



CITY OF CHICO
CLIMATE ACTION COMMISSION
REGULAR MEETING AGENDA
THURSDAY, OCTOBER 8, 2026 - 6:00 P.M.

City of Chico

CLIMATE ACTION COMMISSION

Katy Thoma, Chair
Brian Kress, Vice Chair
Anna Rose
JoAna Brooks
Britt Cooper
Grace Hoopingarner
Bryce Ingersoll

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available from:**

Community Development Department
411 Main Street, 2nd Floor
Chico, CA 95928
(530) 879-6800

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Posted: October 1, 2026
Prior to: 5:00 p.m.

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City Staff

Molly Marcussen – Associate Planner

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Public Participation:

All members of the public may address the Climate Action Commission on any item listed on the agenda. Public participation in the hearing process is encouraged.

Please step up to the podium microphone when addressing the Commission.

Each speaker will be asked to voluntarily state his/her name before speaking, and after speaking to voluntarily write his/her name on a record to be maintained by the City Staff.

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Time Limit:

Presentations should be limited to a maximum of three (3) minutes, unless otherwise determined by the Chair.

A speaker may not defer his/her time to other speakers.

Groups or organizations are encouraged to select a spokesperson to speak on their behalf. Each subsequent speaker is encouraged to submit new information, rather than repeating comments made by prior speakers.

Written Material:

The Climate Action Commission may not have sufficient time to fully review written materials presented at the public hearing. Interested parties are encouraged to provide written materials at least eight (8) days prior to the public hearing to allow distribution with the Climate Action Commission's agenda packet to provide adequate time for review by the Climate Action Commission. Written materials submitted in advance of the public hearing must be submitted to the City of Chico, Community Development Department, 411 Main Street, 2nd Floor, or by mail to: P. O. Box 3420, Chico, CA 95927. Materials related to an item on this agenda submitted to the Climate Action Commission after distribution of the agenda packet are available for public inspection in the Community Development Department at 411 Main Street, 2nd Floor, Chico, CA 95928 during normal business hours.

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Anyone who has difficulty hearing the proceedings of a meeting may be provided with a portable listening device by requesting one from the City Staff. The device works directly from the public-address system, and the listener can hear all speakers who are using a microphone.

Special Presentations:

Special presentations which include slides, films, etc. during the course of a meeting will only be allowed with prior approval of the Climate Action Commission.

Business from the Floor:

The Chair will invite anyone in the audience wishing to speak to the Climate Action Commission to identify themselves and the matter

they wish to discuss which would involve matters not already on the posted agenda.

The Commission may also be direct that a matter be placed on a future agenda, provide direction to staff, or request that staff research a particular issue. No action may be taken until a subsequent meeting.

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Agenda Items:

The agenda items will be considered in the order listed unless the Commission requests a change. In order that all items may be considered, any item may be continued to another meeting if it appears there will be insufficient time for full consideration of the item.

Items Not Appearing on Posted Agenda:

This agenda was posted on the Council Chamber bulletin board at least 72 hours in advance of this meeting. For each item not appearing on the posted agenda, upon which the Climate Action Commission wishes to take action, the Commission must make one of the following determinations:

1. Determine by a majority vote that an emergency exists as defined in Government Code Sec. 54956.5.
2. Determine by a two-thirds vote, or by a unanimous vote if less than two-thirds of the Climate Action Commission is present, that need to take immediate action and that the need for action came to the attention of the City subsequent to the agenda being posted.

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CITY OF CHICO
CLIMATE ACTION COMMISSION
REGULAR MEETING OF THURSDAY, OCTOBER 8, 2026
Municipal Center - 421 Main Street - Council Chambers - 6:00 pm

1. CALL TO ORDER

1.1. Roll Call

2. CONSENT AGENDA

*All matters listed under the Consent Agenda are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a member of the Climate Action Commission. A member of the public may request that an item be removed, provided the item does not relate to a noticed hearing which has been closed to further public comment. **Items removed from the Consent Agenda will be considered immediately following the approval of the Consent Agenda.***

2.1. Approval of Minutes

April 9, 2026 (see **Attachment A**)

3. ITEMS FOR DISCUSSION

3.1. Climate Action Plan Greenhouse Gas Inventory Update

The City has contracted with Rincon Consultants to update and analyze the Climate Action Plan's (CAP) greenhouse gas (GHG) inventory for the 2024 reporting year. Rincon Consultants will present the results of the 2024 GHG inventory update to the Commission, including an overview of the methodology, key findings, and changes in emissions since the City's previous inventory (see **Attachment B**).

4. BUSINESS FROM THE FLOOR/PUBLIC COMMENT

Members of the public may address the Commission at this time on any matter not already listed on the agenda, with comments being limited to three minutes. The Commission cannot take any action at this meeting on requests made under this section of the agenda.

5. REPORTS & COMMUNICATIONS

These items are provided for the Commission's information. Although the Commission may discuss the items, no action can be taken at this meeting. Should the Commission determine that action is required, the item or items may be included for action on a subsequent posted agenda.

6. ADJOURNMENT

Adjourn.

CITY OF CHICO
CLIMATE ACTION COMMISSION
REGULAR MEETING OF THURSDAY, APRIL 9, 2026
Municipal Center - 421 Main Street - Council Chambers - 6:00 pm

1. **CALL TO ORDER** - Chair Thoma called the April 9, 2026 - Regular Climate Action Commission meeting to order at 6:00 p.m. in the City Council Chambers, 421 Main Street, Chico, CA.

- 1.1. **Roll Call**

Present: Brooks, Cooper, Hoopingarner, Ingersoll, Rose, Kress, Thoma.

2. **CONSENT AGENDA**

- 2.1. **Approval of Minutes**

A motion was made by Commissioner Cooper and seconded by Chair Thoma to approve the Consent Agenda, related to the approval of minutes for August 14, 2025.

Ayes: Brooks, Cooper, Hoopingarner, Ingersoll, Rose, Kress, Thoma.

Noes: None.

Abstain: None.

Absent: None.

3. **ITEMS FOR DISCUSSION**

- 3.1. **Climate Action Plan Greenhouse Gas Inventory Update**

Rincon Consultants provided the Commission with an overview of the scope of work for the greenhouse gas inventory update and presented information on the State's greenhouse gas emissions reduction targets and trends related to the City's Climate Action Plan.

4. **BUSINESS FROM THE FLOOR/PUBLIC COMMENT**

None.

5. **REPORTS & COMMUNICATIONS**

None.

6. **ADJOURNMENT**

Adjourn to the next regularly scheduled meeting.

Approved:



TO: Climate Action Commission

File: 2026 Inventory Update

FROM: Molly Marcussen, Associate Planner (879-6808; molly.marcussen@chicoca.gov)

RE: Climate Action Plan Update – 2024 Greenhouse Gas Emission Inventory Update

Report in Brief

As part of the Climate Action Plan Monitoring and Implementation Program, the City has engaged Rincon Consultants to complete a Community Greenhouse Gas (GHG) Inventory Update (see **Attachment A**). The 2024 GHG Inventory Update provides an update to the City's previous 2017 GHG Inventory, which covered the years 2005 through 2017 and established a benchmark for tracking communitywide GHG emissions, and evaluates progress toward the City's Climate Action Plan (CAP) goals. The 2024 GHG Inventory Update is intended as a check-in on where the community's emissions are today and does not replace the City's previous inventories.

The 2024 GHG Inventory Update estimates total communitywide GHG emissions at 254,697 metric tons of carbon dioxide equivalent (MT CO₂e), compared to 399,711 MT CO₂e in 2017. This represents an approximately **36 percent reduction in total communitywide emissions** since 2017, despite continued population growth. Per-capita emissions also decreased from **4.7 to 2.4 MT CO₂e per capita**.

2024 Greenhouse Gas Inventory

The 2024 Community Greenhouse Gas (GHG) Inventory provides an updated benchmark of communitywide emissions within the City of Chico and is intended to help track emissions trends, compare changes across sectors, and evaluate progress toward adopted GHG reduction goals and strategies. In 2024, Chico's communitywide emissions were estimated at approximately 254,697 metric tons of carbon dioxide equivalent (MT CO₂e). On road transportation was the largest source of emissions at 50%, followed by building natural gas at 40%, solid waste at 9%, and building electricity at 1%. **Attachment A**, 2024 Community GHG Inventory Update, provides a detailed explanation of the inventory methodology, data sources, results, and historical comparisons. **Attachment B**, 2024 GHG Emissions Forecast and Targets Summary of Results, provides additional information on the findings of the 2024 community GHG inventory, including emissions forecast and provisional targets.

Key Takeaways

- **Communitywide Emissions:** Communitywide emissions have decreased substantially. Total emissions declined approximately 36 percent between 2017 and 2024. Per-capita emissions declined by approximately 49 percent, from 4.7 to 2.4 MT CO₂e per capita.
- **Transportation:** Gasoline consumption decreased approximately 37% and diesel consumption approximately 48% between 2017 and 2024.
- **Transportation Electrification:** Registered ZEVs within Chico ZIP codes increased from 255 in 2017 to 2,068 in 2024, an approximately 711% increase.
- **Building Electrification:** The inventory does not show evidence of widespread fuel switching from natural gas to electricity. The reductions observed to date are most likely

driven by efficiency improvements and declining energy/fuel carbon intensity rather than by electrification of end uses. The State of California has rolled back legislation pushing for electrification at the time of Chico's CAP adoption. Chico's CAP relied on anticipated State legislation and Building Code updates for achieving building electrification goals. This trend is consistent across all California jurisdictions and is not local to Chico.

- **AB 130:** AB 130 (2025) is a recent California assembly bill that, among other things, temporarily restricts the adoption of new or more restrictive residential building standards at both the State and local level. It was signed into law on June 30, 2025, and the residential building-standard restrictions apply from October 1, 2025 through June 1, 2031. In other words, the City of Chico cannot adopt new or more restrictive residential building standards through June 2031 unless one of the statutory exceptions applies.

Conclusion

The 2024 GHG Inventory Update demonstrates substantial progress in reducing communitywide GHG emissions since 2017 and provides the City with an updated benchmark for monitoring progress toward its adopted GHG reduction targets. The reduction in emissions, despite continued population growth, indicates that improvements in energy and transportation efficiency, declining energy carbon intensity, and increasing adoption of zero-emission vehicles have contributed to meaningful reductions in communitywide emissions.

The Inventory Update also provides an important check-in on challenges that remain. On-road transportation and building natural gas continue to account for a majority of communitywide emissions. The Inventory Update can be used as a resource to help identify where additional reductions may be needed and to inform prioritizing implementation of the strategies identified in the City's Climate Action Plan, including building and transportation electrification and other energy-transition measures.

Distribution

Associate Planner, Molly Marcussen
Community Development Director, Brendan Vieg
Principal Planner, Mike Sawley

Attachments

- A. 2024 Community GHG Emissions Inventory Update
- B. 2024 GHG Emissions Forecast and Targets

August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 Community GHG Emissions Inventory Update - Summary of Results for the City of Chico, CA

Dear Ms. Marcussen:

This memorandum provides a summary of the results for the City of Chico's 2024 community greenhouse gas (GHG) emissions inventory update. This GHG emissions inventory provides an update to the 2005-2017 GHG inventories and has consistently been completed in accordance with established GHG accounting protocols and state guidance. The GHG inventory focuses on communitywide emissions generated from residents and commercial operations within the city and is organized by emission sector. The inventory includes sources within each sector that are under some degree of jurisdictional control by the City of Chico (the City). A brief section on the inventory methodology and any updates made to previous GHG inventories to maintain consistency with current data sets are detailed below. The 2024 GHG inventory is intended to enable the City to track emissions trends over time, compare changes across sectors, and evaluate progress toward GHG emissions reduction goals and strategies.

Methodology

The following sections describe the framework used to calculate and report communitywide GHG emissions and updates to calculation methodologies used in current or prior GHG inventories.

ICLEI Community Protocol Calculation and Reporting Framework

Consistent with previous GHG inventories completed for the City, this 2024 GHG inventory follows state guidance and the calculation and reporting standards outlined in Local Governments for Sustainability (ICLEI) United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol).¹ GHG emissions in the 2024 GHG inventory are classified into the following three GHG emissions sectors to align with historical GHG inventories:

- Building Energy²
- On-road Transportation
- Solid Waste

¹ ICLEI. July 2019. U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. Available at: <https://icleiusa.org/us-community-protocol/>

² Building energy includes electricity and natural gas consumption, and covers all energy used to transport and treat water and wastewater used and produced within city limits.



The 2024 GHG inventory covers the relevant emissions sources within the boundary of the city (i.e., city limits). The GHG inventory, therefore, reflects emissions sectors the community contributes to and over which the City has some degree of jurisdictional control and influence. Sectors where the City's jurisdiction has limited influence are excluded from the 2024 GHG inventory, as the City does not have the authority to develop GHG reduction measures to impact those associated GHG emissions. Exclusions include sectors such as military, forestry, and locomotive equipment, which are regulated by state, federal, and/or other governing bodies and not by the City. This method of exclusion for the emissions boundary aligns with Community Protocol standards and is recommended by state guidance for inventory, forecast, and targets setting.³

GHG emissions were calculated by multiplying the activity data in each GHG emissions sector by an associated emission factor. Activity data refers to the relevant measured or estimated level of GHG-generating activity (e.g., electricity consumption, gallons of gasoline). Emission factors, sourced from U.S. Environmental Protection Agency's GHG Emission Factors Hub, are observation-based conversion factors used to equate activity data to generated GHG emissions. Emission factors from U.S. EPA's Emission Factors Hub are updated annually to reflect the best available data and methods for estimating GHG emissions from common activity sources. Additionally, the inventory used global warming potential (GWP) values for methane (CH₄) and nitrous oxide (N₂O) consistent with the latest version of the Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5)⁴ to align with the previous GHG inventories completed by the City.

GHG Inventory Updates

The following sections describe updates made to the 2005-2017 GHG inventories during preparation of the 2024 GHG Inventory to align with the best available data, models, and analytical approaches.

On-road Transportation Fuel – Updated Diesel Activity Data

The Community Protocol identifies vehicle miles traveled (VMT) as the preferred activity data source for estimating on-road transportation emissions. However, application of VMT-based methods can be challenging where locally calibrated travel demand modeling or other high-quality VMT data are unavailable. In Chico, previous GHG inventory work⁵ evaluated both VMT- and fuel-sales-based approaches and concluded that, given the city's relative geographic isolation and the lack of high-quality local VMT estimates, transportation fuel sales data likely provided a more representative basis for estimating community-wide transportation emissions. As a result, and to align with previous GHG inventories, a fuel-sales-based methodology was selected for the transportation sector.

In the 2005-2017 GHG inventories, on-road transportation emissions were estimated using transportation fuel sales data obtained from the California State Board of Equalization (BOE) for the Chico Urban Area (i.e., the City of Chico). Since completion of the 2005-2017 GHG inventories, the California State Board of Equalization has been reorganized, and responsibility for fuel tax administration and reporting has been transferred to the California Department of Tax and Fee Administration (CDTFA). Updated diesel fuel sales data obtained from CDTFA differed substantially from the diesel sales data previously provided by BOE. Clarification regarding the discrepancy was

³ Governor's Office of Land Use and Climate Innovation (LCI). 2023. Chapter 8, Climate Change. Available at: https://www.opr.ca.gov/docs/OPR_C8_final.pdf.

⁴ IPCC Fifth Assessment Report. Available at: <https://www.ipcc.ch/assessment-report/ar5/>

⁵ Fletcher, Alexander. Developing a High-Level Greenhouse Gas Emissions Inventorying Protocol for Local Government Climate Action Management: Chico, CA - A Case Study. M.S. Project, California State University, Chico, 2017, pp. 4-5, 29-30. Available at: [File | Alexander-Fletcher-2017-fall-project.pdf](#) | ID: w9505114f | [ScholarWorks](#)



requested, however, CDTFA was unable to provide information explaining the differences between the two datasets.

To maintain consistency between the historical BOE dataset (2005–2017) and the updated CDTFA dataset (2019–2024), a proportional scaling approach was applied to the historical diesel fuel sales data. A scaling factor was calculated using the ratio of the first year of the CDTFA dataset (2019) to the final year of the BOE dataset (2017) and applied to all BOE diesel fuel sales values from 2005–2017. This method preserves the year-to-year variability and overall trend observed in the original BOE dataset while aligning the magnitude of the historical series with the revised CDTFA dataset. This approach is consistent with IPCC guidance⁶ on time-series consistency, which recommends the use of "overlap" or "splicing" techniques to reconcile datasets developed using different methods or reporting systems while preserving emissions trends over time.

The resulting adjusted activity data were then used to estimate historical transportation emissions for consistency with the updated fuel sales records. The resulting diesel fuel sales trend is consistent with regional planning data from the Butte County Association of Governments, which shows that local transportation and transit funds tied directly to diesel sales tax allocations are shrinking as overall fuel consumption declines.⁷

Table 3 includes the updated activity data and GHG emissions from the on-road transportation sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Landfilled Solid Waste – Updated Emission Factors

In the 2005-2017 GHG inventories, emissions from landfilled solid waste were estimated using an emission factor that has since been superseded by updated guidance. The updated emission factor reflects the most current methodology available through the Community Protocol and improves consistency with current GHG accounting practices. To maintain consistency across inventory years and ensure comparability of trends, the updated emission factor was applied to both the 2024 GHG inventory and all previously completed GHG inventories for the City. As part of the 2024 inventory update, historical solid waste emissions were recalculated using the updated emission factor, resulting in a consistent emissions dataset across all inventory years. The City did not have data on organic waste diversion, therefore a mixed municipal solid waste factor from the Community Protocol was used to estimate the organic content of landfilled waste.

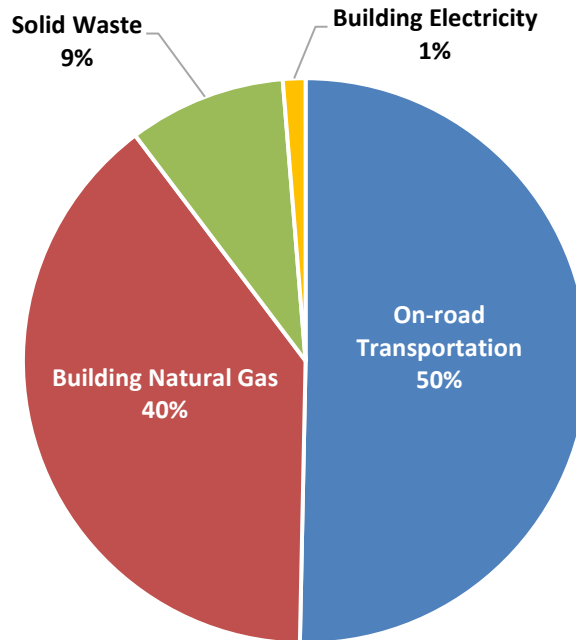
Table 3 includes the updated GHG emissions from the landfilled solid waste sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Summary of Results

In 2024, the City emitted approximately 254,697 metric tons of carbon dioxide equivalents (MT CO_{2e}). GHG emissions were primarily driven by on-road transportation, followed by residential and commercial natural gas usage. Figure 1 and Table 1 show the share of total emissions for the community broken out by communitywide activity.

⁶ IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, Volume 1, Chapter 5, "Time Series Consistency," Section 5.3.3 Splicing Techniques. Available at:

⁷ Butte County Association of Governments (BCAG), *Board of Directors Regular Meeting Agenda*, May 28, 2026. Available at: <https://www.bcag.org/files/0059fc8d3/BCAG+BOD+Full+Agenda+5-28-26.pdf>

Figure 1 2024 GHG Emissions (MT CO₂e)**Table 1 2024 City GHG Emissions**

Sector	Subsector	GHG Emissions (MT CO ₂ e)	Percent of Total
Building Energy ¹	Residential Electricity	1,647	<1%
	Nonresidential Electricity	1,653	<1%
	Electricity Sub Total	3,300	1%
	Residential Natural Gas	63,806	25%
	Nonresidential Natural Gas	36,746	14%
	Natural Gas Sub Total	100,551	40%
On-road Transportation	Gasoline Sales	114,369	45%
	Diesel Sales	14,127	6%
	Sub Total	128,497	50%
Solid Waste	Landfill Methane	22,348	9%
	Sub Total	22,999	9%
Total		254,697	100%

Notes: Percentages may not add as expected due to rounding. MT = metric tons; CO₂e = carbon-dioxide equivalents.

1. In alignment with previous GHG inventories, it is assumed that all energy used to transport and treat water and wastewater used and produced within city limits are captured under the building electricity and natural gas sectors. Additionally, it is assumed that EV charging electricity within city limits is captured under the building electricity sector.



Historical Comparisons

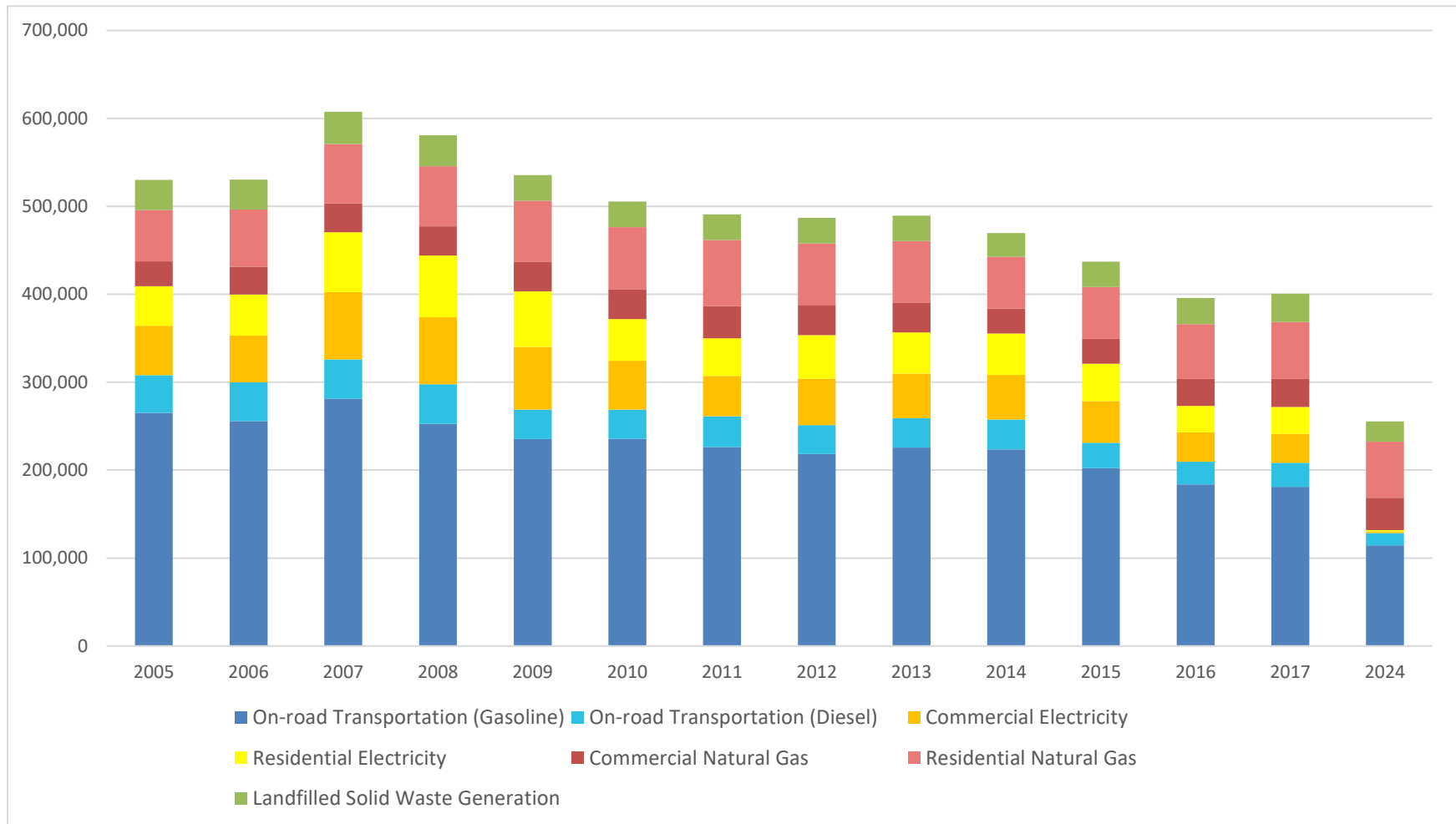
Activity data and GHG emissions from the previous baseline (2017) and new baseline (2024) are presented in Table 2 below. Figure 2 summarizes GHG emissions from all inventories completed between 2005 and 2024 to illustrate the trajectory of communitywide emissions over time.

Table 2 Previous and New Baseline Comparison

Sector	Subsector	2017	2024	Units
Building Energy	Residential Electricity	235,187,470	226,963,335	kWh
	Nonresidential Electricity	249,720,494	227,733,760	kWh
	Residential Natural Gas	12,204,431	12,012,842	therms
	Nonresidential Natural Gas	6,015,786	6,918,181	therms
	Sub Total	160,109	103,851	MT CO₂e
On-road Transportation	Gasoline Sales	20,597,450	13,026,130	gallons
	Diesel Sales	2,684,463	1,383,692	gallons
	Sub Total	208,439	128,497	MT CO₂e
Solid Waste	Landfill Methane	82,440	59,123	tons
	Sub Total	31,162	22,348	MT CO₂e
Total		399,711	254,697	MT CO₂e
Per Capita		4.7	2.4	MT CO₂e/capita



Figure 2 Annual Communitywide GHG Emissions (MT CO₂e)





Discussion of Trends

Communitywide GHG emissions in Chico generally increased through the early 2000s and reached a peak in 2007, as depicted in Figure 2, driven largely by elevated transportation fuel consumption and the higher carbon intensity of California's electricity grid during that period. Strong economic growth, increased travel demand, and rising residential and commercial energy consumption also contributed to elevated emissions during this period. Since 2007, emissions have generally trended downward despite continued population growth and economic activity, demonstrating a growing decoupling of emissions from community growth. This decline reflects the cumulative impacts of California's climate and energy policies implemented over the past two decades. Key drivers include the Global Warming Solutions Act of 2006 (AB 32), which established California's first statewide GHG reduction targets and launched programs such as the Cap-and-Trade Program and Low Carbon Fuel Standard (LCFS); the state's Renewable Portfolio Standard (RPS), which steadily increased the share of electricity generated from renewable sources; and increasingly stringent Title 24 Building Energy Efficiency Standards and appliance efficiency regulations that have reduced energy demand in homes and businesses. Transportation emissions have also been influenced by California's Advanced Clean Cars Program, vehicle GHG and fuel economy standards, and growing adoption of zero-emission vehicles (ZEV) supported by state incentives and infrastructure investments. Together, these policies have reduced the carbon intensity of both electricity and transportation fuels while improving energy efficiency across the built environment.

The comparison between the 2017 and 2024 inventories further illustrates this pattern. During this period, Chico's population increased, yet most major activity indicators either declined or remained relatively stable, resulting in a 36 percent reduction in communitywide GHG emissions. Residential and commercial electricity consumption showed little growth, residential natural gas consumption declined, and both gasoline and diesel consumption decreased. These trends suggest that efficiency improvements in buildings, appliances, and vehicles have largely offset the energy demands associated with population growth.

Transportation activity presents one of the clearest examples of this trend. Gasoline and diesel consumption declined between 2017 and 2024 despite an increasing population. This likely reflects multiple factors, including improved vehicle fuel economy, increasing adoption of hybrid and electric vehicles, turnover to newer and more efficient vehicles, and continued implementation of state transportation policies such as the LCFS, Advanced Clean Cars program, and investments in ZEV infrastructure. Vehicle registration data⁸ indicate that ZEV adoption accelerated substantially during this period. Within Chico ZIP codes, the number of registered ZEVs increased from 255 vehicles in 2017 to 2,068 vehicles in 2024, an increase of approximately 711 percent. Regional market trends show a similar pattern. In Butte County, annual new light-duty vehicle sales that were ZEVs increased from 3.7 percent in 2020 to 11.6 percent in 2024. Supporting infrastructure has also expanded, with Butte County reporting 368 public and shared-private charging ports as of 2026, including 66 DC fast-charging ports. Together, these trends suggest that increasing vehicle efficiency and early-stage transportation electrification are contributing to declining gasoline and diesel consumption despite continued population growth. While internal combustion vehicles still comprise the vast majority of

⁸ California Energy Commission. Zero Emission Vehicle and Infrastructure Statistics Collection. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection>

vehicles in Chico, the rapid growth in ZEV adoption indicates that transportation emissions reductions may continue to accelerate as newer electric or hybrid vehicles replace older gasoline and diesel-powered vehicles.

Building energy trends show a similar but more nuanced story. Residential electricity use and residential natural gas consumption both decreased between 2017 and 2024, suggesting continued gains from energy efficiency improvements and more efficient buildings. Commercial electricity use remained relatively stable, while commercial natural gas consumption increased. This increase may be associated with growth in commercial floor area, increased economic activity, or continued reliance on natural gas equipment within the commercial sector. Regardless of the cause, it indicates that commercial natural gas remains an important source of community emissions and a significant opportunity for future reductions.

Notably, the inventory does not yet show strong evidence of widespread building electrification. As homes and businesses replace natural gas space heating, water heating, and cooking equipment with electric alternatives, communities would typically be expected to see declining natural gas consumption accompanied by modest increases in electricity consumption. While residential natural gas use has decreased, electricity consumption has not increased in a way that would suggest large-scale fuel switching, and commercial natural gas use has increased rather than declined. This indicates that many of the reductions observed to date have likely been driven by efficiency improvements rather than full electrification of end uses.

The inventory therefore highlights an important opportunity for local action. Chico's Climate Action Plan⁹ (CAP) already identifies pathways that could accelerate this transition, including new and existing building electrification through building ordinances. However recent legislation, Assembly Bill (AB) 130¹⁰, generally limits the adoption of new residential building standards by the California Building Standards Commission and local agencies between June 2025 and June 1, 2031. While this may constrain implementation of certain CAP measures, the legislation includes several exceptions that may preserve some local authority. For example, AB 130 allows certain code amendments that are substantially equivalent to local amendments already in effect as of September 30, 2025. The legislation also provides an exception for certain code amendments adopted to implement a General Plan approved on or before June 10, 2025, provided the amendment permits mixed-fuel residential construction while incentivizing all-electric construction as part of an adopted GHG reduction strategy. Chico's General Plan, adopted in April 2011 and amended March 2017, appears to satisfy the General Plan timing criterion. As a result, the extent to which AB 130 affects implementation of Chico's building electrification measures will depend on the specific design of future ordinances and their consistency with the statute's exemptions.

The 2024 inventory suggests that statewide programs have successfully reduced the emissions intensity of energy use, but achieving deeper emissions reductions will likely require greater local implementation of electrification and energy transition strategies already identified by the City.

⁹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

¹⁰ California Assembly Bill 130 (2025), Chapter 5, Statutes of 2025. Available at: <https://legiscan.com/CA/text/AB130/id/3260236>

August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 GHG Emissions Forecast and Targets Summary of Results for the City of Chico

Dear Ms. Marcussen:

This document summarizes the findings of the City of Chico's (the City) 2024 community greenhouse gas (GHG) emissions forecast and provisional targets. This summary provides an overview of the data, methodologies, and results of the calculated targets and the forecasted communitywide GHG emissions. GHG emissions forecast and targets were originally developed as part of Chico's Climate Action Plan¹ (CAP), however the City now seeks to update them using the most current GHG emissions and demographic data.

California has established statewide GHG emissions reduction goals to mitigate negative climate change impacts and transition the state to a low-carbon economy. In particular, the State has established goals to reduce statewide GHG emissions 40 percent below 1990 levels by 2030, as established by Senate Bill (SB) 32 and achieve net zero GHG emissions as soon as possible, but no later than 2045, as established by Assembly Bill (AB) 1279.² The California Air Resources Board (CARB) is the agency responsible for addressing these goals and developing strategies to achieve them. Local jurisdictions in the State are completing local GHG inventories, forecasts, targets, and Climate Action Plans to align with SB 32 and AB 1279 and provide their fair share of GHG emissions reduction in support of the State's goals.

Based on the 2024 community GHG inventory prepared for the City, GHG emissions levels were forecasted out to 2030, 2035, 2040, and 2045. The emissions forecast provides projections of how GHG emissions are expected to change in the City based on forecasted changes in population and employment, as well as existing state legislation aimed at reducing GHG emissions through 2045.

GHG Forecast

A GHG emissions inventory establishes a reference point for a single year. However, annual GHG emissions change over time due to factors such as population and job change as well as new technologies and legislation. A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth and then accounting for GHG emissions reduction expected from currently adopted State legislation. This section includes an estimate of the future

¹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

² AB 1279 defines net zero GHG emissions as reducing GHG emissions at least 85 percent below 1990 levels. California also set a goal to reach 1990 levels by 2020, as established by AB 32. The 2020 goal set by AB 32 was achieved by the State in 2016. CARB. Frequently Asked Questions – California's 2022 Climate Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/2022-06/2022_Scoping_Plan_FAQ_6.21.22.pdf

emissions for the City in the years 2030, 2035, 2040 and 2045 in a *business-as-usual scenario* (BAU) forecast and a *legislative-adjusted scenario* (adjusted) forecast that are defined as follows:

- **Business-as-usual scenario:** Provides a forecast of how future GHG emissions would change if current activities continued as they did in 2024 absent of any policies or legislation that would reduce local emissions. The BAU forecast is based on projected trends in population, housing, and employment.
- **Legislative-adjusted scenario:** Provides a forecast of how currently adopted state legislation would reduce GHG emissions from the business-as-usual scenario. The legislative-adjusted scenario represents the State's contribution to reducing local GHG emissions to meet state goals without any additional contribution from local policies or actions.

The adjusted forecast incorporates the impact of state regulations that provide GHG emissions reduction potential to offer a more accurate picture of future GHG emissions growth and the responsibility of the City for further GHG emissions reduction.

Business-as-usual GHG Forecast Scenario

Future GHG emissions were calculated by multiplying projected activity data by the baseline emission factors used in the 2024 community GHG emissions inventory. Several indicator change rates were developed from 2024 activity data and applied to demographic projections to estimate future activity levels. Population and housing projections are based on 2024 estimates from the California Department of Finance E-5 Dataset³ and were projected through 2045 using the compound annual growth rates identified in the Butte County Association of Governments' (BCAG) Regional Growth Forecasts 2022-2045.⁴ Employment projections are based on 2024 estimates from the U.S. Census American Community Survey (ACS) 5-year estimates.⁵ Employment in 2045 was estimated using BCAG's projected percentage increase in countywide employment, with the assumption that the City will experience the same rate of growth as the county because city-specific employment growth rates were not available. Employment values for intermediate years were linearly interpolated between the 2024 baseline and the 2045 projected estimate. These demographic projections, including population, households, and employment, were then used to project future activity data and corresponding GHG emissions. These forecasting methods and data sources are consistent with those used in the City's CAP.

³ California Department of Finance. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2026. Available at: <https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2026/>

⁴ BCAG Regional Growth Forecasts 2022-2045. Available at: <https://www.bcag.org/growth-projections#docaccess-1d2d90d5d30308238365bcce17644fc5a514be847dfaae67a89dc1847ff9a848>

⁵ U.S. Census Bureau. American Community Survey (5-Year) for City of Chico. Available at: <https://data.census.gov/table/ACSDP5Y2017.DP03?t=Employment&g=160XX00US0613014>

A summary of the demographics metrics for each forecast year in the BAU forecast are provided in Table 1.

Table 1 City of Chico BAU Forecast Projection Metrics by Forecast Year

Metric	Data Source	2024	2030	2035	2040	2045
Population ¹	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	106,465	111,812	116,472	121,326	126,383
Employment ²	U.S. Census American Community Survey; BCAG Regional Growth Forecast CAGR	52,812	55,981	58,621	61,262	63,903
Service Population	Calculated ³	159,277	167,792	175,093	182,588	190,285
Households ⁴	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	44,849	47,101	49,064	51,109	53,239

Notes: BCAG = Butte County Association of Governments; CAGR = Compound Annual Growth Rate

¹ 2024 population from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for population.

² 2024 employment from U.S. Census' American Community Survey 5-year estimates; projected to 2045 using BCAG's county employment growth assumptions, with intermediate years linearly interpolated.

³ Service population is calculated as the combined total number of employees and residents.

⁴ 2024 households from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for households.

A description of the employment and demographic metrics used to project specific activity data and associated change factors for each forecasted GHG emission source in the 2024 community GHG emissions inventory are provided in Table 2.

Table 2 City of Chico 2024 GHG Emission Sources and Change Factors for BAU Scenario Forecast

GHG Emissions Source	Demographic Projection Metric	Change Factor	Value	Units
Energy				
Residential Natural Gas Consumption	Households	Natural Gas Consumption per Household	268	therms/household
Nonresidential Natural Gas Consumption	Employment	Natural Gas Consumption per Job	131	therms/job
Residential Electricity Consumption	Households	Electricity Consumption per Household	5,061	kWh/household
Nonresidential Electricity Consumption	Employment	Electricity Consumption per Job	4,312	kWh/job
Transportation				
Gasoline Sales	Service Population	Gallons per Service Person	82	gallons/service person
Diesel Sales	Service Population	Gallons per Service Person	9	gallons/service person
Solid Waste				
Solid Waste-in-Place	Service Population	Solid Waste Emissions per Service Person	0.14	MT CO ₂ e/service person
Notes: MT CO ₂ e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; Service Population/Service Person = the combined total number of employees and residents in the city.				

Using projection metrics in Table 1, multiplied by the change factors in Table 2 and the 2024 community GHG inventory emission factors, the BAU forecast can be calculated. In the BAU forecast, GHG emissions are projected to increase steadily through 2045, rising by approximately 17 percent above 2024 levels. This growth is primarily driven by continued increases in population, households, and employment. Transportation fuels and natural gas consumption remain the largest contributors to communitywide emissions under the BAU scenario. A summary of the BAU forecast results by GHG emission sector is provided in Table 3.

Table 3 City of Chico BAU Forecast Results Summary by Emission Sector

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	109,442	114,227	119,131	124,160
Residential Electricity	1,647	1,730	1,802	1,877	1,955
Nonresidential Electricity	1,653	1,752	1,835	1,917	2,000
Residential Natural Gas	63,806	67,010	69,803	72,712	75,742
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	129,627	135,367	141,257	147,303
Gasoline Sales	114,369	115,376	120,484	125,726	131,108
Diesel Sales	14,127	14,252	14,883	15,530	16,195
Solid Waste	22,348	23,543	24,568	25,619	26,669
Solid Waste Generation	22,348	23,543	24,568	25,619	26,669
Total	254,697	262,613	274,161	286,007	298,162

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO₂e). Values may not add to totals due to rounding.

Legislative-adjusted GHG Forecast Scenario

Several state regulations have been adopted that would reduce the City's GHG emissions below the BAU forecasted levels in 2030, 2035, 2040 and 2045. The impact of these regulations was quantified and incorporated into the adjusted forecast to provide a more accurate depiction of future emissions growth and the GHG emissions reduction responsibility the City. State legislation included in the adjusted forecast reduces GHG emissions associated with transportation, building efficiency and renewable electricity. A brief description of each regulation and the methodology used to calculate associated reductions is provided in the following section, as well as a description of why specific legislation was included or excluded from this forecast analysis.

GHG Reduction Legislation and Programs

As identified in CARB's 2022 Scoping Plan for Achieving Carbon Neutrality⁶ (2022 Scoping Plan), several legislative programs are expected to reduce GHG emissions in specific sectors throughout California. Many of these programs were incorporated into this forecast analysis as summarized below.

Transportation Legislation

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, which combined standards for criteria air pollutants and GHG emissions into a coordinated regulatory framework for passenger vehicles and light-duty trucks. The program established increasingly stringent vehicle GHG standards through model year 2025 and is reflected in the emissions factors and fleet characteristics incorporated into CARB's EMFAC2025 model.⁷

⁶ California Air Resources Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

⁷ California Air Resources Board (CARB). 2026. EMFAC2025 Technical Documentation. <https://emfac.arb.ca.gov/emfac2025-techdoc/EMFAC2025-Technical-Documentation-2026.pdf>

Advanced Clean Cars II (ACC II), adopted by CARB in 2022, requires an increasing share of new vehicle sales to be zero-emission vehicles (ZEVs), culminating in a 100 percent ZEV new vehicle sales requirement by 2035. However, CARB's EMFAC2025 Version 2.1 modeling framework removes the emissions benefits associated with ACC II due to ongoing federal regulatory challenges and resulting changes to CARB's regulatory assumptions. Consequently, emissions reductions attributable to ACC II are not reflected in this forecast and the forecast should therefore be considered conservative with respect to future transportation-sector emissions.

Advanced Clean Truck Regulation

The Advanced Clean Trucks (ACT) Regulation was adopted by CARB in 2020 and established ZEV sales requirements for manufacturers of medium- and heavy-duty vehicles, with increasing ZEV sales targets through 2035. Earlier versions of EMFAC incorporated the anticipated emissions benefits associated with ACT and increased adoption of zero-emission trucks. However, EMFAC2025 Version 2.1 was updated to reflect changing federal regulatory conditions and removes the emissions benefits previously associated with the ACT regulation. As a result, the transportation emissions forecasts presented in this analysis are based on EMFAC2025 Version 2.1 assumptions and do not include emissions reductions attributable to ACT implementation. Accordingly, the forecast may be considered conservative with respect to future medium- and heavy-duty vehicle GHG emissions.

Assembly Bill 1493

Signed into law in 2002, AB 1493 (The Pavley Standards) established the nation's first greenhouse gas (GHG) emission standards for passenger vehicles and light-duty trucks. The Pavley Standards required manufacturers to reduce GHG emissions from new vehicles beginning with the 2009 model year and laid the foundation for subsequent state and federal vehicle efficiency and emissions regulations. The emissions reductions associated with these standards are incorporated into CARB's EMFAC2025 model through vehicle fleet turnover, fuel economy improvements, and updated vehicle emission rates, and are therefore included in this forecast.

Innovative Clean Transit

The Innovative Clean Transit (ICT) Regulation was adopted by CARB in December 2018 to transition California's public transit fleet to zero-emission technologies. The regulation requires all public transit agencies to gradually increase purchases of zero-emission buses, culminating in a fully zero-emission transit bus fleet by 2040. The effects of the ICT regulation on transit fleet composition, energy consumption, and associated GHG emissions are incorporated into CARB's EMFAC2025 model and are included in this forecast. EMFAC2025 continues to account for projected growth in zero-emission transit buses using updated fleet and activity data.

Energy Legislation

Title 24

The adjusted forecast includes estimated energy savings from the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020.⁸ For residential buildings, the California Energy Commission (CEC) estimated the 2019 standards reduce electricity consumption by 53 percent and natural gas consumption by seven percent relative to the 2016 standards. For nonresidential buildings, the CEC estimated a 30 percent reduction in electricity consumption, while

⁸ CEC. 2020. 2019 Building Energy Efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>

no significant natural gas savings were projected due to limited requirements for commercial gas end uses.⁹ These reductions are incorporated into this GHG forecast through 2045.

The 2025 Title 24 standards, effective as of January 1, 2026, include more advanced measures to support building decarbonization; however, at this time the State has not released estimated energy or GHG savings associated with the updated standards.¹⁰ Therefore, to maintain a conservative forecast, the 2025 code updates are not included in the GHG reductions estimated in this analysis.

Renewables Portfolio Standard, Senate Bill 100, & Senate Bill 1020

Established in 2002 under SB 1078, enhanced in 2015 by SB 350, and accelerated for the first time in 2018 under SB 100, California's Renewable Portfolio Standard (RPS) requires investor-owned utilities, publicly owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 50 percent of total procurement by 2026 and 60 percent of total procurement by 2030. The RPS program further requires that by 2045 that 100 percent of total energy procured be a combination of eligible renewable energy resources and zero-carbon resources.

California's RPS was further accelerated in 2022 by SB 1020 that established additional requirements that procurement from eligible renewable energy resources and zero-carbon resources increase to 90 percent of total procurement by 2035 and 95 percent of total procurement by 2040. The RPS program and SB 1020 were incorporated into this GHG forecast by adjusting the electricity emissions factors for future years.

Pacific Gas and Electric (PG&E) currently provides electricity to the City and is subject to RPS requirements. PG&E's emission factors were adjusted for RPS requirements and used to project emissions through 2045. Table 4 provides the estimated electricity emission factors that would result from SB 100 and SB 1020.

Table 4 City of Chico Forecasted RPS and Electricity Emission Factors

Metric	2024	2030 ¹	2035	2040	2045
RPS (PG&E - Power Mix)	23%	60%	90%	95%	100%
Emission Factor (MT CO ₂ e/kWh)	0.000007	0.000004	0.000001	0.0000005	0

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; EF = emissions factor; RPS = Renewable Portfolio Standard; PG&E = Pacific Gas & Electric.

¹ 2030 values were interpolated between 2024 and 2035 to represent the SB 100 and SB 1020 renewable and carbon-free electricity goals of 90%, 95%, and 100% by 2035, 2040, and 2045, respectively.

Waste Legislation

Assembly Bill 939

In 1989, AB 939 established a mandate for local jurisdictions to divert 50 percent of solid waste from landfills through source reduction, recycling, and composting programs. The bill required each city and county in California to develop and implement a solid waste management plan, marking a significant shift from landfill-focused disposal to integrated waste management. As this mandate was fully

⁹ CEC. 2019 Building Energy Efficiency Standards: Frequently Asked Questions. Accessed at: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.

¹⁰ CEC. 2024. 2025 Building Energy Efficiency Standards. <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

implemented by 2000 and is considered a foundational policy rather than a driver of new reductions, no future emissions reductions associated with AB 939 are included in this adjusted forecast.

Assembly Bill 341

In 2011, AB 341 set the target of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (also known as CalRecycle) to take a Statewide approach to decreasing California's reliance on landfills. As actions under AB 341 are not assigned to specific local jurisdictions, potential future reductions from the bill were conservatively not included in this forecast.

Assembly Bill 1826

In 2014, AB 1826 set regulations in place requiring California businesses to recycle all of their organic waste starting in April 2016. The bill also required jurisdictions across the State to provide organic waste recycling programs to accommodate diverted waste from local businesses. As Ventura County has already implemented an organics collection program, implementation of AB 1826 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with AB 1826 are included in this adjusted forecast.

Senate Bill 1383

SB 1383 established a methane emission reduction target for short-lived climate pollutants in various sectors of the economy, including waste. Specifically, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the Statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025.¹¹ Additionally, SB 1383 requires a 20 percent reduction in "current"¹² edible food disposal by 2025. As local waste providers such as North Valley Waste Management have already implemented an organics collection program for the City, implementation of SB 1383 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with SB 1383 are included in this adjusted forecast.

Legislative-adjusted Scenario Forecast Results

In the adjusted emissions forecast, total GHG emissions decline gradually through 2045, driven primarily by substantial reductions in electricity-related emissions and continued decreases in transportation emissions resulting from state policies and regulations already in effect.

The electricity sector includes the steepest decline, reaching near zero by the end of the forecast period as California's clean energy policies continue to transform the electric grid. The forecast incorporates increasing renewable energy requirements and statewide grid decarbonization targets established through SB 100 and SB 1020, which require utilities to transition toward carbon-free electricity. As a result, electricity-related emissions become a negligible component of the community's overall emissions profile over time.

Transportation emissions also decline steadily throughout the forecast period due to the combined effects of vehicle fleet turnover and the suite of statewide regulations. These regulations include increasingly stringent vehicle emission standards, expanded deployment of zero-emission vehicles,

¹¹ CalRecycle. California's Short-Lived Climate Pollutant Reduction Strategy. <https://calrecycle.ca.gov/organics/slcp/>

¹² SB 1383 does not specify a baseline year for the 20 percent food recovery target, however, CalRecycle's 2018 Statewide waste characterization studies will be used to help measure the baseline for the State to meet its SB 1383 goals. <https://calrecycle.ca.gov/organics/slcp/faq/foodrecovery/#:~:text=SB%201383%20requires%20the%20state,for%20individual%20jurisdictions%20to%20achieve.>

cleaner fuels, and other transportation-sector programs that reduce emissions from both passenger and commercial vehicles. While transportation remains a significant source of emissions, the projected reductions reflect the continued implementation of these existing state policies.

In contrast, natural gas emissions increase gradually through 2024 due to population and employment growth. However, the rate of increase is lower than may be expected under a BAU scenario due to the influence of state building energy efficiency requirements and appliance standards. The forecast incorporates the effects of California's 2019 Title 24 Building Energy Efficiency Standards, which reduce energy demand in new construction and major renovations, as well as ongoing improvements in equipment efficiency. These regulations help moderate growth in natural gas consumption despite continued development and building activity.

Solid waste emissions also increase over time, primarily resulting from projected population growth and the associated increase in waste generation. Existing organic waste diversion efforts are already reflected in the baseline activity data and are therefore incorporated into the forecast. However, the solid waste forecast was not adjusted to account for additional future reductions from local waste diversion programs or enhanced organics collection because data on the future performance and implementation of local waste reduction measures were not available. As a result, the solid waste forecast represents a conservative assumption that extrapolates current conditions forward.

A detailed summary of the projected GHG emissions under the adjusted forecast by sector and year through 2045 can be found in Table 5.

Table 5 City of Chico Legislative-adjusted Scenario Forecast Results

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	107,527	110,625	114,947	119,369
Residential Electricity	1,647	886	223	114	0
Nonresidential Electricity	1,653	905	231	119	0
Residential Natural Gas	63,806	66,786	69,383	72,089	74,907
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	114,338	105,479	98,205	91,755
Gasoline Sales	114,369	101,259	93,410	86,505	80,040
Diesel Sales	14,127	13,079	12,069	11,699	11,715
Solid Waste	22,348	23,543	24,568	25,619	26,699
Solid Waste Generation	22,348	23,543	24,568	25,619	26,699
Total	254,697	245,408	240,672	238,771	237,823

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add to totals due to rounding.

Legislative GHG Emissions Reduction Contribution

A summary of the reductions from the BAU forecast that can be expected under the adjusted forecast are provided in Table 6.

Table 6 Summary of City of Chico's Legislative GHG Emission Reductions

Metric	2024	2030	2035	2040	2045
California RPS	0	1,618	3,045	3,360	3,688
Title 24	0	298	556	825	1,103
Transportation Legislation (Advanced Clean Cars Program, Pavley Standards, Innovative Clean Transit)	0	15,290	29,887	43,052	55,548
Total	0	17,205	33,489	47,236	60,339

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add up to totals due to rounding.

Provisional GHG Emissions Targets

GHG reduction targets are used in climate action planning to establish metrics that guide the community's commitment to achieve GHG emissions reductions and help gauge progress in reducing emissions over time. California has established Statewide GHG reduction goals for 2030 and 2045, relative to a 1990 baseline emissions level. Accordingly, communities should maintain a 1990 GHG inventory or develop one using a back-casting methodology to establish an appropriate baseline for target setting. The 2022 Scoping Plan encourages local agencies to take ambitious, coordinated climate action that is consistent with and supportive of the State climate goals.¹³ Thus, local agencies are recommended to establish equivalent reduction targets at the local level with communitywide GHG reduction goals for climate action that will help California achieve its 2030 and 2045 goals.

1990 GHG Emissions Back-Cast

The City does not have a 1990 GHG emissions inventory against which to develop GHG reduction targets consistent with SB 32. However, 1990 GHG emissions can be estimated for the community using a State-level emissions change metric.

The City's 1990 GHG emissions were estimated using the State's 2023 GHG emissions inventory, which is the State's most recent GHG inventory available at the time of analysis was for 2023. This approach allows comparison with the State's 1990 inventory to approximate the percent reduction in community emissions between 1990 and 2023. This approach assumes that the City's communitywide GHG emissions have generally tracked State GHG emissions over the same timeframe. The calculation is developed using the published Statewide emissions results from CARB¹⁴ after removing emissions from sectors not included in the City 2024 inventory¹⁵ (e.g., aviation, non-specified, etc.). The 1990 GHG emissions back-cast for the City is shown in Table 7.

¹³ California Air Resources Board. 2022. California's Climate Change Scoping Plan, p.268. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

¹⁴ CARB. 2024. California GHG Emission Inventory Program. <https://ww2.arb.ca.gov/ghg-inventory-data#data> and data therein.

¹⁵ Sectors removed from the statewide emissions sum in alignment with the 2024 GHG Inventory include: transportation: aviation, water-borne, rail, and not specified; industrial (less landfills); agriculture and forestry, and non-specified sectors.

Table 7 1990 GHG Emissions Back-Cast Calculations

1990 Back-Cast Calculations	
2023 Statewide GHG Emissions (MT CO ₂ e)	240,940,000
1990 Statewide GHG Emissions (MT CO ₂ e)	300,060,000
1990 to 2023 Statewide GHG Emissions Change (%)	-19.7%
2024 City of Chico GHG Emissions (MT CO ₂ e)	254,697
1990 City of Chico GHG Emissions (MT CO ₂ e)	317,190

GHG Targets and Gap Analysis

The purpose of GHG emissions reduction target setting is to develop a trajectory for achieving the State 2030 goal (SB 32) and prepare for the extensive decarbonization needed by 2045 in an efficient manner by setting an incremental path toward achieving the AB 1279 carbon neutrality goal. CARB guidance is for jurisdictions to first strive to exceed the SB 32 target of reducing GHG emissions by 40 percent below 1990 levels, while establishing a policy framework to achieve the longer-term target of carbon neutrality by 2045. Target setting is an iterative process that must be informed by the GHG emissions reductions that can realistically be achieved through the development of feasible GHG reduction measures. Achieving established targets will require major shifts in how communities within California obtain and use energy, transport themselves and goods, and how the population lives and builds.

Table 8 provides a summary of the GHG emission reduction targets.

Table 8 GHG Emissions Reduction Targets and Gap Analysis (MT CO₂e)

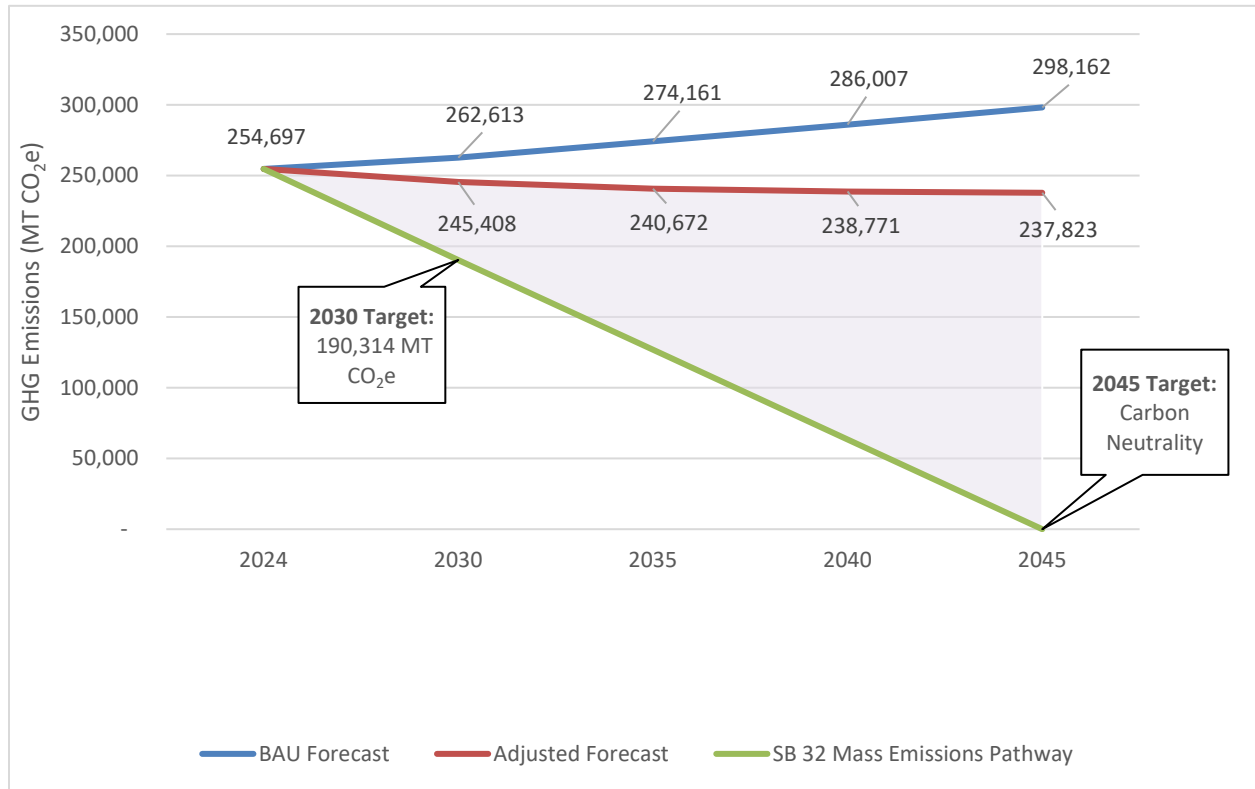
Emissions Forecast or Pathway	2024	2030	2035	2040	2045
Mass Emissions Target Pathway Scenario (MT CO₂e)					
Adjusted Forecast	254,697	245,408	240,672	238,771	237,823
SB 32 Mass Emissions Target Pathway ¹	254,697	190,314	126,876	63,438	0
Remaining Emissions Gap	0	55,093	113,796	175,333	237,823

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; Emissions have been rounded to the nearest whole number and therefore sums may not match.

1. The target pathway is calculated by reducing 1990 mass emissions by 40% in 2030 and to 0 in 2045. This provisional target pathway is consistent with both SB 32 and a trajectory set forth to achieve AB 1279.

Figure 1 provides a visual representation of forecasted future GHG emissions along with the effects of established State legislation and the remaining gap for which the City will be responsible in order to meet their share of GHG emission reduction goals set by the State.

Figure 1 GHG Emissions Forecast and Provisional Targets for the City of Chico



August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 Community GHG Emissions Inventory Update - Summary of Results for the City of Chico, CA

Dear Ms. Marcussen:

This memorandum provides a summary of the results for the City of Chico's 2024 community greenhouse gas (GHG) emissions inventory update. This GHG emissions inventory provides an update to the 2005-2017 GHG inventories and has consistently been completed in accordance with established GHG accounting protocols and state guidance. The GHG inventory focuses on communitywide emissions generated from residents and commercial operations within the city and is organized by emission sector. The inventory includes sources within each sector that are under some degree of jurisdictional control by the City of Chico (the City). A brief section on the inventory methodology and any updates made to previous GHG inventories to maintain consistency with current data sets are detailed below. The 2024 GHG inventory is intended to enable the City to track emissions trends over time, compare changes across sectors, and evaluate progress toward GHG emissions reduction goals and strategies.

Methodology

The following sections describe the framework used to calculate and report communitywide GHG emissions and updates to calculation methodologies used in current or prior GHG inventories.

ICLEI Community Protocol Calculation and Reporting Framework

Consistent with previous GHG inventories completed for the City, this 2024 GHG inventory follows state guidance and the calculation and reporting standards outlined in Local Governments for Sustainability (ICLEI) United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol).¹ GHG emissions in the 2024 GHG inventory are classified into the following three GHG emissions sectors to align with historical GHG inventories:

- Building Energy²
- On-road Transportation
- Solid Waste

¹ ICLEI. July 2019. U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. Available at: <https://icleiusa.org/us-community-protocol/>

² Building energy includes electricity and natural gas consumption, and covers all energy used to transport and treat water and wastewater used and produced within city limits.



The 2024 GHG inventory covers the relevant emissions sources within the boundary of the city (i.e., city limits). The GHG inventory, therefore, reflects emissions sectors the community contributes to and over which the City has some degree of jurisdictional control and influence. Sectors where the City's jurisdiction has limited influence are excluded from the 2024 GHG inventory, as the City does not have the authority to develop GHG reduction measures to impact those associated GHG emissions. Exclusions include sectors such as military, forestry, and locomotive equipment, which are regulated by state, federal, and/or other governing bodies and not by the City. This method of exclusion for the emissions boundary aligns with Community Protocol standards and is recommended by state guidance for inventory, forecast, and targets setting.³

GHG emissions were calculated by multiplying the activity data in each GHG emissions sector by an associated emission factor. Activity data refers to the relevant measured or estimated level of GHG-generating activity (e.g., electricity consumption, gallons of gasoline). Emission factors, sourced from U.S. Environmental Protection Agency's GHG Emission Factors Hub, are observation-based conversion factors used to equate activity data to generated GHG emissions. Emission factors from U.S. EPA's Emission Factors Hub are updated annually to reflect the best available data and methods for estimating GHG emissions from common activity sources. Additionally, the inventory used global warming potential (GWP) values for methane (CH₄) and nitrous oxide (N₂O) consistent with the latest version of the Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5)⁴ to align with the previous GHG inventories completed by the City.

GHG Inventory Updates

The following sections describe updates made to the 2005-2017 GHG inventories during preparation of the 2024 GHG Inventory to align with the best available data, models, and analytical approaches.

On-road Transportation Fuel – Updated Diesel Activity Data

The Community Protocol identifies vehicle miles traveled (VMT) as the preferred activity data source for estimating on-road transportation emissions. However, application of VMT-based methods can be challenging where locally calibrated travel demand modeling or other high-quality VMT data are unavailable. In Chico, previous GHG inventory work⁵ evaluated both VMT- and fuel-sales-based approaches and concluded that, given the city's relative geographic isolation and the lack of high-quality local VMT estimates, transportation fuel sales data likely provided a more representative basis for estimating community-wide transportation emissions. As a result, and to align with previous GHG inventories, a fuel-sales-based methodology was selected for the transportation sector.

In the 2005-2017 GHG inventories, on-road transportation emissions were estimated using transportation fuel sales data obtained from the California State Board of Equalization (BOE) for the Chico Urban Area (i.e., the City of Chico). Since completion of the 2005-2017 GHG inventories, the California State Board of Equalization has been reorganized, and responsibility for fuel tax administration and reporting has been transferred to the California Department of Tax and Fee Administration (CDTFA). Updated diesel fuel sales data obtained from CDTFA differed substantially from the diesel sales data previously provided by BOE. Clarification regarding the discrepancy was

³ Governor's Office of Land Use and Climate Innovation (LCI). 2023. Chapter 8, Climate Change. Available at: https://www.opr.ca.gov/docs/OPR_C8_final.pdf.

⁴ IPCC Fifth Assessment Report. Available at: <https://www.ipcc.ch/assessment-report/ar5/>

⁵ Fletcher, Alexander. Developing a High-Level Greenhouse Gas Emissions Inventorying Protocol for Local Government Climate Action Management: Chico, CA - A Case Study. M.S. Project, California State University, Chico, 2017, pp. 4-5, 29-30. Available at: [File | Alexander-Fletcher-2017-fall-project.pdf](#) | ID: w9505114f | [ScholarWorks](#)



requested, however, CDTFA was unable to provide information explaining the differences between the two datasets.

To maintain consistency between the historical BOE dataset (2005–2017) and the updated CDTFA dataset (2019–2024), a proportional scaling approach was applied to the historical diesel fuel sales data. A scaling factor was calculated using the ratio of the first year of the CDTFA dataset (2019) to the final year of the BOE dataset (2017) and applied to all BOE diesel fuel sales values from 2005–2017. This method preserves the year-to-year variability and overall trend observed in the original BOE dataset while aligning the magnitude of the historical series with the revised CDTFA dataset. This approach is consistent with IPCC guidance⁶ on time-series consistency, which recommends the use of "overlap" or "splicing" techniques to reconcile datasets developed using different methods or reporting systems while preserving emissions trends over time.

The resulting adjusted activity data were then used to estimate historical transportation emissions for consistency with the updated fuel sales records. The resulting diesel fuel sales trend is consistent with regional planning data from the Butte County Association of Governments, which shows that local transportation and transit funds tied directly to diesel sales tax allocations are shrinking as overall fuel consumption declines.⁷

Table 3 includes the updated activity data and GHG emissions from the on-road transportation sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Landfilled Solid Waste – Updated Emission Factors

In the 2005-2017 GHG inventories, emissions from landfilled solid waste were estimated using an emission factor that has since been superseded by updated guidance. The updated emission factor reflects the most current methodology available through the Community Protocol and improves consistency with current GHG accounting practices. To maintain consistency across inventory years and ensure comparability of trends, the updated emission factor was applied to both the 2024 GHG inventory and all previously completed GHG inventories for the City. As part of the 2024 inventory update, historical solid waste emissions were recalculated using the updated emission factor, resulting in a consistent emissions dataset across all inventory years. The City did not have data on organic waste diversion, therefore a mixed municipal solid waste factor from the Community Protocol was used to estimate the organic content of landfilled waste.

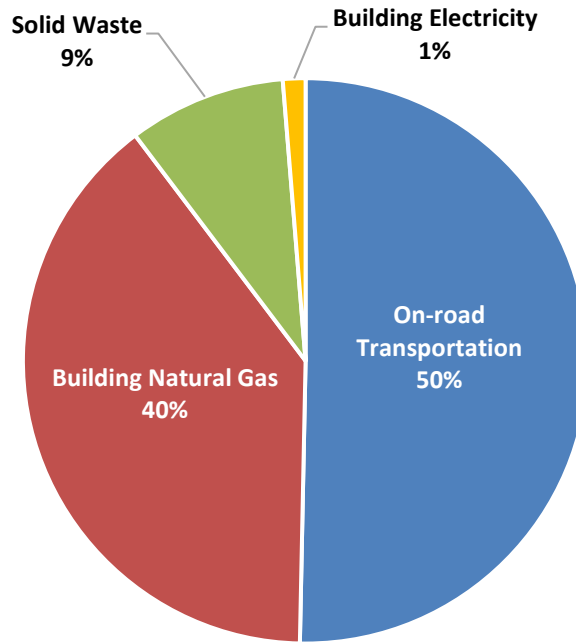
Table 3 includes the updated GHG emissions from the landfilled solid waste sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Summary of Results

In 2024, the City emitted approximately 254,697 metric tons of carbon dioxide equivalents (MT CO_{2e}). GHG emissions were primarily driven by on-road transportation, followed by residential and commercial natural gas usage. Figure 1 and Table 1 show the share of total emissions for the community broken out by communitywide activity.

⁶ IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, Volume 1, Chapter 5, "Time Series Consistency," Section 5.3.3 Splicing Techniques. Available at:

⁷ Butte County Association of Governments (BCAG), *Board of Directors Regular Meeting Agenda*, May 28, 2026. Available at: <https://www.bcag.org/files/0059fc8d3/BCAG+BOD+Full+Agenda+5-28-26.pdf>

Figure 1 2024 GHG Emissions (MT CO₂e)**Table 1 2024 City GHG Emissions**

Sector	Subsector	GHG Emissions (MT CO ₂ e)	Percent of Total
Building Energy ¹	Residential Electricity	1,647	<1%
	Nonresidential Electricity	1,653	<1%
	Electricity Sub Total	3,300	1%
	Residential Natural Gas	63,806	25%
	Nonresidential Natural Gas	36,746	14%
	Natural Gas Sub Total	100,551	40%
On-road Transportation	Gasoline Sales	114,369	45%
	Diesel Sales	14,127	6%
	Sub Total	128,497	50%
Solid Waste	Landfill Methane	22,348	9%
	Sub Total	22,999	9%
Total		254,697	100%

Notes: Percentages may not add as expected due to rounding. MT = metric tons; CO₂e = carbon-dioxide equivalents.

1. In alignment with previous GHG inventories, it is assumed that all energy used to transport and treat water and wastewater used and produced within city limits are captured under the building electricity and natural gas sectors. Additionally, it is assumed that EV charging electricity within city limits is captured under the building electricity sector.



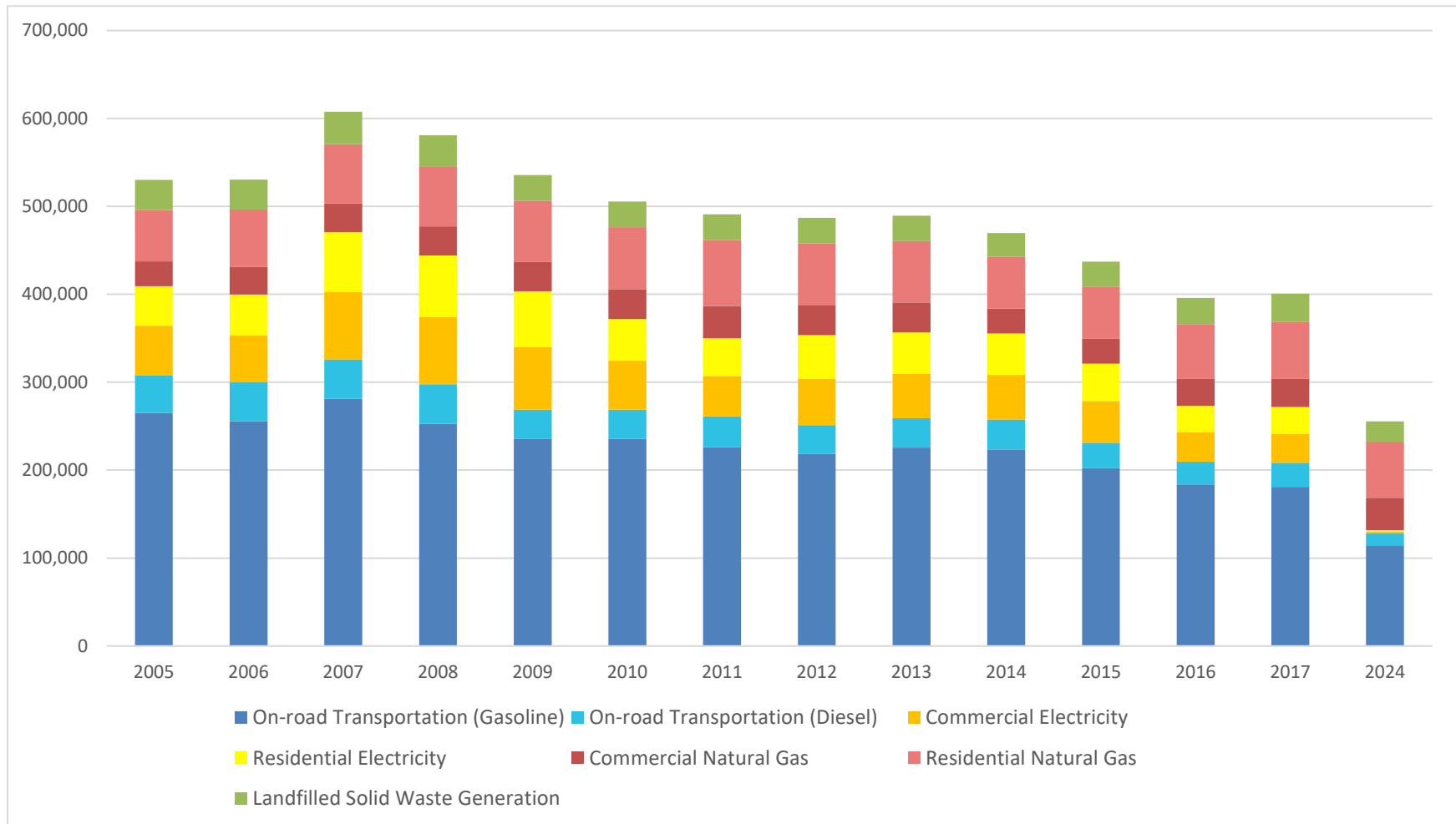
Historical Comparisons

Activity data and GHG emissions from the previous baseline (2017) and new baseline (2024) are presented in Table 2 below. Figure 2 summarizes GHG emissions from all inventories completed between 2005 and 2024 to illustrate the trajectory of communitywide emissions over time.

Table 2 Previous and New Baseline Comparison

Sector	Subsector	2017	2024	Units
Building Energy	Residential Electricity	235,187,470	226,963,335	kWh
	Nonresidential Electricity	249,720,494	227,733,760	kWh
	Residential Natural Gas	12,204,431	12,012,842	therms
	Nonresidential Natural Gas	6,015,786	6,918,181	therms
	Sub Total	160,109	103,851	MT CO₂e
On-road Transportation	Gasoline Sales	20,597,450	13,026,130	gallons
	Diesel Sales	2,684,463	1,383,692	gallons
	Sub Total	208,439	128,497	MT CO₂e
Solid Waste	Landfill Methane	82,440	59,123	tons
	Sub Total	31,162	22,348	MT CO₂e
Total		399,711	254,697	MT CO₂e
Per Capita		4.7	2.4	MT CO₂e/capita

Figure 2 Annual Communitywide GHG Emissions (MT CO₂e)





Discussion of Trends

Communitywide GHG emissions in Chico generally increased through the early 2000s and reached a peak in 2007, as depicted in Figure 2, driven largely by elevated transportation fuel consumption and the higher carbon intensity of California's electricity grid during that period. Strong economic growth, increased travel demand, and rising residential and commercial energy consumption also contributed to elevated emissions during this period. Since 2007, emissions have generally trended downward despite continued population growth and economic activity, demonstrating a growing decoupling of emissions from community growth. This decline reflects the cumulative impacts of California's climate and energy policies implemented over the past two decades. Key drivers include the Global Warming Solutions Act of 2006 (AB 32), which established California's first statewide GHG reduction targets and launched programs such as the Cap-and-Trade Program and Low Carbon Fuel Standard (LCFS); the state's Renewable Portfolio Standard (RPS), which steadily increased the share of electricity generated from renewable sources; and increasingly stringent Title 24 Building Energy Efficiency Standards and appliance efficiency regulations that have reduced energy demand in homes and businesses. Transportation emissions have also been influenced by California's Advanced Clean Cars Program, vehicle GHG and fuel economy standards, and growing adoption of zero-emission vehicles (ZEV) supported by state incentives and infrastructure investments. Together, these policies have reduced the carbon intensity of both electricity and transportation fuels while improving energy efficiency across the built environment.

The comparison between the 2017 and 2024 inventories further illustrates this pattern. During this period, Chico's population increased, yet most major activity indicators either declined or remained relatively stable, resulting in a 36 percent reduction in communitywide GHG emissions. Residential and commercial electricity consumption showed little growth, residential natural gas consumption declined, and both gasoline and diesel consumption decreased. These trends suggest that efficiency improvements in buildings, appliances, and vehicles have largely offset the energy demands associated with population growth.

Transportation activity presents one of the clearest examples of this trend. Gasoline and diesel consumption declined between 2017 and 2024 despite an increasing population. This likely reflects multiple factors, including improved vehicle fuel economy, increasing adoption of hybrid and electric vehicles, turnover to newer and more efficient vehicles, and continued implementation of state transportation policies such as the LCFS, Advanced Clean Cars program, and investments in ZEV infrastructure. Vehicle registration data⁸ indicate that ZEV adoption accelerated substantially during this period. Within Chico ZIP codes, the number of registered ZEVs increased from 255 vehicles in 2017 to 2,068 vehicles in 2024, an increase of approximately 711 percent. Regional market trends show a similar pattern. In Butte County, annual new light-duty vehicle sales that were ZEVs increased from 3.7 percent in 2020 to 11.6 percent in 2024. Supporting infrastructure has also expanded, with Butte County reporting 368 public and shared-private charging ports as of 2026, including 66 DC fast-charging ports. Together, these trends suggest that increasing vehicle efficiency and early-stage transportation electrification are contributing to declining gasoline and diesel consumption despite continued population growth. While internal combustion vehicles still comprise the vast majority of

⁸ California Energy Commission. Zero Emission Vehicle and Infrastructure Statistics Collection. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection>

vehicles in Chico, the rapid growth in ZEV adoption indicates that transportation emissions reductions may continue to accelerate as newer electric or hybrid vehicles replace older gasoline and diesel-powered vehicles.

Building energy trends show a similar but more nuanced story. Residential electricity use and residential natural gas consumption both decreased between 2017 and 2024, suggesting continued gains from energy efficiency improvements and more efficient buildings. Commercial electricity use remained relatively stable, while commercial natural gas consumption increased. This increase may be associated with growth in commercial floor area, increased economic activity, or continued reliance on natural gas equipment within the commercial sector. Regardless of the cause, it indicates that commercial natural gas remains an important source of community emissions and a significant opportunity for future reductions.

Notably, the inventory does not yet show strong evidence of widespread building electrification. As homes and businesses replace natural gas space heating, water heating, and cooking equipment with electric alternatives, communities would typically be expected to see declining natural gas consumption accompanied by modest increases in electricity consumption. While residential natural gas use has decreased, electricity consumption has not increased in a way that would suggest large-scale fuel switching, and commercial natural gas use has increased rather than declined. This indicates that many of the reductions observed to date have likely been driven by efficiency improvements rather than full electrification of end uses.

The inventory therefore highlights an important opportunity for local action. Chico's Climate Action Plan⁹ (CAP) already identifies pathways that could accelerate this transition, including new and existing building electrification through building ordinances. However recent legislation, Assembly Bill (AB) 130¹⁰, generally limits the adoption of new residential building standards by the California Building Standards Commission and local agencies between June 2025 and June 1, 2031. While this may constrain implementation of certain CAP measures, the legislation includes several exceptions that may preserve some local authority. For example, AB 130 allows certain code amendments that are substantially equivalent to local amendments already in effect as of September 30, 2025. The legislation also provides an exception for certain code amendments adopted to implement a General Plan approved on or before June 10, 2025, provided the amendment permits mixed-fuel residential construction while incentivizing all-electric construction as part of an adopted GHG reduction strategy. Chico's General Plan, adopted in April 2011 and amended March 2017, appears to satisfy the General Plan timing criterion. As a result, the extent to which AB 130 affects implementation of Chico's building electrification measures will depend on the specific design of future ordinances and their consistency with the statute's exemptions.

The 2024 inventory suggests that statewide programs have successfully reduced the emissions intensity of energy use, but achieving deeper emissions reductions will likely require greater local implementation of electrification and energy transition strategies already identified by the City.

⁹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

¹⁰ California Assembly Bill 130 (2025), Chapter 5, Statutes of 2025. Available at: <https://legiscan.com/CA/text/AB130/id/3260236>

August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 GHG Emissions Forecast and Targets Summary of Results for the City of Chico

Dear Ms. Marcussen:

This document summarizes the findings of the City of Chico's (the City) 2024 community greenhouse gas (GHG) emissions forecast and provisional targets. This summary provides an overview of the data, methodologies, and results of the calculated targets and the forecasted communitywide GHG emissions. GHG emissions forecast and targets were originally developed as part of Chico's Climate Action Plan¹ (CAP), however the City now seeks to update them using the most current GHG emissions and demographic data.

California has established statewide GHG emissions reduction goals to mitigate negative climate change impacts and transition the state to a low-carbon economy. In particular, the State has established goals to reduce statewide GHG emissions 40 percent below 1990 levels by 2030, as established by Senate Bill (SB) 32 and achieve net zero GHG emissions as soon as possible, but no later than 2045, as established by Assembly Bill (AB) 1279.² The California Air Resources Board (CARB) is the agency responsible for addressing these goals and developing strategies to achieve them. Local jurisdictions in the State are completing local GHG inventories, forecasts, targets, and Climate Action Plans to align with SB 32 and AB 1279 and provide their fair share of GHG emissions reduction in support of the State's goals.

Based on the 2024 community GHG inventory prepared for the City, GHG emissions levels were forecasted out to 2030, 2035, 2040, and 2045. The emissions forecast provides projections of how GHG emissions are expected to change in the City based on forecasted changes in population and employment, as well as existing state legislation aimed at reducing GHG emissions through 2045.

GHG Forecast

A GHG emissions inventory establishes a reference point for a single year. However, annual GHG emissions change over time due to factors such as population and job change as well as new technologies and legislation. A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth and then accounting for GHG emissions reduction expected from currently adopted State legislation. This section includes an estimate of the future

¹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

² AB 1279 defines net zero GHG emissions as reducing GHG emissions at least 85 percent below 1990 levels. California also set a goal to reach 1990 levels by 2020, as established by AB 32. The 2020 goal set by AB 32 was achieved by the State in 2016. CARB. Frequently Asked Questions – California's 2022 Climate Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/2022-06/2022_Scoping_Plan_FAQ_6.21.22.pdf

emissions for the City in the years 2030, 2035, 2040 and 2045 in a *business-as-usual scenario* (BAU) forecast and a *legislative-adjusted scenario* (adjusted) forecast that are defined as follows:

- **Business-as-usual scenario:** Provides a forecast of how future GHG emissions would change if current activities continued as they did in 2024 absent of any policies or legislation that would reduce local emissions. The BAU forecast is based on projected trends in population, housing, and employment.
- **Legislative-adjusted scenario:** Provides a forecast of how currently adopted state legislation would reduce GHG emissions from the business-as-usual scenario. The legislative-adjusted scenario represents the State's contribution to reducing local GHG emissions to meet state goals without any additional contribution from local policies or actions.

The adjusted forecast incorporates the impact of state regulations that provide GHG emissions reduction potential to offer a more accurate picture of future GHG emissions growth and the responsibility of the City for further GHG emissions reduction.

Business-as-usual GHG Forecast Scenario

Future GHG emissions were calculated by multiplying projected activity data by the baseline emission factors used in the 2024 community GHG emissions inventory. Several indicator change rates were developed from 2024 activity data and applied to demographic projections to estimate future activity levels. Population and housing projections are based on 2024 estimates from the California Department of Finance E-5 Dataset³ and were projected through 2045 using the compound annual growth rates identified in the Butte County Association of Governments' (BCAG) Regional Growth Forecasts 2022-2045.⁴ Employment projections are based on 2024 estimates from the U.S. Census American Community Survey (ACS) 5-year estimates.⁵ Employment in 2045 was estimated using BCAG's projected percentage increase in countywide employment, with the assumption that the City will experience the same rate of growth as the county because city-specific employment growth rates were not available. Employment values for intermediate years were linearly interpolated between the 2024 baseline and the 2045 projected estimate. These demographic projections, including population, households, and employment, were then used to project future activity data and corresponding GHG emissions. These forecasting methods and data sources are consistent with those used in the City's CAP.

³ California Department of Finance. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2026. Available at: <https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2026/>

⁴ BCAG Regional Growth Forecasts 2022-2045. Available at: <https://www.bcag.org/growth-projections#docaccess-1d2d90d5d30308238365bcce17644fc5a514be847dfaae67a89dc1847ff9a848>

⁵ U.S. Census Bureau. American Community Survey (5-Year) for City of Chico. Available at: <https://data.census.gov/table/ACSDP5Y2017.DP03?t=Employment&g=160XX00US0613014>

A summary of the demographics metrics for each forecast year in the BAU forecast are provided in Table 1.

Table 1 City of Chico BAU Forecast Projection Metrics by Forecast Year

Metric	Data Source	2024	2030	2035	2040	2045
Population ¹	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	106,465	111,812	116,472	121,326	126,383
Employment ²	U.S. Census American Community Survey; BCAG Regional Growth Forecast CAGR	52,812	55,981	58,621	61,262	63,903
Service Population	Calculated ³	159,277	167,792	175,093	182,588	190,285
Households ⁴	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	44,849	47,101	49,064	51,109	53,239

Notes: BCAG = Butte County Association of Governments; CAGR = Compound Annual Growth Rate

¹ 2024 population from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for population.

² 2024 employment from U.S. Census' American Community Survey 5-year estimates; projected to 2045 using BCAG's county employment growth assumptions, with intermediate years linearly interpolated.

³ Service population is calculated as the combined total number of employees and residents.

⁴ 2024 households from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for households.

A description of the employment and demographic metrics used to project specific activity data and associated change factors for each forecasted GHG emission source in the 2024 community GHG emissions inventory are provided in Table 2.

Table 2 City of Chico 2024 GHG Emission Sources and Change Factors for BAU Scenario Forecast

GHG Emissions Source	Demographic Projection Metric	Change Factor	Value	Units
Energy				
Residential Natural Gas Consumption	Households	Natural Gas Consumption per Household	268	therms/household
Nonresidential Natural Gas Consumption	Employment	Natural Gas Consumption per Job	131	therms/job
Residential Electricity Consumption	Households	Electricity Consumption per Household	5,061	kWh/household
Nonresidential Electricity Consumption	Employment	Electricity Consumption per Job	4,312	kWh/job
Transportation				
Gasoline Sales	Service Population	Gallons per Service Person	82	gallons/service person
Diesel Sales	Service Population	Gallons per Service Person	9	gallons/service person
Solid Waste				
Solid Waste-in-Place	Service Population	Solid Waste Emissions per Service Person	0.14	MT CO ₂ e/service person
Notes: MT CO ₂ e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; Service Population/Service Person = the combined total number of employees and residents in the city.				

Using projection metrics in Table 1, multiplied by the change factors in Table 2 and the 2024 community GHG inventory emission factors, the BAU forecast can be calculated. In the BAU forecast, GHG emissions are projected to increase steadily through 2045, rising by approximately 17 percent above 2024 levels. This growth is primarily driven by continued increases in population, households, and employment. Transportation fuels and natural gas consumption remain the largest contributors to communitywide emissions under the BAU scenario. A summary of the BAU forecast results by GHG emission sector is provided in Table 3.

Table 3 City of Chico BAU Forecast Results Summary by Emission Sector

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	109,442	114,227	119,131	124,160
Residential Electricity	1,647	1,730	1,802	1,877	1,955
Nonresidential Electricity	1,653	1,752	1,835	1,917	2,000
Residential Natural Gas	63,806	67,010	69,803	72,712	75,742
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	129,627	135,367	141,257	147,303
Gasoline Sales	114,369	115,376	120,484	125,726	131,108
Diesel Sales	14,127	14,252	14,883	15,530	16,195
Solid Waste	22,348	23,543	24,568	25,619	26,669
Solid Waste Generation	22,348	23,543	24,568	25,619	26,669
Total	254,697	262,613	274,161	286,007	298,162

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO₂e). Values may not add to totals due to rounding.

Legislative-adjusted GHG Forecast Scenario

Several state regulations have been adopted that would reduce the City's GHG emissions below the BAU forecasted levels in 2030, 2035, 2040 and 2045. The impact of these regulations was quantified and incorporated into the adjusted forecast to provide a more accurate depiction of future emissions growth and the GHG emissions reduction responsibility the City. State legislation included in the adjusted forecast reduces GHG emissions associated with transportation, building efficiency and renewable electricity. A brief description of each regulation and the methodology used to calculate associated reductions is provided in the following section, as well as a description of why specific legislation was included or excluded from this forecast analysis.

GHG Reduction Legislation and Programs

As identified in CARB's 2022 Scoping Plan for Achieving Carbon Neutrality⁶ (2022 Scoping Plan), several legislative programs are expected to reduce GHG emissions in specific sectors throughout California. Many of these programs were incorporated into this forecast analysis as summarized below.

Transportation Legislation

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, which combined standards for criteria air pollutants and GHG emissions into a coordinated regulatory framework for passenger vehicles and light-duty trucks. The program established increasingly stringent vehicle GHG standards through model year 2025 and is reflected in the emissions factors and fleet characteristics incorporated into CARB's EMFAC2025 model.⁷

⁶ California Air Resources Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

⁷ California Air Resources Board (CARB). 2026. EMFAC2025 Technical Documentation. <https://emfac.arb.ca.gov/emfac2025-techdoc/EMFAC2025-Technical-Documentation-2026.pdf>

Advanced Clean Cars II (ACC II), adopted by CARB in 2022, requires an increasing share of new vehicle sales to be zero-emission vehicles (ZEVs), culminating in a 100 percent ZEV new vehicle sales requirement by 2035. However, CARB's EMFAC2025 Version 2.1 modeling framework removes the emissions benefits associated with ACC II due to ongoing federal regulatory challenges and resulting changes to CARB's regulatory assumptions. Consequently, emissions reductions attributable to ACC II are not reflected in this forecast and the forecast should therefore be considered conservative with respect to future transportation-sector emissions.

Advanced Clean Truck Regulation

The Advanced Clean Trucks (ACT) Regulation was adopted by CARB in 2020 and established ZEV sales requirements for manufacturers of medium- and heavy-duty vehicles, with increasing ZEV sales targets through 2035. Earlier versions of EMFAC incorporated the anticipated emissions benefits associated with ACT and increased adoption of zero-emission trucks. However, EMFAC2025 Version 2.1 was updated to reflect changing federal regulatory conditions and removes the emissions benefits previously associated with the ACT regulation. As a result, the transportation emissions forecasts presented in this analysis are based on EMFAC2025 Version 2.1 assumptions and do not include emissions reductions attributable to ACT implementation. Accordingly, the forecast may be considered conservative with respect to future medium- and heavy-duty vehicle GHG emissions.

Assembly Bill 1493

Signed into law in 2002, AB 1493 (The Pavley Standards) established the nation's first greenhouse gas (GHG) emission standards for passenger vehicles and light-duty trucks. The Pavley Standards required manufacturers to reduce GHG emissions from new vehicles beginning with the 2009 model year and laid the foundation for subsequent state and federal vehicle efficiency and emissions regulations. The emissions reductions associated with these standards are incorporated into CARB's EMFAC2025 model through vehicle fleet turnover, fuel economy improvements, and updated vehicle emission rates, and are therefore included in this forecast.

Innovative Clean Transit

The Innovative Clean Transit (ICT) Regulation was adopted by CARB in December 2018 to transition California's public transit fleet to zero-emission technologies. The regulation requires all public transit agencies to gradually increase purchases of zero-emission buses, culminating in a fully zero-emission transit bus fleet by 2040. The effects of the ICT regulation on transit fleet composition, energy consumption, and associated GHG emissions are incorporated into CARB's EMFAC2025 model and are included in this forecast. EMFAC2025 continues to account for projected growth in zero-emission transit buses using updated fleet and activity data.

Energy Legislation

Title 24

The adjusted forecast includes estimated energy savings from the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020.⁸ For residential buildings, the California Energy Commission (CEC) estimated the 2019 standards reduce electricity consumption by 53 percent and natural gas consumption by seven percent relative to the 2016 standards. For nonresidential buildings, the CEC estimated a 30 percent reduction in electricity consumption, while

⁸ CEC. 2020. 2019 Building Energy Efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>

no significant natural gas savings were projected due to limited requirements for commercial gas end uses.⁹ These reductions are incorporated into this GHG forecast through 2045.

The 2025 Title 24 standards, effective as of January 1, 2026, include more advanced measures to support building decarbonization; however, at this time the State has not released estimated energy or GHG savings associated with the updated standards.¹⁰ Therefore, to maintain a conservative forecast, the 2025 code updates are not included in the GHG reductions estimated in this analysis.

Renewables Portfolio Standard, Senate Bill 100, & Senate Bill 1020

Established in 2002 under SB 1078, enhanced in 2015 by SB 350, and accelerated for the first time in 2018 under SB 100, California's Renewable Portfolio Standard (RPS) requires investor-owned utilities, publicly owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 50 percent of total procurement by 2026 and 60 percent of total procurement by 2030. The RPS program further requires that by 2045 that 100 percent of total energy procured be a combination of eligible renewable energy resources and zero-carbon resources.

California's RPS was further accelerated in 2022 by SB 1020 that established additional requirements that procurement from eligible renewable energy resources and zero-carbon resources increase to 90 percent of total procurement by 2035 and 95 percent of total procurement by 2040. The RPS program and SB 1020 were incorporated into this GHG forecast by adjusting the electricity emissions factors for future years.

Pacific Gas and Electric (PG&E) currently provides electricity to the City and is subject to RPS requirements. PG&E's emission factors were adjusted for RPS requirements and used to project emissions through 2045. Table 4 provides the estimated electricity emission factors that would result from SB 100 and SB 1020.

Table 4 City of Chico Forecasted RPS and Electricity Emission Factors

Metric	2024	2030 ¹	2035	2040	2045
RPS (PG&E - Power Mix)	23%	60%	90%	95%	100%
Emission Factor (MT CO ₂ e/kWh)	0.000007	0.000004	0.000001	0.0000005	0

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; EF = emissions factor; RPS = Renewable Portfolio Standard; PG&E = Pacific Gas & Electric.

¹ 2030 values were interpolated between 2024 and 2035 to represent the SB 100 and SB 1020 renewable and carbon-free electricity goals of 90%, 95%, and 100% by 2035, 2040, and 2045, respectively.

Waste Legislation

Assembly Bill 939

In 1989, AB 939 established a mandate for local jurisdictions to divert 50 percent of solid waste from landfills through source reduction, recycling, and composting programs. The bill required each city and county in California to develop and implement a solid waste management plan, marking a significant shift from landfill-focused disposal to integrated waste management. As this mandate was fully

⁹ CEC. 2019 Building Energy Efficiency Standards: Frequently Asked Questions. Accessed at: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.

¹⁰ CEC. 2024. 2025 Building Energy Efficiency Standards. <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

implemented by 2000 and is considered a foundational policy rather than a driver of new reductions, no future emissions reductions associated with AB 939 are included in this adjusted forecast.

Assembly Bill 341

In 2011, AB 341 set the target of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (also known as CalRecycle) to take a Statewide approach to decreasing California's reliance on landfills. As actions under AB 341 are not assigned to specific local jurisdictions, potential future reductions from the bill were conservatively not included in this forecast.

Assembly Bill 1826

In 2014, AB 1826 set regulations in place requiring California businesses to recycle all of their organic waste starting in April 2016. The bill also required jurisdictions across the State to provide organic waste recycling programs to accommodate diverted waste from local businesses. As Ventura County has already implemented an organics collection program, implementation of AB 1826 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with AB 1826 are included in this adjusted forecast.

Senate Bill 1383

SB 1383 established a methane emission reduction target for short-lived climate pollutants in various sectors of the economy, including waste. Specifically, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the Statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025.¹¹ Additionally, SB 1383 requires a 20 percent reduction in "current"¹² edible food disposal by 2025. As local waste providers such as North Valley Waste Management have already implemented an organics collection program for the City, implementation of SB 1383 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with SB 1383 are included in this adjusted forecast.

Legislative-adjusted Scenario Forecast Results

In the adjusted emissions forecast, total GHG emissions decline gradually through 2045, driven primarily by substantial reductions in electricity-related emissions and continued decreases in transportation emissions resulting from state policies and regulations already in effect.

The electricity sector includes the steepest decline, reaching near zero by the end of the forecast period as California's clean energy policies continue to transform the electric grid. The forecast incorporates increasing renewable energy requirements and statewide grid decarbonization targets established through SB 100 and SB 1020, which require utilities to transition toward carbon-free electricity. As a result, electricity-related emissions become a negligible component of the community's overall emissions profile over time.

Transportation emissions also decline steadily throughout the forecast period due to the combined effects of vehicle fleet turnover and the suite of statewide regulations. These regulations include increasingly stringent vehicle emission standards, expanded deployment of zero-emission vehicles,

¹¹ CalRecycle. California's Short-Lived Climate Pollutant Reduction Strategy. <https://calrecycle.ca.gov/organics/slcp/>

¹² SB 1383 does not specify a baseline year for the 20 percent food recovery target, however, CalRecycle's 2018 Statewide waste characterization studies will be used to help measure the baseline for the State to meet its SB 1383 goals. <https://calrecycle.ca.gov/organics/slcp/faq/foodrecovery/#:~:text=SB%201383%20requires%20the%20state,for%20individual%20jurisdictions%20to%20achieve.>

cleaner fuels, and other transportation-sector programs that reduce emissions from both passenger and commercial vehicles. While transportation remains a significant source of emissions, the projected reductions reflect the continued implementation of these existing state policies.

In contrast, natural gas emissions increase gradually through 2024 due to population and employment growth. However, the rate of increase is lower than may be expected under a BAU scenario due to the influence of state building energy efficiency requirements and appliance standards. The forecast incorporates the effects of California's 2019 Title 24 Building Energy Efficiency Standards, which reduce energy demand in new construction and major renovations, as well as ongoing improvements in equipment efficiency. These regulations help moderate growth in natural gas consumption despite continued development and building activity.

Solid waste emissions also increase over time, primarily resulting from projected population growth and the associated increase in waste generation. Existing organic waste diversion efforts are already reflected in the baseline activity data and are therefore incorporated into the forecast. However, the solid waste forecast was not adjusted to account for additional future reductions from local waste diversion programs or enhanced organics collection because data on the future performance and implementation of local waste reduction measures were not available. As a result, the solid waste forecast represents a conservative assumption that extrapolates current conditions forward.

A detailed summary of the projected GHG emissions under the adjusted forecast by sector and year through 2045 can be found in Table 5.

Table 5 City of Chico Legislative-adjusted Scenario Forecast Results

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	107,527	110,625	114,947	119,369
Residential Electricity	1,647	886	223	114	0
Nonresidential Electricity	1,653	905	231	119	0
Residential Natural Gas	63,806	66,786	69,383	72,089	74,907
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	114,338	105,479	98,205	91,755
Gasoline Sales	114,369	101,259	93,410	86,505	80,040
Diesel Sales	14,127	13,079	12,069	11,699	11,715
Solid Waste	22,348	23,543	24,568	25,619	26,699
Solid Waste Generation	22,348	23,543	24,568	25,619	26,699
Total	254,697	245,408	240,672	238,771	237,823

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add to totals due to rounding.

Legislative GHG Emissions Reduction Contribution

A summary of the reductions from the BAU forecast that can be expected under the adjusted forecast are provided in Table 6.

Table 6 Summary of City of Chico's Legislative GHG Emission Reductions

Metric	2024	2030	2035	2040	2045
California RPS	0	1,618	3,045	3,360	3,688
Title 24	0	298	556	825	1,103
Transportation Legislation (Advanced Clean Cars Program, Pavley Standards, Innovative Clean Transit)	0	15,290	29,887	43,052	55,548
Total	0	17,205	33,489	47,236	60,339

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add up to totals due to rounding.

Provisional GHG Emissions Targets

GHG reduction targets are used in climate action planning to establish metrics that guide the community's commitment to achieve GHG emissions reductions and help gauge progress in reducing emissions over time. California has established Statewide GHG reduction goals for 2030 and 2045, relative to a 1990 baseline emissions level. Accordingly, communities should maintain a 1990 GHG inventory or develop one using a back-casting methodology to establish an appropriate baseline for target setting. The 2022 Scoping Plan encourages local agencies to take ambitious, coordinated climate action that is consistent with and supportive of the State climate goals.¹³ Thus, local agencies are recommended to establish equivalent reduction targets at the local level with communitywide GHG reduction goals for climate action that will help California achieve its 2030 and 2045 goals.

1990 GHG Emissions Back-Cast

The City does not have a 1990 GHG emissions inventory against which to develop GHG reduction targets consistent with SB 32. However, 1990 GHG emissions can be estimated for the community using a State-level emissions change metric.

The City's 1990 GHG emissions were estimated using the State's 2023 GHG emissions inventory, which is the State's most recent GHG inventory available at the time of analysis was for 2023. This approach allows comparison with the State's 1990 inventory to approximate the percent reduction in community emissions between 1990 and 2023. This approach assumes that the City's communitywide GHG emissions have generally tracked State GHG emissions over the same timeframe. The calculation is developed using the published Statewide emissions results from CARB¹⁴ after removing emissions from sectors not included in the City 2024 inventory¹⁵ (e.g., aviation, non-specified, etc.). The 1990 GHG emissions back-cast for the City is shown in Table 7.

¹³ California Air Resources Board. 2022. California's Climate Change Scoping Plan, p.268. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

¹⁴ CARB. 2024. California GHG Emission Inventory Program. <https://ww2.arb.ca.gov/ghg-inventory-data#data> and data therein.

¹⁵ Sectors removed from the statewide emissions sum in alignment with the 2024 GHG Inventory include: transportation: aviation, water-borne, rail, and not specified; industrial (less landfills); agriculture and forestry, and non-specified sectors.

Table 7 1990 GHG Emissions Back-Cast Calculations

1990 Back-Cast Calculations	
2023 Statewide GHG Emissions (MT CO ₂ e)	240,940,000
1990 Statewide GHG Emissions (MT CO ₂ e)	300,060,000
1990 to 2023 Statewide GHG Emissions Change (%)	-19.7%
2024 City of Chico GHG Emissions (MT CO ₂ e)	254,697
1990 City of Chico GHG Emissions (MT CO ₂ e)	317,190

GHG Targets and Gap Analysis

The purpose of GHG emissions reduction target setting is to develop a trajectory for achieving the State 2030 goal (SB 32) and prepare for the extensive decarbonization needed by 2045 in an efficient manner by setting an incremental path toward achieving the AB 1279 carbon neutrality goal. CARB guidance is for jurisdictions to first strive to exceed the SB 32 target of reducing GHG emissions by 40 percent below 1990 levels, while establishing a policy framework to achieve the longer-term target of carbon neutrality by 2045. Target setting is an iterative process that must be informed by the GHG emissions reductions that can realistically be achieved through the development of feasible GHG reduction measures. Achieving established targets will require major shifts in how communities within California obtain and use energy, transport themselves and goods, and how the population lives and builds.

Table 8 provides a summary of the GHG emission reduction targets.

Table 8 GHG Emissions Reduction Targets and Gap Analysis (MT CO₂e)

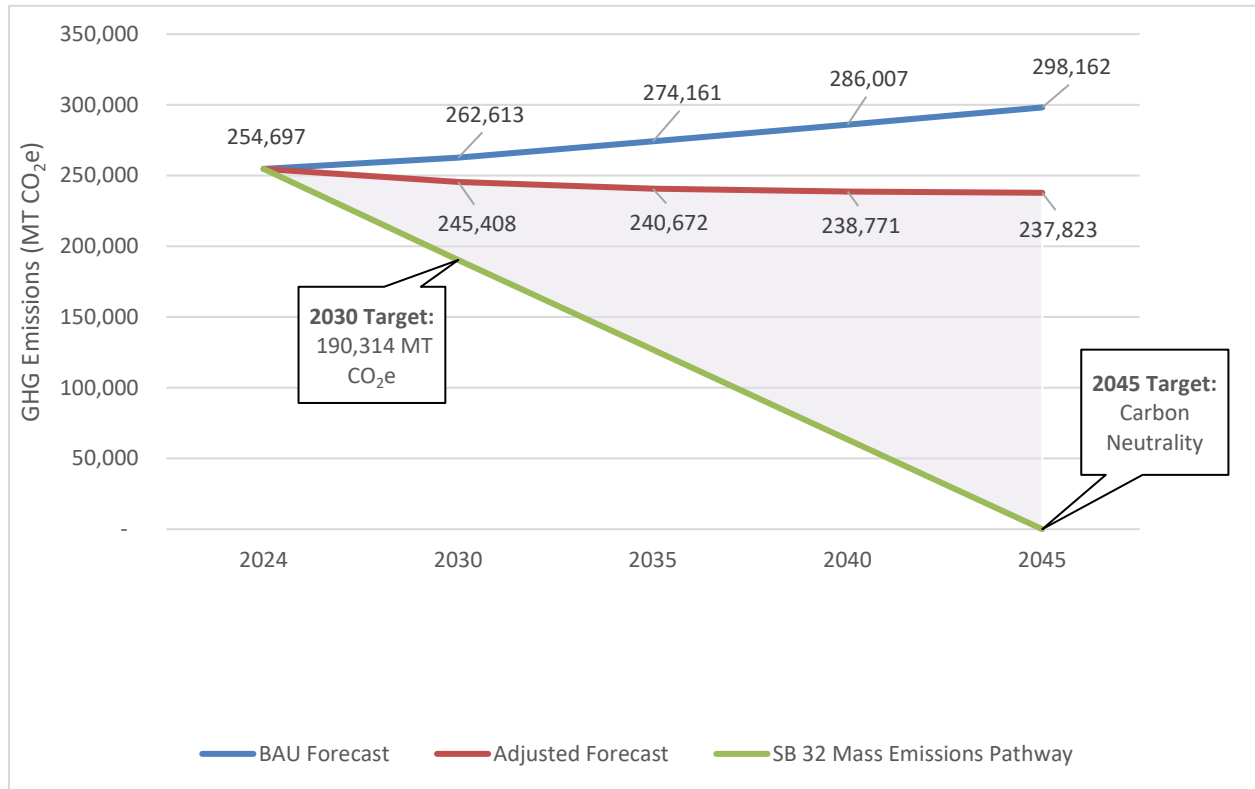
Emissions Forecast or Pathway	2024	2030	2035	2040	2045
Mass Emissions Target Pathway Scenario (MT CO₂e)					
Adjusted Forecast	254,697	245,408	240,672	238,771	237,823
SB 32 Mass Emissions Target Pathway ¹	254,697	190,314	126,876	63,438	0
Remaining Emissions Gap	0	55,093	113,796	175,333	237,823

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; Emissions have been rounded to the nearest whole number and therefore sums may not match.

1. The target pathway is calculated by reducing 1990 mass emissions by 40% in 2030 and to 0 in 2045. This provisional target pathway is consistent with both SB 32 and a trajectory set forth to achieve AB 1279.

Figure 1 provides a visual representation of forecasted future GHG emissions along with the effects of established State legislation and the remaining gap for which the City will be responsible in order to meet their share of GHG emission reduction goals set by the State.

Figure 1 GHG Emissions Forecast and Provisional Targets for the City of Chico



August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 Community GHG Emissions Inventory Update - Summary of Results for the City of Chico, CA

Dear Ms. Marcussen:

This memorandum provides a summary of the results for the City of Chico's 2024 community greenhouse gas (GHG) emissions inventory update. This GHG emissions inventory provides an update to the 2005-2017 GHG inventories and has consistently been completed in accordance with established GHG accounting protocols and state guidance. The GHG inventory focuses on communitywide emissions generated from residents and commercial operations within the city and is organized by emission sector. The inventory includes sources within each sector that are under some degree of jurisdictional control by the City of Chico (the City). A brief section on the inventory methodology and any updates made to previous GHG inventories to maintain consistency with current data sets are detailed below. The 2024 GHG inventory is intended to enable the City to track emissions trends over time, compare changes across sectors, and evaluate progress toward GHG emissions reduction goals and strategies.

Methodology

The following sections describe the framework used to calculate and report communitywide GHG emissions and updates to calculation methodologies used in current or prior GHG inventories.

ICLEI Community Protocol Calculation and Reporting Framework

Consistent with previous GHG inventories completed for the City, this 2024 GHG inventory follows state guidance and the calculation and reporting standards outlined in Local Governments for Sustainability (ICLEI) United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol).¹ GHG emissions in the 2024 GHG inventory are classified into the following three GHG emissions sectors to align with historical GHG inventories:

- Building Energy²
- On-road Transportation
- Solid Waste

¹ ICLEI. July 2019. U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. Available at: <https://icleiusa.org/us-community-protocol/>

² Building energy includes electricity and natural gas consumption, and covers all energy used to transport and treat water and wastewater used and produced within city limits.



The 2024 GHG inventory covers the relevant emissions sources within the boundary of the city (i.e., city limits). The GHG inventory, therefore, reflects emissions sectors the community contributes to and over which the City has some degree of jurisdictional control and influence. Sectors where the City's jurisdiction has limited influence are excluded from the 2024 GHG inventory, as the City does not have the authority to develop GHG reduction measures to impact those associated GHG emissions. Exclusions include sectors such as military, forestry, and locomotive equipment, which are regulated by state, federal, and/or other governing bodies and not by the City. This method of exclusion for the emissions boundary aligns with Community Protocol standards and is recommended by state guidance for inventory, forecast, and targets setting.³

GHG emissions were calculated by multiplying the activity data in each GHG emissions sector by an associated emission factor. Activity data refers to the relevant measured or estimated level of GHG-generating activity (e.g., electricity consumption, gallons of gasoline). Emission factors, sourced from U.S. Environmental Protection Agency's GHG Emission Factors Hub, are observation-based conversion factors used to equate activity data to generated GHG emissions. Emission factors from U.S. EPA's Emission Factors Hub are updated annually to reflect the best available data and methods for estimating GHG emissions from common activity sources. Additionally, the inventory used global warming potential (GWP) values for methane (CH₄) and nitrous oxide (N₂O) consistent with the latest version of the Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5)⁴ to align with the previous GHG inventories completed by the City.

GHG Inventory Updates

The following sections describe updates made to the 2005-2017 GHG inventories during preparation of the 2024 GHG Inventory to align with the best available data, models, and analytical approaches.

On-road Transportation Fuel – Updated Diesel Activity Data

The Community Protocol identifies vehicle miles traveled (VMT) as the preferred activity data source for estimating on-road transportation emissions. However, application of VMT-based methods can be challenging where locally calibrated travel demand modeling or other high-quality VMT data are unavailable. In Chico, previous GHG inventory work⁵ evaluated both VMT- and fuel-sales-based approaches and concluded that, given the city's relative geographic isolation and the lack of high-quality local VMT estimates, transportation fuel sales data likely provided a more representative basis for estimating community-wide transportation emissions. As a result, and to align with previous GHG inventories, a fuel-sales-based methodology was selected for the transportation sector.

In the 2005-2017 GHG inventories, on-road transportation emissions were estimated using transportation fuel sales data obtained from the California State Board of Equalization (BOE) for the Chico Urban Area (i.e., the City of Chico). Since completion of the 2005-2017 GHG inventories, the California State Board of Equalization has been reorganized, and responsibility for fuel tax administration and reporting has been transferred to the California Department of Tax and Fee Administration (CDTFA). Updated diesel fuel sales data obtained from CDTFA differed substantially from the diesel sales data previously provided by BOE. Clarification regarding the discrepancy was

³ Governor's Office of Land Use and Climate Innovation (LCI). 2023. Chapter 8, Climate Change. Available at: https://www.opr.ca.gov/docs/OPR_C8_final.pdf.

⁴ IPCC Fifth Assessment Report. Available at: <https://www.ipcc.ch/assessment-report/ar5/>

⁵ Fletcher, Alexander. Developing a High-Level Greenhouse Gas Emissions Inventorying Protocol for Local Government Climate Action Management: Chico, CA - A Case Study. M.S. Project, California State University, Chico, 2017, pp. 4-5, 29-30. Available at: [File | Alexander-Fletcher-2017-fall-project.pdf](#) | ID: w9505114f | [ScholarWorks](#)



requested, however, CDTFA was unable to provide information explaining the differences between the two datasets.

To maintain consistency between the historical BOE dataset (2005–2017) and the updated CDTFA dataset (2019–2024), a proportional scaling approach was applied to the historical diesel fuel sales data. A scaling factor was calculated using the ratio of the first year of the CDTFA dataset (2019) to the final year of the BOE dataset (2017) and applied to all BOE diesel fuel sales values from 2005–2017. This method preserves the year-to-year variability and overall trend observed in the original BOE dataset while aligning the magnitude of the historical series with the revised CDTFA dataset. This approach is consistent with IPCC guidance⁶ on time-series consistency, which recommends the use of "overlap" or "splicing" techniques to reconcile datasets developed using different methods or reporting systems while preserving emissions trends over time.

The resulting adjusted activity data were then used to estimate historical transportation emissions for consistency with the updated fuel sales records. The resulting diesel fuel sales trend is consistent with regional planning data from the Butte County Association of Governments, which shows that local transportation and transit funds tied directly to diesel sales tax allocations are shrinking as overall fuel consumption declines.⁷

Table 3 includes the updated activity data and GHG emissions from the on-road transportation sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Landfilled Solid Waste – Updated Emission Factors

In the 2005-2017 GHG inventories, emissions from landfilled solid waste were estimated using an emission factor that has since been superseded by updated guidance. The updated emission factor reflects the most current methodology available through the Community Protocol and improves consistency with current GHG accounting practices. To maintain consistency across inventory years and ensure comparability of trends, the updated emission factor was applied to both the 2024 GHG inventory and all previously completed GHG inventories for the City. As part of the 2024 inventory update, historical solid waste emissions were recalculated using the updated emission factor, resulting in a consistent emissions dataset across all inventory years. The City did not have data on organic waste diversion, therefore a mixed municipal solid waste factor from the Community Protocol was used to estimate the organic content of landfilled waste.

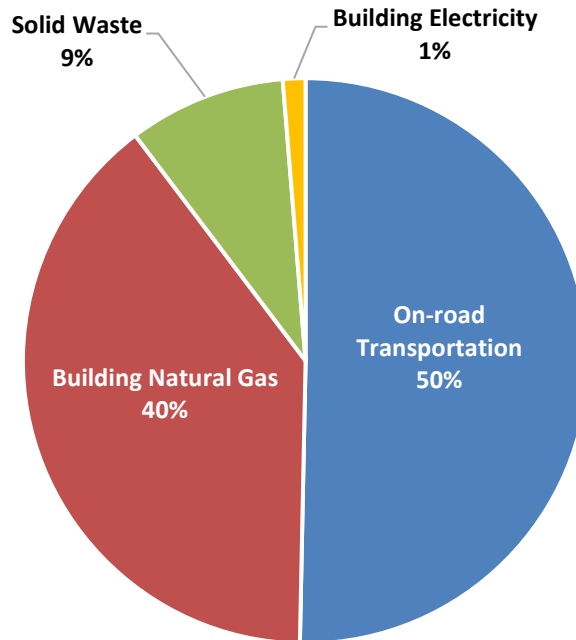
Table 3 includes the updated GHG emissions from the landfilled solid waste sector for the 2017 and 2024 inventory years. Updated activity data and GHG emissions for all years can be found in the GHG inventory tool, attached.

Summary of Results

In 2024, the City emitted approximately 254,697 metric tons of carbon dioxide equivalents (MT CO_{2e}). GHG emissions were primarily driven by on-road transportation, followed by residential and commercial natural gas usage. Figure 1 and Table 1 show the share of total emissions for the community broken out by communitywide activity.

⁶ IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, Volume 1, Chapter 5, "Time Series Consistency," Section 5.3.3 Splicing Techniques. Available at:

⁷ Butte County Association of Governments (BCAG), *Board of Directors Regular Meeting Agenda*, May 28, 2026. Available at: <https://www.bcag.org/files/0059fc8d3/BCAG+BOD+Full+Agenda+5-28-26.pdf>

Figure 1 2024 GHG Emissions (MT CO₂e)**Table 1 2024 City GHG Emissions**

Sector	Subsector	GHG Emissions (MT CO ₂ e)	Percent of Total
Building Energy ¹	Residential Electricity	1,647	<1%
	Nonresidential Electricity	1,653	<1%
	Electricity Sub Total	3,300	1%
	Residential Natural Gas	63,806	25%
	Nonresidential Natural Gas	36,746	14%
	Natural Gas Sub Total	100,551	40%
On-road Transportation	Gasoline Sales	114,369	45%
	Diesel Sales	14,127	6%
	Sub Total	128,497	50%
Solid Waste	Landfill Methane	22,348	9%
	Sub Total	22,999	9%
Total		254,697	100%

Notes: Percentages may not add as expected due to rounding. MT = metric tons; CO₂e = carbon-dioxide equivalents.

1. In alignment with previous GHG inventories, it is assumed that all energy used to transport and treat water and wastewater used and produced within city limits are captured under the building electricity and natural gas sectors. Additionally, it is assumed that EV charging electricity within city limits is captured under the building electricity sector.



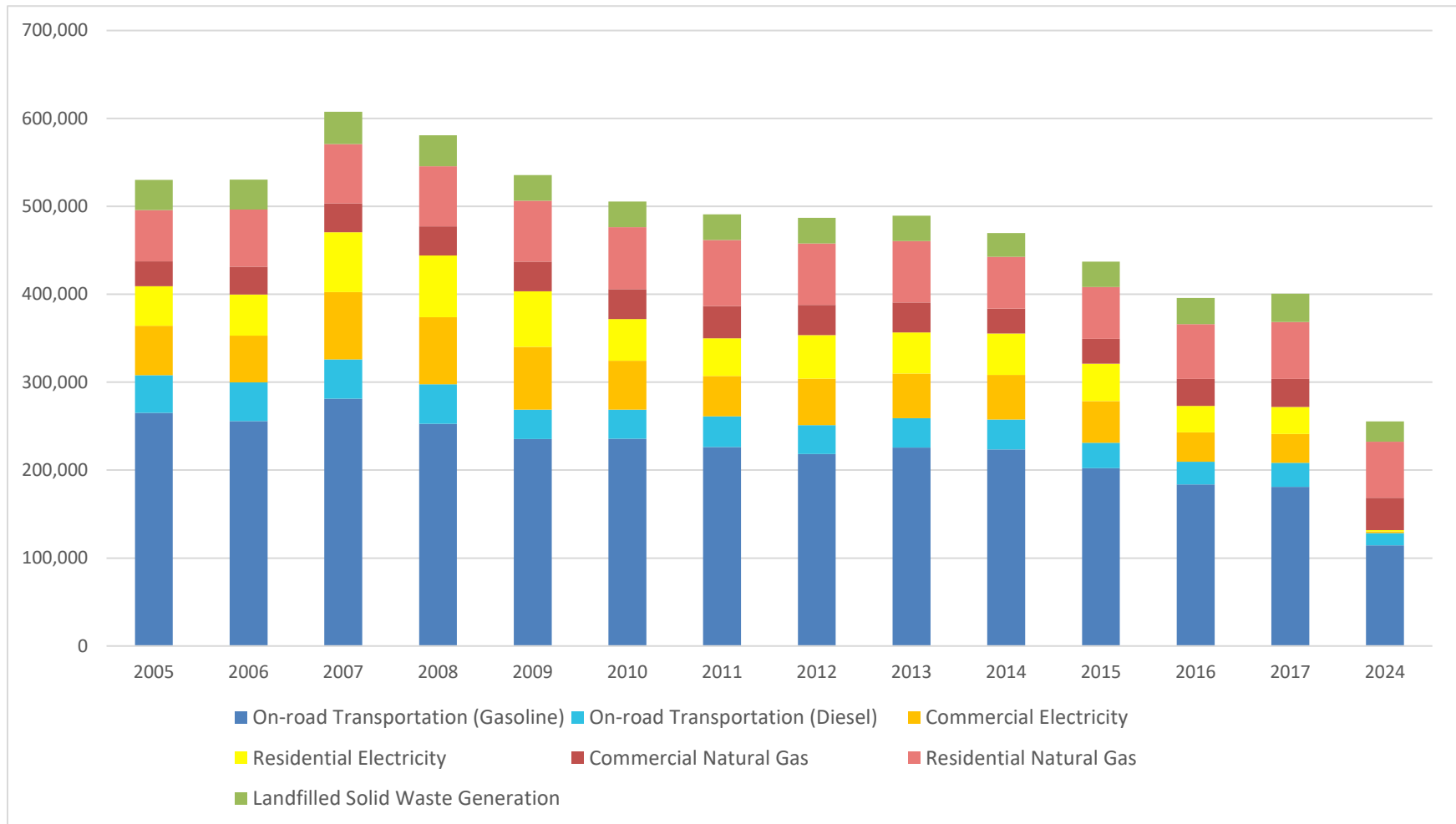
Historical Comparisons

Activity data and GHG emissions from the previous baseline (2017) and new baseline (2024) are presented in Table 2 below. Figure 2 summarizes GHG emissions from all inventories completed between 2005 and 2024 to illustrate the trajectory of communitywide emissions over time.

Table 2 Previous and New Baseline Comparison

Sector	Subsector	2017	2024	Units
Building Energy	Residential Electricity	235,187,470	226,963,335	kWh
	Nonresidential Electricity	249,720,494	227,733,760	kWh
	Residential Natural Gas	12,204,431	12,012,842	therms
	Nonresidential Natural Gas	6,015,786	6,918,181	therms
	Sub Total	160,109	103,851	MT CO₂e
On-road Transportation	Gasoline Sales	20,597,450	13,026,130	gallons
	Diesel Sales	2,684,463	1,383,692	gallons
	Sub Total	208,439	128,497	MT CO₂e
Solid Waste	Landfill Methane	82,440	59,123	tons
	Sub Total	31,162	22,348	MT CO₂e
Total		399,711	254,697	MT CO₂e
Per Capita		4.7	2.4	MT CO₂e/capita

Figure 2 Annual Communitywide GHG Emissions (MT CO₂e)





Discussion of Trends

Communitywide GHG emissions in Chico generally increased through the early 2000s and reached a peak in 2007, as depicted in Figure 2, driven largely by elevated transportation fuel consumption and the higher carbon intensity of California's electricity grid during that period. Strong economic growth, increased travel demand, and rising residential and commercial energy consumption also contributed to elevated emissions during this period. Since 2007, emissions have generally trended downward despite continued population growth and economic activity, demonstrating a growing decoupling of emissions from community growth. This decline reflects the cumulative impacts of California's climate and energy policies implemented over the past two decades. Key drivers include the Global Warming Solutions Act of 2006 (AB 32), which established California's first statewide GHG reduction targets and launched programs such as the Cap-and-Trade Program and Low Carbon Fuel Standard (LCFS); the state's Renewable Portfolio Standard (RPS), which steadily increased the share of electricity generated from renewable sources; and increasingly stringent Title 24 Building Energy Efficiency Standards and appliance efficiency regulations that have reduced energy demand in homes and businesses. Transportation emissions have also been influenced by California's Advanced Clean Cars Program, vehicle GHG and fuel economy standards, and growing adoption of zero-emission vehicles (ZEV) supported by state incentives and infrastructure investments. Together, these policies have reduced the carbon intensity of both electricity and transportation fuels while improving energy efficiency across the built environment.

The comparison between the 2017 and 2024 inventories further illustrates this pattern. During this period, Chico's population increased, yet most major activity indicators either declined or remained relatively stable, resulting in a 36 percent reduction in communitywide GHG emissions. Residential and commercial electricity consumption showed little growth, residential natural gas consumption declined, and both gasoline and diesel consumption decreased. These trends suggest that efficiency improvements in buildings, appliances, and vehicles have largely offset the energy demands associated with population growth.

Transportation activity presents one of the clearest examples of this trend. Gasoline and diesel consumption declined between 2017 and 2024 despite an increasing population. This likely reflects multiple factors, including improved vehicle fuel economy, increasing adoption of hybrid and electric vehicles, turnover to newer and more efficient vehicles, and continued implementation of state transportation policies such as the LCFS, Advanced Clean Cars program, and investments in ZEV infrastructure. Vehicle registration data⁸ indicate that ZEV adoption accelerated substantially during this period. Within Chico ZIP codes, the number of registered ZEVs increased from 255 vehicles in 2017 to 2,068 vehicles in 2024, an increase of approximately 711 percent. Regional market trends show a similar pattern. In Butte County, annual new light-duty vehicle sales that were ZEVs increased from 3.7 percent in 2020 to 11.6 percent in 2024. Supporting infrastructure has also expanded, with Butte County reporting 368 public and shared-private charging ports as of 2026, including 66 DC fast-charging ports. Together, these trends suggest that increasing vehicle efficiency and early-stage transportation electrification are contributing to declining gasoline and diesel consumption despite continued population growth. While internal combustion vehicles still comprise the vast majority of

⁸ California Energy Commission. Zero Emission Vehicle and Infrastructure Statistics Collection. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection>

vehicles in Chico, the rapid growth in ZEV adoption indicates that transportation emissions reductions may continue to accelerate as newer electric or hybrid vehicles replace older gasoline and diesel-powered vehicles.

Building energy trends show a similar but more nuanced story. Residential electricity use and residential natural gas consumption both decreased between 2017 and 2024, suggesting continued gains from energy efficiency improvements and more efficient buildings. Commercial electricity use remained relatively stable, while commercial natural gas consumption increased. This increase may be associated with growth in commercial floor area, increased economic activity, or continued reliance on natural gas equipment within the commercial sector. Regardless of the cause, it indicates that commercial natural gas remains an important source of community emissions and a significant opportunity for future reductions.

Notably, the inventory does not yet show strong evidence of widespread building electrification. As homes and businesses replace natural gas space heating, water heating, and cooking equipment with electric alternatives, communities would typically be expected to see declining natural gas consumption accompanied by modest increases in electricity consumption. While residential natural gas use has decreased, electricity consumption has not increased in a way that would suggest large-scale fuel switching, and commercial natural gas use has increased rather than declined. This indicates that many of the reductions observed to date have likely been driven by efficiency improvements rather than full electrification of end uses.

The inventory therefore highlights an important opportunity for local action. Chico's Climate Action Plan⁹ (CAP) already identifies pathways that could accelerate this transition, including new and existing building electrification through building ordinances. However recent legislation, Assembly Bill (AB) 130¹⁰, generally limits the adoption of new residential building standards by the California Building Standards Commission and local agencies between June 2025 and June 1, 2031. While this may constrain implementation of certain CAP measures, the legislation includes several exceptions that may preserve some local authority. For example, AB 130 allows certain code amendments that are substantially equivalent to local amendments already in effect as of September 30, 2025. The legislation also provides an exception for certain code amendments adopted to implement a General Plan approved on or before June 10, 2025, provided the amendment permits mixed-fuel residential construction while incentivizing all-electric construction as part of an adopted GHG reduction strategy. Chico's General Plan, adopted in April 2011 and amended March 2017, appears to satisfy the General Plan timing criterion. As a result, the extent to which AB 130 affects implementation of Chico's building electrification measures will depend on the specific design of future ordinances and their consistency with the statute's exemptions.

The 2024 inventory suggests that statewide programs have successfully reduced the emissions intensity of energy use, but achieving deeper emissions reductions will likely require greater local implementation of electrification and energy transition strategies already identified by the City.

⁹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

¹⁰ California Assembly Bill 130 (2025), Chapter 5, Statutes of 2025. Available at: <https://legiscan.com/CA/text/AB130/id/3260236>

August 20, 2026
Project No: 25-18500

Molly Marcussen, Associate Planner
City of Chico, Community Development Department
411 Main Street
Chico, California 95927
Via email: molly.marcussen@chicoca.gov

Subject: 2024 GHG Emissions Forecast and Targets Summary of Results for the City of Chico

Dear Ms. Marcussen:

This document summarizes the findings of the City of Chico's (the City) 2024 community greenhouse gas (GHG) emissions forecast and provisional targets. This summary provides an overview of the data, methodologies, and results of the calculated targets and the forecasted communitywide GHG emissions. GHG emissions forecast and targets were originally developed as part of Chico's Climate Action Plan¹ (CAP), however the City now seeks to update them using the most current GHG emissions and demographic data.

California has established statewide GHG emissions reduction goals to mitigate negative climate change impacts and transition the state to a low-carbon economy. In particular, the State has established goals to reduce statewide GHG emissions 40 percent below 1990 levels by 2030, as established by Senate Bill (SB) 32 and achieve net zero GHG emissions as soon as possible, but no later than 2045, as established by Assembly Bill (AB) 1279.² The California Air Resources Board (CARB) is the agency responsible for addressing these goals and developing strategies to achieve them. Local jurisdictions in the State are completing local GHG inventories, forecasts, targets, and Climate Action Plans to align with SB 32 and AB 1279 and provide their fair share of GHG emissions reduction in support of the State's goals.

Based on the 2024 community GHG inventory prepared for the City, GHG emissions levels were forecasted out to 2030, 2035, 2040, and 2045. The emissions forecast provides projections of how GHG emissions are expected to change in the City based on forecasted changes in population and employment, as well as existing state legislation aimed at reducing GHG emissions through 2045.

GHG Forecast

A GHG emissions inventory establishes a reference point for a single year. However, annual GHG emissions change over time due to factors such as population and job change as well as new technologies and legislation. A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth and then accounting for GHG emissions reduction expected from currently adopted State legislation. This section includes an estimate of the future

¹ City of Chico Climate Action Plan Update. 2021. Available at: https://chicocap.rinconconsultants.com/wp-content/uploads/2021/10/19-08390_Chico-CAP-Update_Final-Draft-Complete.pdf

² AB 1279 defines net zero GHG emissions as reducing GHG emissions at least 85 percent below 1990 levels. California also set a goal to reach 1990 levels by 2020, as established by AB 32. The 2020 goal set by AB 32 was achieved by the State in 2016. CARB. Frequently Asked Questions – California's 2022 Climate Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/2022-06/2022_Scoping_Plan_FAQ_6.21.22.pdf

emissions for the City in the years 2030, 2035, 2040 and 2045 in a *business-as-usual scenario* (BAU) forecast and a *legislative-adjusted scenario* (adjusted) forecast that are defined as follows:

- **Business-as-usual scenario:** Provides a forecast of how future GHG emissions would change if current activities continued as they did in 2024 absent of any policies or legislation that would reduce local emissions. The BAU forecast is based on projected trends in population, housing, and employment.
- **Legislative-adjusted scenario:** Provides a forecast of how currently adopted state legislation would reduce GHG emissions from the business-as-usual scenario. The legislative-adjusted scenario represents the State's contribution to reducing local GHG emissions to meet state goals without any additional contribution from local policies or actions.

The adjusted forecast incorporates the impact of state regulations that provide GHG emissions reduction potential to offer a more accurate picture of future GHG emissions growth and the responsibility of the City for further GHG emissions reduction.

Business-as-usual GHG Forecast Scenario

Future GHG emissions were calculated by multiplying projected activity data by the baseline emission factors used in the 2024 community GHG emissions inventory. Several indicator change rates were developed from 2024 activity data and applied to demographic projections to estimate future activity levels. Population and housing projections are based on 2024 estimates from the California Department of Finance E-5 Dataset³ and were projected through 2045 using the compound annual growth rates identified in the Butte County Association of Governments' (BCAG) Regional Growth Forecasts 2022-2045.⁴ Employment projections are based on 2024 estimates from the U.S. Census American Community Survey (ACS) 5-year estimates.⁵ Employment in 2045 was estimated using BCAG's projected percentage increase in countywide employment, with the assumption that the City will experience the same rate of growth as the county because city-specific employment growth rates were not available. Employment values for intermediate years were linearly interpolated between the 2024 baseline and the 2045 projected estimate. These demographic projections, including population, households, and employment, were then used to project future activity data and corresponding GHG emissions. These forecasting methods and data sources are consistent with those used in the City's CAP.

³ California Department of Finance. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2026. Available at: <https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2026/>

⁴ BCAG Regional Growth Forecasts 2022-2045. Available at: <https://www.bcag.org/growth-projections#docaccess-1d2d90d5d30308238365bcce17644fc5a514be847dfaae67a89dc1847ff9a848>

⁵ U.S. Census Bureau. American Community Survey (5-Year) for City of Chico. Available at: <https://data.census.gov/table/ACSDP5Y2017.DP03?t=Employment&g=160XX00US0613014>

A summary of the demographics metrics for each forecast year in the BAU forecast are provided in Table 1.

Table 1 City of Chico BAU Forecast Projection Metrics by Forecast Year

Metric	Data Source	2024	2030	2035	2040	2045
Population ¹	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	106,465	111,812	116,472	121,326	126,383
Employment ²	U.S. Census American Community Survey; BCAG Regional Growth Forecast CAGR	52,812	55,981	58,621	61,262	63,903
Service Population	Calculated ³	159,277	167,792	175,093	182,588	190,285
Households ⁴	California Department of Finance E-5 Dataset; BCAG Regional Growth Forecast CAGR	44,849	47,101	49,064	51,109	53,239

Notes: BCAG = Butte County Association of Governments; CAGR = Compound Annual Growth Rate

¹ 2024 population from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for population.

² 2024 employment from U.S. Census' American Community Survey 5-year estimates; projected to 2045 using BCAG's county employment growth assumptions, with intermediate years linearly interpolated.

³ Service population is calculated as the combined total number of employees and residents.

⁴ 2024 households from the California Department of Finance E-5 dataset; projected to 2045 using BCAG's Regional Growth Forecasts (2022-2045) CAGR for households.

A description of the employment and demographic metrics used to project specific activity data and associated change factors for each forecasted GHG emission source in the 2024 community GHG emissions inventory are provided in Table 2.

Table 2 City of Chico 2024 GHG Emission Sources and Change Factors for BAU Scenario Forecast

GHG Emissions Source	Demographic Projection Metric	Change Factor	Value	Units
Energy				
Residential Natural Gas Consumption	Households	Natural Gas Consumption per Household	268	therms/household
Nonresidential Natural Gas Consumption	Employment	Natural Gas Consumption per Job	131	therms/job
Residential Electricity Consumption	Households	Electricity Consumption per Household	5,061	kWh/household
Nonresidential Electricity Consumption	Employment	Electricity Consumption per Job	4,312	kWh/job
Transportation				
Gasoline Sales	Service Population	Gallons per Service Person	82	gallons/service person
Diesel Sales	Service Population	Gallons per Service Person	9	gallons/service person
Solid Waste				
Solid Waste-in-Place	Service Population	Solid Waste Emissions per Service Person	0.14	MT CO ₂ e/service person
Notes: MT CO ₂ e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; Service Population/Service Person = the combined total number of employees and residents in the city.				

Using projection metrics in Table 1, multiplied by the change factors in Table 2 and the 2024 community GHG inventory emission factors, the BAU forecast can be calculated. In the BAU forecast, GHG emissions are projected to increase steadily through 2045, rising by approximately 17 percent above 2024 levels. This growth is primarily driven by continued increases in population, households, and employment. Transportation fuels and natural gas consumption remain the largest contributors to communitywide emissions under the BAU scenario. A summary of the BAU forecast results by GHG emission sector is provided in Table 3.

Table 3 City of Chico BAU Forecast Results Summary by Emission Sector

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	109,442	114,227	119,131	124,160
Residential Electricity	1,647	1,730	1,802	1,877	1,955
Nonresidential Electricity	1,653	1,752	1,835	1,917	2,000
Residential Natural Gas	63,806	67,010	69,803	72,712	75,742
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	129,627	135,367	141,257	147,303
Gasoline Sales	114,369	115,376	120,484	125,726	131,108
Diesel Sales	14,127	14,252	14,883	15,530	16,195
Solid Waste	22,348	23,543	24,568	25,619	26,669
Solid Waste Generation	22,348	23,543	24,568	25,619	26,669
Total	254,697	262,613	274,161	286,007	298,162

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO₂e). Values may not add to totals due to rounding.

Legislative-adjusted GHG Forecast Scenario

Several state regulations have been adopted that would reduce the City's GHG emissions below the BAU forecasted levels in 2030, 2035, 2040 and 2045. The impact of these regulations was quantified and incorporated into the adjusted forecast to provide a more accurate depiction of future emissions growth and the GHG emissions reduction responsibility the City. State legislation included in the adjusted forecast reduces GHG emissions associated with transportation, building efficiency and renewable electricity. A brief description of each regulation and the methodology used to calculate associated reductions is provided in the following section, as well as a description of why specific legislation was included or excluded from this forecast analysis.

GHG Reduction Legislation and Programs

As identified in CARB's 2022 Scoping Plan for Achieving Carbon Neutrality⁶ (2022 Scoping Plan), several legislative programs are expected to reduce GHG emissions in specific sectors throughout California. Many of these programs were incorporated into this forecast analysis as summarized below.

Transportation Legislation

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, which combined standards for criteria air pollutants and GHG emissions into a coordinated regulatory framework for passenger vehicles and light-duty trucks. The program established increasingly stringent vehicle GHG standards through model year 2025 and is reflected in the emissions factors and fleet characteristics incorporated into CARB's EMFAC2025 model.⁷

⁶ California Air Resources Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

⁷ California Air Resources Board (CARB). 2026. EMFAC2025 Technical Documentation. <https://emfac.arb.ca.gov/emfac2025-techdoc/EMFAC2025-Technical-Documentation-2026.pdf>

Advanced Clean Cars II (ACC II), adopted by CARB in 2022, requires an increasing share of new vehicle sales to be zero-emission vehicles (ZEVs), culminating in a 100 percent ZEV new vehicle sales requirement by 2035. However, CARB's EMFAC2025 Version 2.1 modeling framework removes the emissions benefits associated with ACC II due to ongoing federal regulatory challenges and resulting changes to CARB's regulatory assumptions. Consequently, emissions reductions attributable to ACC II are not reflected in this forecast and the forecast should therefore be considered conservative with respect to future transportation-sector emissions.

Advanced Clean Truck Regulation

The Advanced Clean Trucks (ACT) Regulation was adopted by CARB in 2020 and established ZEV sales requirements for manufacturers of medium- and heavy-duty vehicles, with increasing ZEV sales targets through 2035. Earlier versions of EMFAC incorporated the anticipated emissions benefits associated with ACT and increased adoption of zero-emission trucks. However, EMFAC2025 Version 2.1 was updated to reflect changing federal regulatory conditions and removes the emissions benefits previously associated with the ACT regulation. As a result, the transportation emissions forecasts presented in this analysis are based on EMFAC2025 Version 2.1 assumptions and do not include emissions reductions attributable to ACT implementation. Accordingly, the forecast may be considered conservative with respect to future medium- and heavy-duty vehicle GHG emissions.

Assembly Bill 1493

Signed into law in 2002, AB 1493 (The Pavley Standards) established the nation's first greenhouse gas (GHG) emission standards for passenger vehicles and light-duty trucks. The Pavley Standards required manufacturers to reduce GHG emissions from new vehicles beginning with the 2009 model year and laid the foundation for subsequent state and federal vehicle efficiency and emissions regulations. The emissions reductions associated with these standards are incorporated into CARB's EMFAC2025 model through vehicle fleet turnover, fuel economy improvements, and updated vehicle emission rates, and are therefore included in this forecast.

Innovative Clean Transit

The Innovative Clean Transit (ICT) Regulation was adopted by CARB in December 2018 to transition California's public transit fleet to zero-emission technologies. The regulation requires all public transit agencies to gradually increase purchases of zero-emission buses, culminating in a fully zero-emission transit bus fleet by 2040. The effects of the ICT regulation on transit fleet composition, energy consumption, and associated GHG emissions are incorporated into CARB's EMFAC2025 model and are included in this forecast. EMFAC2025 continues to account for projected growth in zero-emission transit buses using updated fleet and activity data.

Energy Legislation

Title 24

The adjusted forecast includes estimated energy savings from the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020.⁸ For residential buildings, the California Energy Commission (CEC) estimated the 2019 standards reduce electricity consumption by 53 percent and natural gas consumption by seven percent relative to the 2016 standards. For nonresidential buildings, the CEC estimated a 30 percent reduction in electricity consumption, while

⁸ CEC. 2020. 2019 Building Energy Efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>

no significant natural gas savings were projected due to limited requirements for commercial gas end uses.⁹ These reductions are incorporated into this GHG forecast through 2045.

The 2025 Title 24 standards, effective as of January 1, 2026, include more advanced measures to support building decarbonization; however, at this time the State has not released estimated energy or GHG savings associated with the updated standards.¹⁰ Therefore, to maintain a conservative forecast, the 2025 code updates are not included in the GHG reductions estimated in this analysis.

Renewables Portfolio Standard, Senate Bill 100, & Senate Bill 1020

Established in 2002 under SB 1078, enhanced in 2015 by SB 350, and accelerated for the first time in 2018 under SB 100, California's Renewable Portfolio Standard (RPS) requires investor-owned utilities, publicly owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 50 percent of total procurement by 2026 and 60 percent of total procurement by 2030. The RPS program further requires that by 2045 that 100 percent of total energy procured be a combination of eligible renewable energy resources and zero-carbon resources.

California's RPS was further accelerated in 2022 by SB 1020 that established additional requirements that procurement from eligible renewable energy resources and zero-carbon resources increase to 90 percent of total procurement by 2035 and 95 percent of total procurement by 2040. The RPS program and SB 1020 were incorporated into this GHG forecast by adjusting the electricity emissions factors for future years.

Pacific Gas and Electric (PG&E) currently provides electricity to the City and is subject to RPS requirements. PG&E's emission factors were adjusted for RPS requirements and used to project emissions through 2045. Table 4 provides the estimated electricity emission factors that would result from SB 100 and SB 1020.

Table 4 City of Chico Forecasted RPS and Electricity Emission Factors

Metric	2024	2030 ¹	2035	2040	2045
RPS (PG&E - Power Mix)	23%	60%	90%	95%	100%
Emission Factor (MT CO ₂ e/kWh)	0.000007	0.000004	0.000001	0.0000005	0

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; EF = emissions factor; RPS = Renewable Portfolio Standard; PG&E = Pacific Gas & Electric.

¹ 2030 values were interpolated between 2024 and 2035 to represent the SB 100 and SB 1020 renewable and carbon-free electricity goals of 90%, 95%, and 100% by 2035, 2040, and 2045, respectively.

Waste Legislation

Assembly Bill 939

In 1989, AB 939 established a mandate for local jurisdictions to divert 50 percent of solid waste from landfills through source reduction, recycling, and composting programs. The bill required each city and county in California to develop and implement a solid waste management plan, marking a significant shift from landfill-focused disposal to integrated waste management. As this mandate was fully

⁹ CEC. 2019 Building Energy Efficiency Standards: Frequently Asked Questions. Accessed at: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.

¹⁰ CEC. 2024. 2025 Building Energy Efficiency Standards. <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

implemented by 2000 and is considered a foundational policy rather than a driver of new reductions, no future emissions reductions associated with AB 939 are included in this adjusted forecast.

Assembly Bill 341

In 2011, AB 341 set the target of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (also known as CalRecycle) to take a Statewide approach to decreasing California's reliance on landfills. As actions under AB 341 are not assigned to specific local jurisdictions, potential future reductions from the bill were conservatively not included in this forecast.

Assembly Bill 1826

In 2014, AB 1826 set regulations in place requiring California businesses to recycle all of their organic waste starting in April 2016. The bill also required jurisdictions across the State to provide organic waste recycling programs to accommodate diverted waste from local businesses. As Ventura County has already implemented an organics collection program, implementation of AB 1826 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with AB 1826 are included in this adjusted forecast.

Senate Bill 1383

SB 1383 established a methane emission reduction target for short-lived climate pollutants in various sectors of the economy, including waste. Specifically, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the Statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025.¹¹ Additionally, SB 1383 requires a 20 percent reduction in "current"¹² edible food disposal by 2025. As local waste providers such as North Valley Waste Management have already implemented an organics collection program for the City, implementation of SB 1383 compliance is reflected in City's 2024 community inventory solid waste activity data and therefore no future emissions reductions associated with SB 1383 are included in this adjusted forecast.

Legislative-adjusted Scenario Forecast Results

In the adjusted emissions forecast, total GHG emissions decline gradually through 2045, driven primarily by substantial reductions in electricity-related emissions and continued decreases in transportation emissions resulting from state policies and regulations already in effect.

The electricity sector includes the steepest decline, reaching near zero by the end of the forecast period as California's clean energy policies continue to transform the electric grid. The forecast incorporates increasing renewable energy requirements and statewide grid decarbonization targets established through SB 100 and SB 1020, which require utilities to transition toward carbon-free electricity. As a result, electricity-related emissions become a negligible component of the community's overall emissions profile over time.

Transportation emissions also decline steadily throughout the forecast period due to the combined effects of vehicle fleet turnover and the suite of statewide regulations. These regulations include increasingly stringent vehicle emission standards, expanded deployment of zero-emission vehicles,

¹¹ CalRecycle. California's Short-Lived Climate Pollutant Reduction Strategy. <https://calrecycle.ca.gov/organics/slcp/>

¹² SB 1383 does not specify a baseline year for the 20 percent food recovery target, however, CalRecycle's 2018 Statewide waste characterization studies will be used to help measure the baseline for the State to meet its SB 1383 goals. <https://calrecycle.ca.gov/organics/slcp/faq/foodrecovery/#:~:text=SB%201383%20requires%20the%20state,for%20individual%20jurisdictions%20to%20achieve.>

cleaner fuels, and other transportation-sector programs that reduce emissions from both passenger and commercial vehicles. While transportation remains a significant source of emissions, the projected reductions reflect the continued implementation of these existing state policies.

In contrast, natural gas emissions increase gradually through 2024 due to population and employment growth. However, the rate of increase is lower than may be expected under a BAU scenario due to the influence of state building energy efficiency requirements and appliance standards. The forecast incorporates the effects of California's 2019 Title 24 Building Energy Efficiency Standards, which reduce energy demand in new construction and major renovations, as well as ongoing improvements in equipment efficiency. These regulations help moderate growth in natural gas consumption despite continued development and building activity.

Solid waste emissions also increase over time, primarily resulting from projected population growth and the associated increase in waste generation. Existing organic waste diversion efforts are already reflected in the baseline activity data and are therefore incorporated into the forecast. However, the solid waste forecast was not adjusted to account for additional future reductions from local waste diversion programs or enhanced organics collection because data on the future performance and implementation of local waste reduction measures were not available. As a result, the solid waste forecast represents a conservative assumption that extrapolates current conditions forward.

A detailed summary of the projected GHG emissions under the adjusted forecast by sector and year through 2045 can be found in Table 5.

Table 5 City of Chico Legislative-adjusted Scenario Forecast Results

GHG Emissions Source	2024	2030	2035	2040	2045
Energy	103,851	107,527	110,625	114,947	119,369
Residential Electricity	1,647	886	223	114	0
Nonresidential Electricity	1,653	905	231	119	0
Residential Natural Gas	63,806	66,786	69,383	72,089	74,907
Nonresidential Natural Gas	36,746	38,950	40,788	42,625	44,462
Transportation	128,497	114,338	105,479	98,205	91,755
Gasoline Sales	114,369	101,259	93,410	86,505	80,040
Diesel Sales	14,127	13,079	12,069	11,699	11,715
Solid Waste	22,348	23,543	24,568	25,619	26,699
Solid Waste Generation	22,348	23,543	24,568	25,619	26,699
Total	254,697	245,408	240,672	238,771	237,823

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add to totals due to rounding.

Legislative GHG Emissions Reduction Contribution

A summary of the reductions from the BAU forecast that can be expected under the adjusted forecast are provided in Table 6.

Table 6 Summary of City of Chico's Legislative GHG Emission Reductions

Metric	2024	2030	2035	2040	2045
California RPS	0	1,618	3,045	3,360	3,688
Title 24	0	298	556	825	1,103
Transportation Legislation (Advanced Clean Cars Program, Pavley Standards, Innovative Clean Transit)	0	15,290	29,887	43,052	55,548
Total	0	17,205	33,489	47,236	60,339

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO_{2e}). Values may not add up to totals due to rounding.

Provisional GHG Emissions Targets

GHG reduction targets are used in climate action planning to establish metrics that guide the community's commitment to achieve GHG emissions reductions and help gauge progress in reducing emissions over time. California has established Statewide GHG reduction goals for 2030 and 2045, relative to a 1990 baseline emissions level. Accordingly, communities should maintain a 1990 GHG inventory or develop one using a back-casting methodology to establish an appropriate baseline for target setting. The 2022 Scoping Plan encourages local agencies to take ambitious, coordinated climate action that is consistent with and supportive of the State climate goals.¹³ Thus, local agencies are recommended to establish equivalent reduction targets at the local level with communitywide GHG reduction goals for climate action that will help California achieve its 2030 and 2045 goals.

1990 GHG Emissions Back-Cast

The City does not have a 1990 GHG emissions inventory against which to develop GHG reduction targets consistent with SB 32. However, 1990 GHG emissions can be estimated for the community using a State-level emissions change metric.

The City's 1990 GHG emissions were estimated using the State's 2023 GHG emissions inventory, which is the State's most recent GHG inventory available at the time of analysis was for 2023. This approach allows comparison with the State's 1990 inventory to approximate the percent reduction in community emissions between 1990 and 2023. This approach assumes that the City's communitywide GHG emissions have generally tracked State GHG emissions over the same timeframe. The calculation is developed using the published Statewide emissions results from CARB¹⁴ after removing emissions from sectors not included in the City 2024 inventory¹⁵ (e.g., aviation, non-specified, etc.). The 1990 GHG emissions back-cast for the City is shown in Table 7.

¹³ California Air Resources Board. 2022. California's Climate Change Scoping Plan, p.268. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

¹⁴ CARB. 2024. California GHG Emission Inventory Program. <https://ww2.arb.ca.gov/ghg-inventory-data#data> and data therein.

¹⁵ Sectors removed from the statewide emissions sum in alignment with the 2024 GHG Inventory include: transportation: aviation, water-borne, rail, and not specified; industrial (less landfills); agriculture and forestry, and non-specified sectors.

Table 7 1990 GHG Emissions Back-Cast Calculations

1990 Back-Cast Calculations	
2023 Statewide GHG Emissions (MT CO ₂ e)	240,940,000
1990 Statewide GHG Emissions (MT CO ₂ e)	300,060,000
1990 to 2023 Statewide GHG Emissions Change (%)	-19.7%
2024 City of Chico GHG Emissions (MT CO ₂ e)	254,697
1990 City of Chico GHG Emissions (MT CO ₂ e)	317,190

GHG Targets and Gap Analysis

The purpose of GHG emissions reduction target setting is to develop a trajectory for achieving the State 2030 goal (SB 32) and prepare for the extensive decarbonization needed by 2045 in an efficient manner by setting an incremental path toward achieving the AB 1279 carbon neutrality goal. CARB guidance is for jurisdictions to first strive to exceed the SB 32 target of reducing GHG emissions by 40 percent below 1990 levels, while establishing a policy framework to achieve the longer-term target of carbon neutrality by 2045. Target setting is an iterative process that must be informed by the GHG emissions reductions that can realistically be achieved through the development of feasible GHG reduction measures. Achieving established targets will require major shifts in how communities within California obtain and use energy, transport themselves and goods, and how the population lives and builds.

Table 8 provides a summary of the GHG emission reduction targets.

Table 8 GHG Emissions Reduction Targets and Gap Analysis (MT CO₂e)

Emissions Forecast or Pathway	2024	2030	2035	2040	2045
Mass Emissions Target Pathway Scenario (MT CO₂e)					
Adjusted Forecast	254,697	245,408	240,672	238,771	237,823
SB 32 Mass Emissions Target Pathway ¹	254,697	190,314	126,876	63,438	0
Remaining Emissions Gap	0	55,093	113,796	175,333	237,823

Notes: MT CO₂e = Metric tons of carbon dioxide equivalent; Emissions have been rounded to the nearest whole number and therefore sums may not match.

1. The target pathway is calculated by reducing 1990 mass emissions by 40% in 2030 and to 0 in 2045. This provisional target pathway is consistent with both SB 32 and a trajectory set forth to achieve AB 1279.

Figure 1 provides a visual representation of forecasted future GHG emissions along with the effects of established State legislation and the remaining gap for which the City will be responsible in order to meet their share of GHG emission reduction goals set by the State.

Figure 1 GHG Emissions Forecast and Provisional Targets for the City of Chico

