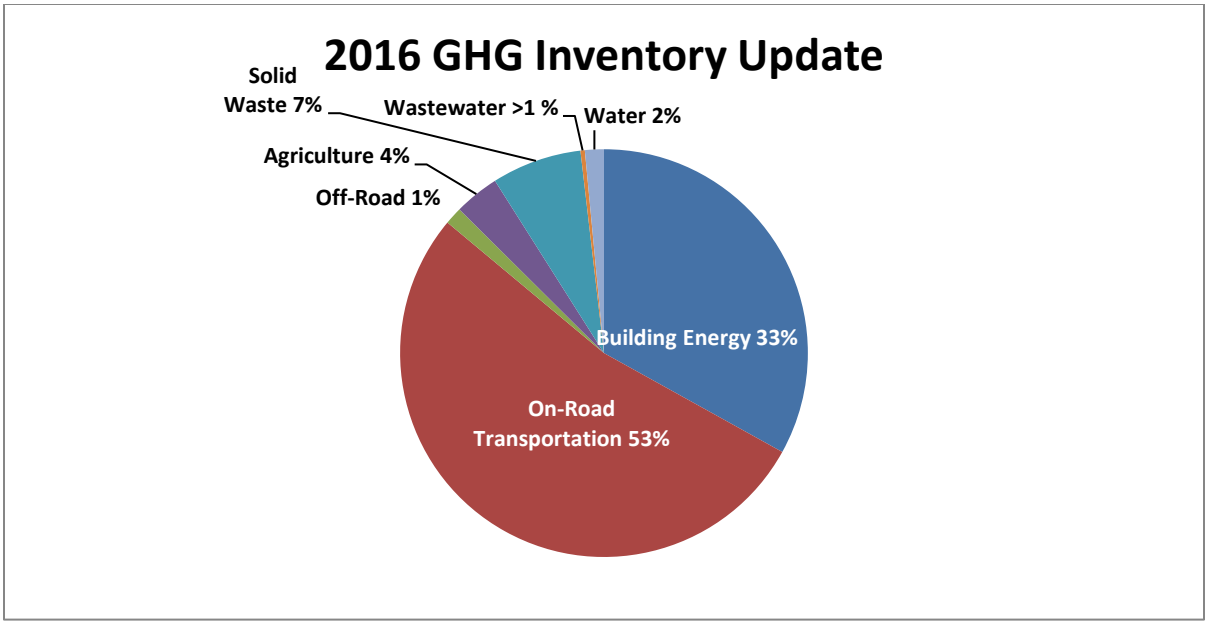
2.1.1 2016 Greenhouse Gas Emissions Summary

The City's 2016 GHG Inventory update, presented in Table C and Figure 1, shows the contribution of different economic sectors toward GHG emissions. The on-road transportation sector is the largest contributor to the GHG emissions (53 percent of total emissions) followed by building energy (33 percent of total emissions). The solid waste, agriculture, water, off-road transportation, and wastewater sectors contribute to the rest of the emissions.

Table C: Communitywide GHG Emissions by Sector for 2016

Sector	2016 (MT CO_2e)	Percent of Total
On-road Transportation	390,212	53.0
Off road Equipment	10,210	1.4
Building Energy	243,393	33.1
Agriculture	26,295	3.6
Solid Waste Management	52,509	7.1
Wastewater Treatment	2,547	0.3
Water Transport, Distribution, and Treatment	11,049	1.5
Total	**736,215**	100

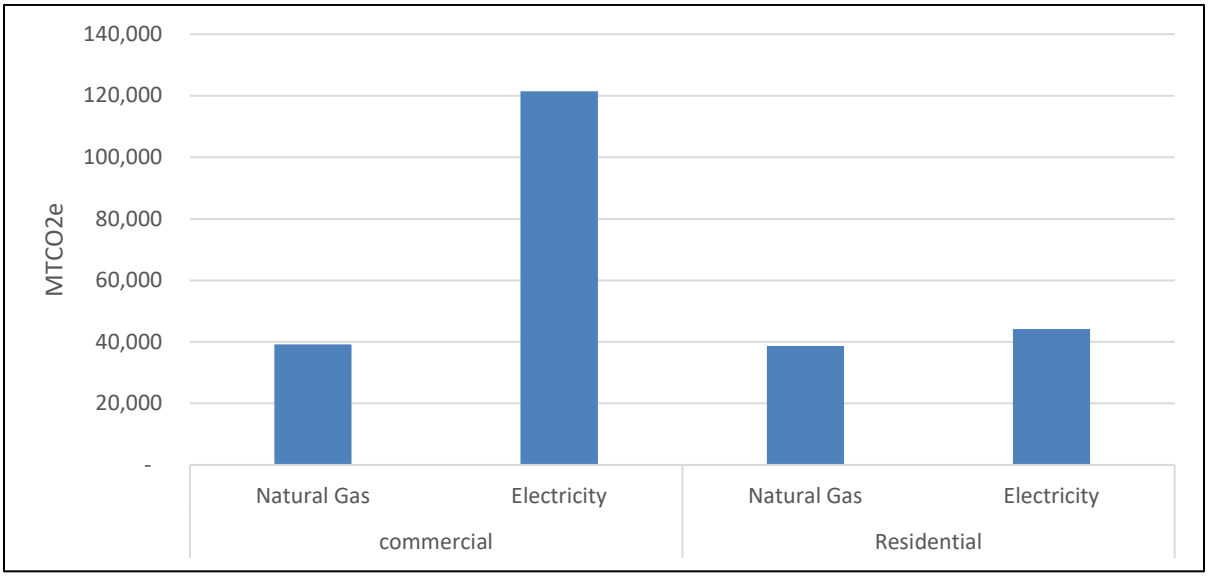
Source: San Bernardino GHG Reduction Plan Update 2020
MT CO_2e = metric tons of carbon dioxide equivalent



Source: GHG Inventory Update for San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO2e = metric tons of carbon dioxide equivalent

Figure 1: Communitywide GHG Emissions by Sector For 2016

Energy is an area over which local agencies often have the greatest opportunities for effecting change. Therefore, electricity and natural gas use remains a key area for reduction opportunities. Emissions from commercial and residential sectors energy use account for approximately 33 percent of total community emissions in 2016. Figure 2 shows the electricity and natural gas emissions from 2016 for the building energy sector. Table D includes the activity data and GHG emissions for 2016.



Source: GHG Inventory Update for San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO2e = metric tons of carbon dioxide equivalent

Figure 2: GHG Emissions for Community Electricity and Natural Gas, By Sector

Table D: Activity Data and GHG Emissions for Energy in 2016

Sector	2016	
	Activity (kWh or therms)	Emissions (MT CO_2e)
Commercial/Industrial		
Electricity	530,964,733	121,468
Natural Gas	7,375,138	39,143
Residential		
Electricity	176,553,414	44,159
Natural Gas	7,089,485	38,623
Total	**721,982,770**	**243,393**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2020
kWh = kilowatt hours
MT CO_2e = metric tons of carbon dioxide equivalent

2.1.2 Inventory Forecast

Forecasting future GHG emissions allows the City to understand how emissions are expected to increase or decrease in the future. Major changes in growth or land uses may affect how to best plan to reduce emissions in the future. GHG emissions are forecasted using two scenarios: a Business-as-Usual (BAU) and an Adjusted BAU (ABAU) scenario. The BAU scenario describes emissions based on projected growth in population and employment and does not consider policies that would reduce emissions in the future (that is, the policies and related efficiency levels in place in 2016 are assumed to remain constant through 2045). The City's projected growth is estimated using the latest data from the Southern California Association of Government's Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) Demographic and growth forecast. In general, the City is expecting modest growth to 2045 as population, housing, and jobs are all expected to increase. Table E shows the growth projections used to develop the emissions forecasts.

Table E: Growth Indicators for 2016, 2020 and 2030

Sector	Demographic Indicator	2016	2020	2030
Residential Energy	Households	23,227	24,586	27,983
Commercial/Industrial Energy	Jobs	50,408	51,376	53,796
N/A	Population	81,294	86,051	97,940
Solid Waste, Water, Wastewater, and Off-road Sources	Service Population (Population + Jobs)	131,702	137,427	151,736
Transportation	VMT	906,903,238	912,470,853	926,389,370

Source: Southern California Association of Government RTP/SCS Demographic Growth Projections. 2019
Not applicable (NA). Population data are shown for informational purposes but are not used for forecasting any sector.
VMT = vehicle miles traveled based on SBCTA Traffic model

The Adjusted BAU scenario describes emissions based on projected growth *and* considers policies that will achieve GHG reductions in the future. Policies, described in the Regulatory Setting section of Chapter 1.0, include State-adopted or approved legislation that will affect future emissions. By

evaluating the two scenarios, the City can evaluate the effect that existing policies may have on future emissions and determine which local measures would provide additional reductions.

Chino's BAU and ABAU forecasts were developed as part of San Bernardino County Regional GHG Plan Update. The sections below describe BAU and ABAU forecasts. Two future years are forecast for each scenario: 2020 and 2030. The 2020 and 2030 forecast years are consistent with the goals identified in AB 32, SB 32, and the corresponding Scoping Plan, which identifies statewide GHG reduction targets by 2020 and 2030.

2.1.2.1 Business-as-Usual Forecasts

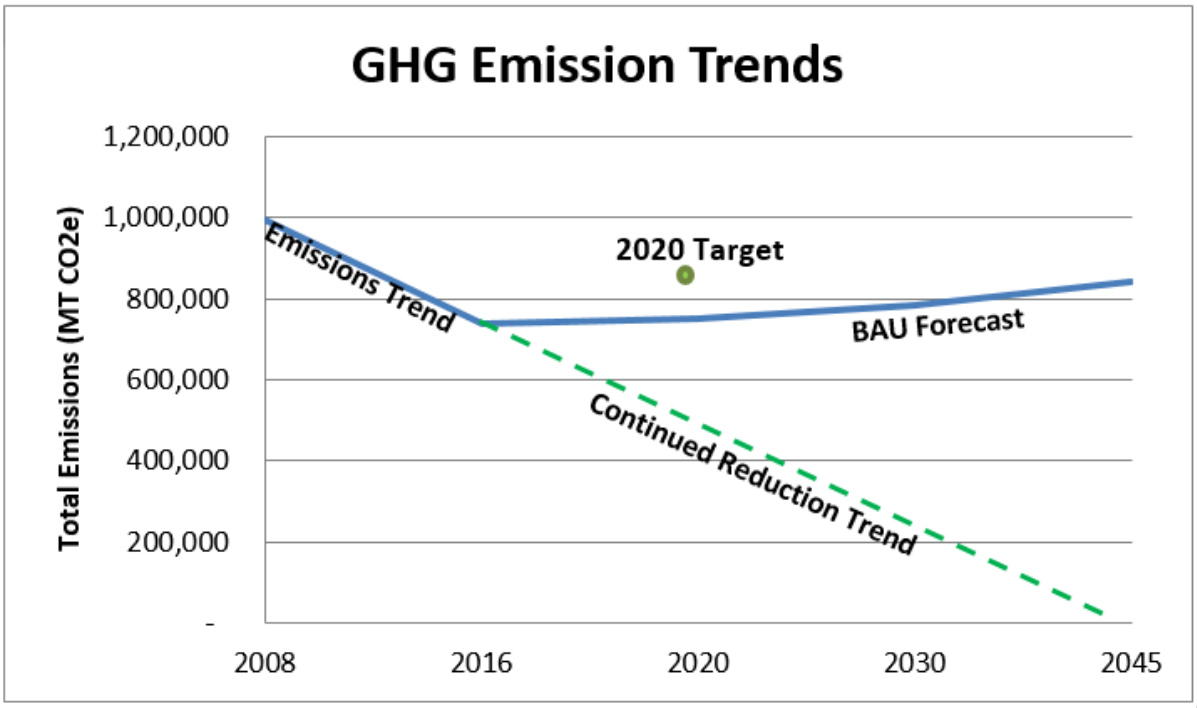
The City's BAU emissions in 2020 are estimated to be 750,722 MT CO_2e. The 2030 BAU emissions are estimated to be 785,554 MT CO_2e. Table F shows the BAU emissions for different sectors. The agriculture sector shows a decline in emissions from 2016-2030 due to decline in agricultural activities in the City over time.

Table F: Community Business as Usual (BAU) Forecast Emissions

Sector	2016 (MT CO_2e)	2020 (MT CO_2e)	Percent Change 2016–2020	2030 (MT CO_2e)	Percent Change 2016–2030
Building Energy	243,393	250,881	3%	269,596	11%
On-Road Vehicles	390,212	396,397	2%	407,741	4%
Off-Road Equipment	10,210	11,156	9%	14,314	40%
Agriculture	26,295	22,315	-15%	14,804	-44%
Solid Waste Management	52,509	55,582	6%	63,261	20%
Wastewater Treatment	2,547	2,696	6%	3,068	20%
Water Transport, Distribution and Treatment	11,049	11,695	6%	12,770	16%
Total	**736,215**	**750,722**	**2%**	**785,554**	**7%**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO_2e = metric tons carbon dioxide equivalent

It is important to note a downward trend in City's GHG emissions from the 2008 baseline inventory to the 2016 inventory update (Figure 3). The City's total GHG emissions in 2008 were 996,230 metric tons of $MTCO_2e$ and in 2016 the emissions were 736,215 $MTCO_2e$, which is a 26 percent reduction from baseline. The blue line in Figure 3, which represents the 2008 to 2016 emissions trend and BAU forecasts, shows that there was a downward trend in GHG emissions between the years 2008 and 2016 (26 percent decrease in GHG emissions). By the year 2020, with no additional measures or strategies to reduce GHG emissions in place, BAU starts to curve up and gradually continues to go up through the year 2045. The green line in Figure 3 represents a "continued reduction trend," which indicates the continued downward trend in the City's emissions post-year 2016 that could be achieved by implementing additional GHG reduction strategies and measures identified in this CAP Update to limit the BAU emissions trend. This trend also emphasizes the need to implement strategies and measures to adhere to the continued reduction trend in order to help the State achieve the climate change reduction goals and also make Chino sustainable and healthy.



Source: GHG Inventory Update for San Bernardino County Regional GHG Reduction Plan Update 2020

Figure 3: City of Chino GHG Emissions Trends

2.1.2.2 Adjusted Business-as-Usual Forecasts

The 2017 Scoping Plan Update provides the State's roadmap in achieving a statewide reduction of 40 percent below 1990 levels of emissions by 2030. Future emissions estimates within the City also included reductions that would happen with implementation of the 2017 Scoping Plan Update at the State level. A great level of emission reduction is anticipated within the City as a result of the 2017 Scoping Plan Update policies and legislation implemented at the State level.

The resulting projected emissions are considered an "adjusted" business-as-usual (Adjusted BAU) forecast. The City's ABAU emissions are estimated to be 447,287 MT CO_2e in 2030 (Figure 3). This change represents an approximately 61 percent reduction from 2016 by 2030. Table G shows the change in emissions from 2016 to 2030 under the ABAU scenario. Due to the stringent State regulations related to transportation, energy and solid waste sectors, the emissions are expected to decline compared to 2016 baseline in 2030.

Table G: Chino Adjusted BAU (ABAU) Forecast Emissions

Sector	2016 (MT CO_2e)	2020 (MT CO_2e)	2020 Percent of Total	2030 (MT CO_2e)	2030 Percent of Total
Building Energy	243,393	250,881	33%	91,097	20%
On-Road Vehicles	390,212	396,397	53%	279,704	63%
Off-Road Equipment	10,210	11,156	1%	14,314	3%
Agriculture	26,295	22,315	3%	14,804	3%
Solid Waste Management	52,509	55,582	7%	31,530	7%
Wastewater Treatment	2,547	2,696	0%	3,068	1%
Water Transport, Distribution and Treatment	11,049	11,695	2%	12,770	3%
Total	**736,215**	**750,722**	**100%**	**447,287**	**100%**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO_2e = metric tons carbon dioxide equivalent

2.1.3 Reduction Targets

The State has set goals for reducing GHG emissions by 2020, 2030, and 2045 through AB 32, SB 32, SB-100, EO-B-55-18, respectively. The State has also provided guidance to local jurisdictions as "essential partners" in achieving the State's goals by identifying a 2020 and 2030 recommended reduction goal. That goal, stated in the AB 32 Scoping Plan, was for local governments to achieve a 15 percent reduction below 2005 to 2008 levels by 2020, which aligns with the State's goal of not exceeding 1990 emissions levels by 2020. This target for Chino was calculated as a 15 percent decrease from 2008 levels by 2020, in the Chino CAP 2013. The City has achieved its 2020 GHG emission reduction targets and is on track to meet further reductions (Figure 3).

The State has recently passed an executive order (EO-B-55-18), which mandates statewide climate neutrality by 2045. In the interim, the State has also provided a target of 40 percent below 2005 to 2008 levels by 2030. The City has identified this target as a 46 percent below 2008 emission levels by 2030 (Table H). This amounts to a reduction of 247,590 metric tons of CO_2 equivalent in annual emissions by 2030 compared to the BAU forecast.

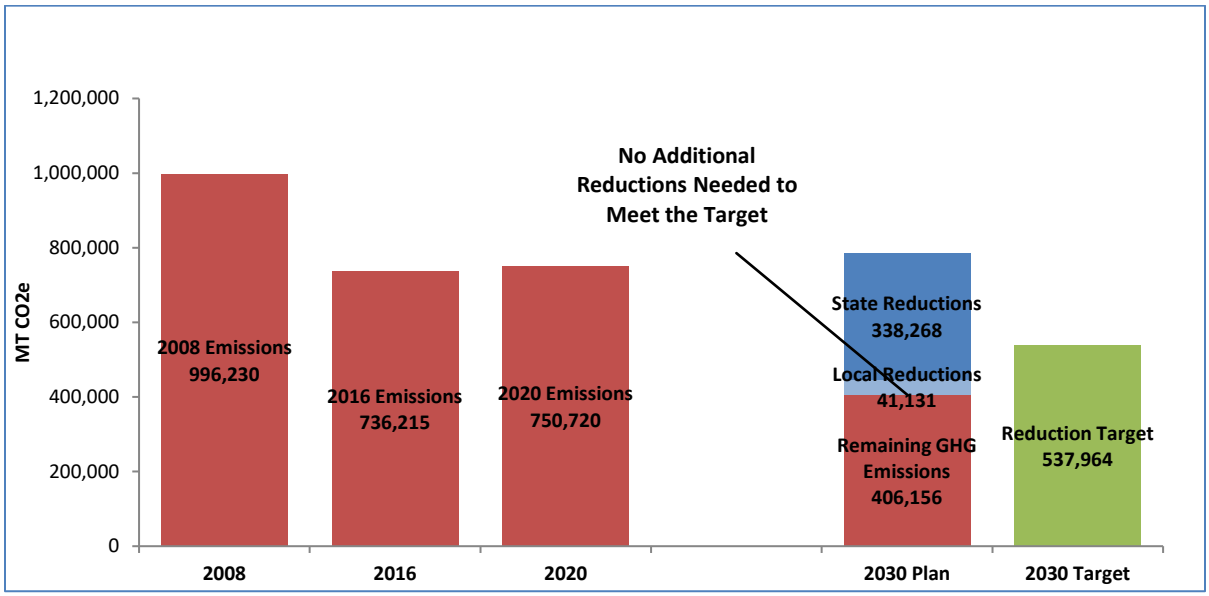
It is clear that the issue of climate change will not end in 2030 and continued reduction goals should be implemented to keep the State on a path toward the 2045 goal. The 2030 target will put the City on a path toward the State's long-term goal to achieve zero net carbon emissions by 2045.

Table H: Chino GHG Reduction Targets for Citywide Emissions

Strategy	Target
2020 Target	15 percent below 2008 baseline levels
2020 Emissions Goal (MT CO_2e)	877,108 Target Met
2030 Target	46 percent below 2008 levels
2030 Emissions Goal (MT CO_2e)	537,964

MT CO_2e = Metric tons of carbon dioxide equivalent

As shown in Figure 4, in 2030, Chino would need to reduce its emissions to 537,964 MT CO_2e to meet the GHG reduction target of 46 percent below 2008 levels. The City will meet and exceed the 2030 goal with State measures, as shown in Figure 4, but has committed to additional local measures designed to show the City's commitment to reducing greenhouse gas emissions through its own operations; to save money over time for local building owners and managers by reducing energy use, and to support the City's healthy community efforts by improving conditions for pedestrians and cyclists.



Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2020
MT CO_2e = metric tons of carbon dioxide equivalent

Figure 4: Chino Emissions Forecast Compared to the Reduction Target

The State measures will provide significant reductions of up to 338,268 MT CO_2e (Table I). An additional reduction of nearly 41,132 MT CO_2e will be achieved through local measures as described in Chapter 3.0 of this CAP Update (Figure 4).

Table I: State Measure Reductions

Sector	2030 (MT CO_2e)
Energy: SB 100 SB 100 Obligates eligible renewable energy resources and zero-carbon resources to supply 100 percent of retails sales of electricity to California end-use customers by 2045	145,606
Energy: SB 350 (Clean Energy and Pollution reduction Act) SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030	28,051
Energy: Title 24 Standards for Non-Residential and Residential Buildings Requires that building shells and building components be designed to conserve energy and water. Mandatory and voluntary measures became effective on January 1, 2020, and the guidelines are periodically updated.	4,629
Energy: Solar Water Heater (AB 797 Solar Thermal Systems) AB 1470 created a $25 million per year, 10-year incentive program to encourage the installation of 200,000 solar water heating systems that offset natural gas use in homes and businesses throughout the state. AB 797 extended the operation of the program for two additional years to 2020, reserving 50% of the total program budget for the installation of solar thermal systems in low-income residential housing or in buildings in disadvantaged communities.	52
Energy: Increased Combined Heat and Power (CHP) The CPUC administers a Qualifying Facilities and Combined Heat and Power Program. Qualifying facilities are co-generation (CHP) facilities that meet certain size and efficiency criteria.	161
On Road: Fuel Efficiency Measures. Such as Low Carbon Fuel Standards	128,037
Waste: SB 1383 Short-Lived Climate Pollutant (SLCP) Reduction Strategy SB 1383 establishes a 50% statewide reduction target for organic waste by 2020, using 2014 levels as a standard. By 2025, the state aims for a 75% reduction target.	31,731
TOTAL	**338,268**

Source: Draft San Bernardino County Regional GHG Reduction Plan Update 2020
SB= Senate Bill
MT CO_2e= Metric tons of carbon dioxide equivalent

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3.0 GHG Reduction Measures

The Chino CAP Update GHG reduction strategy is built on a combination of State, County, and local reduction measures to achieve, and exceed, Chino's GHG reduction goal of 46 percent below 2008 levels by 2030. Implementation of the measures quantified in the San Bernardino GHG Reduction Plan Update will allow Chino to exceed the GHG reduction goal. This chapter details the regional and local community measures that will result in additional GHG reductions beyond achieved by implementing State measures.

3.1 Existing Regional GHG Reduction Measures

The Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is the cornerstone of transportation planning and programming activities in the SCAG region. The San Bernardino County Transportation Authority (SBCTA) is actively engaged in development of the RTP/SCS through various policy and technical advisory committees maintained by SCAG, and through the coordination and preparation of local and sub-regional input to the RTP/SCS. All of the key features of the RTP/SCS support Chino's efforts to reduce greenhouse gas emissions at the local level, providing the regional roadway, transit, bicycle, and pedestrian framework with which the City's local network interacts. These efforts are documented in the City's General Plan policies. The regional per capita GHG emission reductions resulting from the use of these multi-modal networks will be 46 percent below 2008 emission levels in 2030.

3.2 Local Measures

This section summarizes the proposed local reduction measures to be implemented by the City that would further reduce its community GHG emissions beyond regional and State measures. The local reduction measures included in this CAP Update are in the following areas: Building Energy, On-Road Transportation, Solid Waste Management, Wastewater Management, Water Conveyance, and New Development. Many local GHG reduction measures described below are continuation of the City's local GHG reduction measures from the Chino CAP 2013.

The Chino local GHG reduction strategy is organized by emission categories (energy, transportation, etc.) and includes reduction goals and measures. The goals describe the overarching objective related to increasing energy efficiency or decreasing energy consumption, such as increasing energy efficiency in residential building units, as well as reducing VMT and solid waste generation. Within each goal, one or more measures are presented indicating the City's commitment toward meeting the goal. Within each measure, one or more actions are presented that identify the steps the City will take in achieving the measure. Each measure includes the GHG reduction potential in 2030. Actions are designed to include the steps needed to implement the measure. Actions include a performance indicator, implementation timeframe, and department or agency responsible for implementation. In addition, this Plan will result in local benefits while reducing GHG emissions, called co-benefits. Co-benefits range from providing improved air quality and mobility to increased awareness about sustainability. Co-benefits are identified with each measure by an icon.

Local Co-Benefits		
Increased energy efficiency/reduced demand	Water conservation	Improved public health
Improved air quality	Increased renewable energy	Increased non-motorized transportation
Sustainability education and awareness	Enhanced land use/ community design	Increased resiliency

3.3 Energy

3.3.1 Building Energy: Local Energy 1. Energy Efficiency Measures for Existing Buildings

Building energy consumption includes electricity and natural gas usage. Electricity use in buildings results in indirect emissions from the power plants that produce electricity outside of City boundaries. Natural gas consumption by furnaces and other appliances in buildings results in direct emissions where the natural gas is combusted. The building energy sector is the second largest contributor of GHG emissions to Chino's GHG inventory, accounting for approximately 33 percent of the total emissions in 2016. Consequently, building energy-related reduction measures typically yield substantial reductions.

Reducing energy consumption in new and existing buildings is a central part of the City's GHG emission reduction strategy. In 2012, the City reviewed the voluntary measures from the Green Building Standards Code and adopted the following items, making them mandatory in Chino:

- **Electric Vehicle Charging:** Dwellings shall comply with the requirements for future installation of electric vehicle supply equipment (EVSE).
- **Appliance and Equipment Energy Star Rating:** Each appliance provided by the builder meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.
- **Space for Future Solar Installation:** A minimum of 300 square feet of unobstructed roof area facing within 30 degrees of south is provided for future solar collector or photovoltaic panels.
- **Low-water Consumption Irrigation System:** Install a low-water consumption irrigation system, which minimizes the use of spray type heads.
- **Water Budget:** When landscaping is provided by the builder, a water budget shall be developed for landscape irrigation use that conforms to the requirements of Chapter 20.19 (Landscaping) of the Chino Municipal Code.
- **Enhanced Construction Waste Reduction:** Divert to recycle or salvage at least 65 percent of non-hazardous construction and demolition debris generated at the site.

The reduction measures targeting building energy emission reductions through energy efficiency improvements in the existing buildings are presented below.

3.3.1.1 Energy Efficiency in Existing Buildings: Education and Outreach

Goal Energy-1: Improve the efficiency of existing buildings by focusing on increasing community awareness and education about energy efficiency; and promoting emissions reduction and existing incentive programs.

Measure Energy- 1: Increase Energy Efficiency in Existing Buildings: Outreach and Incentives

Co-Benefits

City Implementation Actions:		
1. Review the energy efficiency programs for existing buildings offered by utility companies serving Chino. 2. Create outreach materials highlighting the efficiency programs that are most relevant to Chino residents. 3. Track the energy efficiency programs to understand how they change and identify new programs relevant to Chino.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Track the building permits in Accela building permit systems reductions in GHGs related to existing residential permits remodels, HVAC systems change outs re-roofing residential	2,243 by 2030
Responsible Department: Development Services, Building Division in coordination with the utility companies		

The State of California, Southern California Edison (SCE), and Southern California Gas Company (SCG) have a number of incentive programs that are designed, tested, and continuously improved to achieve energy savings in existing buildings. The City of Chino will promote these successful programs by distributing educational materials and information on energy efficiency programs offered by the State, utility companies, and other entities to homeowners and nonresidential owners. The information should include available incentive programs, technical assistance, and financial resources such as free energy audits and energy efficiency rebates. The programs fall into several categories, which are described below, along with examples from current offerings by relevant agencies.

Category	Current Program Examples
Home retrofits/Conservation (single-family)	Home Energy Upgrade Financing program (SCE) Energy Upgrade California (SCE) High Efficiency Hot Water Distribution Program (Solar) (SGC) PACE Financing Program (SBCOG)
Home retrofits/Conservation (multifamily)	Energy Efficiency Benchmarking (SGC) Multifamily Direct Installation Programs (SGC) PACE Financing Program (SBCOG)
Home retrofits/Conservation (mobile home)	Comprehensive Mobile Home Program (SGC) PACE Financing Program (SBCOG)
Commercial/Industrial (building retrofits/conservation)	Energy Challenger (SCE) Energy Efficient Express Solutions (SCE) Energy Efficiency Customized Solutions (SGC) Small Industrial Facility Upgrades (SGC) Solar Rooftop Program (SCE) Commercial Conservation Rebates (IEUA) PACE Financing Program (SBCOG)

Source: *City of Chino Climate Action Plan (CAP) 2013* (City of Chino 2013) and LSA, 2020
SCE = Southern California Edison
IEUA = Inland Empire Utilities Agency
SGC = Southern California Gas Company
SBCOG = San Bernardino Council of Governments

3.3.1.2 *Energy Efficiency for Existing Buildings: Promote Energy Efficiency in Low-Income Residences*

Goal Energy-2: Partner with community services agencies, utilities, nonprofits, and other entities to incentivize weatherization program for low-income residents, with a goal to weatherize 40 percent low-income homes by 2030.

Measure Energy-2: Promote Energy Efficiency in Low-Income Residences

Co-Benefits	

City Action:		
1. Track the implementation of City's low income home improvement loan and grants program.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	40 percent of low-income homes weatherized for energy savings by 2030	443 by 2030
Responsible Department: Development Services, Housing Division in coordination with the utility companies		

3.3.1.3 Energy Efficiency for Existing Buildings: Promote Energy Efficiency in Non-Residential Buildings

Goal Energy-3: Incentivize energy efficiency tune-ups of existing non-residential buildings with a goal to optimize energy and water performance by identifying low- or no-cost actions related to building operations and maintenance that generate energy savings.

Measure Energy-3: Promote Energy Efficiency Tune-Ups of Existing Commercial Units

Co-Benefits

City Action:		
1. Partner with local utility (SCE) to take advantage of energy audit programs for municipal buildings and promote awareness of these programs for private commercial buildings.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	40 percent of commercial buildings participating in energy efficiency tune-ups by 2030 Track Commercial buildings retrofits in Accela.	1,759 by 2030
Responsible Department: Development Services, Building Division in coordination with the utility companies		

3.3.2 Lighting Efficiency: Local Energy 2. Outdoor Lighting Upgrades for Existing Development for Energy Efficiency Enhancements

Lighting requires the production of electricity to power the lights, which represents an indirect source of GHG emissions. Certain types of light fixtures can utilize less energy to obtain the same output. Replacing less efficient bulbs with energy-efficient bulbs therefore reduces energy consumption and, in turn, reduces GHG emissions. Installation of an outdoor LED fixture for residential lights achieves a 75 percent reduction in energy usage, relative to an incandescent bulb (US. DOE 2020). For commercial lighting and traffic lights, LEDs consume about 90 percent less energy than traditional incandescent lights.[10]

The City has already begun replacement of outdoor lighting at certain parks and on City buildings, and has replaced all traffic signal lights with LED lighting. There is currently a program in place whereby the traffic signal lights are replaced every five years and, each year, the replacement is scheduled and budgeted for rotating sectors of the City. The City continues to actively pursue grant funding to complete additional lighting upgrades. The City will continue to replace its existing outdoor lighting with high-efficiency LED fixtures as those fixtures begin to demonstrate simple payback periods of three years or less.

Goal Energy-4: Continue to upgrade 50 percent or more outdoor lighting fixtures in residential and commercial settings, and 100 percent of traffic signals to use LEDs.

Measure Energy-4: Upgrade Outdoor Lights and Traffic Signals to LED

Co-Benefits	

City Action:
1. Continue to pursue grant funding and participation in utility incentive programs for outdoor lighting upgrades 2. Continue to monitor costs of outdoor lighting upgrades for City facilities to achieve the most cost effectiveness for replacement and schedule upgrade activities through the annual budget process.

[10] California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Target Year	Performance Metric	GHG Reduction Potential (MT CO_2e)
2030	Percentage of lighting fixtures at the City facilities upgraded to LED	N/A
Responsible Department: Development Services (and Community Services for City Facilities) in coordination with the utility companies		

N/A=Quantification not available, per the Draft San Bernardino Regional GHG Reduction Plan Update 2020

3.3.3 Solar Energy: Local Energy 7. Solar Installations for Existing Housing

Goal Energy-5: Achieve a target of 40 percent of existing residential units (homes built prior to 2020) to incorporate solar components through the promotion of incentive programs offered by utility companies and other funding entities to be achieved by 2030.

Measure Energy-5: Promote Installation of Solar Panels Within Existing Residential Units

Co-Benefits

City Action:		
1. Identify funding sources from State, County, and utility programs for solar energy projects. 2. Prepare handouts for the public, provide information on the City's website, and identify City events such as the farmers markets, New Business Reception, job fairs, etc. where staff can distribute information.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Number of solar panels installed on existing homes within the City of Chino	8,687 by 2030
Responsible Department: Development Services, Building Division		

3.3.4 Solar Energy: Local Energy 8. Solar Installations for Existing Commercial/Industrial Buildings

Goal Energy-6: Achieve a target of 40 percent of existing commercial/industrial buildings (built before 2020) to incorporate solar components through the promotion of incentive programs offered by utility companies and other funding entities by 2030.

Measure Energy-6: Promote Installation of Solar Panels Within Existing Commercial/Industrial Units

Co-Benefits	

City Action:		
1. Identify funding sources from State, County, and utility programs for solar energy projects. 2. Prepare handouts for the public, provide information on the City's website, and identify City events such as the farmers markets, New Business Reception, job fairs, etc. where staff can distribute information.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Number of solar panels installed on existing commercial/industrial buildings within the City of Chino	N/A
Responsible Department: Development Services, Building Division		

N/A=Quantification not available, per the San Bernardino Regional GHG Reduction Plan Update 2020

3.4 On-Road Transportation

On-road transportation emissions include emissions from light- and medium-duty vehicles and heavy-duty trucks associated with land use activity. Emissions originate from the combustion of fossil fuels (such as diesel, gasoline, and compressed natural gas) to power the vehicles. These are direct emissions and accounted for approximately 53 percent of total emissions in 2016. On-road transportation measures can achieve significant benefits for both individual residents and the City as a whole. Reductions in VMT and traffic congestion would reduce smog-forming emissions, toxic air contaminants, and diesel particulate matter. Alternative modes of transportation, such as bicycling, walking, and transit, may also help reduce many serious health risks associated with vehicle exhaust. Community well-being and quality of life may also be improved as individuals spend less time commuting, waiting for the bus, and/or sitting in heavy congestion.

Since the adoption of City's 2013 CAP, Chino has taken significant steps toward implementing strategies for GHG reductions in the on-road transportation sector. The City developed and implemented its Bicycle and Pedestrian Master Plan in 2016.[11] The City Transportation Engineering

[11] City of Chino Bicycle and Pedestrian Master Plan. 2016. Website: https://www.cityofchino.org/UserFiles/Servers/Server_10382578/File/City%20Hall/Plans/Bike%20and%20Pedestrian/Chino_Bike%20Ped%20Plan%20FINAL%20160224%20LowRes.pdf (accessed April 10, 2020).

Division recently implemented a Central Traffic Control System to manage the City's Traffic Signals. The central system software allows staff to monitor the status of connected traffic signals throughout the City from the traffic signal management center at City Hall, and make necessary adjustments. Overall, this software enhances the optimization and signal coordination throughout the City. In order to be in compliance with Senate Bill (SB) 743 and State law, the City of Chino developed the VMT threshold of significance that will generally be applied to new projects to assess potential traffic impacts to the environment under CEQA. A resolution outlining the threshold of significance and methodology to be used in the City is required in order to comply with SB 743. While VMT will become the new CEQA traffic metric as it relates to environmental impacts, the City of Chino will retain Level of Service (LOS) to continue to comply with the Congestion Management Plan requirements and to conduct project specific traffic analysis ensuring projects continue to be consistent with the City of Chino's General Plan policies and objectives. The City staff will prepare updated Traffic Impact Analysis (TIA) guidelines consistent with these findings and publish them to the public (Chino 2020 Memorandum Development Services). The GHG reduction measures in the on-road transportation category are in continuation of the 2013 CAP measures that will further contribute to reducing local GHG emissions.

3.4.1 On-Road Transportation: Local On-Road-1: Encourage use of Mass Transit, Carpooling, Ridesharing, Telecommuting

Goal Onroad-1: Promote awareness and incentives among the local employers and businesses, especially the ones employing 200 or more staff to develop programs to encourage the use of mass transit, carpooling, ridesharing, and telecommuting as potential strategies for commute trip VMT reduction.

Measure On-Road-1: Promote Awareness and Incentives Among Local Employers and Businesses to Implement Commute Trip Reduction Programs	
Co-Benefits	

City Action:		
1. Encourage local businesses employing more than 250 or more employees to develop incentives and programs such as flexible work schedule to promote commute trip reduction strategies. 2. Encourage the new development to require carpool/vanpool parking spaces to promote rideshare among building users		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Track the programs and initiatives implemented by the City to encourage commute trip reduction strategies among businesses employing 250 or more employees	N/A
Responsible Department: Development Services and Public Works		

N/A=Quantification not available, per the San Bernardino Regional GHG Reduction Plan Update 2020

3.4.2 On-Road Transportation: Local On-Road-2. Transportation Demand Management and Signal Synchronization

Goal On-Road-2: Continue Implementing a Transportation Demand Management (TDM) and signal synchronization program.

Measure On-Road-2: Continue Implementing Transportation Demand Management (TDM) and Signal Synchronization Program Within the City

Co-Benefits

City Action:
1. City to implement a condition of approval for commercial development projects that would employ 250 or more employees to develop and implement a TDM program in compliance with SCAQMD Rule 2202. 2. City to implement alternative work schedule such as 9/80 program to improve traffic congestion 3. City traffic engineers study all signalized intersections throughout the City and develop a signal timing optimization plan based on the recently implemented Central Traffic Control System.

Target Year	Performance Metric	GHG Reduction Potential (MT CO_2e)
2030	Number of businesses/employers implementing the TDM programs. Improved traffic flow in the City.	2,797 by 2030
Responsible Department: Development Services and Public Works		

3.4.3 On-Road Transportation: Local On-Road-3. Expand Bike Routes

Goal On-Road-3: Expand Bike Routes per the City's Bicycle and Pedestrian Master Plan

Measure On-Road-3: Implement Pedestrian and Bicycle Master Plan

Co-Benefits

City Action: Construct Bike Paths		
1. Starting in 2020, with completion by 2030, the City will implement recommended bikeway projects to improve bike transit, which would implement City's Pedestrian and Bicycle Master Plan		
Target Year	**Performance Metric**	**GHG Reduction Potential ($MTCO_2e$)**
2030	Miles of new bikeway constructed or other strategies implemented based on City's Bicycle Master Plan	3,047 by 2030
Responsible Department: Development Services, CIA Division		

3.4.4 On Road-Transportation: Local On-Road-4. Install Community Charging Stations

Electric vehicles (EVs) produce lower emissions than conventional vehicles. However, more than 95 percent of people still drive conventional gasoline or diesel vehicles. Executive Order (EO) B-16-2012 tasked the California Energy Commission (CEC) and other State agencies to support benchmarks to bring 1.5 million zero emission vehicles (ZEVs) to California's roads and in conjunction make sure that Californians have easy access to ZEV infrastructure to charge those vehicles by 2025. To meet these

targets the County of San Bernardino would see 554 percent increase in market demand for ZEV by 2025, requiring heavy buildout of EV charging stations within county.[12]

Goal On-Road-4: Promote the installation of community charging stations.

Measure On-Road-4: Promote the installation of zero emission vehicle (ZEV) community charging stations for new development and public places throughout the City

Co-Benefits

City Action:		
1. Work with SBCOG to promote and develop the ZEV charging stations at public places 2. Encourage new commercial and residential development to install e-chargers		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Number of EV charging stations installed at the City and commercial facilities and residential homes	N/A
Responsible Department: Development Services, Building Division (Community Services for public buildings)		

SBCOG: San Bernardino Council of Governments
N/A=Quantification not available, per the San Bernardino Regional GHG Reduction Plan Update 2020

3.5 Solid Waste

Emissions from solid waste generated by the City accounted for approximately 7 percent of total emissions in 2016. The City adopted a construction waste diversion requirement of 65 percent, which meets the CALGreen requirements. The City's waste diversion programs include, but are not limited to, construction and demolition debris, green waste, single-stream recycling, white goods, electronics, household hazardous waste, tires, scrap metal, inert materials and more. The City staff continues to work with Waste Management, Inc. (the franchised hauler) to expand and/or establish new waste

[12] San Bernardino Council of Governments (SBCOG). 2019. Zero-Emission Vehicle Readiness and Implementation Plan. Website: https://www.gosbcta.com/wp-content/uploads/2019/10/SBCOG-ZEV-Plan_Final-10-4-19_Online-3.pdf (accessed on April 24, 2020).

diversion programs whenever possible; especially, programs targeted under Senate Bill (SB) 1383 Organic Waste Diversion mandates, Assembly Bill (AB 341), 939, 1826 and CALGreen. Together, the City and Waste Management will identify diversion opportunities to support County achieve the statewide diversion goal of 75 percent. These goals will continue to progress the City toward zero waste. CalRecycle defines zero waste as "a process and a philosophy that involves a redesign of products and consumption, so that all material goods can be reused or recycled—or not needed at all."[13] It is also crucial to note that since the Chinese ban on importing recycling in 2018, in an effort to tackle pollution, many U.S. counties and cities are experiencing a slowdown in recycling, including County of San Bernardino. This is expected to have implications for the City as it works closely with County to meet countywide waste recycling goals.

3.5.1 Solid Waste: Local Waste-1. Waste Diversion and Reduction

Goal Waste-1: Meet the waste diversion goal (50 percent) recommended by Assembly Bill 939 and CALGreen by adopting citywide waste goals of at least 70 percent of waste diversion from construction and demolition activities

Measure Waste-1: Reduce Waste at Landfills

Co-Benefits	

City Action: Divert at Least 70 Percent of Waste resulting from construction and demolition activities
1. Require solid waste collector to provide recycling containers for all customers in compliance with State law and facilitate waste diversion requirements mandated on all solid waste facilities. 2. Starting in 2020, require all development during construction and demolition activities to recycle construction and demolition waste.

[13] CalRecycle. 2017. "Zero Waste." January 26, 2020. Website: http://www.calrecycle.ca.gov/ZeroWaste/ (accessed December 18, 2017).

3. Coordinate with the County to help achieve countywide 48 percent waste diversion goals.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Divert 70 percent of the total waste generated from construction and demolition activities in the City.	15,111 by 2030
Responsible Department: Development Services, Building Division, Environmental Division		

3.6 Wastewater Measure

3.6.1 Wastewater: Local WW-1. Recycled Water

Goal Wastewater-1: The City will continue existing efforts to require appropriate businesses and industries to use recycled water for irrigation and other non-potable uses.

Image Credit IEUA

Measure Wastewater-1: Reuse Recycled Water for Irrigation and Other Non-Potable Uses

Co-Benefits

City Action:		
1. Develop public educational materials that support and encourage the use of recycled water and other water conservation measures. 2. Work with the Inland Empire Utilities Agency (IEUA) to identify new locations/uses for recycled water. 3. Identify barriers to the use of recycled water and address those to increase the opportunities for recycled water use.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MTCO$_2$e)**
2030	Track the programs that promote and encourage recycled water consumption by residential, commercial, and industrial users.	N/A
Responsible Department: Water and Environmental Division		

N/A=Quantification not available, per the San Bernardino Regional GHG Reduction Plan Update 2020

3.7 Water Consumption

3.7.1 Water Consumption: Local W-1. Develop programs to promote water efficiency and conservation

Goal Water Consumption-1: Develop and promote water efficiency and conservation programs geared towards educating residents to implement water efficiency and conservation measures

Measure Water Consumption-1: Develop programs and informational material to promote water efficiency and conservation measures

Co-Benefits

City Action:		
1. Develop promotional efforts on water efficiency and conservation		
Target Year	**Performance Metric**	**GHG Reduction Potential ($MTCO_2e$)**
2030	Track promotional efforts and program's developed to promote water efficiency and conservation	N/A
Responsible Department: Environmental Division		

N/A=Quantification not available, per the San Bernardino Regional GHG Reduction Plan Update 2020

3.7.2 Water Consumption: Local W-2. Promote Water-Efficient Landscaping Practices

Goal water Consumption-2: The City to continue to promote water-efficient landscaping practices for homeowners, businesses, and non-residential property owners.

Image Credit: CBWCD

Measure Water Consumption-2: Promote Water-Efficient Landscaping Practices

Co-Benefits

City Action:		
1. Create awareness and incentives for residents to use water-efficient landscaping practices. 2. Transition to drought-tolerant landscaping in all municipal buildings. 3. Promote installation of dual plumbing in all new development, allowing gray water to be used for landscape irrigation where purple pipe is not an option.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Track promotional material developed to create awareness among residents for water efficiency and conservation	N/A
Responsible Department: Water and Environmental Division		

N/A=Quantification not available, per the Draft San Bernardino Regional GHG Reduction Plan Update 2020

3.8 GHG Performance Standards for New Development

3.8.1 GHG Performance Standards for New Development: Local DRP-1. Development Review Process Setting Standards for New Development

Goal DRP-1: Continue to Decrease GHG Emissions from New Development through Performance Standards implementing screening tables.

City planners have a unique opportunity to provide developers a flexible way of demonstrating GHG reductions within new development by providing screening tables for developers to fill out during applications of new development projects. Screening tables are a menu of options of energy efficiency improvements, renewable energy options, water conservation measures, and other options that provide predictable GHG reductions. Appendix A provides screening tables for this CAP Update. Each option within the screening tables includes point values based upon the GHG reduction that option would provide to a development project. Developers that choose options from the screening tables

totaling 100 points or more will be determined to have provided a fair-share contribution of GHG reductions and, therefore, are considered consistent with the Chino Climate Action Plan Update. This determination of consistency can be used in a CEQA climate change analysis of the development, which provides a legally defensible and streamlined CEQA process for the project.

Measure DRP-1: Development Review Process Setting Standards for New Development	
Co-Benefits	

City Action:		
1. Educate City staff, developers, etc., on how the screening tables work and advantages in using the screening tables. Include screening tables in submittal packages for development projects and have developers select their choices of reduction measures within the screening tables to include in as a project's conditions of approval. 2. Establish online permitting to facilitate upgrades.		
Target Year	**Performance Metric**	**GHG Reduction Potential (MT CO_2e)**
2030	Screening Tables are used to implement GHG reductions.	6,051 by 2030
Responsible Department: Development Services, Planning		

3.9 Summary of Reductions

By implementing the statewide, regional, and local reduction measures, the City would surpass its GHG reduction target of 46 percent below 2008 levels by 2030. Table J summarizes the strategies and the potential GHG reductions from local measures.

Table J: Summary of Community GHG Reduction Strategies and Emission Reductions

Local Measures	2030 Emission Reductions (MT CO_2e)
Energy	
Energy-1: Building Energy Efficiency	
Measure E-1	2,243
Measure E-2	443
Measure E-3	1,758
Energy-2: Lighting Efficiency	N/A
Energy-7: Solar Installation, Existing Housing	8,687
Energy-8: Solar Installation, Existing Commercial/Industrial	N/A
Total:	**13,131**
On-Road Transportation	
On-Road-2: Encourage Use of Mass Transit, Carpooling, Ridesharing, Telecommuting	N/A
On-Road-3: Transportation Demand Management and Signal Synchronization	2,797
On-Road-4: Expand Bike Routes	3,047
On-Road-5: Community Charging Station Installation	N/A
Total:	**5,844**
Solid Waste Management	
Waste-2: Waste Diversion and Reduction	15,111

Table J: Summary of Community GHG Reduction Strategies and Emission Reductions

Local Measures	2030 Emission Reductions (MT CO_2e)
Total:	**15,111**
Wastewater Treatment	
Wastewater-3: Promote Usage of Recycled Water	N/A
Total:	**N/A**
Water Consumption	
Water-2: Voluntary Implementation CALGreen Water Efficiency Measures for Existing Construction	N/A
Water-3: Water-Efficient Landscaping Practices	994
Total:	**994**
GHG Performance Standard for New Development	
DRP-1: Development Review Process Setting Standards for New Development	6,051
Total:	**6,051**
TOTAL:	**41,131**

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent SB = Senate Bill
N/A=Quantification not available, per the Draft San Bernardino Regional GHG Reduction Plan Update 2020
Energy-2 is implemented through the Screening Tables and quantified in the GHG Performance Standard.
On-Road-2 is implemented through the Screening Tables and quantified in the GHG Performance Standard.
On-Road-5 Installation of community electric vehicle charging stations is an option within the Screening Tables and is quantified under the GHG Performance Standard.
Wastewater-3 is implemented through the Screening Tables and is quantified under the GHG Performance Standard.
Water-2 is implemented through the Screening Tables and is quantified under the GHG Performance Standard.

3.10 Beyond 2030 Target

The City's emission reduction targets for the year 2030 discussed in this CAP Update are consistent with the goals identified in AB 32 and the corresponding Scoping Plan, which identifies statewide GHG reduction targets by 2020 and 2030. It is important to note that 2030 is only a milestone in GHG reduction planning. To be consistent with the State regulations, the City would need to look beyond 2030 and take into consideration Executive Order EO B-55-18, which calls for achieving statewide carbon neutrality by 2045. The 2030 target will keep the City on a right trajectory to meet the State of California 2045 emission goals.

As the City proceeds with implementing the measures identified above, the reduction targets may need adjustments to reflect updates in the inventory and resultant GHG emission reductions achieved through implementation of these measures from now until 2030. In the future when the City would be close to meeting 2030 target pursuant to this CAP Update and would have a better understanding of the effectiveness and efficiency of different reduction strategies and approaches, the City would revisit the GHG reduction measures and strategies identified in the CAP Update.

Furthermore, the federal, State, and local programs and policies for the GHG reductions for the near term (2020–2030) are likely to be well underway and continuing technological change in the fields of energy efficiency, alternative energy generation, vehicles, fuels, methane capture and other areas will have taken place. The City will then be able to take the local, regional, State and federal context into

account and may consider updating the GHG reduction targets post-2030. The potential new CAP update will include specific strategies and measures for meeting the State mandate beyond 2030. The targets will be consistent with broader State and federal reduction targets and will take into consideration the effectiveness and applicability of the reduction measures identified in this CAP Update.

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4.0 Climate Vulnerability and Adaptation

The City recognizes that planning sustainably is more than reducing GHG emissions; it also requires being prepared for changes that would affect the community's quality of life, use of resources, and economy. Preparedness, or adaptation, efforts seek to reduce vulnerability and increase the local capacity to adapt to changes. Chino's first local Hazard Mitigation Plan (HMP) was approved by FEMA in 2012. The purpose of the HMP is to demonstrate the plan for reducing and/or eliminating risk in the City of Chino. The HMP process encourages communities to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards. The HMP is a living document that is monitored, reviewed, and updated every five years. In 2016, the City prepared the Chino Hazard Mitigation Plan Update, which included considerations for climate change impacts. The updated HMP will be included in the General Plan Safety Element as required by Senate Bill (SB) 379. The updated HMP provides a description of potential impacts of climate change including temperature change, precipitation, snowpack, heat wave and wildfire risks at the regional and local level for the year 2010, 2050 and 2090 based on the California Adaptation Planning Guide (Chino 2016 Hazard Mitigation Plan Update).

This CAP Update provides a more comprehensive analysis of climate change risks at the local level including adaptation strategies to address those risks. For assessing impacts of climate change on Chino, this analysis focuses on identifying impacts on City's critical facilities and infrastructure due to extreme heat, precipitation, wildfire, and flooding.

4.1 Projections of Future Climate

4.1.1 Methodology

Cal-Adapt[14] data were used to assess the City's future potential climate risks. Cal-Adapt is a climate adaptation planning tool that was developed by the State of California's scientific and research community and funded by the California Energy Commission (CEC). The web-based tool was a key recommendation of the 2009 California Climate Adaptation Strategy and is intended to provide information on how climate change might affect California at the local level. Climate data on Cal-Adapt includes maximum temperature, minimum temperature, precipitation, sea-level rise, wildfire, and wind.

Temperature and precipitation data were obtained from downscaled climate projections using localized constructed analogs (LOCA), which is a technique used to improve details of global climate models using historical observations. Another key aspect in climate modeling is the predicted amount of GHG emissions in the atmosphere over time that result in climate change. Representative Concentration Pathways (RCPs) are various climate-modeling scenarios with differing concentrations of GHG emissions in the upper atmosphere over time. Of the 32 LOCA downscaled global climate models available on Cal-Adapt, 10 provide projections for three separate scenarios: RCP4.5, RCP8.5, and the historic modeled scenario. The RCP4.5 scenario represents a climate stabilization scenario in the future where GHG emissions peak at 42 gigatonnes of carbon dioxide per year (Gt CO_2/yr) around the year 2040, then begin to decline in year 2080, and level off at 15 Gt CO_2/yr to the end of the century. RCP4.5 will only occur if

[14] Cal-Adapt. 2020. https://cal-adapt.org/

global emissions are reduced over time in line with the reduction targets committed to by the participating countries in the 2015 Paris Agreement.[15] The RCP8.5 is a conservative business-as-usual (BAU) scenario, and is the pathway with the highest GHG emissions, with a climate future where emissions continue to increase into the future, with over 100 Gt CO_2/yr by the end of the century. The spatial resolution of the data is approximately 6 kilometers (km), and projections are available as daily and annual averages. The historical modeled data are available for years 1950–2005, while the two emissions scenarios are available for years 2006–2100. For review of future maximum and minimum temperature and precipitation in Chino, the high emission RCP8.5 scenario was used with the annual average time period for 2018 (present), 2050 (mid-century), and 2100 (end of century). The maximum temperature, minimum temperature, and average precipitation projections were modeled using the CanESM2 climate model, which has been selected by California State agencies as one of the priority models for research contributing to California's Fourth Climate Change Assessment.

Wildfire projections were developed at the University of California Merced and use the downscaled LOCA global climate models together with historic climate data, population density, vegetation, and fire history. Wildfire projections are available for the four models selected by California State agencies as priority models for research contributing to California's Fourth Climate Change Assessment, which are the HadGEM2-ES, CNRM-CM5, CanESM2, and MICROC5 models. The projections are available for the RCP4.5 and RCP8.5 emissions scenarios, as well as three population growth projections: high, low, and central.[16] For the review of future wildfire risk in Chino, projections were modeled using the CanESM2 model, under the RCP8.5 emissions and BAU population growth scenarios.

4.1.2 Temperature Projections

According to the Cal-Adapt climate projections,[17] the average annual maximum temperature for Chino is expected to increase into the end of the century. Figure 5 shows maximum temperatures at present, mid-century, and end of century overlaying with the critical facilities, roadways and transit lines within the City. Almost 80 percent of the City currently experiences annual average temperatures ranging from approximately 80°F to 82°F. The City's highest annual average maximum temperature range is located toward the southeast portion, from approximately 82°F to 84°F. This annual average maximum temperature range is projected to expand to the City by midcentury, when most of the City will experience higher temperatures between approximately 82°F and 84°F and the hotter southeast portion of the City will experience higher annual average temperatures ranging from 84°F to 86°F. By the end of the century, the maximum annual average temperatures are expected to rise to 88°F to 90°F. Because these values are an annual average, on any given day temperatures in those regions may well exceed the maximum projected values.

Cal-Adapt climate projections also indicate that average annual minimum temperatures are expected to increase to the end of the century within the region. Figure 6 shows minimum temperatures at

[15] United Nations Framework Convention on Climate Change (UNFCCC). 2015. The Paris Agreement. Website: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement (accessed March 15 2020).

[16] Westerling, 2018. Wildfire Simulations for California's Fourth Climate Change Assessment. University of California, Merced. Website: https://cal-adapt.org/tools/wildfire/#climatevar=fire&scenario=rcp45&population=bau_mu&lat=34.28125&lng=-118.78125&boundary=locagrid&units=ha (accessed April 5, 2020).

[17] Cal-Adapt. 2018. Website: https://cal-adapt.org/tools/extreme-heat/ (accessed December 2018).

Maximum Temperature 2018

Maximum Temperature 2050

Maximum Temperature 2100

LSA

City Boundary
Roadways
Railroad

Critical Facilities
School
Facilities
City Owned Parks
City Owned Facilities

Maximum Temperature (Fahrenheit)
72-74
74-76
76-78
78-80
80-82
82-84
84-86
86-88
88-90

0 5280 10560
Feet

SOURCE: ESRI (2018); City of Chino (2019); CalAdapt (2018)

I:\CNO1901\GIS\MXD\Climate Vulnerability Analysis_MaxTemp.mxd (7/10/2020)

FIGURE 5

Chino Climate Action Plan Update

Maximum Temperature

CanESM2 (Average)
RCP 8.5 Scenario
Annual Averages

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Minimum Temperature 2018

Minimum Temperature 2050

Minimum Temperature 2100

LSA

City Boundary
Roadways
Railroad

Critical Facilities
School
Facilities
City Owned Parks
City Owned Facilities

Minimum Temperature (Fahrenheit)
47-49
49-51
51-53
53-55
55-57
57-59
59-61
61-63

0 5280 10560
Feet

SOURCE: ESRI (2018); City of Chino (2019); CalAdapt (2018)

I:\CNO1901\GIS\MXD\Climate Vulnerability Analysis_MinTemp.mxd (7/10/2020)

FIGURE 6

Chino Climate Action Plan Update

Minimum Temperature

CanESM2 (Average)
RCP 8.5 Scenario
Annual Averages

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present, mid-century, and end of century overlaying with Chino's critical facilities, roadways and transit lines. The City's current minimum annual average temperatures range from 53°F to 55°F, whereas, by midcentury, the annual average minimum temperatures are projected to rise from 55°F to 57°F, with the eastern and southern portions of the City experiencing even higher temperatures ranging from an annual average of 57°F to 59°F. By the end of the century, the minimum average annual temperatures are expected to be 61°F to 63°F throughout the region, including Chino. This is an increase of between 12°F and 14°F from present temperatures.

Cal-Adapt also projects increase in the number of extreme heat days, which is the number of days that exceed the 98th percentile of historical maximum temperatures between April 1 and October 31 based on observed daily temperature data from 1961–1990. As shown in Figure 7, Chino currently experiences three to four extreme heat days per year. This number is projected to increase on an average of approximately 40 extreme heat days per year by mid-century. By the end-of-century, Chino is projected to experience on an average of 85 extreme heat days per year.

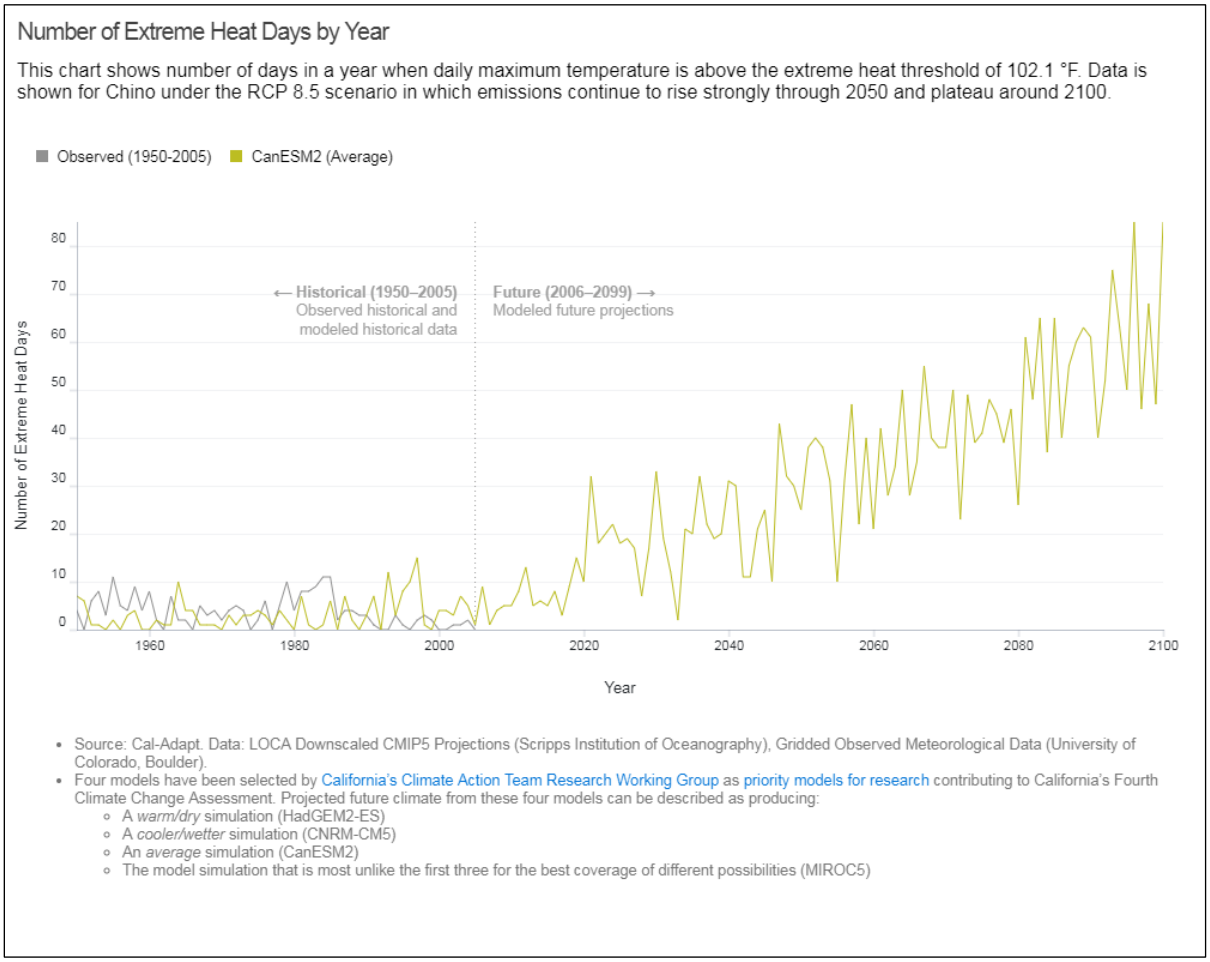


Figure 7: Number of Extreme Heat Days per Year for Chino (Observed and Modeled Historical Data 1950–2005 and Modeled Future Projections 2006–2099)

4.1.3 Precipitation Projections

Figure 8 shows Cal-Adapt projections for present, mid-century, and end-of-century average annual precipitation for Chino. The City currently experiences on an average 10 to 15 inches of rainfall annually. By mid-century, the annual average rainfall is projected to increase to 15 to 30 inches. By the end of century, the annual average rainfall is expected to reach 30 to 40 inches.

4.1.4 Wildfire Projections

Figure 9 shows Cal-Adapt projections for present, mid-century, and end-of-century wildfires for Chino. It is important to note that there are currently no wildfire data available for portions of the City. The figure shows, at present, there is potentially a small risk of wildfire toward the southeast portion of Chino, which may be due to urban wildlife interface within City's open spaces. According to the analysis, the risk of wildfire is expected to decline into mid-century and the end of the century.

4.2 Climate Change Risk Analysis

As the future climate is projected to be more extreme, the City is expected to be exposed to more climate change risks, including extreme heat and flooding.

4.2.1 Extreme Heat

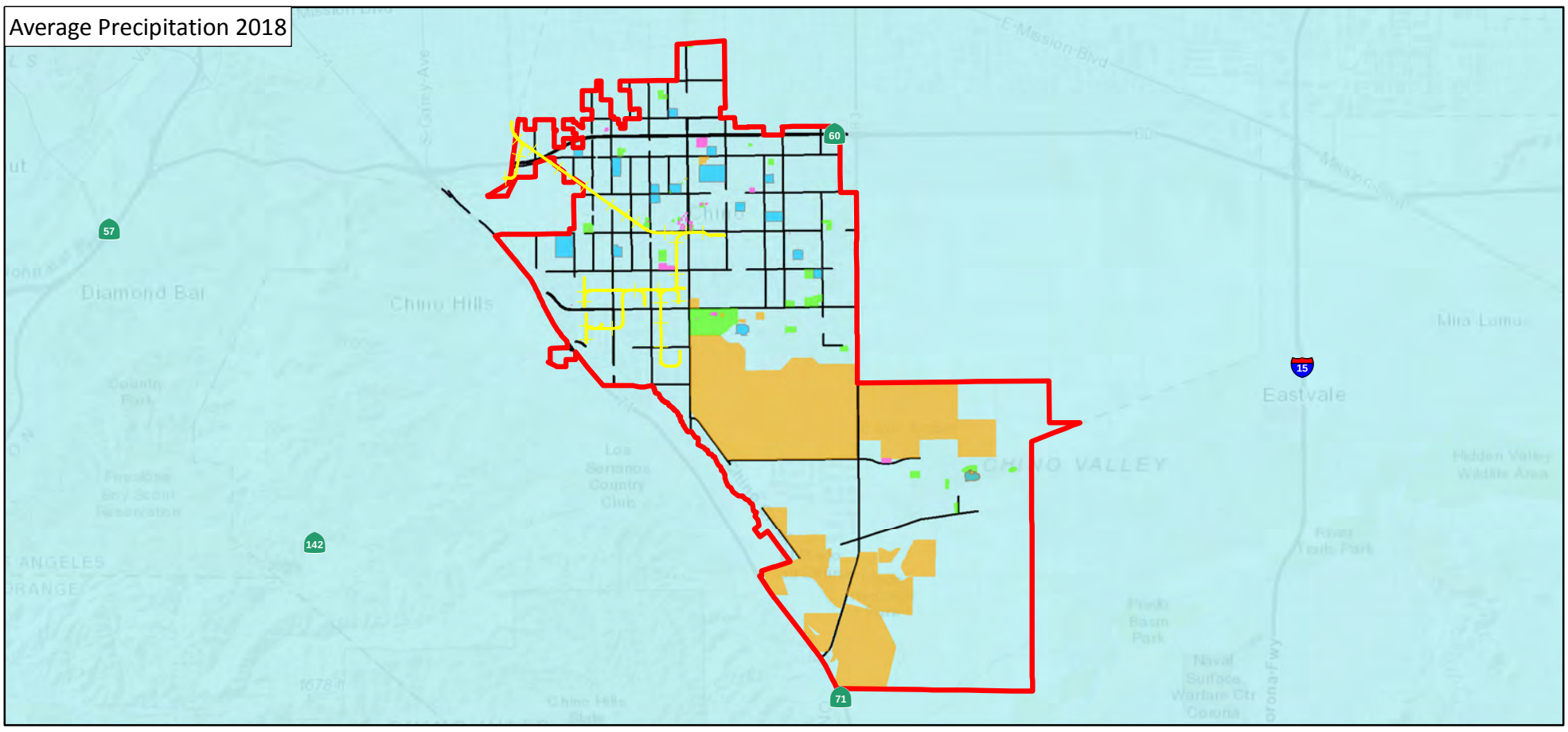
High temperatures are a chronic hazard. As average temperatures are projected to rise and the frequency, duration, and intensity of heat waves increase, the City is at risk for increased mortality and morbidity, as a result of heat-related illnesses, and the intensification of existing chronic health conditions. These risks disproportionately affect elderly, individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses, infants, the socially or economically disadvantaged, and those who work outdoors. Those that reside in areas that lack access to public transit but may be transit-dependent are more vulnerable in that they may not be able to escape to cool zones. Cool zones are places where residents can comfortably escape midday summer heat. Once people are able to escape to cool zones, additional concerns include the fact that air conditioning is energy intensive. If Chino's energy infrastructure does not keep pace with increasing demand, then brownouts or blackouts are possible, depriving people of air conditioning and exacerbating extreme heat impacts.

High temperatures can also stress the built environment and can result in damage caused by heat to roads and rail. Thermal expansion that occurs in asphalt and concrete can cause roads to buckle. Road buckling is more common in concrete than in asphalt since it is a less flexible material. Road buckling is difficult to predict and difficult to prepare for aside from cautioning drivers to be aware of the road condition and having repair crews ready.

4.2.2 Flooding

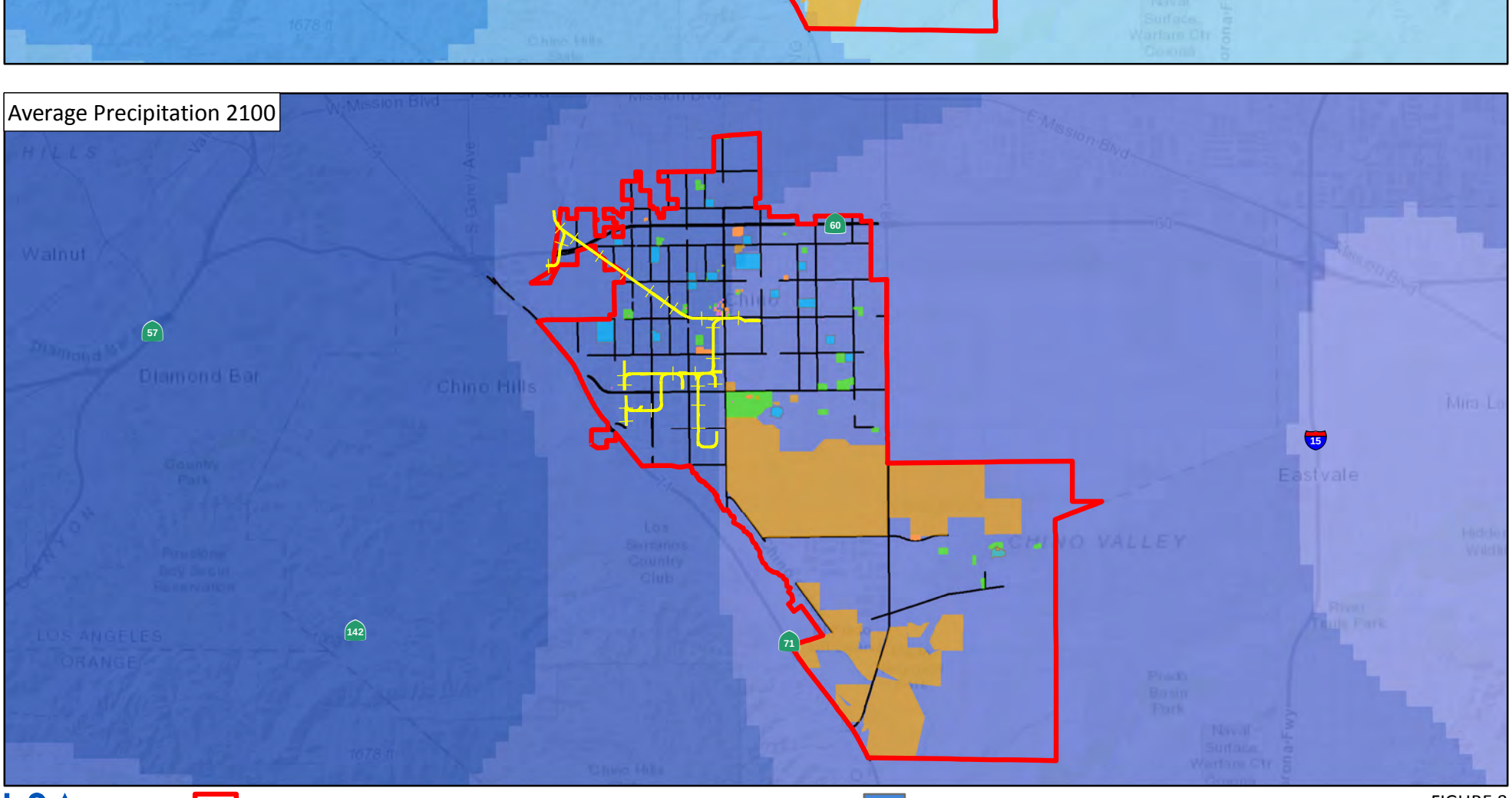
Flooding is the second most common and widespread of all natural disasters faced by the Cities like Chino. The City experiences flooding due to heavy rainfall and resulting stream and drainage canal overflows during the winter months (Chino Hazard Mitigation Plan Update 2016). Figure 10 shows the 100 and 500 year floodplain zones within Chino as defined by Federal Emergency Management

Average Precipitation 2018



Average Precipitation 2050

Average Precipitation 2100



LSA

City Boundary
Roadways
Railroad

Critical Facilities
School
Facilities
City Owned Parks
City Owned Facilities

Average Precipitation (inch/year)
10-15
15-20
20-25
25-30
30-35
35-40
40-45
45-50

N

0 5280 10560
Feet

SOURCE: ESRI (2018); City of Chino (2019); CalAdapt (2018)

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FIGURE 8

Chino Climate Action Plan Update

Average Precipitation

CanESM2 (Average)
RCP 8.5 Scenario
Annual Averages

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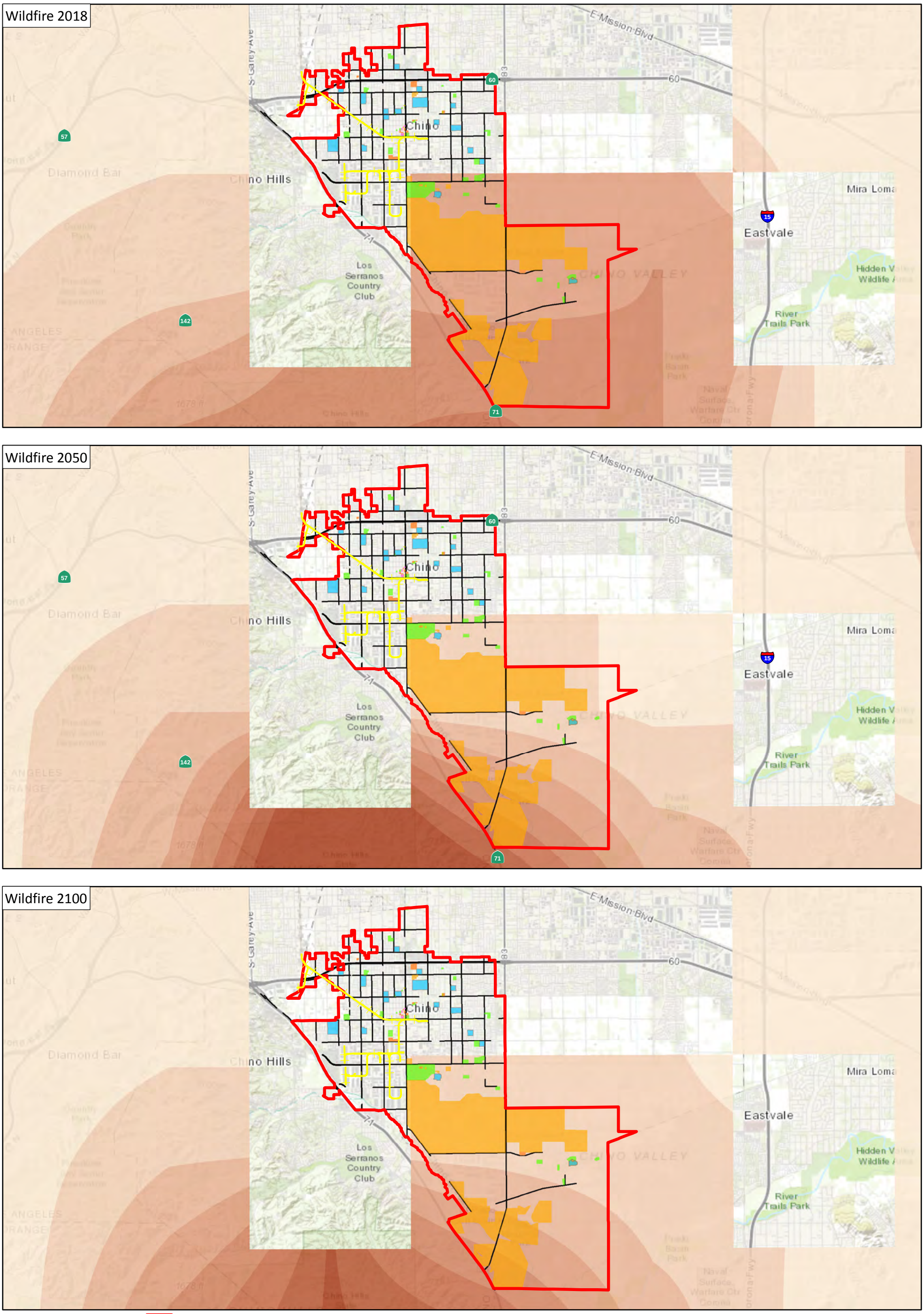
Wildfire 2018

Wildfire 2050

Wildfire 2100



LSA

City Boundary
Roadways
Railroad

Critical Facilities
School
Facilities
City Owned Parks
City Owned Facilities

Wildfire (Hectares)
0-5
5-10
10-15
15-20
20-25
25-30
30-35
35-40

0 5280 10560
Feet

SOURCE: ESRI (2018); City of Chino (2019); CalAdapt (2018)

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FIGURE 9

Chino Climate Action Plan Update

Wildfires

CanESM2 (Average)
RCP 8.5 Scenario
Annual Averages

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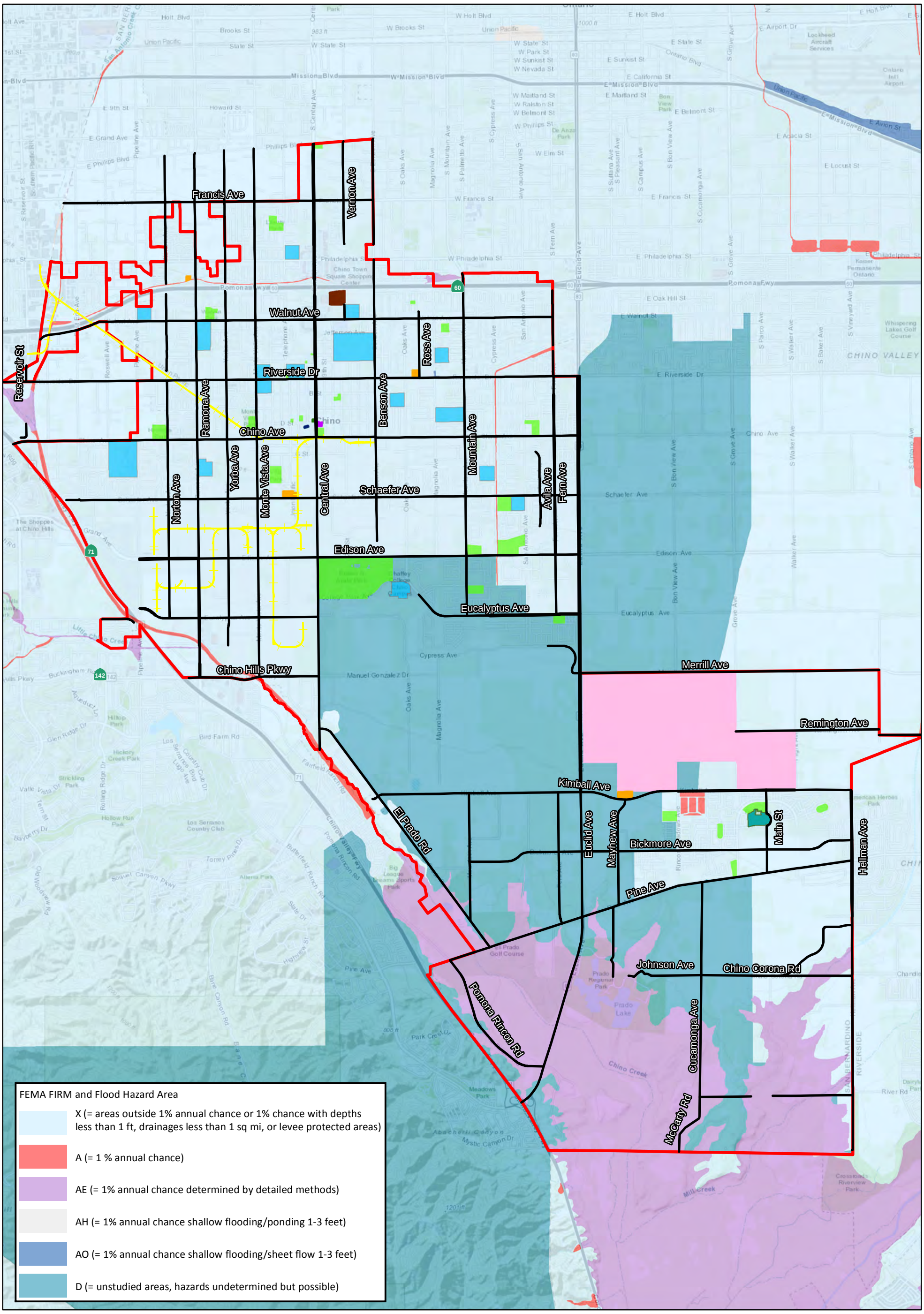

FIGURE 10

Chino Climate Action Plan Update

Flood Zones

SOURCE: ESRI (2018); FEMA (2017); City of Chino (2019)

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Association's (FEMA's) National Flood Insurance Program (NFIP). The northern portion of the City is located within Zone X, which includes moderate risk areas that have a 1 in 500 (0.2 percent) chance of flooding in a given year, and low risk areas that are located outside the 500-year flood zone. The majority City's critical facilities such as City Hall, community center, police station, schools and major roads are located within Zone X.

Other flood zone designations include Zone AE, or areas subject to inundation by the 1 percent annual chance flood event. The southern portions of the City near Pomona Rincon Road, Pine Avenue, areas around Prado Regional Park, El Prado Golf Course, Prado Lake, Chino Creek, and McCarty Road are located within Zone AE. These areas have greater flooding risk compared to other parts of the City.

There are some areas of the City, particularly located in the mid and southern portions of the City that are located in Zone D. The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. The designation of Zone D is also used when a community incorporates portions of another community's area where no map has been prepared.

Chino has historically been subject to flood events,[18] and climate projections predict increase in precipitation. This means that the storm water system will take in larger amounts of water for a single storm event, which increases the potential for flooding to occur. While no critical facilities are located within flood zone designations, the residential areas, open spaces, and major roadways located in the area could be potentially affected if flooding occurs.

Another risk to critical facilities and infrastructure is scouring, which is the removal of sediment such as sand and gravel from around bridge abutments or piers. Scouring is caused by swiftly moving water that can scoop out scour holes and compromise the integrity of a structure. The projected increases in rain will make City structures (e.g., roadways, bridges, electric distribution lines, pipelines, and public buildings) more vulnerable to scouring.

4.2.3 Landslide

This analysis includes understanding the landslide risks due to heavy precipitation, and potential flooding based on the geology and slope steepness. The City does not have any major landslide hazard risks caused by heavy precipitation, mainly due to relatively flat topography with a gentle overall slope of approximately 2 percent, generally to the South. As shown in Figure 11, there are some landslide hazards identified in the southern part of the City, which overlaps with the City's flood-prone areas. The areas around McCarty Road, Pomona Rincon Road, Cucamonga Avenue, Prado Regional Park, and Prado Lake are susceptible to landslides. There are no critical facilities located in these areas; however, as the Chino population continues to grow and more residential and commercial structures are built, more people might be at risk. The HMP assesses the landslide risks due to seismic activity, which is not addressed in this analysis.

[18] *Chino Champion* Newspaper. March 2. 2019 https://www.championnewspapers.com/community_news/article_615a12b4-3c65-11e9-aa9e-233f61f1d5f1.html.

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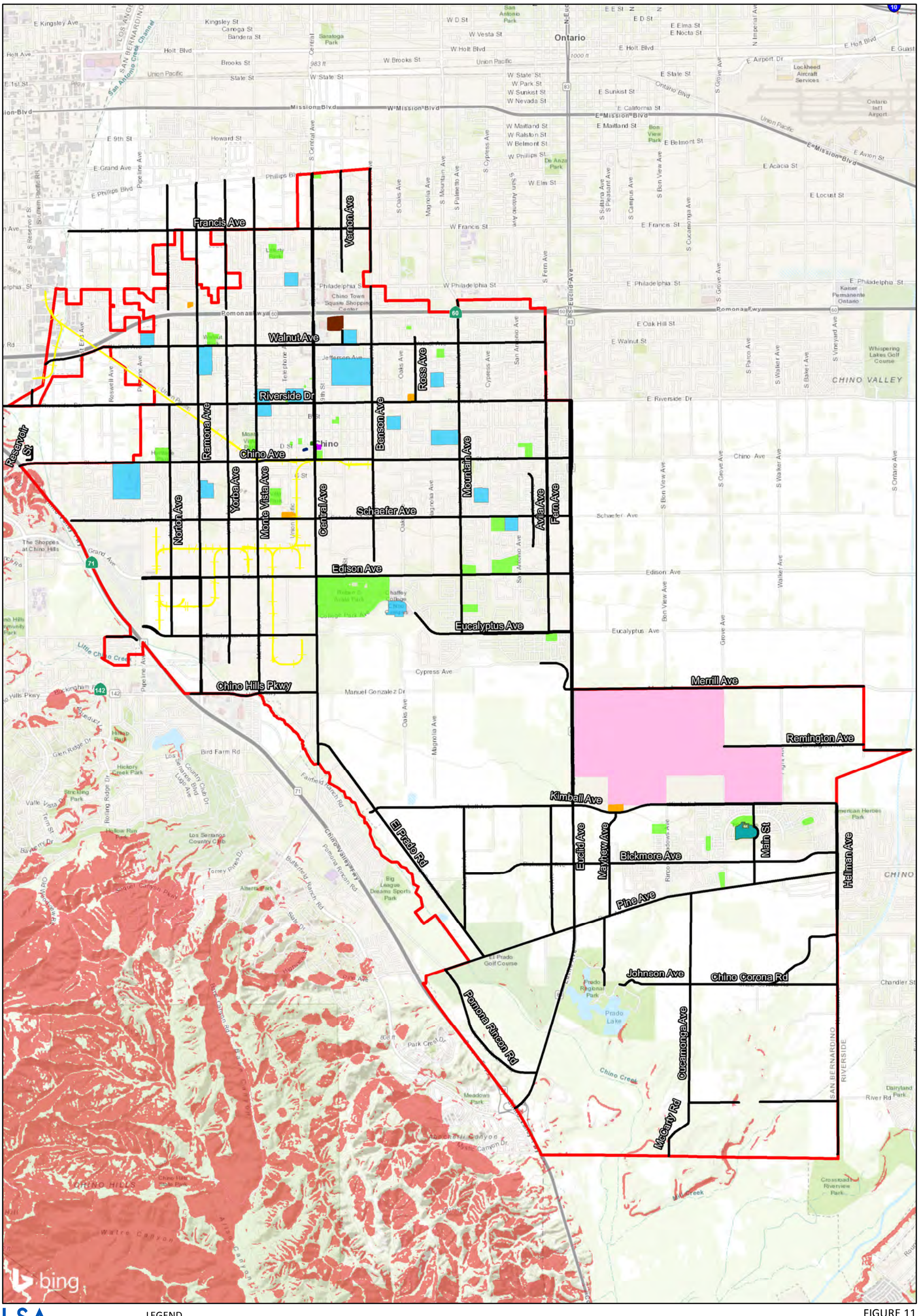

LSA

LEGEND

- City Boundary
- Roadways
- Railroad
- School
- City Owned Parks

Facilities

- Airport
- Carolyn Owens Center
- City Hall

- Fire
- Library
- Police

Soil Slip Susceptibility

- Very High Susceptibility

0 2000 4000
Feet

SOURCE: ESRI (2016); CGS (2016)

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FIGURE 11

Chino Climate Action Plan Update

Debris Flow Hazard Zones

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4.2.4 Evacuation Route Constraints

The evacuation routes constraints analysis overlays City's major roadways and freeways with flood, precipitation induced landslide, and flood-landslide hazards to show how these major freeway and major roadways within Chino would potentially be affected by these three types of hazards and therefore should be considered when designating evacuation routes to be used during such hazards. The affected roadway segments were designated by overlapping freeway and major roadway map with flood zones, and landslide hazard zones. The roadway segments that either completely or partially fall within the hazard zones were designated as impacted.[19] Potential flood hazard zones include Flood Zone AE, which is subject to inundation by the 1 percent annual chance flood event where mandatory flood insurance purchase requirements and floodplain management standards apply. Flood Zone X with 0.2 percent or less annual chance or minimal flood hazard is not designated as flood hazard zones. Figure 12 shows the affected roadways under these two types of hazards. Some roadway segments would potentially be affected by more than one type of hazard, which may or may not happen simultaneously. For example, Johnson Avenue and Mc Carty Road would be subject to impacts by both flood and landslide hazards. Tables K lists of roadway segments that would potentially be subject to flood and landslide hazard impacts.

It is recommended that the City incorporate this information when it is developing flood evacuation routes.

Table K: Roadway Segments Potentially Affected by Flood and Landslide Hazards

Flood Hazards Roadway Segments	
El Prado Road between Kimball Avenue and Pine Avenue	Chino Corona Road between Cucamonga Avenue and City Boundary
Pine Avenue between Mayhew Avenue and West City Boundary	Johnson Avenue leading into Prado Regional Park
Pomona Rincon Road between Euclid Avenue and Pine Avenue	Cucamonga Avenue between Chino Corona Road and McCarty Road
Euclid Avenue between Pine Avenue and City Boundary	McCarty Road to City Boundary
Landslide Hazards Roadway Segments	
Johnson Avenue that leads into Prado Regional Park	McCarty Road near Cucamonga Avenue and City Boundary

Source: Compiled by LSA Associates, Inc. (2020).

4.3 Impacts of Climate Change and Adaptation Strategies

The City recognizes the need to prepare for the climate change risks described above that would cause impacts the community's health, safety, quality of life, use of resources, and economy. Preparedness and adaptation efforts seek to reduce vulnerability and increase the local community's resiliency to these changes. Therefore, this analysis identifies actions to adapt to those changes and build resiliency into the community.

[19] Note: roadways can be subjected to impacts beyond defined hazard zones. Roadways identified in Figure 12 are not necessarily an exhaustive inventory of those that could be affected.

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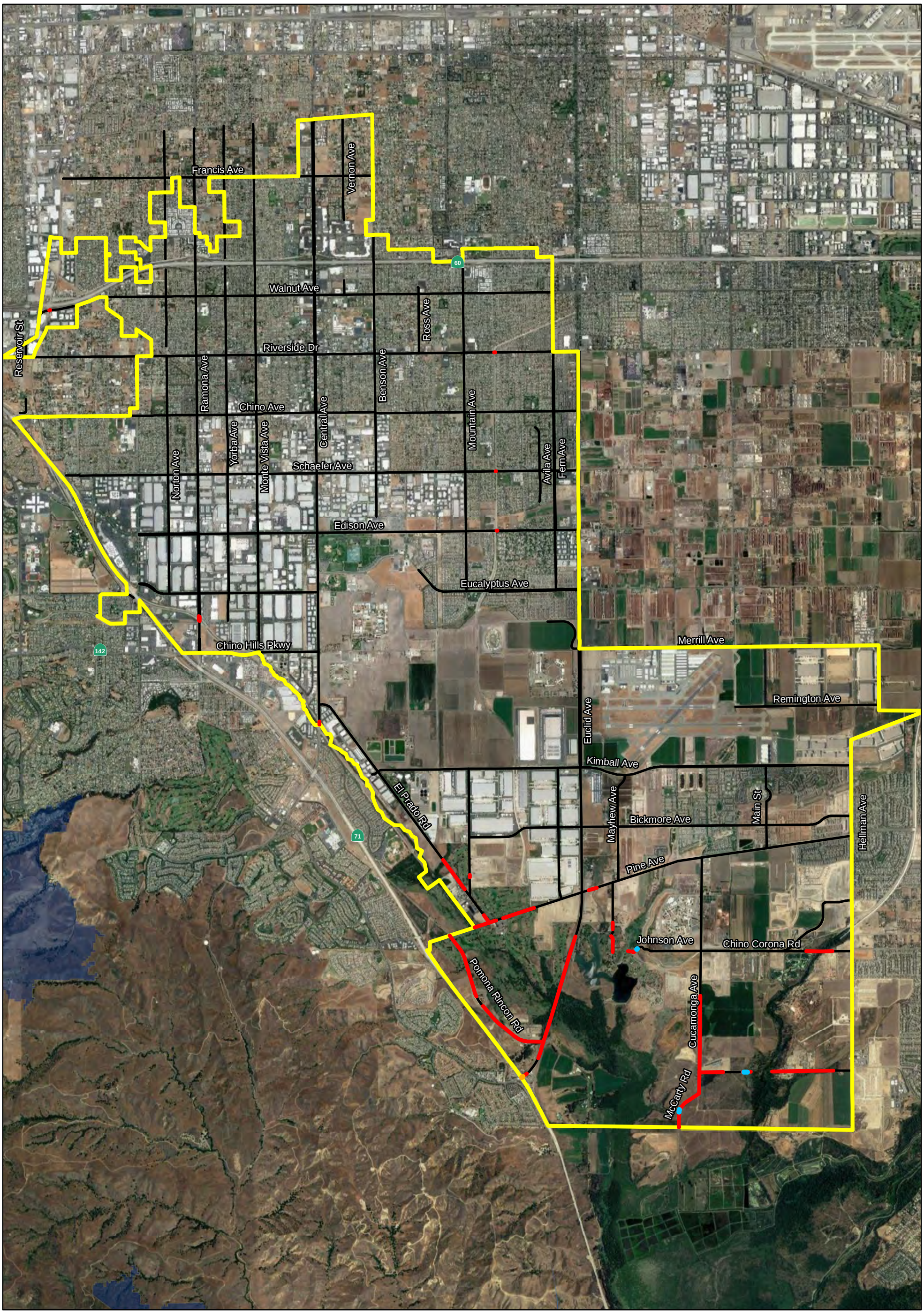

LSA

FIGURE 12

Chino Climate Action Plan Update

Evacuation Routes Constraints

SOURCE: ESRI (2018); City of Chino (20)

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Climate adaptation and resiliency are often discussed together, but it is helpful to distinguish between them. According to the California Governor's Office of Planning and Research (OPR) publication *Planning and Investing for a Resilient California: A Guidebook for State Agencies*[20] (March 2018), "adaptation is an action or set of actions, and resilience describes the desired outcome" of those actions. In the same publication, OPR provides the following definitions:

> *Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climate effects, which moderates harm or exploits beneficial opportunities.*
>
> *Resilience is the capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.*

Using these definitions, this analysis recommends adaptation measures designed to address the climate change impacts discussed above in order to increase the City's resiliency to the various climate change stressors (e.g., increase in extreme heat days, wildfires, flooding, and extreme weather events).

The following provides recommended adaptation measures for each of the climate change risks.

4.3.1 Adaptation to the Impacts of Extreme Heat

Climate change is predicted to increase the number of extreme heat days within the City. The number of extreme heat days is currently approximately 30 days per year and would increase to 40 days per year by mid-century and 85 days per year by the end of the century (Figure 7). These predictions will significantly affect public health and safety as well as transportation infrastructure that is not designed for this level of heat.

High temperatures are a chronic hazard. Because average temperatures are projected to rise and as the frequency, duration, and intensity of heat waves increase, the entire City is at risk for increased mortality and morbidity as a result of heat-related illnesses and the intensification of existing chronic health conditions. The following adaptation measures are needed to address public health and safety related to extreme heat:

- **Adaptation Measure 1: Provide Community Cooling Centers:**
  - Identify City-owned or operated public facilities (e.g., libraries, community centers, parks, and recreational facilities) as potential Community Cooling Centers. Prioritize areas within the City with low-income, elderly, and young populations because these are the populations most severely affected by extreme heat.
  - Assess the capacity and condition of the air conditioning and ventilation systems of the identified facilities to determine whether they are able to provide adequate cooling during extreme heat days.

[20] Office of Planning and Research (OPR). 2017. *Planning and Investing for a Resilient California: A Guidebook for State Agencies.* Website: http://opr.ca.gov/docs/20180313-Building_a_Resilient_CA.pdf (accessed March 2020).

- Develop maintenance and repair plans for the identified cooling centers to ensure the facilities are adequately prepared for extreme heat days.
- Communicate to the public the locations of the Community Cooling Centers so that more people can access them. This is particularly important in the low income neighborhoods.

- **Adaptation Measure 2: Provide public outreach, education, and engagement pertaining to the risks of extreme heat and preventative measures by implementing the following actions:**
  - Communicate heat warning information and appropriate responses to the public (e.g., encourage staying indoors and provide symptom reminders).
  - Encourage citizens and non-profit organizations within the City (church groups, clubs, etc.) to check on their family, friends, and neighbors to ensure they have access to air conditioning.
  - Establish systems such as hotlines to alert public health officials about high-risk or distressed individuals.
  - Develop a volunteer system to check on the elderly, especially in the instances of extreme heat days. The volunteers could also undertake a food delivery program to assist the elderly and vulnerable population.

The following recommended adaptation measures address the impacts of extreme heat on transportation infrastructure:

- **Adaptation Measure 3: Develop an extreme heat transportation management strategy by implementing the following actions:**
  - Identify older roadways and bridges within the City that are vulnerable to high heat due to structural buckling and asphalt softening.
  - Implement load restrictions for the older roads and bridges that have been identified as being vulnerable to extreme heat to reduce traffic on vulnerable transportation infrastructure during extreme heat days.
  - Establish a communications system to alert the public to the load restrictions of the roadways identified above during extreme heat days.
  - Provide an engineering assessment of the older vulnerable roadways and bridges identified above and prioritize these roadways for reasonable improvements that can be phased in based on budget limitations.

4.3.2 Adaptation to the Impacts of Flooding

Severe drought in combination with projected increases in rain can lead to increased runoff when it does rain, resulting in more extreme flooding.

As described above, the majority of Chino is located within Zone X, which has a moderate to low potential for flooding. However, as the City's population continues to grow and more residential and commercial structures are built, more people could potentially be at risk if growth occurs within the flood zones. The following adaptation measures related to flooding are recommended:

- **Adaptation Measure 4: Restrict land use development within Flood Zones A and AE by implementing the following actions:**
    - Restrict new land use development within Flood Zones A and AE unless land is modified.
    - Identify existing land uses within Flood Zones A and AE and provide flooding mitigation, including providing sandbags prior to storm events. Assess properties for flooding vulnerabilities.
- **Adaptation Measure 5: Provide public outreach, education, and engagement pertaining to flooding and extreme weather events by implementing the following action:**
    - Communicate flood warning and severe weather event information and appropriate responses to the public (e.g., discourage travel in flood-prone areas and avoid flood control channels).
- **Adaptation Measure 6: Develop an Emergency Evacuation Plan for flooding through the following actions:**
    - Using the map in Figure 12 and the list of roadways in Table K, determine the safe evacuation routes to use during flooding events.
    - Using the defined evaluation routes, determine the evacuation route capacity and time it would take to evacuate during a flood or severe weather event.
    - Develop an emergency evacuation notification system and initiate criteria to evacuate the areas of flooding.

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5.0 Plan Implementation

This chapter describes implementation steps for the CAP Update to support achievement of the energy efficiency and GHG reduction goals for the community at large. Success in meeting the City's energy efficiency and GHG emission reduction goals will depend on cooperation, innovation, and participation by the City, residents, businesses, and local government entities. This section outlines key steps that the City would follow for the implementation of this CAP Update.

Successful implementation of the CAP Update will require the following components. These are described in more detail the sections below.

- Administration and Staffing;
- Financing and Budgeting;
- Timelines for Measure Implementation;
- Community Outreach and Education; and
- Monitoring, Reporting, and Adaptive Management.

The steps above are basic steps that any city might take or that other California communities have taken to implement a GHG reduction plan. These are suggested—not required—and are intended to guide a city in its implementation planning.

5.1 Administration and Staffing

The CAP Update's success will require coordination with other regional agencies. The City will work with these agencies and will designate staff to oversee the successful implementation and the tracking of all selected GHG reduction strategies. The City will primarily be responsible for coordinating with contacts across departments to gather data, to report on progress, to track completed projects, and to ensure that scheduling and funding of upcoming projects is discussed at key City meetings. The City may identify one or more staff to act as the Plan Implementation Administrator(s) to guide monitoring, reporting, and dissemination of information to the public. Where possible, the City may use assistants from programs such as CivicSpark, an AmeriCorps program designed to build capacity for local governments to address climate change.

The Administrator could have the following responsibilities:

- Secure long-term financing for the energy efficiency and GHG reduction measures (i.e., grant applications).
- Coordinate CAP Update implementation-related meetings.
- Serve as the external communication hub to local and regional climate action organizations, including SCAG.
- Conduct public outreach to inform the community of the City's reduction planning efforts.

- Investigate methods to use existing resources and harness community support to better streamline implementation of the Plan.
- Monitor implementation of reduction measures and success of the CAP Update.
- Develop a protocol for monitoring the effectiveness of emission-reduction programs.
- Establish guidelines for reporting and documenting emission-reduction progress.
- Submit annual reports to the City Council.
- Develop a protocol for using the real-time information collected through the verification process to modify and revise existing reduction programs.
- Track State and federal legislation and its applicability to the City.

In general, the goal in implementing the CAP Update is not to create new administrative tasks or new staff positions necessarily, but rather to leverage existing programs and staff to the maximum extent feasible. Cities should seek to fold GHG planning and long-term reduction into their existing procedures, institutional organization, reporting, and long-term planning.

5.2 Financing and Budgeting

Implementation of the local GHG reduction measures may require investment for the capital improvements and other investments, and increased operations and maintenance costs. However, in some cases, operating costs are anticipated to decrease, resulting in offset savings. This section presents a summary of funding and financing options (Table L) available at the time of writing this document. Some funding sources are not necessarily directed toward a city, but to a larger regional agency such as SCAG, or a waste services provider serving multiple jurisdictions. The City should monitor private and public funding sources for new grant and rebate opportunities and to better understand how larger agencies are accessing funds that can be used for GHG reductions in their areas. Leveraging financing sources is one of the most important roles a local government can play in helping the community to implement many of the GHG reduction measures.

Table L: Potential Funding Sources to Support GHG Reduction Measures

Funding Source	Description
State and Federal Funds	
Federal Tax Credits for Energy Efficiency	■ Tax credits for energy efficiency can be promoted to residents.
Energy Efficient Mortgages (EEM)	■ An EEM is a mortgage that credits a home's energy efficiency in the mortgage itself. ■ Residents can finance energy-saving measures as part of a single mortgage. ■ To verify a home's energy efficiency, an EEM typically requires a home energy rating of the house by a home energy rater before financing is approved. ■ EEMs are typically used to purchase a new home that is already energy efficient, such as an ENERGY STAR®-qualified home.
California Department of Resources Recycling and Recovery (CalRecycle)	■ CalRecycle grant programs allow jurisdictions to assist public and private entities in management of waste streams. ■ Incorporated cities and counties in California are eligible for funds.

Table L: Potential Funding Sources to Support GHG Reduction Measures

Funding Source	Description
	■ Program funds are intended to: ○ Reduce, reuse, and recycle all waste ○ Encourage development of recycled-content products and markets ○ Protect public health and safety and foster environmental sustainability
California Energy Commission (CEC)	■ CEC has energy efficiency financing options for projects with proven energy savings. These options include 0% interest rate loans for K–12 school districts, county offices of education, State special schools, community colleges, and 1% interest rate loans for cities, counties, special districts, public colleges or universities, public care institutions/ public hospitals, University of California campuses, and California State University campuses. ■ Projects eligible for the CEC energy efficiency financing low interest loans include: ○ Lighting system upgrades ○ Pumps and motors ○ Streetlights and light-emitting diode (LED) traffic signals ○ Building insulation ○ Heating, ventilation and air conditioning equipment ○ Water and waste water treatment equipment
California Air Resources Board (CARB)	■ CARB offers several grants, incentives, and credits programs to reduce on-road and off-road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program. ■ The following programs can be utilized to fund local measures: ○ Air Quality Improvement Program (Assembly Bill 118) ○ Carl Moyer Program – Voucher Incentive Program ○ Goods Movement Emission Reduction Program (Proposition 1B Incentives) ○ Loan Incentives Program ○ Lower-Emission School Bus Program/School Bus Retrofit and Replacement Account (Proposition 1B and United States Environmental Protection Agency Incentives)
Existing Capital Improvement Program	■ State and federal funds would most likely continue to local governments, builders, and homeowners in the following forms: ○ Grants ○ Transportation and transit funding ○ Tax credit and rebate programs ○ The Capital Improvement Program can be used for measures relating to traffic or transit.
State Funding for Infrastructure	■ The State's Infill Infrastructure Grant Program may potentially be used to help fund measures that promote infill housing development. ■ Grants can be used for gap funding for infrastructure improvements necessary for specific residential or mixed-use infill development projects.
Transportation-Related Federal and State Funding	■ For funding measures related to transit, bicycle, or pedestrian improvements, the following funding sources from SCAG may be used. ○ Sustainability Planning Grant ○ California Active Transportation Program ■ Caltrans Transportation Planning Grant Program provides funding that would lead to programming and implementation of transportation improvement projects.

Table L: Potential Funding Sources to Support GHG Reduction Measures

Funding Source	Description
	○ Sustainable Communities Grants ○ Strategic Partnerships Grants ○ Adaptation Planning Grants
Utility Rebates	■ Department of Water and Power offers a variety of residential and commercial rebate programs: ○ Residential and Commercial Turf Replacement Program ○ Pool/Spa Cover Rebates ○ Rebates for Water-Efficient Devices ○ Recirculating Pump Rebate ○ Free Urinal Flush Valve Upgrades and Installation ■ Southern California Edison is one of the utilities participating in the California Solar Initiative. ■ A variety of rebates are available for existing and new homes. ■ Photovoltaics, thermal technologies, and solar hot water projects are eligible. ■ Single-family homes, commercial development, and affordable housing are eligible.
Energy Upgrade California	■ The program is intended for home energy upgrades. ■ Funding comes from the American Recovery and Reinvestment Act, California utility ratepayers, and private contributions. ■ Utilities administer the program, offering homeowners the choice of one of two upgrade packages—basic or advanced. ■ Homeowners are connected to home energy professionals. ■ Rebates, incentives, and financing are available. ■ Homeowners can receive money back on an upgrade through the local utility.
Private Funding	
Private Funding	■ Private equity can be used to finance energy improvements, with returns realized as future cost savings. ■ Rent increases can fund retrofits in commercial buildings. ■ Net energy cost savings can fund retrofits in households. ■ Power Purchase Agreements involve a private company that purchases, installs, and maintains a renewable energy technology through a contract that typically lasts 15 years. After 15 years, the company would uninstall the technology or sign a new contract. ■ On-Bill Financing (OBF) can be promoted to businesses for energy-efficiency retrofits. OBF funding is a no-interest loan that is paid back through monthly utility bills. Lighting, refrigeration, HVAC, and LED streetlights are all eligible projects.
Other Funding Mechanisms for Implementation	
Other Funding	■ Increased operating costs can be supported by grants from the Strategic Growth Council or the State Department of Conservation to fund sustainable community planning, natural resource conservation and development, and adoption.
Future Funding Options: Funding Mechanisms for Capital and/or Implementation Costs	
New Development Impact Fees	■ These types of fees may have some potential to provide funding, but such fees are best implemented when the real estate market and overall regional economic conditions are strong.

Table L: Potential Funding Sources to Support GHG Reduction Measures

Funding Source	Description
General Obligation Bond	■ A general obligation bond is a form of long-term borrowing and could be used to fund municipal improvements.
Assembly Bill (AB) 811 Districts Property-Assessed Clean Energy (PACE)	■ AB 811 is intended to help municipalities accomplish the goals outlined in AB 32. ■ The PACE finance program is intended to finance energy and water improvements within a home or business through a land-secured loan, and funds are repaid through property assessments. ■ Municipalities are authorized to designate areas where property owners can enter into contractual assessments to receive long-term, low-interest loans for energy and water efficiency improvements, and renewable energy installation on their property. ■ Financing is repaid through property tax bills. ■ AB 811 and the PACE program are currently on hold for residential properties due to potential violation of standard Federal Housing Finance Agency federally guaranteed (Fannie Mae/Freddie Mac) residential mortgage contracts. ■ The SBCTA has implemented the Home Energy Renovation Opportunity (HERO; a PACE program) in San Bernardino County to assist residents in financing residential energy efficiency and solar retrofits.

HVAC = heating, ventilation, and air conditioning
SCAG = Southern California Association of Governments

In addition to pursuing the funding options above and monitoring the availability of others, the City should take the following steps to best inform decisions related to the cost of GHG reduction measures:

- **Perform and Refine Cost Estimates.** Cost estimates for local reduction measures should be performed to identify the cost-effectiveness of each measure to inform and to guide the implementation process. This analysis will likely be based on a variety of participation, per-unit, and other assumptions. As programs are developed, cost estimates should be refined and updated over time with more precise implementation-level data.
- **Integrate GHG Reduction into Existing City Budget and Capital Improvements Program.** Certain capital improvements may need to be added to the City's Capital Improvements Program (CIP) and facility master plan programs, as well as those of the City utility enterprises and other public agencies that have control for project implementation. For CIPs completely under the City's control, new projects would need to be assessed for consistency with the CAP Update.
- **Adopt or Update Ordinances and/or Codes:** Some local reduction measures may require new or revised ordinances. Staff would need to coordinate these efforts in conjunction with planning departments, planning commissions, and City councils.
- **Pursue Outside Funding Sources:** A range of funding from State and federal agencies has been identified. The City would need to pursue these (and other emerging) funding sources as a part of implementation efforts.
- **Implement and Direct Preferred City Funding Sources:** While City funding sources are limited, the City, when financially able, as a part of its budget process, could appropriate funding from

general sources or make changes in its fee schedules, utility rates, and other sources as needed to support funding the implementation of the GHG reduction measures.

- **Create Monitoring/Tracking Processes:** Local reduction measures would require program development, tracking, and/or monitoring.
- **Identify Economic Indicators to Consider Future Funding Options:** Economic recovery may occur rapidly or slowly. Whatever the timeframe, the City would need to determine the point at which certain additional funding sources may become feasible and/or favorable. Identification and monitoring of economic indicators and trends, such as home prices, energy prices, cost per kWh on solar installations, unemployment rates, or real wage increases, can help the City decide when to further explore the potential for funding local reduction measures through different financing mechanisms.

5.3 Timeline for Measure Implementation

It is important to start implementation of the reduction measures within the 2020-2030 Climate Action Plan in a manner that is feasible and within the context of the City of Chino's planning processes. This is necessary to provide continuity and reasonableness in the new development application process. Therefore, implementation of the 2020-2030 Climate Action Plan shall apply to those projects for which the respective application for approval by the City has been submitted to the City and deemed complete on or after January 1, 2021.

5.4 Community Outreach, Education, and CEQA Review

5.4.1 Community Outreach and Education

Chino's citizens and businesses are integral to the success of the CAP Update and to overall GHG reduction for the region. Their involvement is essential, considering that several measures depend on the voluntary commitment, creativity, and participation of the community. A CAP Update survey was utilized to gather feedback from community stakeholders and residents in order to determine priorities and benefits for the City to focus on while updating the CAP. The City placed the CAP Update Survey on the City website under the CAP webpage for the community to contribute. The City Council provided a newsletter and a local radio announcement to encourage residents to leave suggestions and inputs. The 95 percent of the survey participants were residents of Chino and the remaining 5 percent were community stakeholders who provided valuable feedback. The survey asked a variety of questions including what priorities each participant would like the City to focus on while updating the CAP. The rating scale of 1-5 was used. Each topic shown in figure 13 received the rating of 5 regarding importance of each strategy (Figure 13). The survey highlighted that residents prioritize: energy efficiency, traffic management, and water conservation as a high priority.

It is important for the City to have a plan that is consistent with the character of the community and take into account the community's needs. There will be a continuous effort to ensure the CAP will take the community's needs into account now and in the future. Moving forward, the City would educate stakeholders, such as businesses, business groups, residents, developers, and property owners about the GHG reduction measures that require their participation, encourage participation in these programs, and alert them to program requirements, incentives and/or rebate availability,

depending on the measure. The City staff would schedule periodic meetings to facilitate formal community involvement in CAP Update implementation and adaptation over time. This could include focused meetings for a specific measure or program such as the PACE program and/or agenda items at City Council or other public meetings. These meetings would be targeted to particular stakeholder groups and provide information on CAP Update implementation progress as well as the implementation of a specific program or new policy. Alternatively, periodic written updates could be provided in City newsletters, SCAG's newsletter, on City websites, or through other media communications with the general public, such as press releases and public service announcements. Stakeholders would be provided an opportunity to comment on potential improvements or changes to the CAP Update. The City would also sponsor periodic outreach events to directly inform and solicit the input, suggestions, and participation of the community at large.

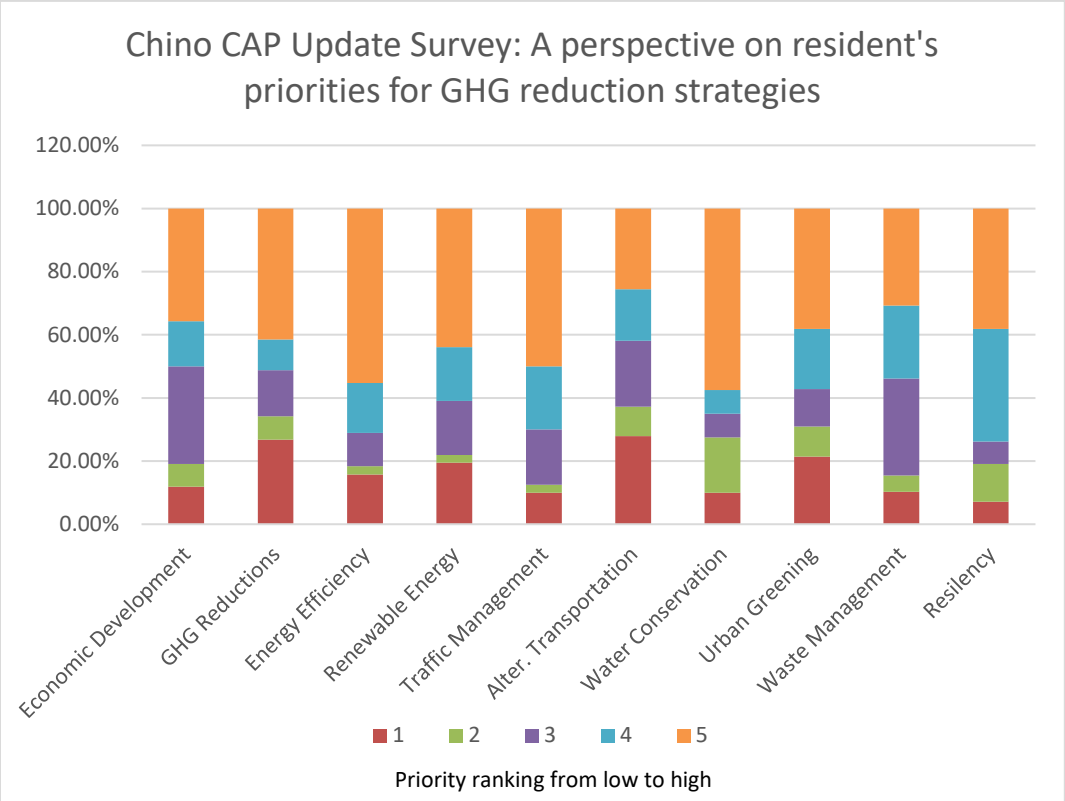

Figure 13: Chino CAP Update Survey: City resident's priorities for GHG reduction strategies

5.4.2 California Environmental Quality Act (CEQA) Review

The CAP Update requires compliance with CEQA prior to adoption. In September, 2020 the City of Chino provided CEQA review of potential environmental impacts using an Addendum to the 2013 CAP Environmental Impact Report (EIR). The City determined that an Addendum was appropriate based on CEQA Guidelines 15164(a) which states that "The lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in CEQA Guidelines Section 15162 calling for preparation of a subsequent EIR have

occurred." To summarize, the conditions described in CEQA Guidelines Section 15162 include changes to the project that require major revisions of the previous EIR to address new significant environmental effects or a substantial increase in the severity of previously identified environmental effects. The CAP Update has not created conditions that will create new significant environmental effects or increase the severity of previously identified environmental effects. The City determined that the environmental effects resulting from the CAP Update would be less than those addressed in the 2013 EIR. This conclusion is primarily due to substantially less energy, emissions, and moderately less VMT and noise resulting from the CAP Update. Because the CAP Update has made changes to the currently adopted CAP, but the changes did not create any of the conditions described in CEQA Guidelines Section 15162, an Addendum to the 2013 CAP EIR is the appropriate CEQA document.

5.5 Monitoring, Reporting, and Adaptive Management

Regular monitoring is important to ensure programs function as they were originally intended. Early identification of effective strategies and potential issues would enable the City to make informed decisions on future priorities, funding, and scheduling. Moreover, monitoring provides concrete data to document the City's progress in reducing GHG emissions. The City would be responsible for developing a protocol for monitoring the effectiveness of emission reduction programs as well as for undertaking emission inventory updates:

- **Update GHG Inventory:** The City would update inventory emissions prior to 2030 to ensure it meets its GHG reduction goals. This includes regular data collection in each of the primary inventory sectors (utility, regional VMT, waste, wastewater, and water), and comparing the inventory to the City's baseline GHG emissions in 2008. The City would consolidate information in a database or spreadsheet that could be used to evaluate the effectiveness of individual reduction measures.
- **Track State Progress:** The CAP Update will rely heavily on State-level measures. The City would be responsible for tracking the State's progress on implementing State-level programs. Close monitoring of the real gains being achieved by State programs would allow the City to adjust the CAP Update, if needed.
- **Track Completion of GHG Reduction Measures:** The City would keep track of measures implemented as scheduled in the CAP Update, including progress reports on each measure, funding, and savings. This will allow at least a rough attribution of gains when combined with regular GHG inventory updates.
- **Regular Progress Reports:** The City may report annually (or semi-annually or at other assigned intervals) to the City Council on CAP Update implementation progress. If annual reports, periodic inventories, or other information indicates that the GHG reduction measures are not as effective as originally anticipated, the CAP Update may need to be adjusted, amended, or supplemented.

5.6 Tracking Tools

5.6.1 Screening Tables

CEQA requires the assessment of environmental impacts for proposed projects including the impacts of GHG emissions. The screening tables can be used by the City for review of development projects in order to ensure that the specific reduction strategies in the CAP Update are implemented as part of the CEQA process for development projects. The screening tables provide a measurable way of determining if a development project is implementing the GHG Performance Standard and is able to quantify the reduction of emissions attributable to certain design and construction measures incorporated into development projects. The screening table assigns points for each option incorporated into a project as mitigation or a project design feature (collectively referred to as "feature"). The point values correspond to the minimum emission reduction expected from each feature. The menu of features allows maximum flexibility and options for how development projects can implement the GHG Performance Standard. Projects that earn enough points would be consistent with the reductions anticipated in the City's CAP Update.

The City would use a Screening Tables tracker tool, which is a Microsoft Excel-based spreadsheet program that can be used to track implementation of the various menu options within the screening tables. This spreadsheet would allow the City to track cumulative points garnered by projects and to predict emission reductions. These values of reductions can then be input into the GHG Performance Standard within the CAP Update implementation tracking tool described in more detail below.

5.6.2 CAP Update Implementation Tracking and Reporting

The City will use an excel based GHG reduction tracking tool that will be developed based on the City's permit application tracking system (Accela) and GHG reduction strategies and measures identified in the CAP Update. The tool will help the City track GHG reductions achieved through implementation of the GHG reduction measures within the CAP Update, to monitor the plan's implementation progress, and to report progress towards CAP update goals.

The GHG reduction tracking tool will help derive estimates for annual GHG reductions achieved by implementing the reduction measures to track progress toward meeting the City's GHG reduction targets. Once implemented, the tool will be used to demonstrate CAP Update progress, to show and communicate results, and to adaptively manage its implementation to ensure achievement of the reduction target.

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APPENDIX A:

SCREENING TABLES

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Draft

City of Chino

GREENHOUSE GAS EMISSIONS

Screening Tables Implementing Performance Standards

March 2020

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CONTENTS

TABLES

Introduction

Chino adopted its first Climate Action Plan (CAP) in November 2013. The CAP provided the greenhouse gas (GHG) emissions inventory for the year 2008, and target for reducing GHG emissions 15 percent below 2008 levels by 2020. Since the adoption of City's CAP, the State has enacted new climate change regulations, most notably the Senate Bill (SB) 32, which provides statewide targets to reduce GHG emissions to 40 percent below 1990 levels by 2030. To ensure conformity with the latest State climate change regulations, the City is currently updating its 2013 CAP.

Reductions related to transportation, water, solid waste, energy, and renewable energy sources all play a crucial part in gaining the level of efficiency needed within the new development across the City. Mitigation of GHG emissions impacts through the Development Review Process (DRP) provides one of the most substantial reduction strategies for reducing communitywide GHG emissions associated with new development.

The City's forthcoming CAP Update includes the Performance Standard that will reduce 6,051 Metric Tons of Carbon Dioxide Equivalents (MT CO_2e) per year from new development by 2030 as compared to the 2030 business as usual (BAU) scenario. The DRP procedures for evaluating GHG impacts and determining significance for CEQA purposes will be streamlined by utilizing the draft performance standard review checklist to mitigate project GHG emissions and demonstrating compliance with the CAP Update.

Development projects will have the option of preparing a project-specific technical analysis to quantify and mitigate GHG emissions or completing the draft performance review checklist to demonstrate compliance with performance standards.

The City is proposing to extend its 2013 CAP through mid-late 2020, at which time the Chino CAP Update will be completed. In the interim, the City shall utilize the Draft GHG performance review checklist developed as part of the forthcoming Chino CAP Update and edit it to become the Interim performance standard checklist for use by the City during the interim period starting January 1, 2020, and extending until adoption of the CAP Update. The interim performance standard checklist will continue to provide GHG reductions from new development during the interim period. The levels of GHG reductions designed into the Interim performance standard checklist are consistent with the State goal of achieving 40 percent below 1990 levels of emissions by 2030.

The California Environmental Quality Act (CEQA) requires the assessment of environmental impacts for proposed projects including the impacts of GHG emissions. The purpose of this document is to provide guidance on how to analyze GHG emissions and determine the significance of those emissions during CEQA review of proposed development projects within the City. The analysis, methodology, and significance determination (thresholds) are based upon the forthcoming CAP Update. The Screening Tables can be used by the City for review of development projects in order to ensure that the specific reduction strategies in the forthcoming CAP Update are implemented as part of the CEQA process for

development projects. The Screening Tables provide a menu of options that ensures both implementation of the reduction strategies and flexibility on how development projects would implement the reduction strategies to achieve an overall reduction of emissions, consistent with the reduction targets of the forthcoming CAP Update.

California Environmental Quality Act

CEQA Mandates for Analysis of Impacts

CEQA requires Lead Agencies inform decision-makers and the public regarding the following: potential significant environmental effects of proposed projects; feasible ways that environmental damage can be avoided or reduced through the use of feasible mitigation measures and/or project alternatives; and the reasons why the Lead Agency approved a project if significant environmental effects are involved (*CEQA Guidelines* § 15002). CEQA also requires Lead Agencies to evaluate potential environmental effects based to the fullest extent possible on scientific and factual data (*CEQA Guidelines* § 15064[b]). A determination of whether or not a particular environmental impact would be significant shall be based on substantial evidence, which includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (*CEQA Guidelines* § 15064f[5]).

The recently amended *CEQA Guidelines* § 15064.4[a] [b] explicitly require Lead Agencies to evaluate GHG emissions during CEQA review of potential environmental impacts generated by a proposed project. To assist in this effort, two questions were added to Appendix G of the *CEQA Guidelines*:

- Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Finally, under the "rule of reason," an Environmental Impact Report (EIR) is required to evaluate impacts to the extent that is reasonably feasible (*CEQA Guidelines* § 15151; *San Francisco Ecology Center v. City and County of San Francisco* [1975] 48 Cal.App.3rd 584). While CEQA does require Lead Agencies to make a good faith effort to disclose what they reasonably can, CEQA does not demand what is not realistically possible (*Residents at Hawks Stadium Committee v. Board of Trustees* [1979] 89 Cal.App.3rd 274, 286).

Greenhouse Gas Impact Determination

Statewide or Regional Thresholds of Significance

There are currently no published statewide thresholds of significance for measuring the impact of GHG emissions generated by a proposed project. *CEQA Guidelines* § 15064.7 indicates only that "each public

agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects." South Coast Air Quality Management District (SCAQMD) has published draft thresholds that, when finalized, jurisdictions within the SCAQMD boundary can use if they do not have their own thresholds and GHG mitigation plans. However, the forthcoming CAP Update for the City addresses cumulative GHG emissions, has reduction targets that reduce the cumulative GHG impacts to less than significant, has a set of reduction measures that achieves the reduction targets, and provides an implementation plan to implement the reduction measures. This document provides guidance in how to address GHG emissions in CEQA analysis and determine the significance of project-generated GHG emissions.

Quantitative Analysis Relative to the Climate Action Plan

METHODOLOGY OVERVIEW

An individual project cannot generate enough GHG emissions to influence global climate change. The project participates in climate change by its incremental contribution combined with the cumulative increase of all other sources of GHGs, which when taken together may have a significant impact on global climate change (AEP 2007). To address the State's requirement to reduce GHG emissions, the City is preparing the CAP Update with target of reducing GHG emissions within the City by 46 percent below 2008 baseline by 2030. The City's target is consistent with SB 32 and ensure that the City is providing GHG reductions locally that will complement State and international efforts of stabilizing climate change.

Because the City's forthcoming CAP Update addresses GHG emissions reduction, in concert with SB 32, and international efforts to address global climate change, and includes specific local requirements that would substantially lessen the cumulative problem, compliance with the forthcoming CAP Update would fulfill the description of mitigation found in *CEQA Guidelines* § 15130(a)(3) and § 15183.5.

GHG emissions are only important in the context of cumulative emissions; therefore, the focus of the analysis is on answering the question of whether incremental contributions of GHGs are a cumulatively considerable contribution to climate change impacts. The forthcoming CAP Update includes a set of reduction measures designed to substantially lessen cumulative impacts associated with GHG emissions as described in *CEQA Guidelines* § 15130(a)(3), in determining if a project's effects would result in significant impacts. The forthcoming CAP Update has the following components that fulfill cumulative mitigation for GHG emissions:

1. Provides a communitywide GHG emissions reduction target that would substantially lessen the cumulative impact;
2. Provides measures that new development projects shall follow to meet the City's reduction target and substantially lessen the cumulative impact;

3. Provides a set of GHG emission inventories that provide quantitative facts and analysis for how the measures within the CAP Update meet the reduction targets that substantially lessen the cumulative impact; and
4. Provides an implementation, monitoring, and update program to ensure that the reduction target is met.

The forthcoming CAP Update satisfies the first condition by adopting targets of reducing GHG emissions within the City by 46 percent by 2030. The 2030 reduction target is compliant with SB 32(AEP 2012).

The forthcoming CAP Update satisfies the second condition through the implementation of the reduction measures for new development. This document supplies the specific criteria that new development shall follow to ensure that the reduction measures associated with new development are implemented and the reduction targets are met.

The forthcoming CAP Update satisfies the third criterion by providing a set of communitywide GHG emissions inventories for existing conditions (2008 baseline) and future 2030 and 2045 GHG emissions that are anticipated without the reduction measures (Adjusted Business-As-Usual, or ABAU). The CAP Update also demonstrates reduced levels of 2030 and 2040 GHG emissions that demonstrate how the implementation of reduction measures achieves the reduction targets. These communitywide GHG emission inventories are found in Appendix A of the forthcoming CAP Update.

The Development Review Process

Integrating the reduction measures of the forthcoming CAP Update into the CEQA development review process is the first step in determining how a proposed project will implement the GHG reduction measures within the forthcoming CAP Update. The GHG emissions development review process is predicated on responses to two questions:

- **Question 1:** Is the proposed activity a "Project" as defined by CEQA? If the activity is not a project under CEQA, no further action is required concerning GHG emissions in the development review process.
- **Question 2:** Is the project exempt under CEQA? If so, then the California Air Resources Board has determined that GHG emissions are less than significant and no additional GHG reductions are needed. *CEQA Guidelines* § 15300 through § 15332 list the CEQA exemptions.

Appendix A of this document contains a flow chart that diagrams this development review process.

There are also exemption opportunities associated with transit-oriented development (TOD) associated with the Sustainable Communities Strategy (SCS) for the region developed by the Southern California Association of Governments (SCAG) and first introduced in the 2012 Regional Transportation Plan (RTP). Exemptions associated with TOD are divided into two categories: transit priority projects (TPP) and Sustainable Community Projects (SCP). Appendix B of this document provides the TPP and SCP Checklist

to assist project applicants in determining if a project qualifies for these exemptions under CEQA. If the project does not qualify for a CEQA exemption, then the applicant can move on to the Methods for the Calculation of GHG Emissions and Screening Tables.

METHODS FOR THE CALCULATION OF GHG EMISSIONS

Analysis of development projects can either be done through emissions calculations or by using the Screening Tables as described below.

Total GHG emissions are the sum of emissions from both direct and indirect sources. Direct sources include mobile sources, such as construction equipment, motor vehicles, and landscape equipment, and stationary sources, such as cooling and heating equipment. Indirect sources comprise electrical and potable water use, and the generation of solid waste and wastewater.

Direct GHG emissions from mobile and stationary sources are determined as the sum of the annual GHG emissions from construction equipment, motor vehicles, landscape equipment, and heating and cooling equipment.

Indirect sources are determined based on source as follows. Electrical usage is reported as annual emissions from electrical usage. Potable water usage is reported as the annual emissions from electricity used for potable water treatment and transportation. Solid waste is reported as the sum of annual emissions from solid waste disposal treatment, transportation, and fugitive emissions of methane at the solid waste facilities. Wastewater usage is reported as the annual emissions from wastewater transport and treatment.

Analysis of development projects not using the Screening Tables should use the emission factors found in the latest version of the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR, January 2009), and guidance in the Association of Environmental Professionals' (AEP) *White Paper: Community-Wide Greenhouse Gas Emission Inventory Protocols* (AEP, June 2011). Quantification of emissions from electricity used for potable water treatment and transportation as well as wastewater transport and treatment can be found in the California Energy Commission (CEC) document titled *Refining Estimates of Water-Related Energy Use in California* (CEC 2006).

Screening Tables Implementing Performance Standards

The purpose of the Screening Tables is to provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects. The analysis, methodology, and significance determination (thresholds) are based upon the CAP and CAP Update, which include GHG emission inventories (2008 and 2016); forecasts for years 2020, 2030, and 2045; 2020 and 2030 emission reduction targets; and the goals and policies to reach the targets. Appendix C of this document sets forth the methodology for the development and application of the Screening

Tables and uses the California Air Pollution Control Officers Association (CAPCOA) guidance on quantifying project-level GHG reductions (CAPCOA 2010).

INSTRUCTIONS FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PROJECTS

The Screening Tables assign points for each option incorporated into a project as mitigation or a project design feature (collectively referred to as "feature"). The point values correspond to the minimum emissions reduction expected from each feature. The menu of features allows maximum flexibility and options for how development projects can implement the GHG reduction measures. The point levels are based upon improvements compared to 2017 emission levels of efficiency. Projects that obtain at least 100 points will be consistent with the reduction quantities anticipated in the CAP Update. Consistent with *CEQA Guidelines*, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Note that the Screening Tables use a base level of efficiency that corresponds to the California Building Energy Efficiency Standards for Residential and Non-residential Buildings (Title 24, Part 6) that became effective January 1, 2020. These are the statewide minimum requirements of efficiency that are currently in effect.

INSTRUCTIONS FOR MIXED-USE PROJECTS

Mixed-use projects provide additional opportunities to reduce emissions by combining complementary land uses in a manner that can reduce vehicle trips. Mixed-use projects also have the potential to complement energy-efficient infrastructure in a way that reduces emissions. For mixed-use projects, both Table 1 and Table 2 should be filled out, but the points should be proportioned identical to the proportioning of the mix of uses. For example, a mixed-use project that is 50 percent commercial uses and 50 percent residential uses will show ½ point for each assigned point value in Table 1 and Table 2, and the points will be added from both tables. Mixed-use projects that obtain at least 100 points will be consistent with the reduction quantities in the City's forthcoming CAP Update and would be considered less than significant for GHG emissions.

Those projects that do not obtain 100 points using the Screening Tables will need to provide additional analysis to determine the significance of GHG emissions. Nothing in this guidance shall be construed as limiting the City's authority to adopt a statement of overriding consideration for projects that require the preparation of an EIR due to significant GHG impacts. The following tables provide a menu of performance standards/options related to GHG mitigation measures and design features that can be used to demonstrate consistency with the reduction measures and GHG reduction quantities in the forthcoming CAP Update.

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Reduction Measure Energy 1-2: Exceed Energy Efficiency Standards in New Residential Units			
Building Envelope			
Insulation	• 2019 Title 24 Requirements (walls R-8, roof/attic R-30) • Enhanced Insulation (rigid wall insulation R-13, roof/attic R-38) • Greatly Enhanced Insulation (spray foam wall insulated walls R-18 or higher, roof/attic R-38 or higher)	0 points 9 points 11 points	
Windows	• 2019 Title 24 Windows (0.3 U-factor, 0.23 solar heat gain coefficient [SHGC]) • Enhanced Window (0.28 U-Factor, 0.22 SHGC) • Greatly Enhanced Window (less than 0.28 U-Factor, less than 0.22 SHGC)	0 points 4 points 5 points	
Cool Roofs	• Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance) • Greatly Enhanced Cool Roof (CRRC Rated 0.35 aged solar reflectance, 0.75 thermal emittance)	6 points 7 points	
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. • Air barrier applied to exterior walls, calking, and visual inspection such as the HERS Verified Quality Insulation Installation (QII or equivalent) • Blower Door HERS Verified Envelope Leakage or equivalent	6 points 5 points	
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls. • Modest Thermal Mass (10% of floor or 10% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (20% of floor or 20% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)	1 point 2 points	
Indoor Space Efficiencies			
Heating/ Cooling Distribution System	• Minimum Duct Insulation (R-6 required) • Enhanced Duct Insulation (R-8) • Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	0 points 5 points 7 points	
Space Heating/ Cooling Equipment	• 2019 Title 24 Minimum HVAC Efficiency (SEER 13/75% AFUE or 7.7 HSPF) • Improved Efficiency HVAC (SEER 14/78% AFUE or 8 HSPF) • High Efficiency HVAC (SEER 15/80% AFUE or 8.5 HSPF) • Very High Efficiency HVAC (SEER 16/82% AFUE or 9 HSPF)	0 points 2 points 4 points 5 points	
Water Heaters	• 2019 Title 24 Minimum Efficiency (0.57 Energy Factor) • Improved Efficiency Water Heater (0.675 Energy Factor) • High Efficiency Water Heater (0.72 Energy Factor) • Very High Efficiency Water Heater (0.92 Energy Factor) • Solar Pre-heat System (0.2 Net Solar Fraction) • Enhanced Solar Pre-heat System (0.35 Net Solar Fraction)	0 points 7 points 9 points 11 points 2 points 5 points	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. • All peripheral rooms within the living space have at least one window (required) • All rooms within the living space have daylight (through use of windows, solar tubes, skylights, etc.) • All rooms daylighted	 0 points 1 point 1 point	
Artificial Lighting	• Efficient Lights (25% of in-unit fixtures considered high efficacy. High efficiency is defined as 40 lumens/watt for 15 watt or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40watt) • High Efficiency Lights (50% of in-unit fixtures are high efficiency) • Very High Efficiency Lights (100% of in-unit fixtures are high efficiency)	5 points 6 points 7 points	
Appliances	• Energy Star Refrigerator (new) • Energy Star Dishwasher (new) • Energy Star Washing Machine (new)	1 point 1 point 1 point	
Miscellaneous Residential Building Efficiencies			
Building Placement	North/south alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.	3 points	
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21st.	2 points	
Energy Star Homes	EPA Energy Star for Homes (version 3 or above)	15 points	
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	
Other	This allows innovation by the applicant to provide design features that increase the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	
Existing Residential Retrofits	Having residential developments within walking and biking distances of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT). The suburban project will have at least three of the following on site and/or off site within ¼-mile: Residential Development, Retail Development, Park, Open Space, or Office. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for daycare, banking/ATM, restaurants, vehicle refueling, and shopping.	TBD	
Reduction Measure Energy 3: All Electric Homes			
All-Electric Homes	All electric homes reduce GHG emissions, as the grid electricity they use is generated using less carbon over time. Grid electricity in California will be 60 percent renewable energy by 2030 and 100 percent renewable energy by 2040.	12 points	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Reduction Measure Energy-7: Clean Energy			
Residential Renewable Energy Generation			
Photovoltaic	Solar Photovoltaic panels installed on individual homes or in collective neighborhood arrangements such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 9 points 12 points 17 points 20 points 23 points 25 points 28 points 31 points	
Wind Turbines	Some areas of the City lend themselves to wind turbine applications. Analysis of the areas' capability to support wind turbines should be evaluated prior to choosing this feature. Individual wind turbines at homes or collective neighborhood arrangements of wind turbines such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 9 points 12 points 17 points 21 points 23 points 25 points 28 points 31 points	
Off-site Renewable Energy Project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing homes. These off-site renewable energy retrofit project proposals will be determined on a case-by-case basis and shall be accompanied by a detailed plan that documents the quantity of renewable energy the proposal would generate. Point values will be determined based upon the energy generated by the proposal.	TBD	
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.	TBD	
Reduction Measure Water 1-3: Exceed Water Efficiency Standards			
Residential Irrigation and Landscaping			
Water Efficient Landscaping	• Limit conventional turf to < 25% of required landscape area • Limit conventional turf to < 50% of required landscape area • No conventional turf (warm season turf to < 50% of required landscape area and/or low water using plants are allowed) • Only California Native Plants that requires no irrigation or some supplemental irrigation	0 points 2 points 4 points 5 points	
Water Efficient Irrigation Systems	• Low precipitation spray heads < .75"/hr or drip irrigation • Weather based irrigation control systems or moisture sensors (demonstrate 20% reduced water use)	1 point 2 points	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	
Residential Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	2 points	
Toilets	Water Efficient Toilets (1.5 gpm)	2 points	
Faucets	Water Efficient faucets (1.28 gpm)	2 points	
Dishwasher	Water Efficient Dishwasher (6 gallons per cycle or less)	1 point	
Washing Machine	Water Efficient Washing Machine (Water factor <5.5)	1 point	
WaterSense	EPA WaterSense Certification	7 points	
Increase Residential Reclaimed Water Use			
Recycled Water	5% of the total project's water use comes from recycled/reclaimed water	5 points	
Reduction Measure OnRoad: Alternative Transportation Options			
Increase Residential Density			
Residential Density	Designing the project with increased densities, where allowed by the General Plan and/or Zoning Ordinance, reduces GHG emissions associated with traffic in several ways. Increased densities affect the distance people travel and provide greater options for the modes of travel they choose. This strategy also provides a foundation for implementation of many other strategies, which would benefit from increased densities. 1 point is allowed for each 10% increase in density beyond 7 units/acre, up to 500% (50 points)	1–50 points	
Mixed-Use Development			
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed-use projects will be determined based upon a Transportation Impact Analysis (TIA) demonstrating trip reductions and/or reductions in vehicle miles traveled. Suggested ranges: • Diversity of land uses complementing each other (2–28 points) • Increased destination accessibility other than transit (1–18 points) • Increased Transit Accessibility (1–25 points) • Infill location that reduces vehicle trips or VMT beyond the measures described above (points TBD based on traffic data).	TBD	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Residential Near Local Retail (Residential-only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT). The suburban project will have at least three of the following on site and/or off site within ¼-mile: Residential Development, Retail Development, Park, Open Space, or Office. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping.	1–16 points	
Traffic Flow Management Improvements			
Signal Synchroni-zation	Techniques for improving traffic flow include: traffic signal coordination to reduce delay, incident management to increase response time to breakdowns and collisions, Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions, and speed management to reduce high free-flow speeds. • Signal synchronization • Traffic signals connected to existing ITS	 1 point/signal 3 points/signal	
Increase Public Transit			
Public Transit Access	The point value of a project's ability to increase public transit use will be determined based upon a Transportation Impact Analysis (TIA) demonstrating decreased use of private vehicles and increased use of public transportation. Increased transit accessibility (1–15 points)	TBD	
Reduction Measure: Adopt and Implement a Bicycle Master Plan to Expand Bike Routes around the City			
Sidewalks	• Provide sidewalks on both sides of the street (required) • Provide pedestrian linkage between residential and commercial uses within 1 mile	1 point 3 points	
Bicycle Paths	• Provide bicycle paths within project boundaries • Provide bicycle path linkages between residential and other land uses • Provide bicycle path linkages between residential and transit	TBD 2 points 5 points	
Reduction Measure Waste-2 : Reduce Waste to Landfills			
Recycling	City-initiated recycling program diverting 100% of waste requires coordination in neighborhoods to realize this goal. The following recycling features will help the City fulfill this goal: • Provide green waste composting bins at each residential unit • Multifamily residential projects that provide dedicated recycling bins separated by types of recyclables combined with instructions/education program explaining how to use the bins and the importance or recycling • Construction waste recycling	 4 points 3 points 4 points	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Other GHG Reduction Feature Implementation			
Other GHG Emissions Reduction Features	This allows innovation by the applicant to provide residential design features for the GHG emissions from construction and/or operation of the project not provided in the table. Note that engineering data will be required documenting the GHG reduction amount and point values given based upon emission reductions calculations using approved models, methods, and protocols.	TBD	
Total Points Earned by Residential Project:			

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
Reduction Measure Energy: Exceed Energy Efficiency Standards in New Commercial Units			
Building Envelope			
Insulation	• 2019 Title 24 Requirements (walls R-16; roof/attic R-32) • Modestly Enhanced Insulation (walls R-15, roof/attic R-38) • Enhanced Insulation (rigid wall insulation R-13, roof/attic R-38) • Greatly Enhanced Insulation (spray foam insulated walls R-18 or higher, roof/attic R-38 or higher)	0 points 9 points 11 points 12 points	
Windows	• 2019 Title 24 Windows (0.3 U-factor, 0.23 solar heat gain coefficient [SHGC]) • Enhanced Window (0.28 U-Factor, 0.22 SHGC) • Greatly Enhanced Window (less than 0.28 U-Factor, less than 0.22 SHGC)	0 points 4 points 5 points	
Cool Roofs	• Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance) • Greatly Enhanced Cool Roof (CRRC Rated 0.35 aged solar reflectance, 0.75 thermal emittance)	7 points 8 points	
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. • Air barrier applied to exterior walls, calking, and visual inspection such as the HERS Verified Quality Insulation Installation (QII or equivalent) • Blower Door HERS Verified Envelope Leakage or equivalent	7 points 6 points	
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls. • Modest Thermal Mass (10% of floor or 10% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (20% of floor or 20% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (80% of floor or 80% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)	2 points 4 points 14 points	
Indoor Space Efficiencies			
Heating/Cooling Distribution System	• Modest Duct insulation (R-6 required) • Enhanced Duct Insulation (R-8) • Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	0 points 5 points 6 points	

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
Space Heating/ Cooling Equipment	• 2019 Title 24 Minimum HVAC Efficiency (SEER 13/75% AFUE or 7.7 HSPF) • Improved Efficiency HVAC (SEER 14/78% AFUE or 8 HSPF) • High Efficiency HVAC (SEER 15/80% AFUE or 8.5 HSPF) • Very High Efficiency HVAC (SEER 16/82% AFUE or 9 HSPF)	0 points 4 points 5 points 7 points	
Commercial Heat Recovery Systems	Heat recovery strategies employed with commercial laundry, cooking equipment, and other commercial heat sources for reuse in HVAC air intake or other appropriate heat recovery technology. Point values for these types of systems will be determined based upon design and engineering data documenting the energy savings.	TBD	
Water Heaters	• 2019 Title 24 Minimum Efficiency (0.57 Energy Factor) • Improved Efficiency Water Heater (0.675 Energy Factor) • High Efficiency Water Heater (0.72 Energy Factor) • Very High Efficiency Water Heater (0.92 Energy Factor) • Solar Pre-heat System (0.2 Net Solar Fraction) • Enhanced Solar Pre-heat System (0.35 Net Solar Fraction)	0 points 8 points 10 points 11 points 2 points 5 points	
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. • All peripheral rooms within building have at least one window or skylight • All rooms within building have daylight (through use of windows, solar tubes, skylights, etc.) • All rooms daylighted	 0 points 1 point 1 point	
Artificial Lighting	• Efficient Lights (25% of in-unit fixtures considered high efficiency. High efficiency is defined as 40 lumens/watt for 15 watt or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40 watt) • High Efficiency Lights (50% of in-unit fixtures are high efficiency) • Very High Efficiency Lights (100% of in-unit fixtures are high efficiency)	5 points 7 points 8 points	
Appliances	• Energy Star Commercial Refrigerator (new) • Energy Star Commercial Dishwasher (new) • Energy Star Commercial Clothes Washer	2 points 2 points 2 points	
Miscellaneous Commercial Building Efficiencies			
Building Placement	North/south alignment of building or other building placement such that the orientation of the buildings optimizes conditions for natural heating, cooling, and lighting.	4 points	
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21st.	6 points	
Other	This allows innovation by the applicant to provide design features that increase the energy efficiency of the project not provided in the table. Note	TBD	

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
	that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.		
Existing Commercial Buildings Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing commercial buildings to further the point value of their project. Retrofitting existing commercial buildings within the City is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case-by-case basis and shall have the approval from the City of Chino Planning Department. The decision to allow applicants to participate in this program will be evaluated based upon, but not limited to the following: • Will the energy efficiency retrofit project benefit low income or disadvantaged communities?	TBD	
	• Does the energy efficiency retrofit project provide co-benefits important to the City? • Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.		
Reduction Measure Energy 3- All Electric Buildings			
All-Electric Buildings	All electric buildings reduce GHG emissions, as the grid electricity they use is generated using less carbon over time. Grid electricity in California will be 60 percent renewable energy by 2030 and 100 percent renewable energy by 2040.	15 points	
Reduction Measure Energy-7: Clean Energy			
Commercial/Industrial Renewable Energy Generation			
Photovoltaic	Solar Photovoltaic panels installed on commercial buildings or in collective arrangements within a commercial development such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	8 points 12 points 16 points 19 points 23 points 26 points 30 points 34 points	
Wind Turbines	Some areas of the City lend themselves to wind turbine applications. Analysis of the areas capability to support wind turbines should be evaluated prior to choosing this feature. Wind turbines as part of the commercial development such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project	8 points 12 points 16 points 19 points	

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
	• 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	23 points 26 points 30 points 34 points	
Off-site Renewable Energy Project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing residential or existing commercial/industrial. These off-site renewable energy retrofit project proposals will be determined on a case-by-case basis accompanied by a detailed plan documenting the quantity of renewable energy the proposal will generate. Point values will be based upon the energy generated by the proposal.	TBD	
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed would be decided based upon engineering data documenting the ability to generate electricity.	TBD	
Reduction Measure Water 1-3: Exceed Water Efficiency Standards			
Commercial Irrigation and Landscaping			
Water Efficient Landscaping	• Eliminate conventional turf from landscaping • Only moderate water using plants • Only low water using plants • Only California Native landscape that requires no or only supplemental irrigation	0 point 2 points 3 points 5 points	
Water Efficient Irrigation Systems	• Low precipitation spray heads< .75”/hr or drip irrigation • Weather based irrigation control systems combined with drip irrigation (demonstrate 20% reduced water use)	1 point 3 points	
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	
Commercial Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	2 points	
Toilets	• Water Efficient Toilets/Urinals (1.5 gpm) • Waterless Urinals (note that commercial buildings having both waterless urinals and high efficiency toilets will have a combined point value of 6 points)	3 points 3 points	
Faucets	Water Efficient faucets (1.28 gpm)	2 points	
Commercial Dishwashers	Water Efficient dishwashers (20% water savings)	2 points	
Commercial Laundry Washers	• Water Efficient laundry (15% water savings) • High Efficiency laundry Equipment that captures and reuses rinse water (30% water savings)	2 points 4 points	
Commercial Water	Establish an operational program to reduce water loss from pools, water features, etc., by covering pools, adjusting fountain operational hours, and using water treatment to reduce draw down and replacement of water.	TBD	

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
Operations Program	Point values for these types of plans will be determined based upon design and engineering data documenting the water savings.		
Increase Commercial/Industrial Reclaimed Water Use			
Recycled Water	Graywater (purple pipe) irrigation system on site	5 points	
Reduction Measure OnRoad: Alternative Transportation Options			
Mixed-Use Development			
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed-use projects will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled.	TBD	
Local Retail Near Residential (Commercial only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled.	TBD	
Preferential Parking			
Parking	• Provide reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles. • Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools and include adequate passenger waiting/loading areas.	1 point 1 point	
Signal Synchronization and Intelligent Traffic Systems			
Signal Improvements	Techniques for improving traffic flow include: traffic signal coordination to reduce delay, incident management to increase response time to breakdowns and collisions, Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions, and speed management to reduce high free-flow speeds. • Synchronize signals along arterials used by project. • Connect signals along arterials to existing ITS.	1 point/signal 3 points/signal	
Increase Public Transit			
Public Transit	The point value of a project's ability to increase public transit use will be determined based upon a Transportation Impact Analysis (TIA) demonstrating decreased use of private vehicles and increased use of public transportation. Increased transit accessibility (1–15 points)	TBD	
Reduction Measure: Adopt and Implement a Bicycle Master Plan to Expand Bike Routes around the City			
Sidewalks	• Provide sidewalks on both sides of the street (required) • Provide pedestrian linkage between commercial and residential land uses within 1 mile	1 point 3 points	
Bicycle Paths	• Provide bicycle paths within project boundaries	1 point	

Table 2: Screening Table for Implementing GHG Performance Standards for Commercial Development and Public Facilities

Feature	Description	Assigned Point Values	Project Points
	• Provide bicycle path linkages between commercial and other land uses • Provide bicycle path linkages between commercial and transit	2 points 5 points	
Reduction Measure: Reduce Waste to Landfills			
Recycling	City initiated recycling program diverting 80% of waste requires coordination with commercial development to realize this goal. The following recycling features will help the City fulfill this goal: • Provide separated recycling bins within each commercial building/floor and provide large external recycling collection bins at central location for collection truck pick-up • Provide commercial/industrial recycling programs that fulfills an on-site goal of 80% diversion of solid waste • Recycle construction waste	 2 points 5 points 4 points	
Other GHG Reduction Feature Implementation			
Other GHG Emissions Reduction Features	This allows innovation by the applicant to provide commercial design features that the GHG emissions from construction and/or operation of the project not provided in the table. Note that engineering data will be required documenting the GHG reduction amount and point values given based upon emission reductions calculations using approved models, methods, and protocols.	TBD	
Total Points Earned by Commercial/Industrial Project:			

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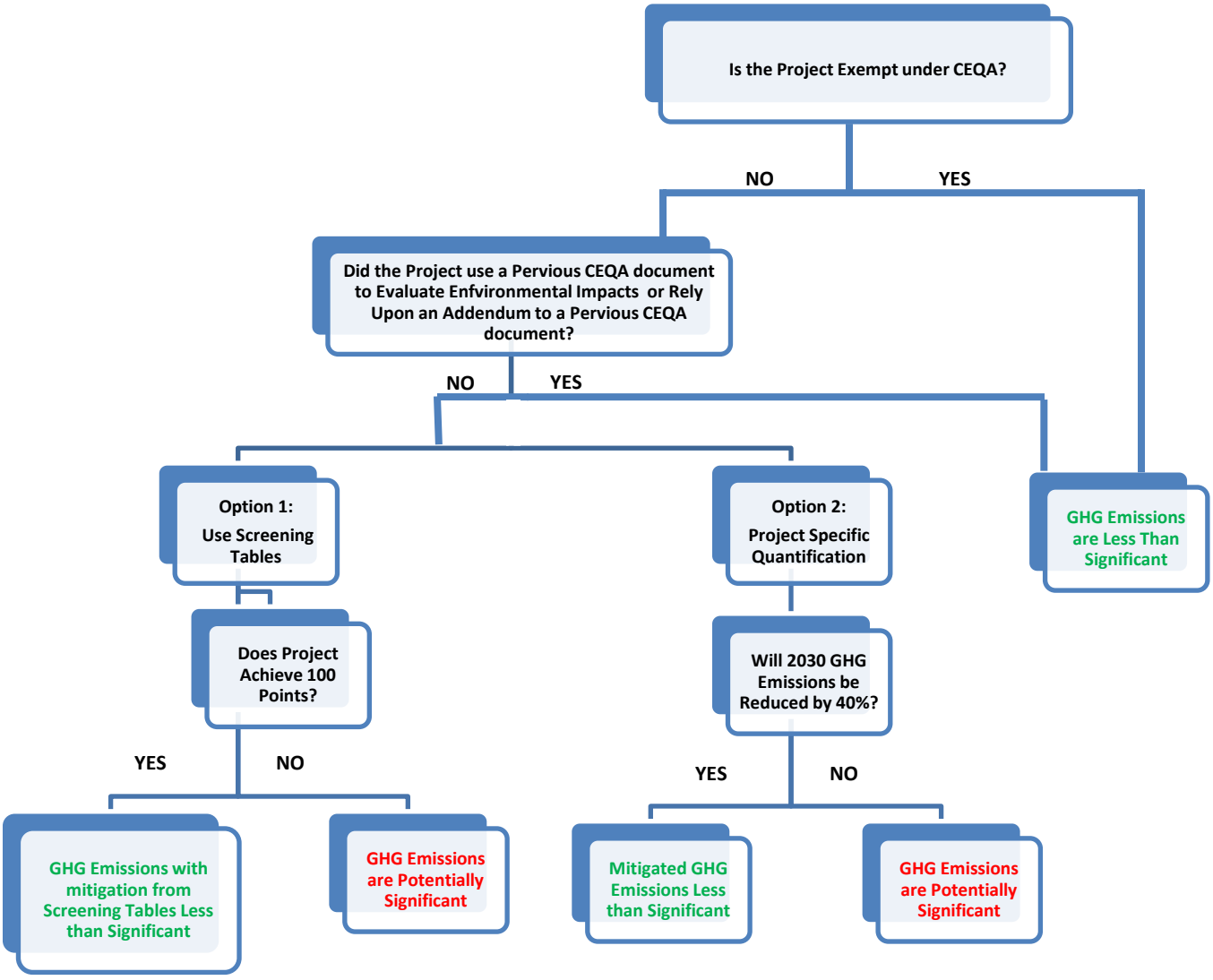
APPENDIX A: GHG DEVELOPMENT REVIEW PROCESS FLOW CHART DIAGRAM

Approach to Implementation of GHG Development Review



APPENDIX B: TRANSIT PRIORITY PROJECT AND SUSTAINABLE COMMUNITY PROJECT CHECKLIST

TRANSIT PRIORITY PROJECT CHECKLIST

The following checklist will assist in determining if your project qualifies as a Transit Priority Project (TPP) and a Sustainable Community Project (SCP) as defined in PRC 21155(a), (b), and PRC 21152.

Yes	No	Is the project:	
☐	☐	1.	Located within ½ mile of a trolley station, future station, or transit center?
☐	☐	2.	At least 50% residential use, based upon total square footage, and non-residential uses within the project between 26% and 50% of total square footage with FAR of not less than 0.75?
☐	☐	3.	At or above a minimum net density of at least 20 dwelling units per acre?
☐	☐	4.	Is your project consistent with the general land use designations in the SCP (if you answered yes to questions 1 through 3, then answer yes to this one)?

If you answered **Yes** to questions 1 through 4 then your project is a Transit Priority Project (TPP) as defined by PRC Section 21155(b). Continue with the next list of environmental questions:

Yes	No	Does the project:	
☐	☐	5.	Contain sites on the Cortese List?
☐	☐	6.	Site contain any hazardous substances, contaminated soil or hazardous material?
☐	☐	7.	Site include historical resources?
☐	☐	8.	Have an unusually high risk of fire or explosion from material stored or used at properties within ¼ mile of the project site?
☐	☐	9.	Site currently include areas developed as Open Space (parks, habitat, etc.)?

Continue with the next list of land use questions below:

Yes	No		
☐	☐	10.	Does the project design have all the buildings at least 15% more efficient than Title 24 energy standards and uses 25% or less water than average households?
☐	☐	11.	Is the project site eight acres or less in size?
☐	☐	12.	The project does not include any single level of a building exceeding 75 TSF?
☐	☐	13.	The project does not conflict with nearby industrial uses?
☐	☐	14.	The project will sell at least 20% of housing to families of moderate income, or 10% of housing will be rented to families of low income, or at least 5% of housing will be rented to families of very low income, or the project provides open space equal or greater than 5 acres per 1,000 residents, or the developer will pay in-lieu fees sufficient to result in the development of affordable housing meeting one of the criteria described above?

Determining Eligibility based upon the answers:

Full CEQA Exemption for Sustainable Community Projects (SCPs)

If you answered **Yes** to all the TPP questions 1 through 4, **No** to all the environmental questions 5 through 9, and **Yes** to all the land use questions 10 through 14, then your project is an SCP and is eligible for a full CEQA Exemption under SB 375.

Transit Priority Projects (TPP)

If you answered **Yes** to all the TPP questions 1 through 4, but did not qualify as an SCP then your project is a TPP. Your TPP needs to incorporate all appropriate mitigation measures required by an applicable CEQA document (such as an adopted EIR for a Specific Plan) for your project location. If your TPP meets these two criteria then your TPP does not need to analyze the following impacts in the Sustainable Communities Environmental Assessment (SCEA) or CEQA analysis:

- Growth-inducing impacts,
- Regional transportation impacts, and
- GHG emissions related to passenger cars and light-duty trucks.

The impacts listed above are considered less than significant because the project is a TPP and the SCEA or CEQA document should reference PRC Section 21155.2(c)

Other Residential and Mixed-Use Projects

If you answered **Yes** to question 4, but did not qualify as an SCP or TPP, your project may not need to analyze some of the impacts in the CEQA analysis if your project is a **residential project or mixed-use project with 75%** of the total building square footage of the project is residential units. In addition, your project needs to incorporate all appropriate mitigation measures required by an applicable prior CEQA document (such as an adopted EIR for a Specific Plan) for your project location. If your project meets these criteria, then the CEQA analysis of your project does not need to analyze the following impacts:

- Growth-inducing impacts,
- Regional transportation impacts, and
- GHG emissions related to passenger cars and light-duty trucks.

The impacts listed above are considered less than significant because the project meets the criteria in PRC Section 21155.2(c)

APPENDIX C: MAXIMUM APPLIED WATER ALLOWANCE (MAWA) WORKSHEET

a. Water Allowance Worksheet

The following Water Allowance Work Sheet is used to calculate water use in the form of Maximum Applied Water Allowance (MAWA) for the landscape portion of the project. "Special Landscape Area" in the is defined as an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play, such as parks, sports fields, and golf courses where turf provides a playing surface.

Calculate MAWA for the Project using the formula and factors below:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
Where:
MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year) which is 54.6 inches within the City of Chino
0.62 = Conversion Factor (to gallons)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscape Area including SLA (square feet)
0.3 = Additional Water Allowance Factor for SLA
SLA = Special Landscape Area (square feet)

Step one: Multiply the total landscape area of the project by 0.7, the ET Adjustment Factor

Landscape Area (LA)	Multiply	ETAF	Equals	ETAF x LA
	X	0.7	=	

Step two: Multiply the total Special Landscape Area (SLA) by 0.3, the ET factor for the SLA

SLA	Multiply	ET SLA Factor	Equals	ET SLA Factor x SLA
	X	0.3	=	

Step three: Add Adjusted LA and adjusted SLE Water Allowances

ETAF x LA	Plus	ET SLA x SLA	Equals	(ETAF x LA) + (ET SLA x SLA)
	+		=	

Step four: Multiply the ETo by the conversion factor (CV) and product of step three for total MAWA

ETo	Multiply	CV	Multiply	(ETAF x LA) + (ET SLA x SLA)	Equals	MAWA
54.6	X	0.62	X		=	

Step five: Divide the anticipated water use by the MAWA and multiply by 100 to get % of MAWA

Anticipated water use	Divide	MAWA	Multiply	100	Equals	% MAWA
	/		x	100	=	

Step six: Subtract the %MAWA from 100% to get the % water savings. Use this to determine points

100	Subtract	%MAWA	Equals	% water savings
100	-		=	

APPENDIX D: METHODOLOGY FOR THE DEVELOPMENT AND APPLICATION OF THE SCREENING TABLES

METHODS SUMMARY

The point values in the Screening Tables were derived from the projected emissions reductions that would be achieved by each of the reduction measures associated with new development within the City of Chino forthcoming CAP Update. The points within the Screening Tables were proportioned by residential unit or square footage of commercial/industrial uses. This was accomplished by taking the predicted growth in households and commercial uses in 2030 and proportioning the appropriate reduction quantities for new development to the residential, commercial, and industrial land use sectors within the Screening Tables. This results in point values that are proportioned by residential unit or commercial/industrial square footage. Because of this outcome, the size of the project is not relevant to the Screening Tables. Regardless of size, each project needs to garner 100 points to demonstrate consistency with the forthcoming CAP Update. Efficiency, not size of the project, is critical.

Note that the Screening Tables and point values are best used for typical development projects processed by the City. Examples of typical development projects include residential subdivisions, multifamily residential apartments, condominiums, and townhouses, retail commercial, big box retail, office buildings, business parks, and typical warehousing. Mixed-use projects can use the instructions at the beginning of the Screening Tables. Transit-oriented development (TOD) and infill projects are able to use the Screening Tables; however, the Screening Table points are likely to underestimate total emission reductions afforded these types of projects. Note that the Screening Tables include the opportunity to custom develop points in order to provide points in the sections of the Screening Tables marked TBD and account for the predicted reductions in vehicle trips and vehicle miles traveled within a project-specific traffic study and GHG analysis. TOD and infill projects can be more accurately assessed and points allocated using this method.

However, more unusual types of industrial projects, such as cement manufacturing, metal foundries, refrigerant manufacturing, electric generating stations—including large alternative energy electric generation, and oil refineries, cannot use the Screening Tables because the emission sources for those types of uses were not contemplated in the forthcoming CAP Update.

DEVELOPMENT OF THE POINT VALUES

Within the local reduction measures, 6,051MT CO_2e would be reduced using the Screening Tables for new development. The Screening Tables and the point allocation within the Screening Tables are tied to6, 051 MT CO_2e of reductions.

The first step in allocating point values is to determine the number of new homes and commercial buildings that are anticipated by year 2030. The City predicts that a total of 4,756 new residential units will be needed by 2030 and a total of approximately 3,388,000 square feet of new commercial and industrial buildings within the City is needed to accommodate anticipated `job growth.

Approximately 4,756 new residential units and 3,388,000 square feet of new commercial and industrial buildings within the City are anticipated to either use the Screening Tables or provide an independent analysis demonstrating reductions. Evaluating the growth in residential and commercial/industrial land uses, approximately 58 percent is attributable to residential and 42 percent is attributable to commercial/industrial land uses. Using those ratios, the Screening Tables would need to reduce 3,533 MT CO_2e from residential development and 2,517 MT CO_2e from commercial/industrial development by 2030.

Dividing the 3,533 MT CO_2e reductions of emissions afforded the Screening Table for new residential development by the anticipated 4,756 new residential units that will be built yields 0.74 MT CO_2e per residential unit that needs to be reduced to fulfill the anticipated reductions of the CAP Update. Using the same process, the Screening Tables for new commercial/industrial development would need to reduce 0.74 MT CO_2e per 1,000 gross square feet of commercial/industrial building area.

The levels of reduction efficiency for typical residential units in this climate zone yields:

0.0074MT CO_2e per Point per Residential Unit

The levels of reduction efficiency for the mix of commercial/industrial uses in this climate zone yields:

0.0074 MT CO_2e per Point per 1,000 Square Feet of Gross Commercial/Industrial Building Area

Since each residential unit needs to reduce 0.74 MT CO_2e and each 1,000 square feet of commercial/ industrial building area needs to reduce 0.74 MT CO_2e, each project needs to gain 100 points to provide the expected reductions from the Screening Tables.