APPENDIX B

CLIMATE ACTION

CLIMATE ACTION: GREENHOUSE GAS EMISSION INVENTORIES, PROJECTIONS, AND TARGETS

Purpose of a Greenhouse Gas Emissions Inventory

A greenhouse gas (GHG) emissions inventory is a snapshot of the GHG emissions associated within a geographic boundary, which in this case is unincorporated Yolo County, during a single year. Establishing a baseline inventory of GHG emissions helps to identify and categorize the sectors, sources, and activities that produce GHG emissions and the relative magnitude of each. A baseline GHG emissions inventory is an important initial step in developing the Climate Action and Adaptation Plan (CAAP) because it serves as a reference point to forecast future GHG emissions from Yolo County and to estimate the GHG emission reduction targets required to meet the County's goal.

The inventory and associated reduction targets then serve as the foundation which the GHG emission reduction strategies, measures, and actions (as identified in Chapter 6) are formulated to achieve. Overall, understanding where the County is regarding the community-wide and municipal GHG emissions it currently generates and is projected to generate helps guide the development and implementation of strategies the County can use to do its fair share in combating climate change.

In addition to providing a helpful understanding of Yolo County's GHG emission contribution, GHG inventories also serve as a basis for tracking and measuring progress during CAAP implementation.

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which are associated with certain industrial products and processes.

Some gases are more effective than others at trapping heat and contributing to the greenhouse effect, warming Earth's oceans, land, and atmosphere. For each GHG, a global warming potential (GWP) was developed to allow comparisons of the global warming impacts of different GHGs. Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, typically a 100-year time span, relative to the emissions of 1 ton of CO_2 (EPA 2024). Gases with a higher GWP absorb more energy (per ton emitted) than gases with a lower GWP and thus contribute more to warming the Earth (EPA 2024).

All GHGs in the emissions inventory and reduction measures in this CAAP are presented in terms of metric tons of CO_2 equivalent (MT CO_2e), which account for weighted GWP factors for CH_4 and N_2O. The GWPs applied are from the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) (IPCC 2021a). Table 1 provides a summary of the three primary GHGs, their sources, and their GWPs.

Table 1. Greenhouse Gases

GHG	Description	GWP (100-year value)
Carbon Dioxide (CO_2)	CO_2 is a naturally occurring gas that is also a byproduct of human activities, primarily through the combustion of fossil fuels and changes in land use, such as deforestation. It is the principal anthropogenic (i.e., human-caused) GHG that affects the Earth's solar radiative balance.	1
Methane (CH_4)	CH_4 is produced through both natural and human activities and is the main component of natural gas. It is produced through anaerobic (without oxygen) decomposition of landfill and animal waste, flooded rice fields, animal digestion, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. Methane derived from fossil fuel sources has a slightly higher GWP than methane from non-fossil fuel sources.	27.9[1]
Nitrous Oxide (N_2O)	N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices, especially the use of fertilizers; manure management; industrial processes (such as in the production of nylon, and from fossil-fuel-fired power plants); vehicle emissions; and its use as a propellant (such as in rockets, racecars, and aerosol sprays).	273

Notes: GHG = greenhouse gas; GWP = global warming potential. The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC 2021b) and the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2024).

1 The Intergovernmental Panel on Climate Change's Sixth Assessment Report provides two methane (CH_4) global warming potential (GWP) values: 29.8 for fossil-derived CH_4 and 27.0 for non-fossil-fuel-derived CH_4 (IPCC 2021a). As the source of CH_4 emissions are not separated in GHG inventory data, the GWP potential presented in Table 1 is the average of the two CH_4 GWP values.

Regulatory Framework and Context

The relevant legislative background is summarized in the following section to provide important policy direction and context for the CAAP.

International

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of global climate change.

Federal

Federal Context

At a Federal level, Executive Order (EO) 14057, Catalyzing Clean Energy Industries and Jobs through Federal Sustainability (December 2021), and the Inflation Reduction Act (August 2022) are two recent actions to address climate-related issues. EO 14057 establishes that the Federal government will lead by example to achieve a carbon-pollution-free electricity sector by 2035 and net-zero emissions economy-wide by 2050. The Inflation Reduction Act includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the United States by 40% as compared to 2005 levels by 2030. The Inflation Reduction Act allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles (EVs), includes measures that will make homes more energy efficient, and authorized the U.S. Environmental Protection Agency (EPA) to implement the Greenhouse Gas Reduction Fund program.

Federal Clean Air Act, Massachusetts v. U.S. Environmental Protection Agency

In Massachusetts v. EPA (April 2007), the U.S. Supreme Court ruled that CO_2 was a pollutant and directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The elevated concentrations of GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- **Cause or Contribute Finding:** The combined emissions of GHGs—CO_2, CH_4, N_2O, and hydrofluorocarbons—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Federal Vehicle Standards

In 2007, in response to the Massachusetts v. EPA decision, the Bush Administration issued EO 13432 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and the NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, the Department of Energy, the EPA, and the NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and the NHTSA proposed stringent, coordinated Federal GHG and fuel economy standards for light-duty vehicles for model years 2017 through 2025. The proposed standards were projected to achieve 163 grams of CO_2 per mile in model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for cars and light trucks for model years 2022–2025.

In 2011, in addition to the regulations applicable to cars and light-duty trucks described above, the EPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6% to 23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and the NHTSA announced the adoption of the Phase Two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The Phase Two program will apply to vehicles from model years 2018–2027 for certain trailers, and model years 2021–2027 for semitrucks, large pickup trucks, vans, and all sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

On April 2, 2018, the EPA, under administrator Scott Pruitt, reconsidered the final determination for light-duty vehicles and withdrew its previous 2017 determination, stating that the current standards may be too stringent and therefore should be revised as appropriate (83 FR 16077–16087).

In August 2018, the EPA and the NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and to establish new standards for model years 2021–2026. Compared to maintaining the post-2020 standards then in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2% to 3% of total daily consumption, according to the Energy Information Administration) and impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018).

In 2019, the EPA and the NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1 Rule) (84 FR 51310), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two (SAFE-2 Rule) was issued, which set CO_2 emissions standards and Corporate Average Fuel Economy standards for passenger vehicles and light-duty trucks for model years 2021–2026.

In response to EO 13990, on December 21, 2021, the NHTSA finalized the Corporate Average Fuel Economy Preemption Rule (Final Rule) to withdraw its portions of the SAFE-1 Rule. The Final Rule concluded that the SAFE-1 Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important State and local interests.

In March 2022, the NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025 and 10% annually for model year 2026.

In March 2024, EPA announced the final Multi-Pollutant Emissions Standards for passenger-carrying light-duty vehicles (Class 2b) and medium-duty vehicles (Class 3). These new standards aim to significantly reduce GHG and other toxic air emissions from new passenger cars, light trucks, and larger pickups and vans and would be phased in gradually over model years 2027–2032. For light-duty vehicles, these standards project to achieve a nearly 50% reduction in projected average emissions for the light-duty fleet by 2032 relative to the existing model year 2026 standards. For medium-duty vehicles, a nearly 4% reduction in projected average emissions for the medium-duty fleet is projected for 2032 relative to the existing model year 2026 standards.

California

The statewide GHG emissions regulatory framework is summarized in this subsection by category: State climate change targets, building energy, renewable energy and energy procurement, mobile sources, water, solid waste, and other State actions. The following text describes EOs, Assembly Bills (ABs), Senate Bills (SBs), and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The State has taken a number of actions to address climate change. These actions are summarized below and include EOs, legislation, and California Air Resources Board (CARB) plans and requirements.

Executive Order S-3-05

EO S-3-05 (June 2005) identified GHG emissions reduction targets and laid out responsibilities among the State agencies for implementing the EO and for reporting on progress toward the targets. This EO identified the following targets:

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

EO S-3-05 also directed the California EPA to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry.

Assembly Bill 32

In furtherance of the goals identified in EO S-3-05, the legislature enacted AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code Sections 38500–38599). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the State's long-range climate objectives.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050, as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the 2008 Climate Change Proposed Scoping Plan: A Framework for Change (2008 Scoping Plan) to express the 2030 target in terms of millions of metric tons CO_2e.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the senate and three members of the assembly, to provide ongoing oversight of implementation of the State's climate policies. AB 197 also added two members of the legislature to CARB as nonvoting members; required CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and required CARB to identify specific information for GHG emissions reduction measures when updating the 2008 Scoping Plan.

Executive Order B-55-18

EO B-55-18 (September 2018) identified a policy for the State to achieve carbon neutrality as soon as possible (no later than 2045) and achieve and maintain net-negative emissions thereafter. The goal is in addition to the existing statewide targets of reducing California's GHG emissions. CARB will work with relevant State agencies to ensure that future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

Assembly Bill 1279

The legislature enacted AB 1279, the California Climate Crisis Act, in September 2022. The bill declares the policy of the State to achieve net-zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net-negative GHG emissions thereafter. Additionally, the bill requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels.

California Air Resources Board's Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a scoping plan to help achieve the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (California Health and Safety Code Section 38561[a]) and to update the plan at least once every 5 years. The 2008 Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives (CARB 2008).

In 2014, CARB approved the first update to the 2008 Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (2014 Scoping Plan Update) defined the State's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012 (CARB 2014). The 2014 Scoping Plan Update concluded that California was on track to meet the 2020 target but recommended that a 2030 midterm GHG-reduction target be established to ensure a continuum of action to reduce emissions. The 2014 Scoping Plan Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

In December 2017, CARB released the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) for public review and comment (CARB 2017a). The 2017 Scoping Plan Update builds on the successful framework established in the initial 2008 Scoping Plan and 2014 Scoping Plan Update, while identifying new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the State's climate change priorities to 2030 and beyond. The strategies' known commitments include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the 2017 Scoping Plan Update recommends continuing the

Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

CARB adopted the 2022 Scoping Plan Update in December 2022. The 2022 Scoping Plan Update outlines the State's plan to reach carbon neutrality by 2045 or earlier, while also assessing the progress the State is making toward achieving GHG reduction goals by 2030. Per the Legislative Analyst's Office, the 2022 Scoping Plan Update identifies a more aggressive 2030 GHG goal. As it relates to the 2030 goal, perhaps the most significant change in the 2022 plan (as compared to previous scoping plans) is that it identifies a new GHG target of 48% below the 1990 level, compared to the current statutory goal of 40% below. Current law requires the State to reduce GHG emissions by at least 40% below the 1990 level by 2030 but does not specify an alternative goal. According to CARB, a focus on the lower target is needed to put the State on a path to meeting the newly established 2045 goal, consistent with the overall path to 2045 carbon neutrality. The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out the use of fossil fuels for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel-fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen (CARB 2022).

The 2022 Scoping Plan Update also emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration and that to achieve the State's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon. Strategies for carbon removal and sequestration include carbon capture and storage from anthropogenic point sources, where CO_2 is captured as it leaves a facility's smokestack and is injected into geologic formations or used in industrial materials (e.g., concrete), and CO_2 removal from ambient air through mechanical (e.g., direct air capture with sequestration) or nature-based (e.g., management of natural and working lands) applications.

The 2022 Scoping Plan Update details "Local Actions" in Appendix D. The Appendix D Local Actions include recommendations to build momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under the California Environmental Quality Act (CEQA). The recommendations provided in 2022 Scoping Plan Update Appendix D are non-binding (i.e., not regulatory) and should not be interpreted as a directive to local governments, but rather as evidence-based analytical tools to assist local governments with their role as essential partners in achieving California's climate goals.

To assist local governments with developing climate plans, measures, policies, and actions aligned with the State's climate goals, CARB developed a non-exhaustive list of meaningful GHG reduction strategies that can be implemented by local governments. The strategies CARB identified are not applicable to all local governments, nor are they the only strategies that local governments can adopt, but they are intended to represent the core strategies that most jurisdictions in California can implement to reduce GHG emissions regardless of whether they have developed a CEQA-qualified climate action plan. When developing local climate plans, measures, policies, and actions, CARB recommends that local governments should incorporate the recommendations described in Table 2 to the extent appropriate to ensure alignment with State climate goals.

Table 2. California Air Resources Board 2022 Scoping Plan Update Appendix D Priority Greenhouse Gas Reduction Strategies

Priority Area	Priority GHG Reduction Strategies
Transportation Electrification	Convert local government fleets to ZEVs and provide EV charging at public sites
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed State building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans)
VMT Reduction	Reduce or eliminate minimum parking standards
	Implement Complete Streets policies and investments, consistent with General Plan circulation element requirements
	Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.
	Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking
	Implement parking pricing or Transportation Demand Management pricing strategies
	Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing the allowable density of a neighborhood)
	Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert “greenfield” land to urban uses (e.g., green belts, strategic conservation easements)
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses
	Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers)
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings, such as appliance rebates, existing building reach codes, or time of sale electrification ordinances
	Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)
	Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings)

Notes: VMT = vehicle miles traveled; ZEV = zero-emission vehicle; EV = electric vehicle.

Mobile Sources

State Vehicle Standards (Assembly Bill 1493 and Executive Order B-16-12)

AB 1493 (July 2002, also referred to as the Pavley Vehicle Standards) was enacted in response to the transportation sector's large share of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be primarily used for noncommercial personal transportation in California. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that State entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs. It ordered CARB, the California Energy Commission (CEC), California Public Utilities Commission, and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 identified a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of public safety and welfare. As explained under the Federal Vehicle Standards section above, Federal Regulations, EPA and NHTSA approved SAFE-1 and SAFE-2, which revoked California's authority to set its own GHG emissions standards and ZEV mandates.

As also explained above, in March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's action concluded its reconsideration of the 2019 SAFE-1 Rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

Heavy-Duty Diesel

CARB's Heavy-Duty Truck and Bus Regulation has been in effect since December 2008, with objectives to meet Federal attainment standards and reduce heavy-duty diesel vehicle emissions of toxic air contaminants, nitrogen oxides, and diesel particulate matter, a major source of black carbon (13 CCR 2025). The rule requires that diesel particulate matter filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule also requires nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. As of January 1, 2020, Senate Bill 1 only allows vehicles compliant with this regulation to be registered by the California Department of Motor Vehicles. CARB also adopted an Airborne Toxics Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

Executive Order S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The initial goal of the Low Carbon Fuel Standard was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). In September 2018, CARB approved amendments to the Low Carbon Fuel Standard that require 20%

reduction of carbon intensity in passenger vehicle fuels by 2030. Carbon intensity measures the amount of GHG emissions in the life cycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

Senate Bill 375

SB 375 (California Government Code Section 65080) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every 8 years. SB 375 requires California's 18 regional metropolitan planning organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan that will achieve the GHG reduction targets set by CARB. If an MPO is unable to devise an SCS to achieve the GHG reduction target, the MPO must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure improvements, or additional transportation measures or policies.

An SCS does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a General Plan, be consistent with it (California Government Code Section 65080[b][2][K]). Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the State-mandated housing element process.

The Sacramento Area Council of Governments (SACOG) is designated by the State and Federal governments as the MPO and is responsible for developing the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) in coordination with Sacramento, Yolo, Yuba, Sutter, El Dorado, and Placer Counties and the 22 cities within those counties (excluding the Tahoe Basin). On September 23, 2010, CARB adopted the first set of SB 375 GHG reduction targets for the regional MPOs; updated regional targets were established on March 22, 2018. CARB set an initial target of 7% per capita GHG reduction by 2020 and 16% per capita GHG reduction by 2035 for the SACOG MPO through September 30, 2018. Updated targets beginning October 1, 2018, include 7% per capita GHG reduction by 2020 and 19% per capita GHG reduction by 2035 for SACOG. In November 2019, SACOG adopted the 2020 MTP/SCS, which lays out a path for improving air quality, preserving open space and natural resources, and helping California achieve its goal to reduce GHGs that contribute to climate change (SACOG 2019). For the 2020 MTP/SCS, CARB assigned SACOG a GHG reduction target from passenger vehicles of 19% below 2005 levels per capita by 2035.

Advanced Clean Cars Program and Zero-Emission Vehicle Program

The Advanced Clean Cars (ACC) I program (January 2012) is an emissions-control program for model years 2015–2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the low-emission vehicle regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for ZEVs that contributes to both types of emission reductions (CARB 2024a). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emissions standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025, cars will emit 75% less smog-forming pollution than the average new car sold in 2015. The ZEV program will act as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018–2025 model years.

The ACC II program, which was adopted in August 2022, established the next set of low-emission vehicle and ZEV requirements for model years after 2025 to contribute to meeting Federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2024a). The main objectives of ACC II are as follows:

- Maximize criteria and GHG emission reductions through increased stringency and real-world reductions
- Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support widescale adoption and use

The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts.

Executive Order N-79-20

EO N-79-20 (September 2020) requires CARB to develop regulations as follows: (1) Passenger vehicle and truck regulations requiring increasing volumes of new ZEVs sold in California toward the target of 100% of in-state sales by 2035; (2) medium- and heavy-duty vehicle regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the California toward the target of 100% of the fleet transitioning to ZEVs by 2045, everywhere feasible, and for all drayage trucks to be zero emission by 2035; and (3) strategies implemented in coordination with other State agencies, the EPA, and local air districts to achieve 100% zero emissions from off-road vehicles and equipment operations in California by 2035. EO N-79-20 called for the development of a ZEV Market Development Strategy, released in February 2021 and to be updated every 3 years, that ensures coordination and implementation of the EO and outlines actions to support new and used ZEV markets. In addition, the EO specifies identification of near-term actions and investment strategies to improve clean transportation, sustainable freight, and transit options, and calls for development of strategies, recommendations, and actions by July 15, 2021, to manage and expedite the responsible closure and remediation of former oil extraction sites as California transitions to a carbon-neutral economy.

Advanced Clean Trucks Regulation

The Advanced Clean Trucks Regulation was also approved by CARB in 2020. The purpose of the Advanced Clean Trucks Regulation is to accelerate the market for ZEVs in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2024b). The regulation has two components: (1) a manufacturer sales requirement; and (2) a reporting requirement:

- **Zero-emission truck sales:** Manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.

- **Company and fleet reporting:** Large employers including retailers, manufacturers, brokers, and others will be required to report information about shipments and shuttle services. Fleet owners with 50 or more trucks will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

Building Energy

California Code of Regulations, Title 24, Part 6

The California Building Standards Code was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every 3 years by the Building Standards Commission and the CEC and revised if necessary (California Public Resources Code Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, to "reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code Section 25402[d]) and cost effectiveness (California Public Resources Code Section 25402[b][2–3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24, Part 6 standards, referred to as the 2022 Title 24 Building Energy Efficiency Standards (Energy Code), became effective on January 1, 2023. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses (CEC 2022):

- Encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units
- Establishing electric-ready requirements for single-family homes to position owners to use cleaner electric heating, cooking, and EV charging options whenever they choose to adopt those technologies
- Expanding photovoltaic solar system and battery storage standards to make clean energy available on site and complement California's progress toward a 100% clean-electricity grid
- Strengthening ventilation standards to improve indoor air quality

California Code of Regulations, Title 24, Part 11

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR Part 11), which is commonly referred to as the California Green Building Standards (CALGreen), establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential and State-owned buildings and schools and hospitals. The 2022 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2022 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, EV charging stations for passenger vehicles, medium-heavy-duty and heavy-duty trucks, shade trees, water-conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land-clearing debris, and building commissioning (24 CCR Part 11).

California Code of Regulations, Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet State and Federal standards for energy and water efficiency (20 CCR 1401–1410). CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwashers; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: Federal and State standards for federally regulated appliances, State standards for federally regulated appliances, and State standards for non-federally regulated appliances.

Renewable Energy and Energy Procurement

Senate Bill 1078, Senate Bill 1368, Executive Order S-14-08, Executive Order S-21-09 and Senate Bill X1-2, Senate Bill 350, Senate Bill 100, and Senate Bill 1020

SB 1078 (2002) (California Public Utilities Code Section 399.11 et seq.) established the Renewables Portfolio Standard program, which required an annual increase in renewable energy generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368 (2006) required CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities (California Public Utilities Code Section 8340–8341). These standards must be consistent with the standards adopted by the California Public Utilities Commission.

EO S-14-08 (2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed State agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency (CNRA), in collaboration with CEC and the California Department of Fish and Wildlife, was directed to lead this effort.

EO S-21-09 (2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the California Public Utilities Commission and CEC to ensure that the regulation builds upon the Renewables Portfolio Standard program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health, and those that can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard; however, this regulation was not finalized because of subsequent legislation (SB X1-2) signed by Governor Brown in April 2011.

SB X1-2 (April 2011) expanded Renewables Portfolio Standard by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. SB X1-2 applies to all electricity retailers in California, including publicly owned utilities, investor-owned utilities, electricity service providers, and Community Choice Aggregators.

SB 350 (2015) further expanded the Renewables Portfolio Standard program by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission, in consultation with CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100 (2018) increased the standards set forth in SB 350, establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the State that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045.

Water

Senate Bill X7-7

SB X7-7, or the Water Conservation Act of 2009, required that all water suppliers increase their water use efficiency with an overall goal of reducing per capita urban water use by 20% by December 31, 2020. Each urban water supplier was required to develop water use targets to meet this goal.

Executive Order B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in California. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Executive Order N-10-21

In response to a state of emergency due to severe drought conditions, EO N-10-21 (July 2021) called on all Californians to voluntarily reduce their water use by 15% from their 2020 levels. Actions suggested in EO N-10-21 include reducing landscape irrigation, running dishwashers and washing machines only when full, finding and fixing leaks, installing water-efficient showerheads, taking shorter showers, using a shut-off nozzle on hoses, and taking cars to commercial car washes that use recycled water.

Solid Waste

Assembly Bill 939, Assembly Bill 341, Assembly Bill 1826, and Senate Bill 1383

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code Section 40000 et seq.), was passed because of the increase in the waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board (replaced in 2010 by the California Department of Resources Recycling and Recovery, or CalRecycle), which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed in which local governments were required to meet diversion goals of 25% by 1995 and 50% by the year 2000 of all solid waste through source reduction, recycling, and composting activities.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020 and annually thereafter. In addition, AB 341 required CalRecycle to develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the State in reaching the 75% goal by 2020.

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local governments across California to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

SB 1383 (2016) requires a 50% reduction in organic waste disposal from 2014 levels by 2020 and a 75% reduction by 2025 to reduce GHG emissions, essentially requiring the diversion of up to 27 million tons of organic waste. SB 1383 also requires that by 2025, not less than 20% of edible food that is currently disposed be recovered for human consumption.

Agriculture

Executive Order N-82-20

EO N-82-20 (October 2020) directs State agencies to deploy nature-based strategies to remove carbon from the atmosphere and store it in California's natural and working lands. The order sets a goal to conserve 30% of California's land and coastal waters by 2030 (often referred to as 30x30). To implement EO N-82-20, CNRA developed the Natural and Working Lands Climate Smart Strategy, which defines natural and working landscapes and identifies land management actions that will help achieve carbon neutrality in alignment with AB 1279 and the 2022 Scoping Plan Update for Achieving Carbon Neutrality (CNRA 2022 and CARB 2022).

Senate Bill 27

SB 27 (September 2021) directs CNRA, in coordination with relevant State agencies, to establish the Natural and Working Lands Climate Smart Strategy and to establish CO_2 removal targets for 2030 within the Scoping Plan. SB 27 also requires CNRA to establish and maintain a registry of carbon sequestration projects within California that are seeking funding.

Assembly Bill 1757

AB 1757 (September 2022) requires CNRA to determine a range of targets for both natural carbon sequestration and nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets will help support the State's carbon neutrality goals, climate adaptation, and resilience. The bill also requires CARB to develop standard methods for tracking GHG emissions and reductions, carbon sequestration, and other benefits from natural and working lands over time.

California 2030 Natural and Working Lands Climate Change Implementation Plan

This plan proposes an increase in State-led conservation, restoration, and management activities from two to five times above current levels, to achieve a level of effort commensurate with that invested in other sectors of California's climate change portfolio.

California Natural Resources Agency Natural and Working Lands Climate Smart Strategy

The CNRA Natural and Working Lands Climate Smart Strategy identifies land management actions that help protect climate-vulnerable communities, achieve carbon neutrality, improve public health and safety, and expand economic opportunity.

Pathways to 30x30 California: Accelerating Conservation of California's Nature

California's 30x30 initiative is part of an international movement to conserve natural areas across our planet, through which scores of countries have established their own 30x30 commitments. California's initiative seeks to protect and restore biodiversity, expand access to nature, and mitigate and build resilience to climate change. This effort drives and aligns with broader State commitments to advance justice, equity, diversity, and inclusion; strengthen tribal partnerships; and sustain our economic prosperity, clean energy resources, and food supply.

Ag Vision For the Next Decade (2023)

The revitalized Ag Vision for the Next Decade effort is a project of the California State Board of Food and Agriculture that establishes a vision for the desired future of agriculture in California. The process involves prioritizing the needs of historically underserved farmers and small farming operations.

California Healthy Soils Program

One of the four Climate Smart Agriculture programs, the California Healthy Soils Program invests in on-farm climate solutions by incentivizing farmers and ranchers to transition to beneficial agricultural management practices. The program offers farmers financial incentives to adopt land use practices that reduce GHG emissions and increase carbon sequestration.

Sustainable Agricultural Lands Conservation Program

The Sustainable Agricultural Lands Conservation Program funds permanent agricultural conservation easements on land vulnerable to urban or suburban expansion as part of the California Department of Food and Agriculture's Climate Smart Agriculture programs.

Alternative Manure Management Program

The Alternative Manure Management Program is a Climate Smart Agriculture Program that provides grants for manure management strategies that reduce potent CH_4 emissions. The program supports farmers with modernizing equipment.

A Climate Platform for California Agriculture

A Climate Platform for California Agriculture is a two-part report covering the potential of agriculture in California to be climate resilient and carbon neutral. Part 1: State of the State reviews GHG emissions reduction efforts to date. Part 2: Tools for Transformation dives into farm-focused policy recommendations that are supported with science and are economically and technically feasible.

Regional

Yolo-Solano Air Quality Management District

Yolo County is within the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD is responsible for achieving and maintaining healthful air quality for its residents by establishing programs, plans, and regulations enforcing air pollution control rules to attain all State and Federal ambient air quality standards and to minimize public exposure to airborne toxins and nuisance odors. The

YSAQMD has not adopted a GHG reduction plan or published guidance for local agencies to address GHG emissions. However, the YSAQMD has adopted and implemented air quality plans and actions that have co-benefits related to reducing GHG emissions.

County of Yolo

The County has engaged in planning for the effects of climate change, reducing GHG emissions, and adopting sustainable practices since the 1980s. The County has since established a number of policy priorities related to these issues and has implemented various programs to accomplish them. Below is a selection of planning and regulatory efforts that have been implemented or are ongoing throughout Yolo County. For a more comprehensive list of programs and planning efforts, including select programs led by community groups and third parties within Yolo County, refer to Chapter 6, Strategies, Measures, and Actions.

Mobile Sources

Zero-Emission Vehicle Action Plan

The Zero-Emission Vehicle Action Plan is a Yolo County Board of Supervisors-approved Climate Early Action Project, funded by a California Department of Transportation Sustainable Communities Grant, that will include:

- An analysis of existing charging network to make recommendations for expansion countywide
- An inventory of existing ZEV municipal needs and a timeline to transition the entire County vehicle fleet to ZEVs
- An outreach strategy to implement ZEV rollout programs and infrastructure upgrades

Electrify Yolo – Valley Clean Energy Initiative

The Electrify Yolo – Valley Clean Energy (VCE) Initiative was established to develop the installation of EV charging stations for public use within the cities and unincorporated communities of Yolo County.

Green Means Go Grant

The Green Means Go Grant is a pilot funding program run by SACOG with the goal of increasing mobility options, reducing vehicle emissions, and creating more infill housing within areas designated as Green Zones. In Yolo County, the program is taking place in the Green Zones of Dunnigan and Esparto.

Yolo Active Transportation Corridors Plan

The Yolo Active Transportation Corridors (YATC) Plan is a program from the Yolo Transportation District that aims to develop an active transportation plan for a network of multi-use trails to promote mobility and alternative forms of transportation.

Yolo County 2030 General Plan

The Circulation Element of the County's General Plan, developed by the Yolo County Planning Division, is focused on mobility, with a goal of ensuring accessibility while taking safety, air quality, GHG emissions, smart growth, and quality of service into account.

Yolobus BeeLine

The Yolobus BeeLine program is an on-demand microtransit rideshare program serving communities in Woodland, Winters, and Knights Landing.

Energy and Buildings

Electrification Retrofit Rebate Outreach Project

The Electrification Retrofit Rebate Outreach Program is a Yolo County Board of Supervisors-approved Climate Early Action Project, launched in 2024 and managed by VCE, that developed a comprehensive concierge program to provide information on electric retrofits and natural gas appliance replacement rebates to existing residential homes, help community members fill out rebate applications, and create an outreach program informing low-income households in unincorporated Yolo County of State and Federal energy efficiency rebate opportunities.

Inventory and Feasibility Study to Remove Fossil Fuels from County Operations

This inventory and feasibility study is a Yolo County Board of Supervisors-approved Climate Early Action Project being implemented in partnership between the Yolo County Departments of Community Services and General Services to develop an inventory of all fossil fuels used in County operations and then assess the feasibility of removing them from use. Yolo County uses of fossil fuels include natural gas-powered hot water heaters, furnaces; heating, ventilation, and air conditioning systems; and gasoline-powered landscaping equipment. The inventory component of this project will include an analysis of current fossil fuel uses in County operations (including age and expected lifespan of fossil fuel-powered equipment) along with the existing electrical system capacity and the total energy requirements (assuming full electrification) of County buildings.

Home Energy Score Program

The Home Energy Score Pilot Program is a Yolo County Board of Supervisors-approved Climate Early Action Project launched in 2024 that administers Home Energy Scores free of charge to homes in the unincorporated area, with a priority on low-income homeowners and renters. Developed by the U.S. Department of Energy, Home Energy Score is a program that assesses a home's energy use and provides a score on a 1–10 scale. Through comprehensive energy assessments, the Home Energy Score pilot program will equip homeowners and renters with the knowledge and recommendations to decode and enhance their residential energy efficiency, potentially leading to improvements that drive down utility expenses.

100% Renewable Electricity Accounts

100% Renewable Electricity Accounts is a Yolo County Board of Supervisors-approved Climate Early Action Project to enroll all County municipal electric accounts not covered by existing County solar/renewable projects into the VCE UltraGreen service. The project was completed in 2023.

Water and Waste

Methane Capture and Use as an Energy Source at the Yolo County Central Landfill

The Yolo County Central Landfill houses a gas collection system that captures CH_4 from decomposing landfill cells and converts it to electricity, which is then sold to the Sacramento Municipality Utility District.

Water Efficient Landscape Ordinance

Title 8 of the Yolo County Zoning Code includes an ordinance with provisions addressing water-efficient landscaping, with the goal of the conservation and efficient use of water.

Knights Landing Flood Management Project

The Knights Landing Flood Management Project is a County project designed to attain a 100-year level of flood protection in Knights Landing, reduce flood risk to the greater Knights Landing Basin, provide safe access to the river, and improve riparian habitat viability. Elements of the plan include the reconstructing the landside levee, constructing cutoff walls and seepage stability berms, planting native species, and implementing control measures for invasive species.

Water Conservation Rebate Program – Wild Wings County Service Area Residents

The Water Conservation Rebate Program was approved in October 2021 by the Yolo County Board of Supervisors to assist Wild Wings County Service Area residents in reaching a 25% voluntary water conservation target. The rebate program consisted of landscape design assistance, grass removal, and rebates for both the purchase and installation of weather-based irrigation controllers.

Edible Food Recovery Capacity Study and Funding Assessment in Yolo County

The Edible Food Recovery Capacity Study and Funding Assessment assesses Yolo County's regional capacity of edible food recovery programs to meet the requirements mandated by SB 1383.

Source Separated Organics Collection

The Integrated Waste Management Division purchased and provided all County facilities with designated disposal bins to sort organics, trash, and recycle.

Yolo County Central Landfill Compost Facility

The Yolo County Central Landfill Compost Facility works to divert organic material from regular landfill disposal through the usage of anaerobic composter cells and covered aerated static piles.

Previous Greenhouse Gas Emissions Inventories

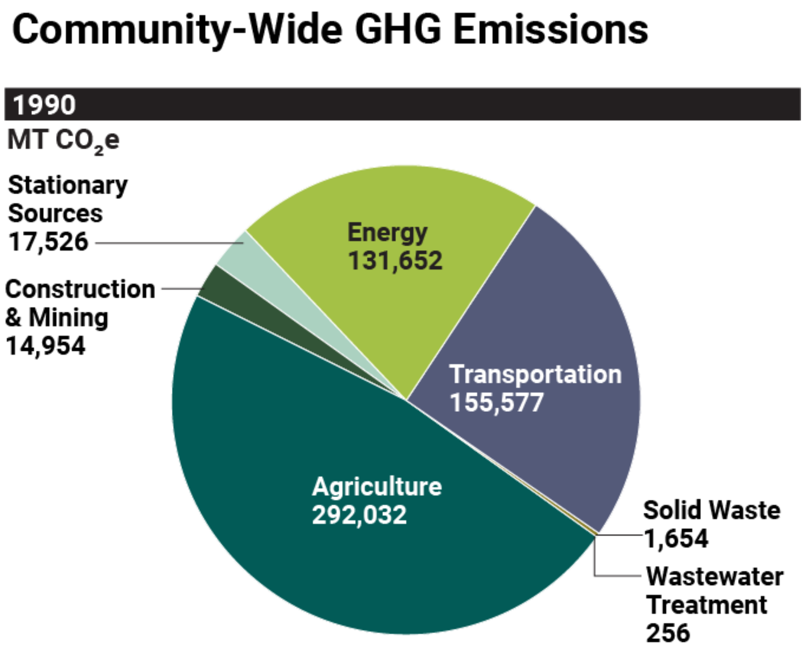
The inventory contained within this CAAP builds off previous efforts to catalog emissions within Yolo County. Previous County efforts include the historical emissions inventory (1990) and 2008 base-year inventories in the County's 2011 Climate Action Plan and the County's 2016 inventory compiled in 2018, which also included an updated inventory for the year 2008.

This section summarizes past County GHG emissions inventories to illustrate and discuss how they have changed and the potential explanations for these changes (e.g., change in activity versus change in methodology).

1990 Historical Emissions Inventory

In 1990, the unincorporated portions of Yolo County were estimated to generate approximately 613,651 MT CO_2e. The breakdown of 1990 emissions by sector within unincorporated Yolo County is shown in Figure 1.

Figure 1. 1990 GHG Emissions by Sector



Because the 2011 Climate Action Plan only looked at the unincorporated area of Yolo County, it noted that County inventories can give a distorted perspective on the relative contributions of the various sectors, particularly agriculture. The 2011 Climate Action Plan contained an inventory for 1990 that included other jurisdictions within the Yolo County, which showed that the emissions from the unincorporated areas of Yolo County account for under one-third of countywide emissions. This means that while agriculture comprised just under 48% of GHG emissions in the unincorporated areas of Yolo County, the sector accounts for 14% of countywide emissions (including incorporated areas) when municipal emissions are included.

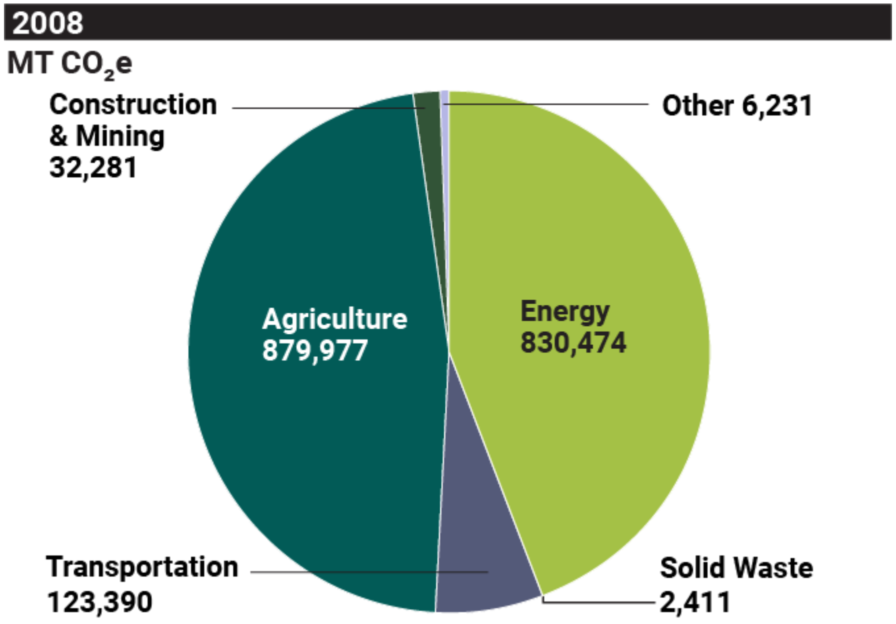
While useful for context, it is important to note that emissions from the four cities within Yolo County, the University of California Davis, tribal lands, special districts, and/or Federal and State-owned lands are excluded from the actual 1990 inventory (and subsequent County inventories). This is in part to prevent double counting of emissions, as each of these entities is responsible for adopting their own plans to reduce GHG emissions and address climate change.

2008 Existing Emissions Inventory

In 2008, the unincorporated portions of Yolo County were estimated to generate approximately 1,874,764 MT CO_2e. The breakdown of 2008 emissions by sector within the unincorporated areas is shown in Figure 2.

Total emissions increased by 6% between 1990 and 2008, even as the population of unincorporated areas grew by 9.8%. Although agriculture remained the greatest contributor to Yolo County GHG emissions, accounting for just under 46% of total emissions, the two biggest changes during this period were energy and transportation. Emissions associated with energy went up by 38%, indicating a sizable increase in household energy demand. By contrast, transportation emissions went down 32%, primarily due to improved fuel efficiency and air quality standards.

Figure 2. 2008 GHG Emissions by Sector (MT CO_2e)



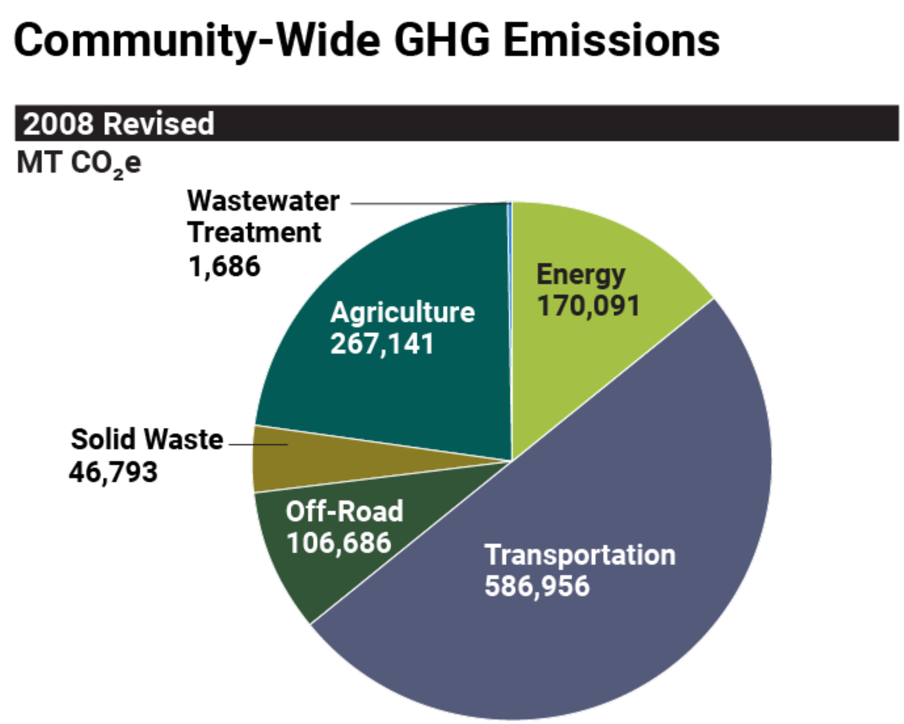
2008 Revised Emissions Inventory

A 2018 report in which the County presented an updated emissions inventory for 2016 included a revised 2008 inventory that differed from the version in the 2011 Climate Action Plan. Between 2011 and 2018, the protocols for calculating GHG emissions were refined for most sectors. This was the result of research and knowledge sharing throughout the scientific community, particularly across the fields of carbon accounting and climate science. Due to these developments, the 2018 inventory used different reporting protocols and updated GWP values, which are critical inputs for calculating GHG emissions associated with a given process.

The difference between the previous 2008 inventory and the revised inventory also reflects changes in sector categorization. For example, the revised inventory includes a category for off-road transportation, which contains emissions from industrial equipment, farm equipment, and construction and mining equipment. The revised inventory also incorporates the emissions from the stationary sources sector of the original 2008 inventory, which includes emissions from heavy-duty equipment and pesticide application, into different sector categories. Another major difference is in the methodology used to calculate on-road transportation emissions. The revised 2008 inventory uses an updated model, which the 2018 report states is a more accurate reflection of on-road transportation emissions than that in the original 2008 inventory.

According to the revised 2008 inventory, Yolo County generated approximately 1,178,853 MT CO_2e. The largest emission source of the revised 2008 inventory is on-road transportation, accounting for 50% of emissions in the unincorporated areas of Yolo County. Agriculture and energy consumption are the other two major categories of emissions, making up 23% and 14% of Yolo County emissions, respectively. The breakdown of emissions by sector is shown in Figure 3.

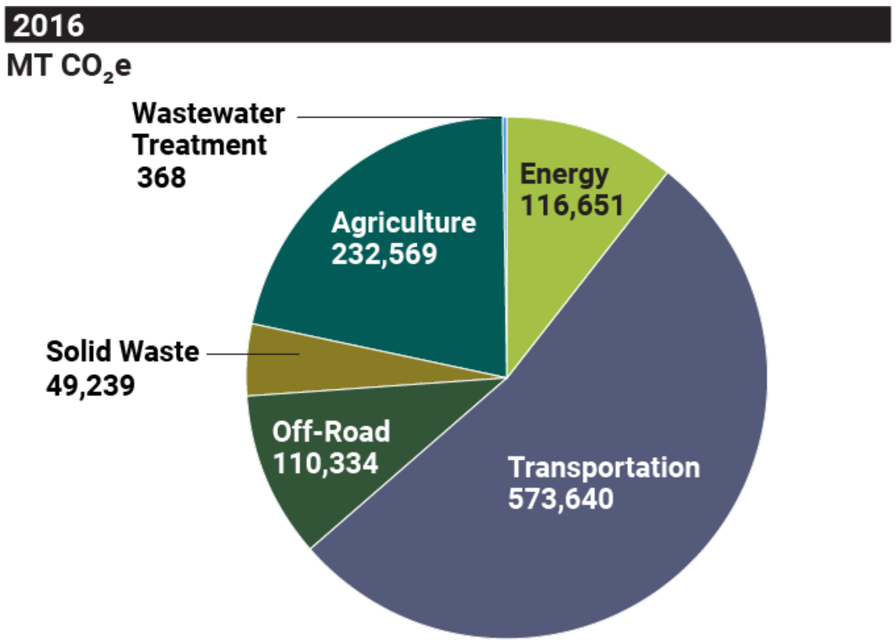
Figure 3. Revised 2008 GHG Emissions by Sector



2016 Inventory

The County's 2018 report also presented an updated inventory for the unincorporated Yolo County for the year 2016, the most recent year for which data was available. This inventory found that in 2016, Yolo County generated approximately 1,082,801 MT CO_2e, a roughly 8% decrease from the revised 2008 inventory. The breakdown of emissions by sector within the unincorporated area is shown in Figure 4.

Figure 4. 2016 GHG Emissions by Sector



Compared to the revised 2008 inventory, significant GHG emission reductions occurred in the sectors of energy consumption (-31%), agriculture (-13%), and wastewater treatment (-69%). The inventory also noted slight emissions increases in the off-road transportation and solid waste sectors; however, these increases were within 5% of the revised 2008 emissions figures.

The decrease in emissions from energy consumption is largely due to the drop in GHG intensity, or emissions of CO_2e per unit of electricity, of the electricity provided by Pacific Gas and Electric (PG&E) to Yolo County residents. As the 2018 report notes, the GHG intensity of PG&E's electricity declined by 54% between 2008 and 2016, spurred along by State requirements for utilities to procure renewable energy, and in the case of 2016, by increased hydropower from unusually high rainfall in Northern California. A major factor in the decrease in agricultural emissions is the decrease in diesel-powered irrigation pumps between 2008 and 2016. The report notes that if agricultural pumping were excluded from the sector in both inventories, the 2016 agricultural emissions would be roughly equal with those in 2008. The decline in wastewater treatment emissions is due to more accurate data on the volume of wastewater treated in facilities managed by the County, which decreased considerably between 2008 and 2016.

Baseline Greenhouse Gas Emissions Inventory

The CAAP addresses the following three types of GHG emissions inventories:

- **Community-Wide Inventory,** which includes emissions from all residential, commercial, industrial, and agricultural land uses within unincorporated Yolo County

- **Municipal Inventory,** which is limited to County-owned facilities and vehicles
- **Consumption-Based Inventory Narrative,** which focuses on life cycle emissions associated with the activities, goods, and services provided to households within unincorporated Yolo County

It should be noted that there is overlap of emissions across the three inventories. For example, waste-in-place emissions are accounted for in both the community-wide and municipal inventories, given that efforts to reduce emissions from this source can be achieved at both the community (e.g., reducing community waste generation) and the municipal levels (e.g., improving landfill gas collection). As such, emissions are not additive, and each inventory should be considered independently. Each inventory is discussed in detail by GHG emission source sector in the following.

Community-Wide Inventory

The community-wide GHG emissions inventory includes emissions from all the meaningful sources within the County's direct or indirect jurisdictional control within unincorporated Yolo County. When data is available, the community-wide inventory can be shown in terms of the different land uses within unincorporated Yolo County (e.g., residential and nonresidential). Because the community-wide inventory captures all typical sources, it can be easily correlated with statewide efforts to reduce GHG emissions. For this reason, the primary purpose of the community-wide GHG emissions inventory is to provide a baseline of emissions for the unincorporated area of Yolo County in which the reduction targets are set and the majority of reduction measures are developed and measured.

The development of the community-wide GHG inventory follows general best practices, where applicable, including the United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI 2019), California Supplement to the United States Community-Wide GHG Emissions Protocol (AEP 2013), California Community-Wide Greenhouse Gas Baseline Inventory Protocol (AEP 2011), and Forecasting Community-Wide Greenhouse Gas Emissions and Setting Reduction Targets (AEP 2012).

To avoid or minimize the potential for double counting emissions, each activity is only included in one emissions sector. The emission sectors, what activities are included, the activity data used, and the emission factors or methods to calculate emissions are detailed in the following.

On-Road Transportation

GHG emissions from on-road vehicle travel are related to the combustion of fossil fuels, including gasoline, diesel, and (less often) natural gas.[2] Activity data used to estimate on-road transportation emissions includes vehicle miles traveled (VMT) by speed and vehicle type within unincorporated Yolo County, as described in detail below.

For the community-wide inventory, the on-road vehicle sector includes emissions generated from trips attributable to activities taking place in the unincorporated parts of Yolo County. Specifically, VMT estimates include the vehicle travel associated with residents,

2 Emissions related to electricity consumed for electric vehicle (EV) charging are assumed to be included in the building energy sector.

workers, students, visitors, etc. engaged in activities that begin and end in unincorporated Yolo County. VMT estimates for baseline conditions and forecasts for 2040 conditions were developed using the regional Sacramento Activity-Based Travel Simulation Model (SACSIM19), a travel forecasting model developed by SACOG for the SACOG 2020 MTP/SCS. VMT for the 2022 baseline year was estimated by interpolating VMT estimates from the model's base year (2016) and future year (2040).

The SACSIM19-derived VMT modeling provides VMT generated by unincorporated Yolo County within the SACOG region and outside of the SACOG region. For the VMT within SACOG, a breakdown of VMT was provided by speed bin (from 0–5 miles to 85–90 miles in 5 mph increments) for the following vehicle types: personal vehicles (PV) (single-occupancy vehicles, high-occupancy vehicles with two occupants, and high-occupancy vehicles with three or more occupants); commercial small/medium vehicles and trucks (CS); and commercial large vehicles and trucks (CL). For the travel generated by unincorporated Yolo County outside of the SACOG region, VMT was presented as a total value (i.e., not disaggregated by speed bin or vehicle type).

Consistent with standard VMT accounting in GHG emissions inventories, the Regional Targets Advisory Committee (RTAC) method, or proportional accounting of VMT generated by unincorporated Yolo County, was applied. The RTAC method proportions the VMT generated by unincorporated Yolo County according to the location of the trip start (origin) and end (destination) locations. The RTAC methodology estimates VMT for the various origin/destination trip types within Yolo County using the following accounting:

- **Include 100% of internal–internal (II) trips.** The VMT associated with vehicle trips that have an origin and destination within the unincorporated Yolo County area are multiplied by 1.0, given that the County is responsible for and has the opportunity to reduce emissions associated with vehicle trips through land use changes at both locations (i.e., the ability to provide transit connecting both locations and other methods of VMT reduction).
- **Include 50% of internal–external and external–internal (IX and XI) trips.** The VMT for vehicle trips that have an origin within and destination outside of unincorporated Yolo County, and conversely those that have an origin outside of and destination within unincorporated Yolo County are multiplied by 0.5. With this assumption, half of the VMT from these trips is assigned to Yolo County, while the other half is assumed to be the responsibility of the relevant jurisdiction outside of Yolo County.
- **Exclude 0% of external–external (XX) trips.** The VMT for vehicle trips with origins and destinations outside of unincorporated Yolo County (i.e., vehicles passing through) are not included, as these trips are assigned to the relevant origin/destination geographic regions outside of the County's jurisdictional control.

The reported VMT was disaggregated by II, IX, and XI and by vehicle types as identified by the SACSIM-19 Model (Fehr and Peers 2024).

On-road vehicle emission factors were calculated using CARB's EMission FACtor (EMFAC) mobile-source emissions inventory model (EMFAC2021 v1.0.2) (CARB 2021). EMFAC provides emission factors for different California geographical regions, years, vehicle types, and other vehicle information such as fuel and speed.

Emission factors for CO_2, CH_4, and N_2O were identified for the following parameters: Yolo County region, year 2022, all vehicle types, all fuel types, and all speed bins.

For the VMT within SACOG, a weighted average emission factor was generated based on the percent of VMT per speed bin and appropriate vehicle type (i.e., personal vehicles, CS, and CL). Because SACOG and EMFAC use different vehicle categories, the following crosswalk of vehicle types was assumed:

- **Personal vehicle (PV):** LDA (light-duty automobiles), LDT1 (light-duty trucks ETW <3,750 pounds [lbs]), LDT2 (light-duty trucks ETW 3,751–5750 lbs), MCY (motorcycle)
- **Commercial small/medium vehicle (CS):** MDV (medium-duty vehicles/trucks 5,751–8,500 lbs), LHDT1 (light heavy-duty trucks 8,501–10,000 lbs), LHDT 2 (light heavy-duty trucks 10,001–14,000 lbs)
- **Commercial large vehicle (CL):** MHDT (medium heavy-duty trucks), HHDT (heavy heavy-duty trucks), MH (motorhome), SBUS (school bus), UBUS (urban bus), and OBUS (other bus)

Given that VMT was aggregated for travel outside of SACOG, VMT per vehicle type was estimated by applying the percentage breakdown from the within SACOG VMT analysis. A weighted average emission factor for MT CO_2e was then generated for each vehicle category using aggregated speeds in EMFAC and applied to the respective vehicle category VMT.

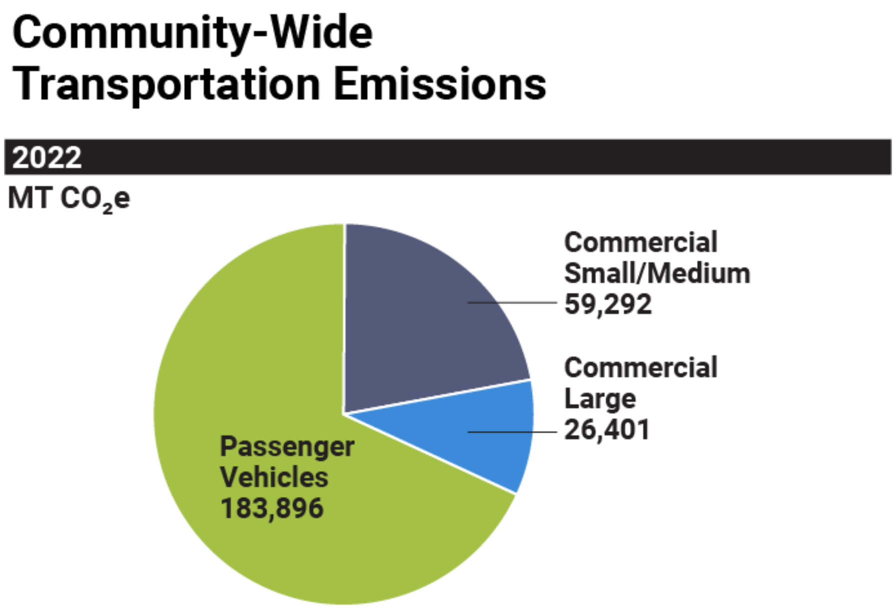
Table 3 and Figure 5 below summarize the GHG emissions related to transportation by vehicle type in the 2022 baseline year.

Table 3. Community-Wide Baseline 2022 Transportation Emissions

Vehicle Type	Total MT CO_2e	Percent of Total
Passenger Vehicles	183,896	68%
Commercial Small/Medium	59,292	22%
Commercial Large	26,401	10%
Total	**269,588**	**100%**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

Figure 5. 2022 Community-Wide Transportation Emissions



Building Energy

Building energy generates GHG emissions directly through consumption of natural gas for heating and indirectly through use of electricity. The activity data, emission factors, and methodologies for estimating GHG emissions from energy is described below for each respective energy type.

Natural Gas

GHG emissions related to the combustion of natural gas were estimated using consumption data (i.e., therms per year) by land use type, including residential, commercial, and industrial. For baseline year 2022, residential natural gas consumption was provided by PG&E, while commercial and industrial consumption was estimated using 2016 usage, scaled by known residential consumption (PG&E 2023a).[3] Natural gas emission factors for CO_2, CH_4, and N_2O were obtained from The Climate Registry and applied to annual consumption data to estimate emissions (The Climate Registry 2023).

[3] Pacific Gas and Electric (PG&E) commercial and industrial natural gas usage was not provided for 2022 due to failing the 15/15 Rule, which requires that aggregated or anonymized customers must be made up of at least 15 customers, and a single customer's load must be less than 15% of the applicable sector category.

Electricity

Indirect GHG emissions from use of electricity within unincorporated Yolo County were estimated using annual electricity consumption data (i.e., kilowatt-hour per year) provided by PG&E and VCE. For baseline year 2022, electricity consumption for residential, commercial, agricultural, and industrial customers was provided by VCE and PG&E, with the exception of industrial PG&E electricity use, which was estimated using 2016 usage, scaled by the remaining known 2022 customer consumption totals (VCE 2023a and PG&E 2023a).[4]

GHG emissions intensity factors (lbs CO_2e per megawatt-hour [MWh]) for PG&E and VCE were obtained from the respective power content labels and are reflective of the power mix of each utility in 2022. The PG&E and VCE emissions rates applied to the 2022 electricity consumption were 56 and 706 lbs CO_2e/megawatt-hour, respectively (PG&E 2023b and VCE 2023b).

Table 4 and Figures 6 and 7 below summarize the GHG emissions related to energy use by land use type in the 2022 baseline year.

Table 4. Community-Wide Baseline (2022) Energy Use Emissions

Land Use Type	Energy Source		Total MT CO_2e	Percent of Total
	Electricity	Natural Gas		
Residential	14,806	8,537	23,342	14%
Commercial	14,928	76,812	91,741	53%
Industrial	5,163	6,345	11,508	7%
Agricultural	45,473	N/A	45,473	26%
Total	**80,370**	**91,694**	**172,064**	**100%**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

4 PG&E industrial electricity usage was not provided for 2022 due to failing the 15/15 Rule, which is explained in footnote 3 above.

Figure 6. 2022 Community-Wide Energy Emissions by Type

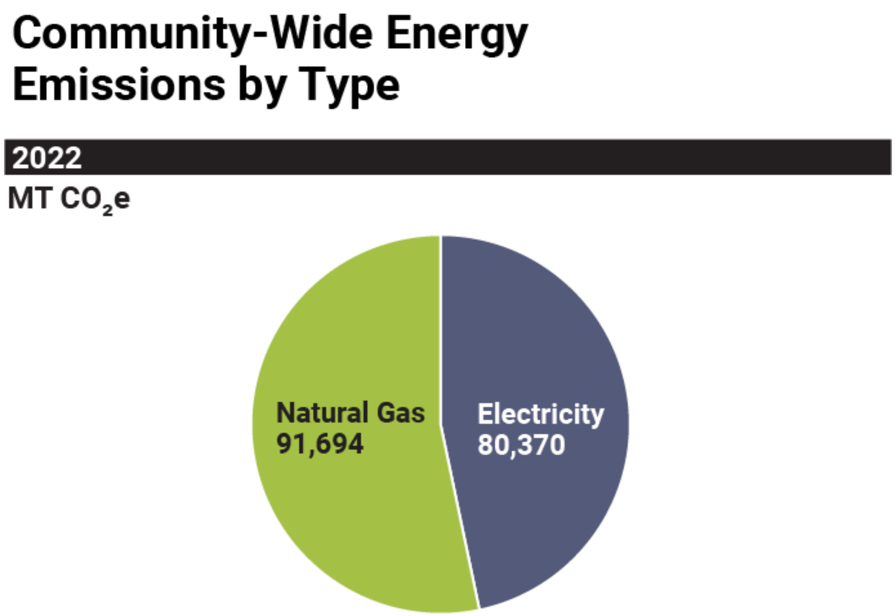
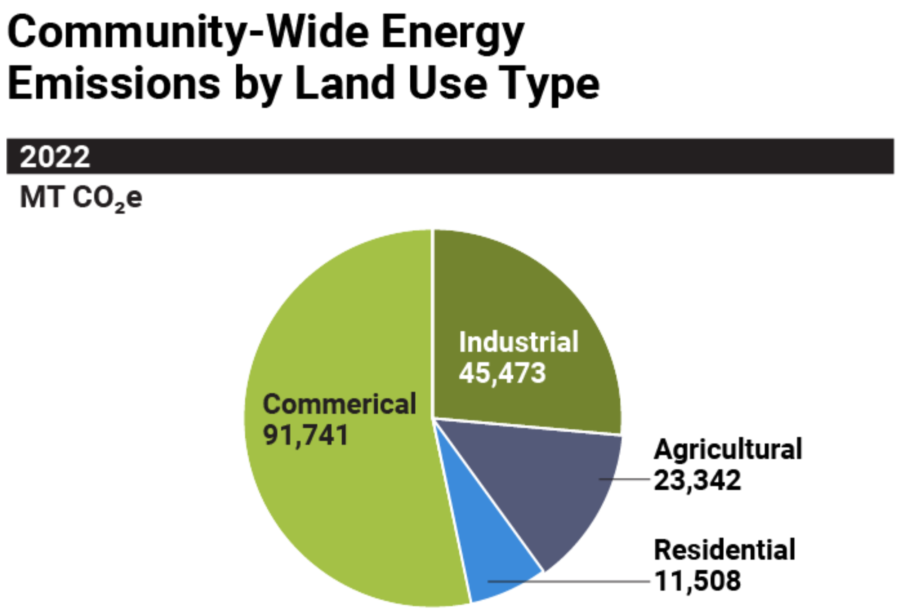


Figure 7. Community-Wide Energy Emissions by Land Use Type



Water and Wastewater

GHG emissions associated with water use come from the electricity consumed in the extraction (e.g., groundwater pumping), conveyance, treatment, and distribution of potable water to residential customers and businesses residing in unincorporated Yolo County. GHG emissions in Yolo County are primarily associated with electricity used to pump groundwater. Wastewater also generates GHG emissions through electricity consumption during conveyance (pumping) and treatment. Treating wastewater emits GHGs such as CH_4 when the chemical and microbial processes that break down sewage in anaerobic (without oxygen) environments release biogas as a byproduct.

Water Use

For the community-wide inventory, emissions from water include all residential and nonresidential water usage from water customers within the unincorporated Yolo County area. Emissions from agricultural groundwater pumping are included in the agriculture sector of the inventory. Water consumption data for the unincorporated Yolo County area was collected, with data on groundwater pumping from North Davis Meadows and Wild Wings County Service Area provided by the County and a 2022 State Water Resources Control Board (SWRCB) facility report (SWRCB 2024), respectively. Emission factors for pumped water and the local utility emission factors for PG&E were applied to locally pumped water to calculate GHG emissions from electricity use associated with groundwater pumping. Wastewater emissions in the inventory also included electricity use, which were calculated using regional emission factors for the energy intensity of regional wastewater treatment and PG&E's emission factor from their 2022 Power Content Label (PG&E 2023b).

Agricultural Irrigation Pumps

Activity data used to estimate GHG emissions from use of agricultural irrigation pumps includes total number of pumps, fuel type, and annual fuel consumption in gallons. The total number of irrigation pumps by fuel type operating in Yolo County was provided by YSAQMD as engine permit data for the baseline year 2022 (YSAQMD 2024). Per YSAQMD, a total of 721 irrigation pumps were in operation in 2022, 604 diesel-fueled and 117 propane-fueled. Total annual fuel consumption was estimated from the County's 2016 emissions inventory activity data by applying the average rate of fuel usage (gallons per engine) to the respective engine totals provided by YSAQMD for 2022.

Diesel and propane emission factors for CO_2, CH_4, and N_2O were obtained from The Climate Registry and applied to the estimated annual fuel consumption data to estimate emissions (The Climate Registry 2023).

Wastewater Treatment

The wastewater inventory also includes CH_4 emissions from off-gassing during the treatment process. 2022 influent data for wastewater treatment for a subset of the facilities serving unincorporated Yolo County was provided by the County; however, updated data on biochemical oxygen demand[5] was not available for these facilities. Facility-level influent data (volume of wastewater

[5] Biochemical oxygen demand is a key metric used to calculate CH_4 emissions from wastewater treatment processes. It is a measure of the oxygen consumed by bacteria during decomposition, a process that produces greenhouse gases (GHGs) such as CH_4 (USGS 2018).

processed) from Esparto, Madison, Knights Landing, Dunnigan, Wild Wings County Service Area, and City of Davis[6] residents living in the unincorporated area of Yolo County was obtained from Regulated Facility Reports, available through SWRCB's California Integrated Water Quality System Project database. Biochemical oxygen demand was calculated using population estimates based on methodology published by CARB and EPA (CARB 2023a; EPA 2015). Data on the population served by each facility was obtained from California Drinking Water Watch (2024), another database managed by the SWRCB. Once estimates of biochemical oxygen demand for each facility were obtained, emissions from CH_4 were calculated based on CARB's methodology, then converted into MT using emission factors from IPCC's AR6 and added to emissions from electricity consumption to obtain total emissions from wastewater treatment in unincorporated Yolo County (CARB 2023a; IPCC 2021a).

Table 5 and Figure 8 below summarize the community-wide GHG emissions related to water and wastewater in the 2022 baseline year.

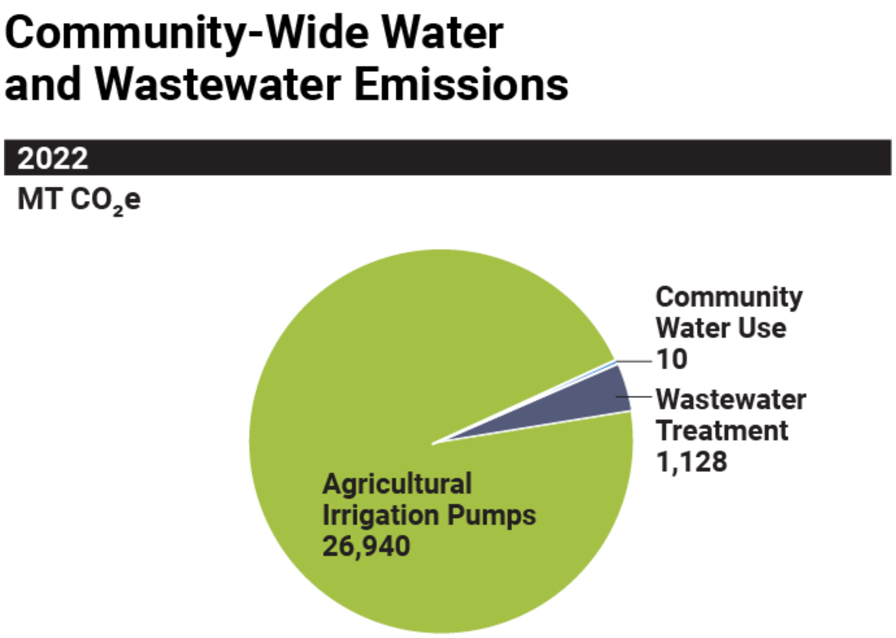
Table 5. Community-Wide Baseline (2022) Water Use and Wastewater Emissions

Subsector	Emissions MT CO_2e	Percent of Total
Community Water Use (extraction, conveyance, and treatment)	10	<1%
Agricultural Irrigation Pumps	26,940	96%
Wastewater Treatment- Energy Use	25	<1%
Wastewater Treatment – BOD	1,103	4%
Total	**28,079**	**100%**

Note: BOD = biochemical oxygen demand.

[6] Influent volume was scaled to the proportion of residents served by the City of Davis Wastewater Treatment Plant living in unincorporated Yolo County around Davis. Population and total wastewater collected by the City of Davis was obtained from the City of Davis 2020 Urban Water Management Plan (City of Davis 2021).

Figure 8. 2022 Community-Wide Water and Wastewater Emissions



Solid Waste

GHG emissions from solid waste include fugitive emissions of CH_4 and CO_2 from decomposition over time as the waste decomposes and generates CH_4 and CO_2. Many landfills also have landfill gas collection technology that retains some percentage of these gases. While other emissions from solid waste processing occur, they are included in other sectors of the emissions inventory. Operation of equipment at the landfill is within the off-road equipment sector, and transportation of waste to the landfill is included in the on-road transportation sector.

There are two methods of calculations for solid waste GHG emissions applicable to Yolo County, including waste-in-place and waste generation.

Waste-in-Place

Waste-in-place calculates emissions from landfills that are within Yolo County itself and accounts for all of the waste that is still decaying within the landfill. For Yolo County, the Yolo County Central Landfill is the only landfill requiring these calculations. This method of calculation focuses on waste disposed of within unincorporated Yolo County, regardless of where it was produced. The formula to calculate GHG emissions from waste-in-place is:

(Total modeled CH_4 generated * (1 - Landfill Gas Collection Efficiency) * Emission Factor for CH_4) + Total modeled CO_2 generated

CARB's landfill gas tool is used to model CH_4 and CO_2 generation. This tool requires data on the amount of waste deposited at the landfill by year, which can be acquired using the EPA FLIGHT database. It should be noted that oxidation rates are included in CARB's landfill gas tool, so it is not needed for this calculation. Landfill gas collection efficiency is also obtainable from the EPA FLIGHT database for a given year. The emission factor for CH_4, which is 27.9, follows AR6 standards throughout this inventory. It should be noted that the landfill gas tool automatically converts CH_4 into CO_2e using the CH_4 emission factor from the IPCC Third Assessment Report, which is 23. To retain consistency with AR6, these calculations were reverted back to CH_4 and then to CO_2e.

Waste Generation

Waste generation calculates GHG emissions for all waste sent to landfills outside of Yolo County. This method of calculation focuses on waste produced by unincorporated Yolo County, regardless of where it is disposed. Yolo County Central Landfill is not included in this calculation due to its inclusion in the waste-in-place calculation. In 2022, unincorporated Yolo County sent waste to Guadalupe Recycling and Disposal Facility, L and D Landfill, Potrero Hills Landfill, Recology Hay Road, Recology Ostrom Road LF Inc., Sacramento County Landfill (Kiefer), Vasco Road Landfill, and Western Regional Landfill. Emissions calculated using this method attribute future landfill gas generation to the inventory year in which the waste was generated and deposited. For each facility receiving waste, the formula to calculate GHG emissions from waste generation is:

Emission factor for CH_4 * (1 – (Percent of year under landfill gas collection or control * Landfill Gas Collection Efficiency)) * (1 – oxidation rate) * (Waste tonnage delivered by Unincorporated County + Total Alternative Daily Cover) * Emissions factor for mixed solid waste

Again, the emission factor for CH_4 uses AR6 standards and is 27.9. The percentage of year under landfill gas collection and landfill gas collection efficiency are both obtainable by year on the EPA FLIGHT database. The oxidation rate is a constant 10%, or 0.1. Waste tonnage delivered by unincorporated Yolo County and alternative daily cover collected by CalRecycle and can be found on the Recycling and Disposal Reporting System Reports 2 and 3 respectively. Finally, the emissions factor for mixed solid waste is 0.06, which aligns with the EPA's AP-42 emission factor database.

Emissions calculated for facilities receiving waste from unincorporated Yolo County (outside of the Yolo County Central Landfill) were then added up to find the total MT CO_2e from waste generation.

Emissions associated with trucks that transport waste and off-road equipment used at the landfill are included in the transportation and off-road equipment sectors, respectively.

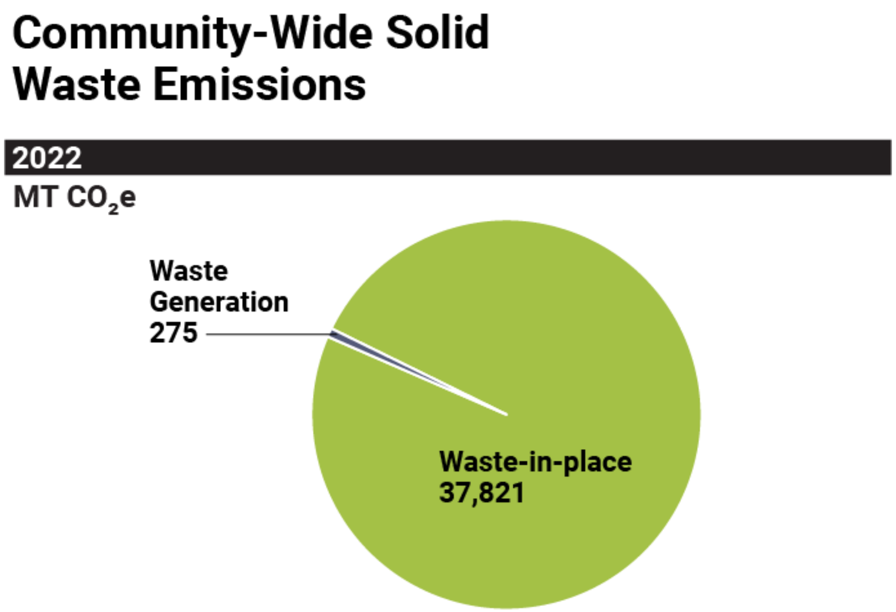
Table 6 and Figure 9 below summarize the community-wide GHG emissions related to solid waste in the 2022 baseline year.

Table 6. Community-Wide Baseline Solid Waste Emissions

Source	Total MT CO_2e	Percent of Total
Waste-in-Place	37,821	99%
Waste Generation	275	1%
Total	**38,097**	**100%**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

Figure 9. 2022 Community-Wide Solid Waste Emissions



Off-Road Equipment

Use of off-road equipment generates GHG emissions from the combustion of fuel, which is typically diesel, gasoline, or natural gas.[7] Typical off-road equipment depends on the category, with examples including forklifts for industrial, tractors and spray rigs for agriculture, excavators for construction, lawn mowers for lawn and garden, and all-terrain vehicles for recreation. The following off-road categories are included in this GHG inventory:

- Agricultural Equipment
- Transport Refrigeration Units
- Construction
- Industrial
- Lawn and Garden
- Light Commercial
- Pleasure Craft
- Recreational
- Portable Equipment

[7] In the industrial category, some equipment like forklifts were assumed to be electric. Emissions related to electricity generation are assumed to be captured by the building energy inventory.

Annual emissions of CO_2, CH_4, and N_2O were estimated using the State's OFFROAD model, which provides data at the county level. For CO_2, OFFROAD provides estimated total tons of CO_2 per day, which was converted to MT of CO_2 per year. For CH_4 and N_2O, emissions were estimated using the OFFROAD fuel consumption output in gallons per year and The Climate Registry U.S. default factors for calculating CH_4 and N_2O emissions from non-highway vehicles to convert fuel to annual emissions.

The EMFAC data for Yolo County includes incorporated areas of Yolo County in addition to unincorporated areas. As a conservative approach, 100% of the Yolo County OFFROAD inventory was attributed to the unincorporated areas of Yolo County and included in the GHG inventory.[8]

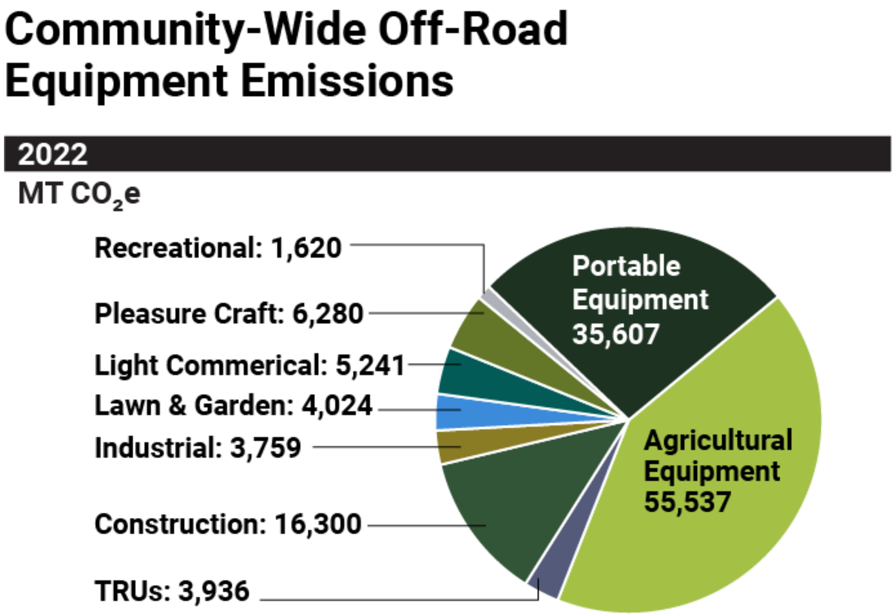
Table 7 and Figure 10 below summarize the community-wide GHG emissions related to off-road equipment use by type in the 2022 baseline year.

Table 7. Community-Wide Baseline (2022) Off-Road Equipment Emissions

Equipment Type	Emissions MT CO_2e	Percent of Total
Agricultural Equipment	55,537	42%
Transport Refrigeration Units	3,936	3%
Construction	16,300	12%
Industrial	3,756	3%
Lawn and Garden	4,024	3%
Light Commercial	5,241	4%
Pleasure Craft	6,280	5%
Recreational	1,620	1%
Portable Equipment	35,607	27%
Total	**132,302**	**100%**

8 In the 2016 GHG emissions inventory (Ascent 2018), the city portion of the OFFROAD inventory was assumed to be less than 2%.

Figure 10. 2022 Community-Wide Off-Road Equipment Emissions



Agriculture

Agricultural operations can include various emissions sources; however, this sector is focused on sources that are relatively unique to agriculture and do not fit in other emission sector categories. For this sector, agricultural sources of GHG emissions include residue burning; livestock; rice cultivation; and chemical application including, lime, urea, and nitrogen fertilizers.[9] Emissions associated with agricultural activity related to transportation, building energy, water and wastewater, solid waste, and agricultural off-road equipment usage were included in those respective emission sectors.

Default emission factors and methodologies for Yolo County's agricultural GHG emissions were obtained from CARB's GHG Emissions Inventory Technical Support Document and GHG Inventory Query Tool, where appropriate (CARB 2016 and CARB 2023a). Activity data used to estimate emissions from agricultural operations was obtained from a variety of sources, as detailed below.

Residue Burning

Crop data required to estimate emissions from residue burning for almonds, corn, rice, walnuts, and wheat was obtained from the 2022 Crop & Livestock Report, and for barley from the USDA 2022 Census of Agriculture (Yolo County Department of Agriculture 2023; USDA 2024). Total harvested acreage is provided in Table 8.

[9] Pesticide use, including application of methyl bromide and sulfuryl fluoride, was included in the 2016 County emissions inventory but are not included here because the pesticide use data provided by the Agricultural Commissioner's Office indicates that neither of these chemicals was used in unincorporated Yolo County in 2022.

Table 8. Yolo County 2022 Harvested Crop Acreage Assumptions

Crop Type	2022 Harvested Acres
Almonds	47,900
Barley	2,071
Corn	4,414
Rice	8,478
Walnuts	14,985
Wheat	23,393

Source: Yolo County Department of Agriculture 2023; USDA 2024.

Livestock

GHG emissions from livestock activity are related to enteric fermentation (i.e., the natural process by which carbohydrates are broken down during digestion in ruminant animals) and manure management. Activity data to estimate emissions from these sources includes total livestock population, which was obtained for Yolo County from the 2022 Crop & Livestock Report. There was a total of 27,546 heads reported for Yolo County in 2022, including 17,784 cattle and calves and 9,762 sheep and lambs (Yolo County Department of Agriculture 2023).

Rice Cultivation

GHG emissions from rice cultivation are related to CH_4 released from anaerobic decomposition of organic material in flooded rice fields. Activity data relevant to estimating CH_4 emissions from rice cultivation in Yolo County includes total acreage of harvested rice for baseline year 2022, which was provided in the 2022 Crop & Livestock Report and outlined above in Table 8.

Chemical Inputs

GHG emissions from agricultural chemical inputs result from liming, urea application, and synthetic nitrogen fertilizer. The practice of applying liming materials (limestone [$CaCO_3$] and/or dolomite [$CaCO_3MgCO_3$]) is used to improve soil conditions and enhance crop productivity. GHG emissions, specifically CO_2, from application of liming materials result when carbonate lime dissolves and releases bicarbonate, which evolves into CO_2 and water. Urea ($CO(NH_2)_2$) is used as fertilizer in agricultural operations and results in GHG emissions when bicarbonate that is formed in the presence of water and enzymes evolves into CO_2 and water. Synthetic nitrogen fertilizers are applied to increase crop yields and result in GHG emissions in the form of N_2O. While N_2O is produced naturally in soils through the nitrification and denitrification processes, emissions estimated here account for the increase in N_2O production due the increased input of nitrogen, which in turn enhances these natural processes.

Activity data needed to estimate emissions from the chemical inputs described above includes the annual amount of each material applied, which was provided by the California Department of Food and Agriculture 2022 Fertilizing Materials Tonnage Report (CDFA 2022). Consistent with this report, 460 tons of liming materials, 1,832 tons of urea, and 18,228 tons of nitrogen fertilizer were assumed for Yolo County in 2022.

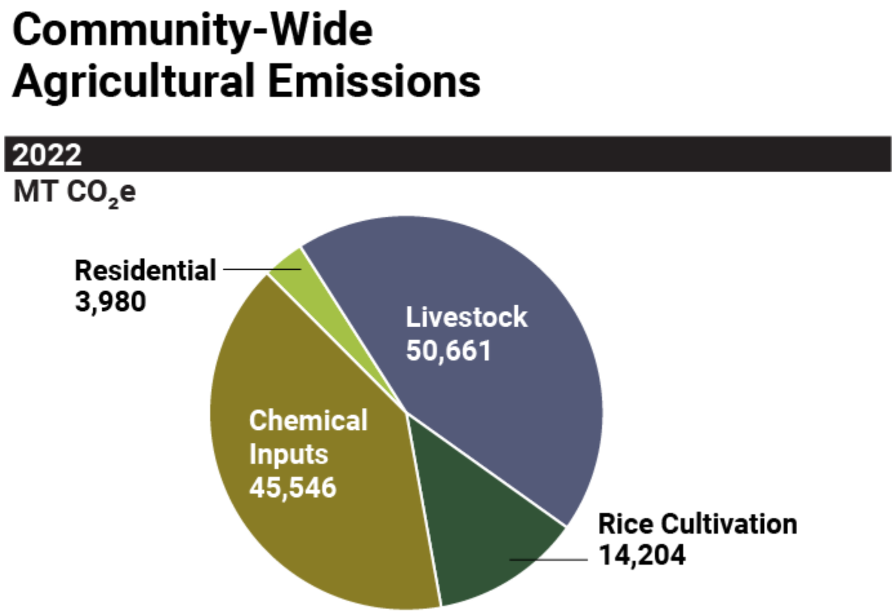
Table 9 and Figure 11 below summarize the GHG emissions related to agricultural operations by source in the 2022 baseline year.

Table 9. Community-Wide Baseline (2022) Agricultural Emissions

Source	Emissions MT CO_2e	Percent of Total
Residue Burning	3,980	3%
Livestock	50,661	44%
Rice Cultivation	14,204	12%
Chemical Inputs		
Liming	183	<1%
Urea	1,219	1%
Synthetic Nitrogen Fertilizer	45,144	39%
Total	**115,391**	**100%**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

Figure 11. 2022 Community-Wide Agricultural Emissions



Greenhouse Gas Emissions Sources Not Included in the Baseline

Stationary Sources

Major stationary sources, as defined in the EPA's Clean Air Act, include utility-scale electric generating stations (other than renewables), cement manufacturing plants, large manufacturing facilities, oil refineries, and large rail yards.

Stationary source GHG emissions by large facilities in Yolo County in 2020 include combustion sources at the University of California, Davis; electricity generation through Woodland Biomass Power Ltd. and MM Yolo Power LLC; and combustion sources associated with Pacific Coast Producers (CARB Pollution Mapping Tool v2.6). Additionally, three active Clean Air Act Title V stationary source permits and one pending permit exist within Yolo County as of 2023, all issued to the Cache Creek Casino Resort (EPA 2024).

Note that these emission sources are not under the jurisdictional authority of the County and are not required in the CAAP; therefore, they are displayed within the CAAP for informational purposes only.

Community-Wide Inventory Summary

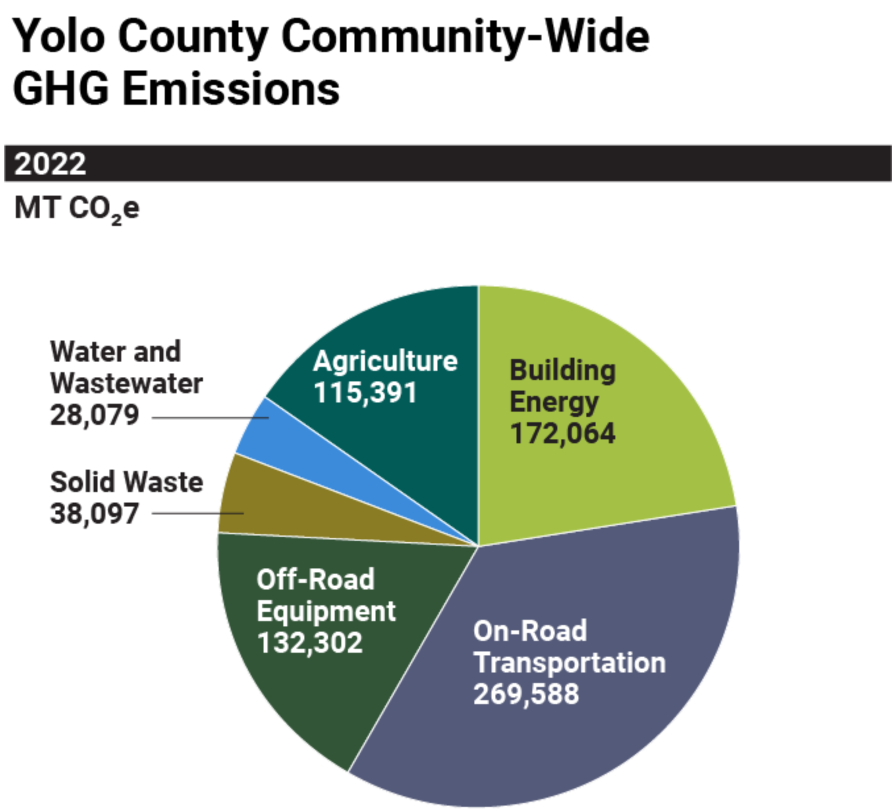
Table 10 presents a summary of the community-wide inventory by sector. Figure 12 presents the data in graphical form.

Table 10. Community-Wide 2022 Baseline Inventory

Sector	2022 Baseline MT CO_2e	Percent of Total
On-Road Transportation	269,588	36%
Building Energy	172,064	23%
Water and Wastewater	28,079	4%
Solid Waste	38,097	5%
Off-Road Equipment	132,302	18%
Agriculture	115,391	15%
Total	**755,520**	**100%**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.
Percentage may not total due to rounding.

Figure 12. Yolo County 2022 Community-Wide GHG Emissions



Municipal Inventory

The municipal inventory is limited to the facilities, equipment, vehicles, and employees that the County owns and/or operates. Much of the municipal inventory will overlap with the community-wide inventory; for example, all the facilities, equipment, and vehicles owned by the County that are within unincorporated Yolo County are also included in the community-wide inventory. However, the municipal inventory also includes the County offices and facilities that are located within the cities of Yolo County. For this reason, there is not a perfect correlation between the community-wide and the municipal inventories. In addition, the municipal inventory tends to be small in comparison to the community-wide inventory. Municipal inventories are beneficial in addressing County-controlled emission sources that are within the cities of Yolo County. The primary purpose of a municipal inventory is to "lead by example," and develop reduction measures associated with County activities and operations.

On-Road Transportation

The municipal on-road transportation inventory accounts for County-owned vehicle fleet travel. The Yolo County Fleet Superintendent provided a complete list of County fleet vehicles owned and operated by each County division, along with the fuel type (gasoline, diesel, and hybrid electric) and fuel use for each vehicle for years 2019–2022. This inventory focused on year 2022. As with the community-wide inventory, emission factors were derived from EMFAC. The EMFAC emission factor was applied to each vehicle by engine class and fuel type.

Building Energy

Energy consumed at County-owned and/or operated buildings and facilities is the focus of the municipal GHG inventory.

Energy consumed includes both electricity and natural gas; this data was provided by PG&E (both electricity and natural gas) and VCE (electricity only).

To estimate GHG emissions, the same approach used for the community-wide inventory was applied, which is to multiply the electricity (measured in kilowatt hours per year, kilowatt-hour/year) for County-owned buildings and facilities by the emission factors for electricity provided by PG&E and VCE.

Natural gas consumption (measured in therms per year) for County-owned buildings and facilities was provided by PG&E and multiplied by the emission factors for natural gas consumption.

Water and Wastewater

Like the community-wide inventory, municipal GHG emissions associated with water use come from the electricity consumed in the extraction (e.g., groundwater pumping), conveyance, treatment, and distribution of potable water to the buildings and facilities owned and/or operated by the County.

The wastewater inventory also includes CH_4 emissions from off-gassing during the treatment process. Year 2022 annual wastewater generation estimates were calculated for each of the County-owned and/or operated buildings and facilities. The municipal inventory used the same biochemical oxygen demand values for wastewater facilities as the community-wide inventory, and CH_4 emissions were calculated based on CARB's methodology and then converted into MT using emission factors from IPCC's AR6 report and added to emissions from electricity consumption to obtain total emissions from wastewater treatment in unincorporated Yolo County (CARB 2023b; IPCC 2021a).

Solid Waste

Solid waste and solid waste management include:

- Central Landfill (CH_4 off-gassing, on-site support equipment, and truck fleet)
- Solid waste generation at County-owned and/or operated buildings and facilities

Solid waste GHG emissions for the municipal inventory used both the waste-in-place and waste generation calculation methods. The waste-in-place method was used to calculate GHG emissions associated with the Central Landfill, owned and operated by the County. The waste-in-place method accounts for all of the waste that is still decaying within the landfill. This method of calculation focuses on waste disposed of at the Central Landfill, regardless of where the waste was produced. The formula to calculate GHG emissions from waste-in place is:

(Total modeled CH_4 generated * (1 - Landfill Gas Collection Efficiency) * Emission Factor for CH_4) + Total modeled CO_2 generated.

Solid waste generation at County-owned and/or operated buildings and facilities used the waste generation method. The formula to calculate emissions from waste generation is:

Emission factor for CH_4 * (1 – (Percent of year under landfill gas collection or control * Landfill Gas Collection Efficiency)) * (1 – oxidation rate) * (Waste tonnage delivered by Unincorporated County + Total Alternative Daily Cover) * Emissions Factor for Mixed Solid Waste.

Off-Road Equipment

Off-road emissions for the municipal inventory include any off-road equipment owned and operated by the County. As noted previously, use of off-road equipment generates GHG emissions from the combustion of fuel, which is typically diesel, gasoline, or natural gas.

The Yolo County Fleet Superintendent provided a list of off-road equipment owned and operated by the various County divisions including fuel type and fuel use for years 2019 through 2022. This inventory focused on year 2022 and utilized emission factors from the OFFROAD model for each piece of off-road equipment. The emission factors for CO_2, CH_4, and N_2O were applied based on the gallons of fuel consumed by each piece of equipment.

Municipal Inventory Summary

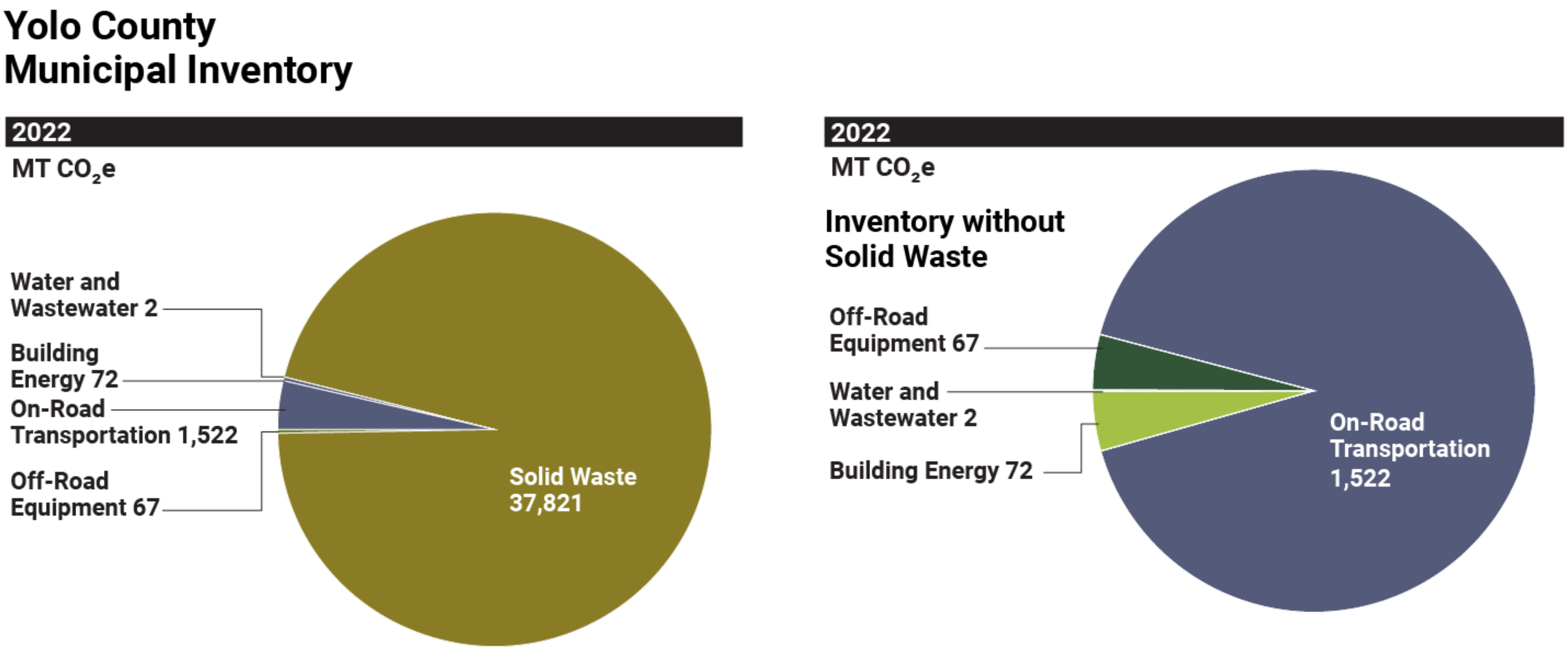
Table 11 presents a summary of the municipal inventory by sector. As shown in Table 11, the predominant emission sector is solid waste due to County landfill operations. Figure 13 presents the data in a graphical form.

Table 11. Municipal 2022 Baseline Inventory

Sector	2022 Baseline MT CO_2e	Percent of Total
On-Road Transportation	1,522	4%
Building Energy	72	<1%
Water and Wastewater	2	<1%
Solid Waste	37,821	96%
Off-Road Equipment	67	<1%
Total	**39,485**	**100%**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.
Percentage may not total due to rounding.

Figure 13. Municipal Inventory



Consumption-Based Inventory Narrative

The consumption-based inventory narrative focuses on life cycle GHG emissions associated with the consumption of materials, goods, and services. Life cycle emissions embedded in materials include emissions associated with the mining, refining, and processing of raw materials into the finished products consumed and the disposal of materials after consumption. A consumption-based narrative is similar to a carbon footprint, which looks at the total GHG emissions generated by an individual's actions.

Actions to reduce the carbon intensity of products, materials, and the supply chain are the responsibility of manufacturers and not within the jurisdictional control of the County. As such, the narrative focuses on encouraging a shift of consumer choice toward more sustainable options. The objective is to educate individuals, families, and communities about GHG emissions—which extend beyond Yolo County borders—associated with their consumption of materials, goods, and services, which can help those individuals make informed choices.

A consumption-based inventory can be scaled up to the community level, but it can also be scaled at an individual or family level. The Yolo County consumption-based inventory narrative was scaled at a household level to provide individuals and families a picture of their contribution to GHG emissions. Because the consumption-based inventory narrative was scaled at a household level, it is a great way for individuals, families, and small businesses to assess their own carbon footprint.

Unlike the community-wide and municipal inventories, the consumption-based narrative is a qualitative inventory. While strategies to reduce an individual's consumption-based GHG emissions are important, they are not quantified within this CAAP; therefore, a quantitative consumption-based baseline inventory at the County level is not necessary to identify opportunities to make a difference by reducing one person's carbon footprint. Nonetheless, to understand the types of actions and the magnitude of consumption-related GHG emissions, quantitative consumption-based inventory data developed at a national level and divided into census-block groups was used to approximate a consumption-based inventory for Yolo County (Gould, pers. comm., 2023).[10]

The consumption-based inventory narrative is divided into the following five sectors of emissions: transportation, housing/ buildings, goods, services, and food, which are described below.

Transportation

In determining the GHG emissions associated with on-road transportation for Yolo County within the consumption-based inventory narrative, the analysis first determined the amount of emissions associated with the mining, collection, and processing of the raw materials that go into the vehicle, along with the mining and refinement of gasoline or diesel fuel. The analysis then determined the GHG emissions associated with the maintenance, total miles driven, and fuel consumed during the economic life of the vehicle, as

10 The CAAP team would like to thank EcoDataLab, specifically President Ben Gould, for sharing consumption-based GHG emissions data for Yolo County for 2017.

well as emissions associated with recycling and deposition of the various components of the vehicle at the end of its economic life. Finally, the analysis divided the total emissions associated with the life cycle of the vehicle and fuel consumed by the total number of miles traveled by the vehicle during its economic life. The resulting GHG emissions per mile total was then multiplied by the VMT per year to calculate the consumption-based emissions of on-road transportation on an annual basis. Note that fuel consumption constitutes direct emissions associated with transportation. All other aspects of the life cycle emissions are indirect emissions. Transportation represents the largest sector of emissions (35%) within the consumption-based narrative.

Housing

The housing sector, which includes all buildings, for Yolo County includes the mining and processing of raw materials including cement, sand and gravel, metal, glass, roofing materials, and the cutting and processing of lumber. The housing sector also includes the manufacturing of synthetic materials including carpeting and plastics. The analysis then determined the emissions associated with the maintenance, energy and water consumed, and waste and wastewater generated during the economic life of a home, as well as emissions associated with recycling and deposition of the various components of the home at the end of its economic life. Note that the consumption of natural gas represents direct emissions associated with the housing sector. All other aspects of this sector (electric and water consumption, wastewater and waste generation, home maintenance, and life cycle emissions) are considered indirect emissions. The housing sector represents approximately 12% of the total consumption-based inventory narrative.

Goods

The goods sector for Yolo County includes all electronics, appliances (that are not built into the home), furniture, lamps, art and other furnishings, clothing, backpacks, and other non-food consumables (dish detergent, laundry soap, shampoo, etc.). Like the other sectors, the GHG emissions includes the mining and processing of raw materials needed to manufacture goods including synthetic materials. The goods sector of emissions also includes the maintenance and use of goods as well as the emissions associated with recycling and deposition of the goods. All GHG emissions associated with the goods sector are considered indirect emissions because they do not directly emit GHG emissions. Goods also represent 12% of the total consumption-based inventory narrative.

Services

The services sector for Yolo County includes emissions associated with the operation of banks, real-estate offices, travel services (not the travel itself), and insurance company activities. The services sector of GHG emissions also includes County services including the operation of courts, attorneys' offices, and law enforcement. GHG emissions associated with services are all indirect emissions such as energy use (heating, cooling, cooking, etc.), employee travel, water usage, wastewater generation, and solid waste generation at the service location, and represent the third-highest source (20%) of the consumption-based inventory narrative.

Food

The food sector for Yolo County includes meat, dairy, fruits, vegetables, cereals, and “other foods” (candies, wines, spirits, heavily processed synthetic food products, etc.). GHG emissions associated with the life cycle of foods include tilling and other row crop preparation, irrigation water, fertilizer, harvesting, transportation, food processing and packaging, and delivery to the market. Meat also includes the grains used in feeding the animals while they are being raised and fattened in preparation for butchering, as well as the butchering process. GHG emissions associated with food are all indirect emissions and represent the second-highest source (21%) of the consumption-based inventory narrative.

Consumption-Based Narrative Summary

Figure 14 presents the breakdown of the consumption-based inventory narrative by sector. Following, Figure 15 presents a bar chart that shows the additional emissions by activity within each sector, as applicable.

Figure 14. Yolo County Consumption-Based Inventory

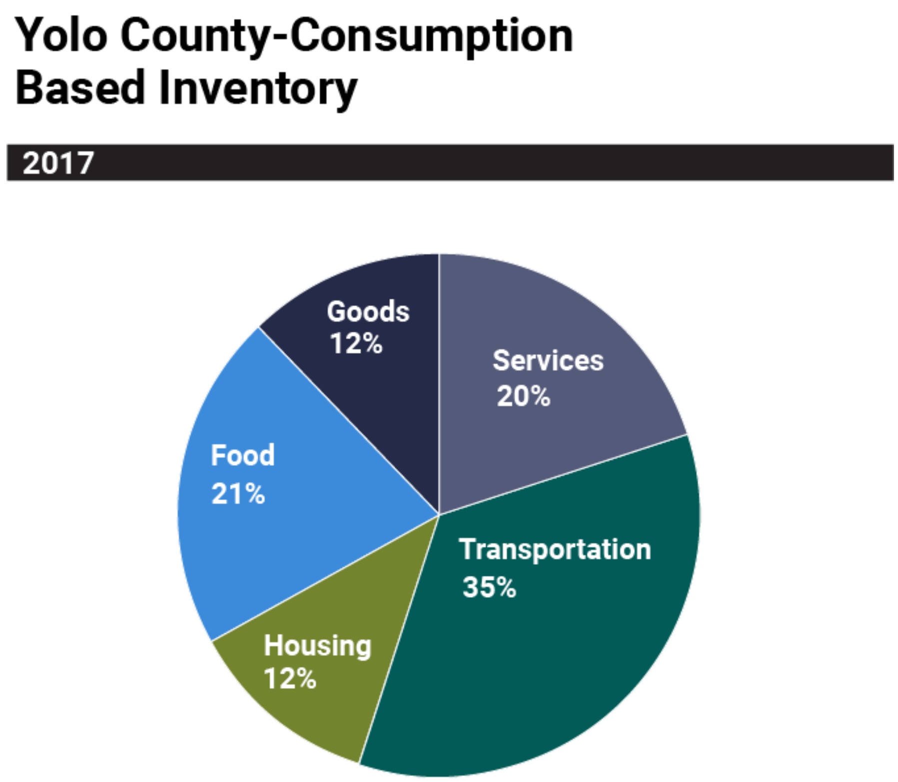
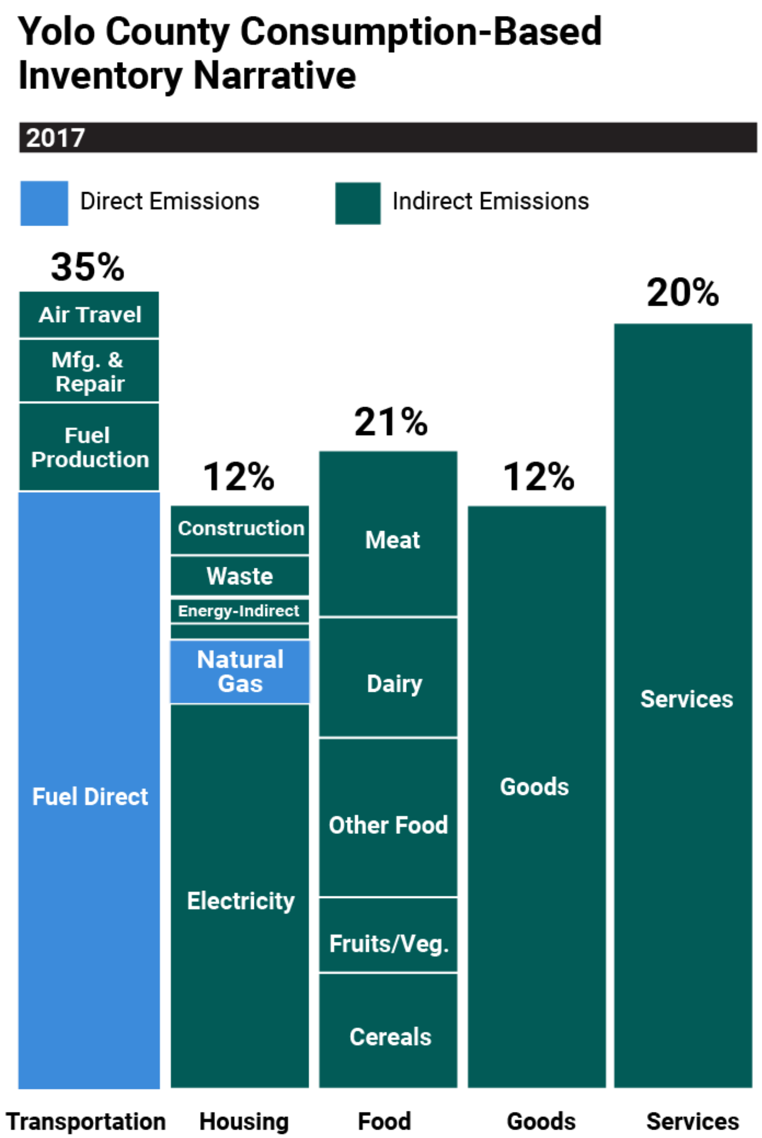


Figure 15. Consumption-Based Inventory Narrative



General Comparison of 2016 and 2022 Greenhouse Gas Emissions Inventories

The most recent Yolo County inventory available prior to the CAAP was prepared for the year 2016 (Ascent Environmental 2018). GHG inventories change over time because of a multitude of factors. Inventory calculation methods continue to evolve and best practices are updated, which can lead to a change in how GHG emissions are calculated. The data inputted into the calculations can also change due to the granularity of the data, source of the data, and source collection and categorization, as well as shifts in activity. How GHG emission sectors are defined and what activity is included in each sector can also lead to changes in the breakdown of sector emissions. Generally, changes are estimated based on factors that are anticipated to have contributed to the change rather than a clearly defined variable. Table 12 presents a general comparison between the 2016 and 2022 community-wide inventories.

Table 12. General Comparison of 2016 and 2022 Community-Wide Inventories

Sector	2016		2022		2016-2022 Change	
	MT CO_2e	Percent of Annual Total (%)	MT CO_2e	Percent of Annual Total (%)	MT CO_2e	Percent (%)
On-Road Transportation	573,640	53%	269,588	36%	-304,051	-53%
Building Energy	116,597	11%	172,064	23%	55,466	48%
Water and Wastewater	422	<1%	28,079	4%	27,657	6,555%
Solid Waste	49,239	5%	38,097	5%	-11,142	-23%
Off-Road Equipment	110,334	10%	132,302	18%	21,968	20%
Agriculture	232,569	22%	115,391	15%	-117,178	-50%
Total	**1,082,801**	**100%**	**755,520**	**100%**	**-327,281**	**-30%**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.
The 2016 inventory presented water and wastewater separately; here they are combined for comparative purposes, and water was therefore subtracted from energy.
Percentage may not total due to rounding.

A summary of factors that may have contributed to changes between the 2016 and 2022 community-wide GHG emissions inventory are as follows as organized by sector:

On-Road Transportation. SACOG's Sacramento Activity-Based Travel Simulation (SACSIM) Model was updated between the 2016 and 2022 VMT estimates, which resulted in changes in how VMT is estimated. The 2016 model had a 2012 base year, which means that the 2016 VMT were forecasted using some interpolation or a model scenario year. In addition, the 2016 model had different land use assumptions for the future, which would result in a different set of VMT estimates for the 2016 forecast. Other potential differences between the models could be the VMT accounted for and reported (may it be roadway VMT as the current model reports origin-destination VMT), how the external VMT was calculated (VMT for unincorporated Yolo County only or all of Yolo County), and the use of Passenger Car Equivalent for truck VMT. Regarding GHG emission factors, overtime, GHG emissions associated with vehicle travel decreases due to fuel efficiency standards for new motor vehicles associated with implementation of more stringent regulations and fleet turnover (new more efficiency vehicles replacing older less efficient vehicles). While the VMT methodology changes cannot be confirmed with a high-level of certainty, the VMT substantially reduced in 2022 compared to 2016, which is a larger contributor compared to the vehicle emission factor reduction.

Building Energy. Residential energy in both electricity and natural gas consumption decreased between 2016 and 2022. For the 2022 inventory, commercial and industrial natural gas was not available and industrial electricity was not available, so usage was scaled based on past data, resulting in an increase in estimated usage. Commercial and industrial energy usage may have decreased like residential, but due to the availability of data, this could not be assumed herein. Overall, some energy use categories decreased while others increased. A greater percentage of renewable energy in the mix of energy resources used by PG&E to comply with Renewables Portfolio Standard leads a reduction in GHG emissions associated with energy use served by PG&E. However, the 2016 inventory assumed 100% of the electricity would be provided by PG&E, while the 2022 inventory assumes a mix of electricity provided by PG&E and VCE. The VCE GHG intensity factor in 2022 (705 lbs CO_2e per MWh) is substantially higher than PG&E's 2016 GHG intensity factor (294 lbs CO_2e per MWh); as such, the overall electricity GHG intensity increased. The higher GHG intensity associated with VCE was due to several factors: some of VCE's renewable generation projects in development experienced unavoidable delays (many from COVID-related supply chain issues), and decisions taken by VCE's Board of Directors to allow higher GHG intensity factors in the short term (rather than investing in a lot of Renewable Energy Credits) in favor of developing new "steel in the ground" renewable projects for the long term. Of note, VCE set a goal to be 100% renewable electricity by 2030, so electricity-related GHG emissions should substantially reduce in the future. As a demonstration of progress, GHG intensity is projected to be substantially lower in 2024, corresponding to a drastic rise in renewables (134 lbs CO_2e per MWh [79% renewable]) and remain somewhat constant, if not lower, in the coming years as renewables projects continue to come online (VCE 2023c).[11]

Water and Wastewater. As noted above, in the 2016 inventory, water use and wastewater treatment were presented as separate sectors but were combined for the 2022 inventory. Regarding water, the 2016 inventory used kWh/acre-foot intensity of 145 versus the 703 kWh/acre-foot intensity used for 2022, which is regionally specific (Sacramento River region). The 2016 annual water consumption was estimated using a one month of actual consumption and scaled up to annual consumption, which potentially over-estimated water consumption (903 MG). For 2022, the total annual consumption value was provided (186 MG). Finally, the PG&E lbs/MWh intensity factor has dropped substantially since 2016 (i.e., 294 in 2016 versus 56 in 2022). Regarding wastewater accounting, the 2016 inventory only accounted for wastewater treated at Esparto, Madison, Knights Landing, and Wild Wings County Service Area. The 2022 inventory included all unincorporated wastewater treatment, according to the active facilities provided by the California Integrated Water Quality System Regulated Facility Report.

Solid Waste. Regarding activity data, more of unincorporated County waste is going to the County facility (as opposed to other facilities outside of the County) in 2022 compared to 2016, which increases the amount of waste received. However, the County facility recaptures more methane than the other facilities, which would reduce the GHG emissions associated with solid waste. Additionally, for the 2016 emissions inventory, the 75% default capture efficiency for all facilities was applied, where the 2022 estimates reflect site-

11 The projected 2024 Valley Clean Energy GHG intensity factor is for context and not included in the GHG inventory and forecasting calculations.

specific capture efficiencies for each facility, which are much higher than the default 75% factor, based on the FLIGHT database.

Off-Road Equipment. Both 2016 and 2022 inventories base the off-road emissions on CARB's OFFROAD inventory; as such, changes are related to the OFFROAD methodology and activity data, as the off-road categories included in the inventory. In the 2022 inventory, the Transport Refrigeration Unit, Lawn & Garden, Light Commercial, Pleasure Craft, Recreational, and Portable Equipment categories were included, which were not included in the 2016 inventory.

Agriculture. Between 2016 and 2022, there was an observed substantial reduction in rice production, as well as a drop in total heads of livestock. The 2022 estimates reflect changes to residue burning methodology and instead, relied on CARB inventory methods and defaults.

Demographic Trends

Demographic trends are important factors in developing the CAAP because they enable projections, or forecasting, of GHG emissions based on changes anticipated to be experienced within Yolo County. For example, if residential population is anticipated to increase within a community, GHG emissions associated with residential population would also increase when not considering other variables that would change the GHG emissions profile.

Forecast years selected for this CAAP include 2027, 2030, and 2045. Table 13 shows Yolo County's baseline 2022 and projected 2027, 2030, and 2045 metrics for population, households, employment, and VMT. Only the relevant demographic trends (i.e., used in the 2027, 2030, and 2045 Business-as-Usual [BAU] and Adjusted Business-as-Usual [ABAU] projections) are presented in Table 13.

As noted in Table 13 below, forecasting for the transportation sector is based on VMT; building energy was forecasted based on the projected number of households for residential energy use and on projected employment for commercial and industrial energy use; GHG emissions related to water, wastewater, and solid waste were forecasted based on population.

Metrics for off-road equipment and agriculture are not included in Table 13 because the GHG emissions for these sectors were forecasted without using demographic trends. GHG emissions related to off-road equipment were forecasted using the CARB OFFROAD model, based on Yolo County-specific criteria within the model, and agricultural emissions for 2027, 2030, and 2045 were assumed not to change from the 2022 baseline year.

According to the County's 2030 General Plan environmental impact report, agricultural land use within Yolo County is proposed to decrease to 544,723 acres in 2030 from approximately 603,544 acres in the 1983 General Plan. Agricultural activities are highly variable and can change year to year in response to market demand, weather, water availability, and other unpredictable factors that subsequently impact GHG emissions. Given the high potential for interannual activity variability within the agricultural sector, no demographic data or trends were applied to the agricultural sector, which was assumed to remain constant for future year forecasts. Assuming that agricultural land use acreage within Yolo County decreases in line with the 2030 General Plan land use changes, this assumption provides for a conservative estimate of future agricultural emissions (Yolo County 2018).

Table 13. Existing and Projected Demographic Trends

Demographic Metric	Applicable Inventory Sector(s)	2022 Baseline	Projected (Percent Change from 2022)			Data Source
			2027	2030	2045	
Population (persons)	Solid Waste, Water, Wastewater	18,856	19,466 (3.24%)	19,833 (5.18%)	21,665 (14.90%)	SACSIM19 Model
Households	Energy (Residential)	6,688	6,900 (3.24%)	7,027 (5.07%)	7,663 (14.90%)	SACSIM19 Model
Employment (jobs)	Energy (Industrial, Commercial)	6,635	7,027 (5.90%)	7,262 (9.44%)	8,437 (27.15%)	SACSIM19 Model
Vehicle Miles Traveled (miles)	On-Road Transportation	4,097,774	4,102,737 (0.12%)	4,105,715 (0.19%)	4,120,605 (0.56%)	Fehr & Peers (2024)

Notes: SACSIM19 = Sacramento Activity-Based Travel Simulation Model.

Greenhouse Gas Emissions Projections

Forecasting future GHG emissions allows the County to understand how emissions are expected to increase or decrease in the future. GHG emissions are forecasted using two scenarios: (1) a BAU scenario; and (2) an ABAU scenario. The BAU and ABAU projections are both based on the demographic trends discussed above to reflect anticipated growth in Yolo County.

The BAU scenario describes emissions based on projected growth in population, employment, and other factors and does not consider policies that would reduce GHG emissions in the future.

The ABAU scenario describes emissions based on projected growth *and* considers policies that will achieve GHG reductions in the future (i.e., assumes Federal- and State-mandated GHG emission reduction measures would be implemented by the projected forecast year). The ABAU, unlike the BAU, accounts for adopted GHG emissions reductions because of regulations that would be implemented between the 2022 baseline year and 2027, 2030, and 2045.

By forecasting these two scenarios, the County can evaluate the effect that existing policies may have on future emissions and determine which local measures would provide additional reductions. The additional reductions needed at the local level can also be estimated based on the emission reductions necessary between the “gap” of the ABAU inventory and the inventory goal of carbon negative by 2030.

Business-as-Usual Inventory Projections

Table 14 presents the BAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the community-wide inventory.

Yolo County's community-wide BAU GHG emissions in 2027 are estimated to be 766,931 MT CO_2e, or a 2% increase from baseline (2022) emissions. By 2030, community emissions are also estimated to increase 2% from the baseline level to 774,003 MT CO_2e. By 2045, community emissions are estimated to increase 8% from the baseline level to 813,602 MT CO_2e.

Table 14. Community-Wide Inventory Business-as-Usual Projections

Sector	2022 Baseline MT CO_2e	Projected Emissions MT CO_2e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	269,588	270,774 (<1%)	271,486 (1%)	275,044 (2%)
Building Energy	172,064	178,898 (4%)	182,998 (6%)	203,501 (18%)
Water and Wastewater	28,079	28,080 (<1%)	28,081 (<1%)	28,084 (<1%)
Solid Waste	38,097	39,566 (4%)	40,448 (6%)	44,856 (18%)
Off-Road Equipment	132,302	134,222 (1%)	135,599 (2%)	146,726 (11%)
Agriculture	115,391	115,391 (0%)	115,391 (0%)	115,391 (0%)
Total	**755,520**	**766,931 (2%)**	**774,003 (2%)**	**813,602 (8%)**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

Similarly, Table 15 presents the BAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the municipal inventory.

By 2027, Yolo County's municipal BAU will emit 40,995 MT CO_2e, which is a 4% increase from baseline (2022) emissions. Municipal GHG emissions are estimated to increase 6% from the baseline level to 41,905 MT CO_2e in 2030 and increase 18% from the baseline level to 46,452 MT CO_2e in 2045.

Table 15. Municipal Inventory Business-as-Usual Projections

Sector	2022 Baseline MT CO_2e	Projected Emissions MT CO_2e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	1,522	1,567 (3%)	1,598 (5%)	1,750 (15%)
Building Energy	72	75 (3%)	76 (5%)	83 (15%)
Water and Wastewater	2	2 (3%)	2 (5%)	2 (15%)
Solid Waste	37,821	39,282 (4%)	40,158 (6%)	44,540 (18%)
Off-Road Equipment	67	69 (3%)	71 (5%)	78 (15%)
Total	**39,485**	**40,995 (4%)**	**41,905 (6%)**	**46,452 (18%)**

Note: MT CO_2e = metric tons of carbon dioxide equivalent.

Adjusted Business-as-Usual Inventory Projections

As noted above, the ABAU scenario describes emissions based on projected growth *and* considers policies that will achieve GHG reductions in the future. State legislation has been approved and/or adopted that will reduce GHG emissions in Yolo County. Federal and State policies do not require additional local action but should be accounted for in the County's emissions forecasts to provide a more accurate picture of future emissions and the level of local action needed to reduce emissions to levels consistent with State recommendations.

Table 16 presents the key ABAU assumptions.

Table 16. Adjusted Business-as-Usual Assumptions

Emissions Sector	Assumption Description	How It Is Included	Justification
Transportation	Advanced Clean Cars for model year 2016+ Pavley I Federal standard for model year 2012–2016 Truck and Bus Rule (including the 2014 Amendment) Heavy-Duty GHG Phase 1 (2013), which includes the 2013 Tractor-Trailer GHG Regulation Amendments	Included in EMFAC2021	EMFAC2021 Technical Documentation (CARB 2021); EMFAC2017 Technical Documentation (CARB 2017b).

Table 16. Adjusted Business-as-Usual Assumptions

Emissions Sector	Assumption Description	How It Is Included	Justification
	and Federal Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles Federal GHG Phase 2 GHG Standards for Medium- and Heavy-Duty Engines and Vehicles Advanced Clean Trucks Innovative Clean Transit		
Energy	Renewables Portfolio Standard	Incorporated RPS into the PG&E and VCE GHG intensity Percent renewable targets for RPS include the following: 52% by 2027 (SB 100) 60% by 2030 (SB 100) 90% by 2035 (SB 1020) 95% by 2040 (SB 1020) 100% by 2045 (SB 1020) A revised GHG intensity value was calculated based on the 2022 value for PG&E adjusted to assume a percent of the power mix would be from eligible renewables per SB 100 and SB 1020 as appropriate for 2027, 2030, and 2045 For VCE, 100% from renewables was assumed for 2030 and 2045. For 2027, 52% of the power mix was assumed to be from eligible renewables per SB 100	PG&E GHG intensity for 2022 from 2022 Power Content Label (PG&E 2023b); SB 100 RPS goals. VCE GHG intensity for 2022 from 2022 Power Content Label (VCE 2023b); VCE Board goal of 100% renewable electricity by 2030 (VCE 2023c).
	2022 Title 24 Building Energy Efficiency Standards	Manually adjusted the energy consumption for electricity and	California Energy Commission Impact Analysis for the 2022 Update

Table 16. Adjusted Business-as-Usual Assumptions

Emissions Sector	Assumption Description	How It Is Included	Justification
		natural gas assumed to be generated by development after 2022 Energy reductions were assumed based on the difference in energy use between the 2019 and 2022 Title 24 code that takes into account requirements for heat pump standard design for single-family, multifamily, and nonresidential, and photovoltaic and battery storage for multifamily and nonresidential	to the California Energy Code (CEC 2023).
Water and Wastewater	Renewables Portfolio Standard	Incorporated into the PG&E and VCE GHG intensity for future years	PG&E GHG intensity for 2022 from 2022 Power Content Label (PG&E 2023b); SB 100 RPS goals. VCE GHG intensity for 2022 from 2022 Power Content Label (VCE 2023b); VCE Board goal of 100% renewable electricity by 2030 (VCE 2023c).
Solid Waste	None	None	None
Off-Road Equipment	None	None	None
Agriculture	None	None	None

Notes: GHG = greenhouse gas; PG&E = Pacific Gas and Electric Company; VCE = Valley Clean Energy; RPS = Renewables Portfolio Standard; SB = Senate Bill.

Accordingly, by considering an adjusted forecast that reflects GHG emission reductions that Federal and State regulations will achieve, the County can more precisely determine what additional GHG emission reductions it needs to reach its local GHG emissions reduction target, as discussed further below. Detailed BAU and ABAU emissions calculations are included in Appendix B-1.

Table 17 presents the ABAU projections by emission sector for the community-wide inventory for 2027, 2030, and 2045, along with the 2022 baseline.

Yolo County's community-wide ABAU GHG emissions in 2027 are estimated to be 673,329 MT CO_2e, or a 11% decrease from baseline (2022) emissions. By 2030, community emissions are estimated to decrease 15% from the baseline level to 641,072 MT CO_2e under the ABAU. By 2045, ABAU community emissions are estimated to decrease 17% from the baseline level to 628,898 MT CO_2e.

Table 17. Community-Wide Inventory Adjusted Business-as-Usual Projections

Sector	2022 Baseline MT CO_2e	Projected Emissions MT CO_2e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	269,588	241,037 (-11%)	225,990 (-16%)	191,715 (-29%)
Building Energy	172,064	115,042 (-33%)	95,580 (-44%)	102,166 (-41%)
Water and Wastewater	28,079	28,072 (-1%)	28,065 (-1%)	28,043 (-2%)
Solid Waste	38,097	39,566 (4%)	40,448 (6%)	44,856 (18%)
Off-Road Equipment	132,302	134,222 (1%)	135,599 (2%)	146,726 (11%)
Agriculture	115,391	115,391 (0%)	115,391 (0%)	115,391 (0%)
Total	**755,520**	**673,329 (-11%)**	**641,072(-15%)**	**628,898(-17%)**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.

Table 18 presents the ABAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the municipal inventory.

By 2027, Yolo County's municipal ABAU emissions are estimated to be 40,979 MT CO_2e, which is a 4% increase from baseline (2022) emissions. Municipal GHG emissions are estimated to increase 6% from the baseline level to 41,841 MT CO_2e in 2030 and to increase 17% from the baseline level to 46,020 MT CO_2e in 2045 under ABAU conditions.

Table 18. Municipal Inventory Adjusted Business-as-Usual Projections

Sector	2022 Baseline MT CO_2e	Projected Emissions MT CO_2e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	1,522	1,567 (3%)	1,566 (3%)	1,400 (-8%)
Building Energy	72	58 (-20%)	44 (-39%)	1 (-99%)
Water and Wastewater	2	2 (1%)	2 (2%)	2 (12%)
Solid Waste	37,821	39,282 (4%)	40,158 (6%)	44,540 (18%)
Off-Road Equipment	67	69 (3%)	71 (5%)	78 (15%)
Total	**39,485**	**40,979 (4%)**	**41,841 (6%)**	**46,020 (17%)**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.

Business-as-Usual and Adjusted Business-as-Usual Inventory Projections Comparison

Table 19 below presents a comparison between the community-wide BAU and ABAU and the percent change between BAU and ABAU conditions focusing on the year of 2030.

Table 19. Community-Wide Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO_2e	2030 Projected Emissions MT CO_2e		Change BAU to ABAU MT CO_2e (%)
		BAU	ABAU	
On-Road Transportation	269,588	271,486	225,990	-45,496 (-17%)
Building Energy	172,064	182,998	95,580	-87,418 (-48%)
Water and Wastewater	28,079	28,081	28,065	-16 (-1%)
Solid Waste	38,097	40,448	40,448	0 (0%)
Off-Road Equipment	132,302	135,599	135,599	0 (0%)
Agriculture	115,391	115,391	115,391	0 (0%)
Total	**755,520**	**774,003**	**641,072**	**132,930 (-17%)**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.

As shown in Table 19, the community-wide ABAU is 17% less than the BAU in 2030.

Table 20 presents a comparison between the municipal inventory BAU and ABAU and the percent change between BAU and ABAU conditions focusing on the year of 2030.

Table 20. Municipal Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO_2e	2030 Projected Emissions MT CO_2e		Change BAU to ABAU MT CO_2e (%)
		BAU	ABAU	
On-Road Transportation	1,522	1,598	1,566	-32 (2%)
Building Energy	72	76	44	-32 (42%)
Water and Wastewater	2	2	2	<1 (2%)
Solid Waste	37,821	40,158	40,158	0 (0%)

Table 20. Municipal Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

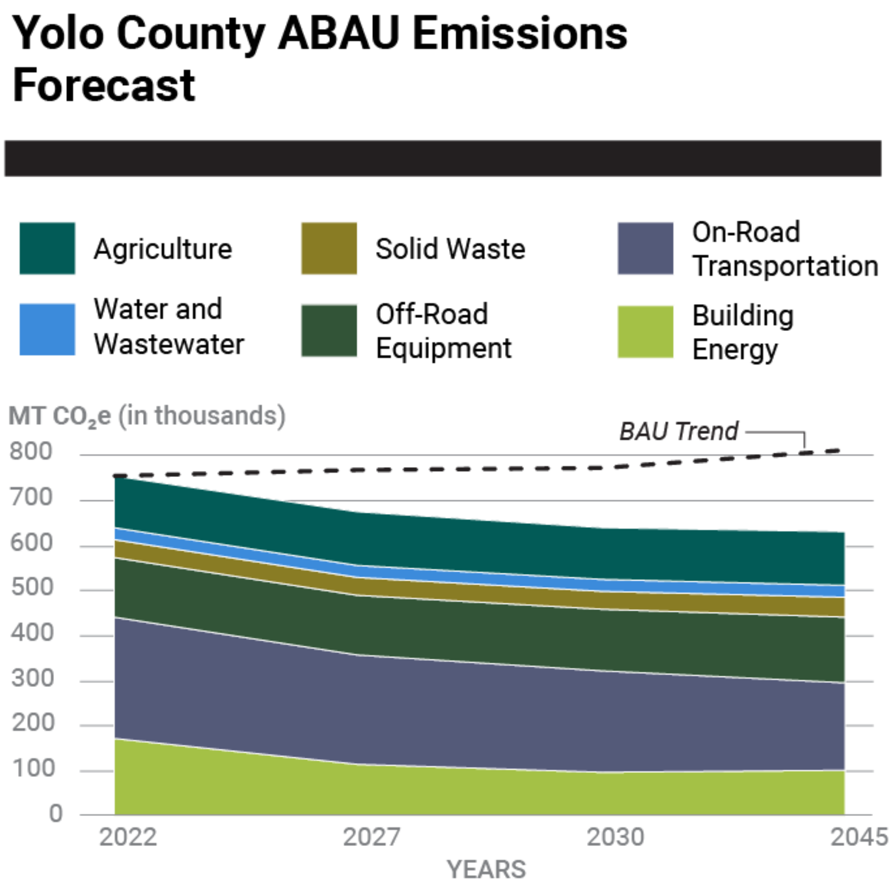
Sector	2022 Baseline MT CO_2e	2030 Projected Emissions MT CO_2e		Change BAU to ABAU MT CO_2e (%)
		BAU	ABAU	
Off-Road Equipment	67	71	71	0 (0%)
Total	**39,485**	**41,905**	**41,841**	**-64 (<1%)**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.

As shown in Table 20, the municipal ABAU is less than 1% below the BAU in 2030.

Figure 16 presents Yolo County community-wide ABAU forecasts as broken down by GHG emission sector and the BAU forecast line.

Figure 16. Yolo County Community-Wide Emissions ABAU Emissions Forecast



Greenhouse Gas Emissions Reduction Targets and Goals

Reduction targets are set to provide a clearly defined pathway to reduce GHG emissions by a specific amount and by a predetermined date. By establishing a target, the County can identify the amount of GHG emissions it must collectively reduce to meet its climate goals. The State's and the County's GHG emission reduction targets are summarized below.

Legislative Targets

The State's legislative targets for future milestone years are established by SB 32, which has a target of emissions 40% below 1990 levels in 2030, and by AB 1279, which has a target of net carbon neutral or 85% emissions reductions from anthropogenic sources for 2045.

Of note, this CAAP is not a qualified plan for GHG emission reductions under CEQA and is therefore not required to comply with CEQA Guidelines Section 15183.5, Tiering and Streamlining the Analysis of Greenhouse Gas Emissions. Often, qualified GHG reduction plans demonstrate alignment with statewide GHG emission reduction targets, while this CAAP has the opportunity to identify the goals and GHG emission reduction targets deemed appropriate for unincorporated Yolo County.

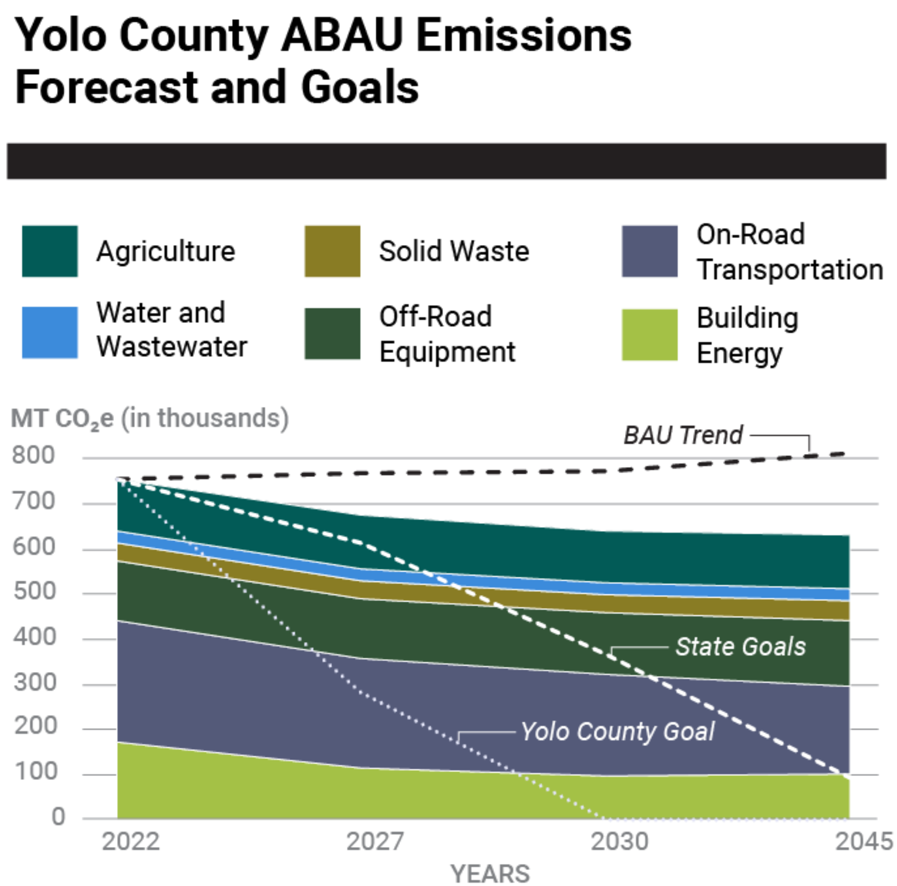
County Goals

The County adopted Resolution No. 20-114, Resolution Declaring a Climate Crisis Requiring an Urgent and Inclusive Mobilization in Yolo County, in 2020, which established a goal to achieve net-negative carbon emissions by 2030. The County's goal is one of the most ambitious local reduction targets in the country, aiming to achieve carbon neutrality over a decade earlier than the State.

Local Greenhouse Gas Emissions Gap

As shown in Figure 17, Yolo County would have to reduce GHG emissions by 774,004 MT CO_2e from the BAU scenario to meet the County's target of net-negative, which for mathematical purposes is assumed to be -1 MT CO_2e in 2030. While Federal and State legislative actions would account for a meaningful portion of the reductions needed to achieve the County's goal (132,930 MT CO_2e or 17%), State legislative actions on their own would not be adequate to achieve the County's 2030 GHG reduction goals. The additional reduction needed at the local level to meet the County's identified reduction target of carbon negative by 2030 is referred to as the "local gap." To close the local gap and meet the County's target, the County will need to implement additional local actions that would result in a reduction of approximately 641,073 MT CO_2e by 2030, or an additional reduction of 83% from BAU.

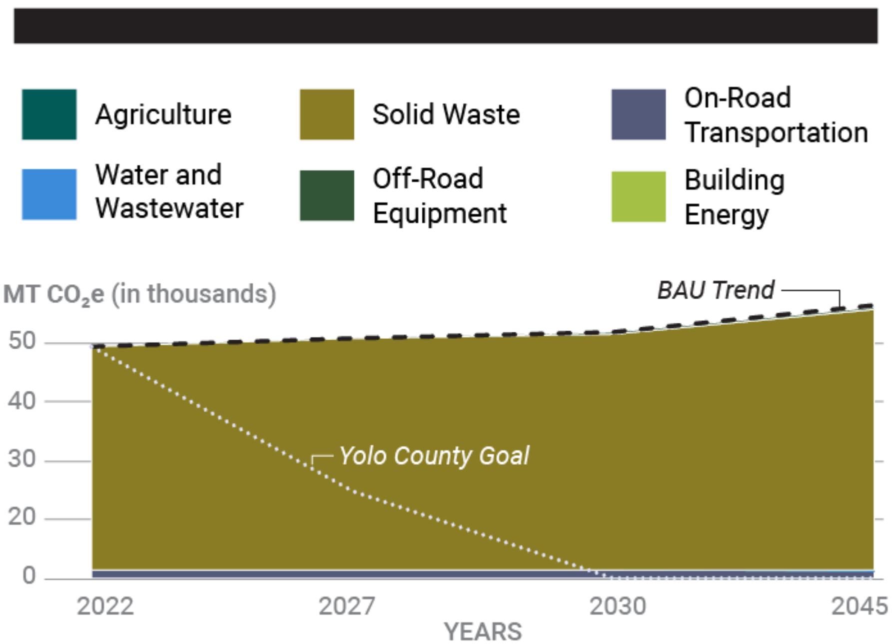
Figure 17. 2027, 2030, and 2045 Community-Wide GHG Emissions Targets and Local Gap



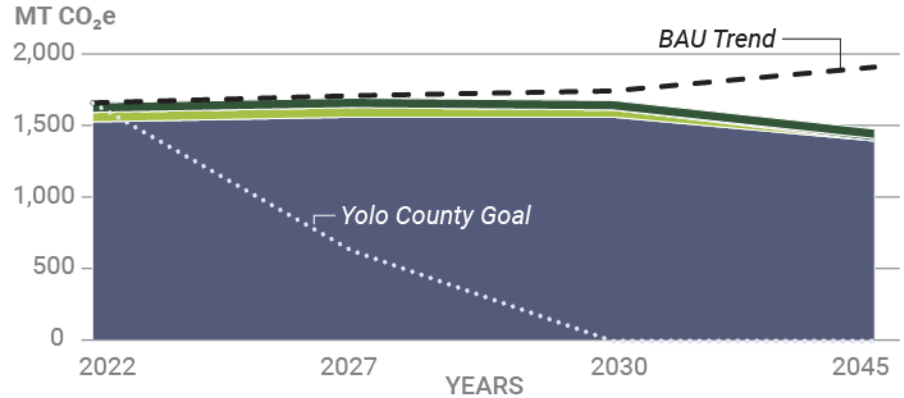
For the municipal inventory, to close the local gap and meet the County's target, the County would need to implement additional municipal actions that would result in a reduction of approximately 41,841 MT CO_2e by 2030, or an additional reduction of 100% from ABAU.

Figure 18. 2027, 2030, and 2045 Municipal GHG Emissions Targets and Local Gap with and without solid waste

Yolo County Municipal ABAU Forecast and Goals



Yolo County Municipal ABAU Forecast and Goals Without Solid Waste



Note: The County's goal reflects net-negative emissions by 2030, which will be achieved through a combination of emissions reduction and sequestration efforts that capture and store atmospheric CO_2.

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Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Baseline and Forecast Summary

Emissions Sector	Annual GHG Emissions (MT CO_2e)													
	Baseline		Forecast-BAU						Forecast-ABAU					
	2022	%	2027	%	2030	%	2045	%	2027	%	2030	%	2045	%
Building Energy	172,064	23%	178,898	23%	182,998	24%	203,501	25%	115,042.0	17%	95,580.2	15%	102,166.3	16%
On-Road Transportation	269,588	36%	270,774	35%	271,486	35%	275,044	34%	241,037.0	36%	225,989.5	35%	191,715.2	30%
Off-Road Equipment	132,302	18%	134,222	18%	135,599	18%	146,726	18%	134,221.7	20%	135,599.3	21%	146,726.3	23%
Solid Waste	38,097	5%	39,566	5%	40,448	5%	44,856	6%	39,566.2	6%	40,447.8	6%	44,855.9	7%
Water Use	26,950	3.6%	26,950	3.5%	26,951	3.5%	26,952	3%	26,948.0	4%	26,946.0	4%	26,939.8	4%
Wastewater	1,129	0.1%	1,130	0.1%	1,130	0.1%	1,133	0%	1,123.8	0%	1,118.7	0%	1,103.2	0%
Agriculture	115,391	15%	115,391	15%	115,391	15%	115,391	14%	115,390.8	17%	115,390.8	18%	115,390.8	18%
Total	***755,520***	***100%***	***766,931***	***100%***	***774,003***	***100%***	***813,602***	***100%***	***673,329.4***	***100%***	***641,072.4***	***100%***	***628,897.6***	***100%***

Emissions Sector	Annual GHG Emissions (MT CO_2e)			
	Baseline	Forecast-ABAU		
	2022	2027	2030	2045
Building Energy	172,064	115,042	95,580	102,166
On-Road Transportation	269,588	241,037	225,990	191,715
Off-Road Equipment	132,302	134,222	135,599	146,726
Solid Waste	38,097	39,566	40,448	44,856
Water Use	26,950	26,948	26,946	26,940
Wastewater	1,129	1,124	1,119	1,103
Agriculture	115,391	115,391	115,391	115,391
Total	***755,520***	***673,329***	***641,072***	***628,898***

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Transportation GHG Emissions Summary

Transportation

Source	Baseline		Forecast-BAU						Forecast-ABAU					
	2022		2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Passenger Vehicles	183,896	68%	183,300	68%	182,943	67%	181,156	66%	161,683	67%	151,320	67%	131,910	69%
Commercial Small/Medium	59,292	22%	60,714	22%	61,567	23%	65,833	24%	54,618	23%	51,607	23%	43,054	22%
Commercial Large	26,401	10%	26,760	10%	26,976	10%	28,054	10%	24,735	10%	23,062	10%	16,751	9%
Total	*269,588*	100%	*270,774*	100%	*271,486*	100%	*275,044*	100%	*241,037*	100%	*225,990*	100%	*191,715*	100%

Activity Data

Type	Value	Unit	Data source	Notes
VMT within SACOG				
Personal Vehicle (SOV, HOV2, HOV3+)	878,724	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values
Commercial Vehicle (Small-Medium Trucks)	175,586	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values
Commercial Vehicle (Large Trucks)	26,062	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values
VMT outside SACOG				
Personal Vehicle (SOV, HOV2, HOV3+)	811,137	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values
Commercial Vehicle (Small-Medium Trucks)	161,601	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values
Commercial Vehicle (Large Trucks)	24,013	miles/day	F&P 2023 OD-RTAC data	interpolated 2016 and 2040 values

Emissions Generated by Unincorporated Yolo County- Baseline

Speed Bin	Daily VMT				Daily Emissions ($MTCO_2e$)				Annual Emissions ($MTCO_2e$)			
	PV	CS	CL	*Total*	PV	CS	CL	*Total*	PV	CS	CL	*Total*
Within SACOG												
0-5	430.1	49.3	8.2	487.5	0.1	0.1	0.0	*0.2*	41.0	25.46	9.48	75.9
>5-10	2,334.8	186.5	23.4	*2,544.8*	0.9	0.2	0.1	*1.2*	303.3	80.22	22.44	405.9
>10-15	2,351.3	243.8	25.3	*2,620.3*	0.8	0.3	0.1	*1.1*	283.4	87.03	19.01	389.5
>15-20	70,850.6	14,401.8	1,033.8	*86,286.3*	28.7	10.2	2.0	*40.9*	9,944.4	3,541.31	691.68	14,177.3
>20-25	21,261.8	3,786.0	310.7	*25,358.4*	7.0	2.5	0.5	*9.9*	2,414.6	851.57	168.03	3,434.2
>25-30	21,146.5	3,751.3	319.8	*25,217.7*	6.3	2.0	0.4	*8.8*	2,202.5	708.83	155.67	3,067.0
>30-35	40,315.0	7,697.4	703.8	*48,716.2*	11.6	3.4	0.9	*15.9*	4,040.3	1,178.79	315.32	5,534.4
>35-40	52,875.9	8,326.5	986.4	*62,188.8*	14.8	3.4	1.2	*19.5*	5,137.0	1,187.77	432.52	6,757.2
>40-45	126,354.9	25,448.8	2,192.8	*153,996.4*	35.4	10.5	2.9	*48.8*	12,280.8	3,650.46	994.35	16,925.6
>45-50	89,185.7	20,257.3	1,582.3	*111,025.2*	25.9	9.3	2.2	*37.4*	9,001.6	3,225.93	750.12	12,977.7
>50-55	88,268.0	21,267.7	3,862.3	*113,397.9*	27.2	9.4	5.4	*42.1*	9,452.1	3,266.59	1,888.70	14,607.4
>55-60	181,166.5	39,347.0	7,181.2	*227,694.7*	57.7	17.7	10.7	*86.0*	20,020.8	6,125.08	3,704.14	29,850.1
>60-65	76,764.7	18,492.5	3,859.3	*99,116.5*	25.1	8.5	6.1	*39.8*	8,717.4	2,966.67	2,126.72	13,810.8
>65-70	105,418.3	12,330.2	3,972.4	*121,720.9*	35.0	5.8	6.3	*47.1*	12,136.3	2,005.12	2,188.76	16,330.2
Total within SACOG	*878,724.0*	*175,586.0*	*26,061.5*	*1,080,371.5*	*276.6*	*83.3*	*38.8*	*398.7*	*95,975.4*	*28,900.8*	*13,466.9*	*138,343.2*
Outside SACOG												
Aggregated	811,137.1	161,600.6	24,012.5	*996,750.2*	253.4	87.6	37.3	*378.2*	87,920.1	30,391.26	12,933.81	131,245.2
Total outside SACOG				*996,750.2*	*253.4*	*87.6*	*37.3*	*378.2*	*87,920.1*	*30,391.3*	*12,933.8*	*131,245.2*
Total				***2,077,121.7***				***776.9***	***183,895.5***	***59,292.1***	***26,400.7***	***269,588.3***

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Transportation VMT Summary

	Base Year (2016)				**MTP/SCS Future Year (2040)**				**Future Year (2027)**			
Speed Bin	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle
0-5	293	29	6	328	840	110	16	966	544	66	10	620
>5-10	2,278	178	24	2,479	2,506	212	23	2,741	2,382	194	23	2,599
>10-15	2,087	195	19	2,300	3,144	391	45	3,580	2,571	285	31	2,887
>15-20	69,609	13,993	1,025	84,628	74,574	15,627	1,060	91,262	71,885	14,742	1,041	87,668
>20-25	21,223	3,673	300	25,196	21,377	4,126	343	25,846	21,294	3,880	320	25,494
>25-30	19,184	3,145	271	22,600	27,035	5,570	465	33,071	22,782	4,257	360	27,399
>30-35	35,020	7,205	653	42,878	56,199	9,174	857	66,230	44,727	8,107	746	53,581
>35-40	52,822	7,850	944	61,616	53,038	9,755	1,114	63,906	52,921	8,723	1,022	62,666
>40-45	129,936	25,176	2,150	157,262	115,613	26,266	2,321	144,200	123,371	25,676	2,228	151,275
>45-50	93,891	20,322	1,568	115,781	75,070	20,064	1,625	96,759	85,265	20,204	1,594	107,062
>50-55	80,668	18,999	3,682	103,349	111,067	28,074	4,404	143,545	94,601	23,158	4,013	121,772
>55-60	180,202	36,989	6,869	224,060	184,061	46,421	8,118	238,600	181,971	41,312	7,441	230,724
>60-65	74,558	17,870	3,665	96,092	83,386	20,360	4,443	108,189	78,604	19,011	4,022	101,637
>65-70	108,419	12,144	4,068	124,631	96,417	12,889	3,686	112,992	102,918	12,485	3,893	119,296
>70-75	0	0	0	0	0	0	0	0	0	0	0	0
>75	0	0	0	0	0	0	0	0	0	0	0	0
Total VMT Generated by Unincorporated Yolo County within SACOG	870,190	167,768	25,242	**1,063,200**	904,327	199,039	28,519	**1,131,885**	885,836	182,101	26,744	**1,094,681**
VMT Generated by Unincorporated Yolo County Outside SACOG	1,010,082				956,755				985,640			
Total VMT Generated by Unincorporated Yolo County	2,073,282				2,088,640				2,080,321			

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Transportation VMT Summary

	Future Year (2030)				Future Year (2035)				Future Year (2045)			
Speed Bin	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle	Personal Vehicle (SOV, HOV2, HOV3+)	Commercial Vehicle (Small-Medium Trucks)	Commercial Vehicle (Large Trucks)	All Vehicle
0-5	612	76	12	700	726	93	14	833	954	127	18	1,099
>5-10	2,411	198	23	2,632	2,459	205	23	2,686	2,554	219	22	2,796
>10-15	2,704	309	34	3,047	2,924	350	40	3,314	3,364	432	50	3,847
>15-20	72,506	14,947	1,046	88,498	73,540	15,287	1,053	89,880	75,609	15,968	1,068	92,644
>20-25	21,313	3,937	325	25,575	21,345	4,032	334	25,710	21,409	4,220	352	25,981
>25-30	23,764	4,560	385	28,708	25,399	5,065	425	30,889	28,671	6,076	506	35,252
>30-35	47,375	8,354	772	56,500	51,787	8,764	814	61,365	60,611	9,584	900	71,095
>35-40	52,948	8,961	1,043	62,952	52,993	9,358	1,078	63,429	53,083	10,152	1,149	64,383
>40-45	121,581	25,812	2,250	149,642	118,597	26,039	2,285	146,921	112,629	26,493	2,357	141,478
>45-50	82,912	20,171	1,601	104,685	78,991	20,118	1,613	100,722	71,149	20,010	1,637	92,796
>50-55	98,401	24,293	4,103	126,796	104,734	26,183	4,254	135,171	117,400	29,964	4,554	151,919
>55-60	182,453	42,491	7,597	232,541	183,257	44,456	7,858	235,571	184,865	48,386	8,378	241,629
>60-65	79,707	19,323	4,119	103,149	81,547	19,841	4,281	105,669	85,225	20,879	4,606	110,709
>65-70	101,418	12,578	3,845	117,841	98,918	12,734	3,765	115,416	93,917	13,044	3,606	110,567
>70-75	0	0	0	0	0	0	0	0	0	0	0	0
>75	0	0	0	0	0	0	0	0	0	0	0	0
Total VMT Generated by Unincorporated Yolo County within SACOG	890,103	186,010	27,154	**1,103,266**	897,215	192,524	27,836	**1,117,576**	911,439	205,554	29,202	**1,146,194**
VMT Generated by Unincorporated Yolo County Outside SACOG	978,974				967,865				945,645			
Total VMT Generated by Unincorporated Yolo County	2,082,241				2,085,440				2,091,839			

Notes:
Total origin-destination (OD) based network VMT by the Unincorporated Yolo County, accounting for the entire length of travel II trips but only half of external trips.
In other words, for IX-XI VMT that has one end of a trip within the Unincorporated Yolo County, only half of the IX and XI VMT is associated with the Unincorporated County's VMT (II+IX*0.5+XI*0.5).

Row 3-18 - VMT by different speed bin on links within SACOG Region excluding TAZ connectors.
Row 20- VMT outside SACOG region for Unincorporated Yolo County is added on top using the IX XI trips and average trip distance outside SACOG region from Replica Spring 2019 data.

Unincorporated Yolo County Includes UC Davis.

2027, 2030, 2035, and 2045 projections are based on interpolation between 2016 and 2040 forecast years.

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Off-Road GHG Emissions Summary

Off-Road

Source	Baseline		Forecast-BAU						Forecast-ABAU					
	2022		2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Agricultural Equipment	55,537	42%	52,760	39%	51,199	38%	44,439	30%	52,760	39%	51,199	38%	44,439	30%
TRUs	3,936	3%	3,953	3%	3,991	3%	5,053	3%	3,953	3%	3,991	3%	5,053	3%
Construction	16,300	12%	16,174	12%	16,081	12%	15,953	11%	16,174	12%	16,081	12%	15,953	11%
Industrial	3,756	3%	3,692	3%	3,677	3%	3,599	2%	3,692	3%	3,677	3%	3,599	2%
Lawn & Garden	4,024	3%	4,191	3%	4,253	3%	4,144	3%	4,191	3%	4,253	3%	4,144	3%
Light Commercial	5,241	4%	5,633	4%	5,787	4%	6,393	4%	5,633	4%	5,787	4%	6,393	4%
Pleasure Craft	6,280	5%	6,755	5%	7,065	5%	8,739	6%	6,755	5%	7,065	5%	8,739	6%
Recreational	1,620	1%	1,750	1%	1,827	1%	2,256	2%	1,750	1%	1,827	1%	2,256	2%
Portable Equipment	35,607	27%	39,313	29%	41,720	31%	56,149	38%	39,313	29%	41,720	31%	56,149	38%
Total	*132,302*		*134,222*	100%	*135,599*	100%	*146,726*	100%	134,222	100%	135,599	100%	146,726	100%
	5		*9*		*13*		*21*							

Activity Data

Type	Value	Unit	Data source
Gasoline Use			
Agricultural Equipment	62,631.3	gallon/year	OFFROAD 2011
TRUs	0.0	gallon/year	OFFROAD 2011
Construction	29,259.3	gallon/year	OFFROAD 2011
Industrial	159,880.1	gallon/year	OFFROAD 2011
Lawn & Garden	640,546.1	gallon/year	OFFROAD 2011
Light Commercial	739,794.3	gallon/year	OFFROAD 2011
Pleasure Craft	951,762.0	gallon/year	OFFROAD 2011
Recreational	191,442.0	gallon/year	OFFROAD 2011
Portable Equipment	0.0	gallon/year	OFFROAD 2011
Diesel Use			
Agricultural Equipment	5,222,271.2	gallon/year	OFFROAD 2011
TRUs	380,118.7	gallon/year	OFFROAD 2011
Construction	1,543,437.9	gallon/year	OFFROAD 2011
Industrial	70,117.0	gallon/year	OFFROAD 2011
Lawn & Garden	12,032.1	gallon/year	OFFROAD 2011
Light Commercial	62,650.3	gallon/year	OFFROAD 2011
Pleasure Craft	0.0	gallon/year	OFFROAD 2011
Recreational	0.0	gallon/year	OFFROAD 2011
Portable Equipment	3,438,575.3	gallon/year	OFFROAD 2011
Natural Gas Use			
Agricultural Equipment	0.0		OFFROAD 2011
TRUs	0.0		OFFROAD 2011
Construction	0.0		OFFROAD 2011
Industrial	286,236.6		OFFROAD 2011
Lawn & Garden	0.0		OFFROAD 2011
Light Commercial	52,600.2		OFFROAD 2011
Pleasure Craft	0.0		OFFROAD 2011
Recreational	0.0		OFFROAD 2011
Portable Equipment	0.0		OFFROAD 2011

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Energy GHG Emissions Summary

Energy

Source	Baseline		Forecast-BAU						Forecast-ABAU					
	2022		2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Electricity	80,370	47%	82,025	46%	83,018	45%	87,983	43%	21,071.6	18%	243.8	0%	0.0	0%
Natural Gas	91,694	53%	96,873	54%	99,981	55%	115,518	57%	93,970.4	82%	95,336.4	100%	102,166.3	100%
Nonresidential														
Electricity	65,564		66,750		67,462		71,020		12,072		79		0.0	
Natural Gas	83,157		88,066		91,011		105,737		85,259		86,521		92,828	
Nonresidential Total	*148,721*	86%	*154,816*	87%	*158,473*	87%	*176,757*	87%	*97,332*	85%	*86,600*	91%	*92,828*	91%
Residential														
Electricity	14,805		15,275		15,556		16,963		8,999		165		0	
Natural Gas	8,537		8,807		8,970		9,781		8,711		8,816		9,339	
Residential Total	*23,342*	14%	*24,082*	13%	*24,526*	13%	*26,744*	13%	*17,710*	15%	*8,980*	9%	*9,339*	9%
Total	*172,064*		*178,898*		*182,998*		*203,501*		*115,042*		*95,580*		*102,166*	

Activity Data BASELINE

Type	Value-2022	Unit	Data source	Notes
PG&E Electricity				
Residential	10,588,084.0	kWh/year	PG&E	
Commercial	2,897,982.0	kWh/year	PG&E	
Agricultural	19,706,648.0	kWh/year	PG&E	
Industrial	2,249,803.7	kWh/year	N/A, did not pass PGE 15/15 rule	Interpolated from 2016 inventory
PG&E Natural Gas				
Residential	1,607,246.0	therms/year	PG&E	
Commercial	14,461,463.3	therms/year	N/A, did not pass PGE 15/15 rule	Interpolated from 2016 inventory
Agricultural	0.0	therms/year		
Industrial	1,194,479.1	therms/year	N/A, did not pass PGE 15/15 rule	Interpolated from 2016 inventory
VCE Electricity				
Residential	45,206,765.0	kWh/year	VCE 2023	provided by Sierra Huffman (7/17/2023)
Commercial	46,196,271.0	kWh/year	VCE 2023	provided by Sierra Huffman (7/17/2023)
Agricultural	139,857,426.0	kWh/year	VCE 2023	provided by Sierra Huffman (7/17/2023)
Industrial	15,879,149.0	kWh/year	VCE 2023	provided by Sierra Huffman (7/17/2023)

Calcs
BASELINE 2022
Electricity- Baseline

Sector	PG&E lbs/year				VCE lbs/year				Emissions (MT)			
	MWh	CO_2	CH_4	N_2O	MWh	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	$MTCO_2e$
Residential	10,588.1	590,859.1	33.7	3.9	45,206.8	31,939,503.4	1,821.5	210.2	14,755.5	0.84	0.10	14,805.5
Commercial	2,898.0	161,719.4	9.2	1.1	46,196.3	32,638,609.6	1,861.4	214.8	14,878.0	0.85	0.10	14,928.4
Agricultural	19,706.6	1,099,712.8	62.7	7.2	139,857.4	98,812,129.8	5,635.3	650.2	45,319.2	2.58	0.30	45,472.7
Industrial	2,249.8	125,548.4	7.2	0.8	15,879.1	11,218,943.3	639.8	73.8	5,145.8	0.29	0.03	5,163.2
Total												***80,369.8***

Natural Gas- Baseline

Sector	PG&E kg/year				VCE kg/year				Emissions (MT)			
	MMBtu	CO2	CH4	N2O	MMBtu	CO2	CH4	N2O	CO2	CH4	N2O	$MTCO_2e$
Residential	160,724.6	8,528,047.3	160.7	16.1		0.0	0.0	0.0	8,528.0	0.16	0.02	8,536.9
Commercial	1,446,146.3	76,732,524.0	1,446.1	144.6		0.0	0.0	0.0	76,732.5	1.45	0.14	76,812.4
Agricultural	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.00	0.00	0.0
Industrial	119,447.9	6,337,905.9	119.4	11.9		0.0	0.0	0.0	6,337.9	0.12	0.01	6,344.5
Total												***91,693.8***

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Solid Waste GHG Emissions Summary

Solid Waste

Source	Baseline			Forecast-BAU						Forecast-ABAU					
	2022			2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%		MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Waste-in-place	37,821	99%		39,282	99%	40,158	99%	44,540	99%	39,282	99%	40,158	99%	44,540	99%
Waste generation	275	1%	0.01	284	1%	290	1%	316	1%	284	1%	290	1%	316	1%
Total	*38,097*			*39,566*		*40,448*		*44,856*		*39,566*		*40,448*		*44,856*	

Activity Data

Landfill	Value	Unit	Data source	Notes
County Facilities-waste in place				
Yolo County Landfill	198,465.4	Total tons added in 2022	Yolo County Landfill	Excludes compositing facilties, transfer stations, inert debris disposal sites, and planned landfills not yet in operation.
Receiving Facilities-waste generation				
Guadalupe Recycling and Disposal	2.7	tons/year	CalRecycle, RDRS Report 2	
L and D Landfill	31.6	tons/year	CalRecycle, RDRS Report 2	
Potrero Hills Landfill	108.0	tons/year	CalRecycle, RDRS Report 2	
Recology Hay Road	103.1	tons/year	CalRecycle, RDRS Report 2	
Recology Ostrom Road LF Inc	36.9	tons/year	CalRecycle, RDRS Report 2	
Sacramento County Landfill (Kiefer)	199.4	tons/year	CalRecycle, RDRS Report 2	
Vasco Road Landfill	5.3	tons/year	CalRecycle, RDRS Report 2	
Western Regional Landfill	30.4	tons/year	CalRecycle, RDRS Report 2	
Yolo County Central Landfill*	17,209.1	tons/year	Provided by County (Connie Robledo, Senior Administrative Analyst, Yolo County Landfill)	

Calcs
BASELINE 2022
Waste-in-place

Facility	Disposed Waste (MT)	LFG Capture Efficiency	CH_4 Emissions (MT)	CO_2 Emissions (MT)	Emissions (MT)			
					CO_2	CH_4	N_2O	$MTCO_2e$
Yolo County Landfill	180,044.8	0.84	4,648.0	17,072.6	17,072.6	743.69		37,821.4
Total								

Waste Generation

Facility	Tonnage Delivered from Unincorporated Yolo County Only	Total ADC	Percent of year under LFG collection or control in 2022 (%)	Gas Collection Efficiency	Generated Methane Emissions with LFG Capture	Emissions (MT)			
						CO_2	CH_4	N_2O	$MTCO_2e$
Guadalupe Recycling and Disposal	2.7	1	99%	0.75	0		0		2
L and D Landfill	31.6	10	0%	0.00	2		2		62
Potrero Hills Landfill	108.0	24	100%	0.77	2		2		46
Recology Hay Road	103.1	10	100%	0.71	2		2		49
Recology Ostrom Road LF Inc	36.9	5	100%	0.66	1		1		21
Sacramento County Landfill (Kiefer)	199.4	0	100%	0.73	3		3		82
Vasco Road Landfill	5.3	7	98%	0.81	0		0		4
Western Regional Landfill	30.4	2	100%	0.81	0		0		9
Yolo County Central Landfill*	17,209.1	1,200	100%	0.84	159		159		4,438
Total	*17,727*								***275.4***

Notes:
Method to calculate methane emissions for waste generation is equation SW 4.1 from ICLEI's U.S. Community Protocol for Accounting and Reporting of GHG EMissions, Appendix E (V1.1).
ADC is Alternative Daily Cover, defined as cover material other than earthen material placed on the surface of the active fact of a MSW landfill at the end of each day (https://calrecycle.ca.gov/lgcentral/basics/adcbasic/)
Gas Collection Efficiency provided by 2022 Greenhouse Gas Emissions from Large Facilities (EPA 2022). "FLIGHT" database (Facility Level Information on Greenhouse gases Tool) Site: ghgdata.epa.gov

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Water GHG Emissions Summary

Water

Source	Baseline		Forecast-BAU						Forecast-ABAU					
	2022		2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Community water use (extraction, conveyance and treatment)	10.2		10.5		10.7		11.7		8.2		6.2		0.0	
Agricultural Irrigation Pumps	26,939.8		26,939.8		26,939.8		26,939.8		26,939.8		26,939.8		26,939.8	
Total	*26,950.0*		*26,950.3*		*26,950.5*		*26,951.5*		*26,948.0*		*26,946.0*		*26,939.8*	

Activity Data

Type	Value	Unit	Data source	Notes
Groundwater Pumping				
Consumption - North Davis Meadows	88,602,737.0	gallons	Yolo County 2022	2022 NDM well production data from County (provided by Kimberly Villa). Sum of 2022 production from two groundwater wells (NDM 1 and NDM 2)
Consumption - Wild Wings CSD	97,255,400.0	gallons	State Wasteboard 2022 electronic Annual Report (eAR) to the Division of Drinking Water for the year ending December 31, 2022. CA571011 Wild Wings Golf Community	Table 6.A1- Water Produced, Purchased, and Sold

Calcs
Water Electricity Use (groundwater pumping)

Source	2022 Consumption- Unincorporated County				Emissions (MT)			
	MG	acre-feet	kWh	lbs CO2e	CO_2	CH_4	N_2O	$MTCO_2e$
North Davis Meadows	88.6	271.9	191,154.0	10,704.6				4.9
Wild Wings CSD	97.3	298.5	209,821.5	11,750.0				5.3
Total	185.9	570.4	400,975.5	22,454.6				***10.2***

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Wastewater GHG Emissions Summary

Wastewater Treatment

Source	Baseline		Forecast-BAU						Forecast-ABAU					
	2022		2027		2030		2045		2027		2030		2045	
	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%	MT CO_2e/year	%
Energy Use	25.6	2%	26.4	2.3%	26.9	2.4%	29.4	2.6%	20.5	1.8%	15.5	1.4%	0.0	0.0%
BOD	1,103.2	98%	1,103.2	97.7%	1,103.2	97.6%	1,103.2	97.4%	1,103.2	98.2%	1,103.2	98.6%	1,103.2	100.0%
Total	*1,128.8*		*1,129.6*	100.0%	*1,130.1*	100.0%	*1,132.6*	100.0%	*1,123.8*	100.0%	*1,118.7*	100.0%	*1,103.2*	100.0%

Activity Data

Type	Value	Unit	Data source	Notes
Influent by Source*				
Wild Wings CSD Wastewater Recycling Facility	0.101	MGD	CIWQS Regulated Facility Report	Conservative estimate based on data from 2022 Wild Wings CSA Annual Facility Report had a treated flow of 0.0524 MGD
Madison WWTF	0.141	MGD	CIWQS Regulated Facility Report	
Knights Landing CSD WWTP	0.105	MGD	CIWQS Regulated Facility Report	
Esparto CSD WWTP	0.360	MGD	CIWQS Regulated Facility Report	
City of Davis WWTP (Unincorporated Population)	0.105	MGD	Davis 2020 UWMP_F	Included emissions for unincorporated population within City of Davis Service Area
Dunnigan WWTF	0.300	MGD	CIWQS Regulated Facility Report	
Total GPD	*1,111,500*			
Population (Unincorporated County)				
Wild Wings CSD Wastewater Recycling Facility	1,115	people	CA Drinking Water Watch	
Madison WWTF	876	people	CA Drinking Water Watch	
Knights Landing CSD WWTP	944	people	CA Drinking Water Watch	
Esparto CSD WWTP	3,714	people	CA Drinking Water Watch	
City of Davis WWTP (Unincorporated Population)	1,780	people	CA Drinking Water Watch	
Dunnigan WWTF	1,602	people	CA Drinking Water Watch	

*Design flow (MGD) for each source was used as a conservative estimate
Population Source: Water System Search, CA Drinking Water Watch (https://sdwis.waterboards.ca.gov/PDWW/)
Influent Source: CIWQS, State Water Resources Control Board (https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility)

Calcs
Wastewater Treatment (Energy Use)

Source	Influent	Energy Use	Emissions (MT)			
	(gallons/year)	MWh/year	CO_2	CH_4	N_2O	$MTCO_2e$
Wild Wings CSD Wastewater Recycling Facility	36,865,000	91				2.3
Madison WWTF	51,465,000	128				3.2
Knights Landing CSD WWTP	38,325,000	95				2.4
Esparto CSD WWTP	131,400,000	326				8.3
City of Davis WWTP (Unincorporated Population)	38,142,500	95				2.4
Dunnigan WWTF	109,500,000	272				6.9
Total	*405,697,500*	*1,006*				***25.6***

Wastewater Treatment (BOD)

Source	Influent	BOD		Methane	Emissions (MT)			
	(gallons/year)	Rate (mg/gallon)	Annual (kg/yr)	kg CH_4/year	CO_2	CH_4	N_2O	$MTCO_2e$
Wild Wings CSD Wastewater Recycling Facility	36,865,000	994	36,628	4,395		4.40		123
Madison WWTF	51,465,000	559	28,777	3,453		3.45		96
Knights Landing CSD WWTP	38,325,000	809	31,010	3,721		3.72		104
Esparto CSD WWTP	131,400,000	929	122,005	14,641		14.64		408
City of Davis WWTP (Unincorporated Population)	38,142,500	1,533	58,473	7,017		7.02		196
Dunnigan WWTF	109,500,000	481	52,626	6,315		6.32		176
Total	*405,697,500*	*5,304*	*329,518*	*39,542*				***1,103.2***

*BOD (mg/gallon) derived from population estimates using methods and BOD constant from CARB 2023 (https://ww2.arb.ca.gov/sites/default/files/ghg-inventory-doc/newdoc/docs4/4d1_wastewatertreatment_domesticwastewater_centralizedanaerobic_californiapopulation_ch4_2021.htm)

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Agriculture GHG Emissions Summary

Agriculture

Source	Baseline (2022)	
	MT CO_2e/year	%
Residue Burning	3,980	3%
Livestock	50,661	44%
Rice Cultivation	14,204	12%
Ag Irrigation Pumps	26,940	23%
Urea	1,219	1%
N Fertilizer	45,144	39%
Lime Application	183	0%
Total	*115,391*	100%

Activity Data

Type	Value	Unit	Data source
Crops Harvested			
Corn	4,414.0	acre/year	2022 Crop & Livestock Report
Rice	8,478.0	acre/year	2022 Crop & Livestock Report
Almond	47,900.0	acre/year	2022 Crop & Livestock Report
Walnut	14,985.0	acre/year	2022 Crop & Livestock Report
Wheat	23,393.0	acre/year	2022 Crop & Livestock Report
Barley	2,071.0	acre/year	USDA NASS 2024
Livestock Population			
Cattle	17,784.0	head	
Lambs	9,762.0	head	
Slaughter Sheep		head	
Hogs		head	
Poultry		head	
Agricultural Pumps			
Diesel	1,316,806.6	gallons/year	
Propane	2,182,475.5	gallons/year	
Gasoline	0.0	gallons/year	
Fertilizer Application			
Nitrogen	18,228.0	tons/year	CDFA 2022 Tonnage Report
Urea	1,832.0	tons/year	CDFA 2022 Tonnage Report
Limestone Applied			
Limestone	460.0	tons/year	CDFA 2022 Tonnage Report

Yolo County Climate Action and Adaptation Plan
Community-Wide GHG Inventory
Agriculture GHG Emissions Summary

Calcs

Residue Burning [Crop acreage burned] * [Acre to hectare conversion] * [Crop residue] * [emission factor]

Crop Type	Area Burned		Crop Residue		Emissions (MT)			
	acres	hectare	grams	MT	CO_2	CH_4	N_2O	$MTCO_2e$
Barley	145.0	58.7	147,255,469.9	147.3		0.36	0.03	18.2
Corn	132.4	53.6	485,513,551.9	485.5		0.85	0.05	37.0
Rice	480.7	194.5	1,313,106,101.8	1,313.1		0.95	0.26	98.1
Wheat	2,573.2	1,041.4	3,811,353,813.6	3,811.4		6.94	0.38	297.6
Almond	40,236.0	16,283.0	30,774,866,603.3	30,774.9		36.01	6.15	2,684.9
Walnut	14,235.8	5,761.0	8,411,099,757.2	8,411.1		13.79	1.68	844.1
Total								***3,979.8***

Livestock [Livestock population] * [emission factor per head]

Type	Enteric Fermentation	Manure Management		Emissions (MT)			
	(kg CH_4/year)	(kg CH_4/year)	kg N_2O/year)	CO_2	CH_4	N_2O	$MTCO_2e$
Cattle	1,098,408.2	379,702.2	21,922.5		1,478.1	21.9	47,224.1
Lambs	78,096.0	6,882.2	3,904.8		85.0	3.9	3,436.9
Slaughter Sheep	0.0	0.0	0.0		0.0	0.0	0.0
Hogs	0.0	0.0	0.0		0.0	0.0	0.0
Poultry	0.0	0.0	0.0		0.0	0.0	0.0
Total							***50,661.0***

Rice Cultivation [Rice crop area] * [Rice field CH4 emission]

Type	Area			Emissions (MT)			
	acres	hectares	g CH_4/year	CO_2	CH_4	N_2O	$MTCO_2e$
Rice	8,478.0	3,430.9	509,103,304.0		509.1		14,204.0
Total							***14,204.0***

Ag Irrigation Pumps

Fuel Type	Gallons/year	g/year			Emissions (MT)			
		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	$MTCO_2e$
Diesel	1,316,806.6	13,444,595,787.7	1,672,344.4	1,408,983.1	13,444.6	1.7	1.4	13,875.9
Propane	2,182,475.5	12,483,759,600.0	720,216.9	2,051,526.9	12,483.8	0.7	2.1	13,063.9
Gasoline	0.0							
Total								***26,939.8***

Fertilizer Application

Fertilizer Type	Annual Amount			Emissions (MT)			
	Tons	grams	MT	CO_2	CH_4	N_2O	$MTCO_2e$
Nitrogen	18,228.0	165,361,681.8	165.4			165.4	45,143.7
Urea	1,832.0	1,661,962,920.0	1,662.0	1,218.8			1,218.8
Total							***46,362.5***

Lime Application [Limestone applied to soils] * [limestone C emission factor] * [Molecular weight ratio of CO2 to C]

Type	Annual Amount				Emissions (MT)			
	Tons	grams	MT	g Volatized	CO_2	CH_4	N_2O	$MTCO_2e$
Limestone	460	417,305,100.0	417.3		183.5			183.5
Dolomite								
Total								***183.5***

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Summary

Municipal GHG Emissions Summary		Emissions Inventory Actual and Projected (MT CO2e)						
		Baseline	Forecast-BAU			Forecast-ABAU		
		2022 Annual Report-Market Based	2027 BAU Forecast	2030 BAU Forecast	2045 BAU Forecast	2027 ABAU Forecast	2030 ABAU Forecast	2045 ABAU Forecast
Scope 1	Natural Gas	0.76	0.78	0.79	0.87	0.78	0.79	0.83
Scope 1	Off-Road Equipment	67.39	69.42	70.76	77.50	69.42	70.76	77.50
Scope 1	Stationary Source	-	-	-	-	-	-	-
Scope 1	Vehicle Fleet	1,521.55	1,567.20	1,597.63	1,749.79	1,567.20	1,565.68	1,399.83
Scope 1	Solid Waste	37,821.40	39,281.87	40,158.14	44,539.53	39,281.87	40,158.14	44,539.53
Scope 2	Electricity	71.72	73.87	75.31	82.48	57.47	43.45	-
Scope 3	Water	0.05	0.05	0.05	0.06	0.01	0.01	-
Scope 3	Employee Commute	-	-	-	-	-	-	-
Scope 3	Wastewater	1.72	1.77	1.81	1.98	1.77	1.81	1.98
Total		39,484.60	40,994.96	41,904.50	46,452.20	40,978.51	41,840.64	46,019.67
Total Excluding Solid Waste		1,663.20	1,713.09	1,746.36	1,912.68	1,696.65	1,682.50	1,480.14

Notes:

(1) The CAAP did not include emission goals for individual sources (e.g., electricity) for 2021. Therefore, only the total emission goal for that year is included in the analysis.

(2) Refrigerants are not substantial sources of emissions and were not updated for the annual report. Request for Excluding a New Miniscule Source Form will be submitted to TCR

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
County Vehicle Fleet GHG Emissions

County Vehicle Fleet Emissions

Highway Vehicles					
	Gasoline	Hybrid	Diesel	Ethanol	Total
# of Vehicles	82	6	2	-	90
Miles driven	602,174	153,918	5,752	-	761,844
% of Highway Total	79%	20%	1%	0%	100%
Gal. used	43,889	3,517	809	-	48,215
% of Highway Total	91%	7%	2%	0%	100%

Fuel Consumption (gallons)					
	Gasoline	Hybrid	Diesel	Ethanol	Total
Passenger Vehicle	87,871	16,792	75	-	104,739
Light-Duty Truck	51,486	-	3,130	-	54,616
Heavy-Duty Truck	-	-	11,429	-	11,429
					170,784

Vehicle Miles Traveled					
	Gasoline	Hybrid	Diesel	Ethanol	Total
Passenger Vehicle	1,865,337	746,018	908	-	2,612,263
Light-Duty Truck	604,555	-	29,131	-	633,686
Heavy-Duty Truck	-	-	56,242	-	56,242
					3,302,192

2022 Vehicle Fleet Emissions						2027 BAU	2030 BAU	2045 BAU	2027 ABAU	2030 ABAU	2045 ABAU
	Gasoline	Hybrid	Diesel	Ethanol	Total	Total	Total	Total	Total	Total	Total
CO2 (metric tons)	1,223.56	147.43	149.41	-	1,520.41	1,566.02	1,596.43	1,748.47	1,566.02	1,564.50	1,398.77
CH4 (metric tons)	0.01	0.0008	0.0001	-	0.00623	0.00642	0.00655	0.00717	0.00642	0.00642	0.00574
N2O (metric tons)	0.00	0.0003	0.0000	-	0.00351	0.00362	0.00369	0.00404	0.00362	0.00362	0.00323
Total (MT CO2e)	1,224.59	147.53	149.43	-	1,521.55	1,567.20	1,597.63	1,749.79	1,567.20	1,565.68	1,399.83
% of Total	80%	10%	10%	0%	100%	100%	100%	100%	100%	100%	100%

Note: Emissions from Ethanol vehicles included with Gasoline vehicles, since those vehicles only operated on gasoline during the calendar year.
CO2 = carbon dioxide; NO2 = nitrogen dioxide; CH4 = methane; CO2e = carbon dioxide equivalents

	GWP
GWP - CO2	1
GWP - CH4	29.8
GWP - N2O	273

Source: AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change)

Conversion Factors	
grams per metric ton	1000000
metric tons per ton	0.907185
kg per ton	907.185

CO2 Emission Factors for Vehicle Fleet (kg/gal)

	Gasoline	Diesel
CO2	8.78	10.21

Source: The Climate Registry 2022 Default Emission Factors (May 2022). CO2 based on Table 2.1

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
County Vehicle Fleet Data

Year	Make	Model	Type	Description	Fuel	Vehicle Classification	Facility	2022 Miles	Total Gallons
2014	Ford	F-250	Pickup	3/4T Crew cab	Gas	Light-Duty truck	Animal Control	**5,932**	**474.54**
2016	Ford	F-250	Pickup	3/4T 4x2 crew cab w ac box	Gas	Light-Duty truck	Animal Control	**15,294**	**1,223.50**
2017	Ford	F-350	Pickup	1T Crew cab w ac box	Gas	Light-Duty truck	Animal Control	**9,722**	**985.00**
2017	Ford	F-350XL	Pickup	1T 4x2 Crew cab w ac box	Gas	Light-Duty truck	Animal Control	**25,053**	**2,538.26**
2017	Ford	F-350XL	Pickup	1T 4x2 Crew cab w ac box	Gas	Light-Duty truck	Animal Control	**25,389**	**2,572.35**
2018	Ford	F-350	Pickup	1T 4x2 Crew cab w ac box	Gas	Light-Duty truck	Animal Control	**22,744**	**2,304.35**
2019	Ford	F-350	Pickup	1T 4x2 crew cab SRW w ac box	Gas	Light-Duty truck	Animal Control	**18,450**	**1,869.28**
2019	Ford	F-250	Pickup	3/4T 4x2 crew cab LWB, 8' bed	Gas	Light-Duty truck	Animal Control	**2,205**	**176.37**
2019	Ford	F-250	Pickup	3/4T 4x2 crew cab LWB, 8' bed	Gas	Light-Duty truck	Animal Control	**1,653**	**132.26**
2015	Chevrolet	Tahoe PV	SUV	Full size	Gas	Passenger Vehicle	Animal Control	**479**	**21.68**
2009	Ford	Escape	SUV	SUV-Compact	Gas	Passenger Vehicle	DCS-Comm Dev-Planning	**1,550**	**70.21**
2017	Ford	Escape	SUV	4-Door Mid-size	Gas	Passenger Vehicle	DCS-Comm Dev-Planning	**25,304**	**1,146.00**
2015	Chevrolet	Tahoe PV	SUV	Full size	Gas	Passenger Vehicle	Sher Public Administrator	**8,501**	**385.00**
2015	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	GF Public Admin-Guardian	**7,166**	**296.11**
2020	Chrysler	Pacifica	Van	PHEV 16KWh	Gas/Electric	Passenger Vehicle	GF Public Admin-Guardian	**9,721**	**210.18**
2005	Ford	F-350	FLBD	1 T Regular cab	Gas	Light-Duty truck	GF Agriculture	**3,313**	**265.06**
2013	Ford	F-250	Pickup	3/4T Regular cab	Gas	Light-Duty truck	GF Agriculture	**2,501**	**200.06**
2007	Ford	Ranger XL	SUV	4-Door Mid-size	Gas	Passenger Vehicle	GF Agriculture	**5,684**	**257.41**
2007	Ford	Ranger XL	SUV	4-Door Mid-size	Gas	Passenger Vehicle	GF Agriculture	**9,062**	**410.41**
1999	Sterling	LT7500	Utility	Utility Service Truck	Diesel	Heavy-Duty Truck	GF Agriculture	**4,919**	**691.87**
2008	Ford	Ranger	SUV	Mini	Gas	Passenger Vehicle	GF Agriculture	**8,540**	**386.76**
2011	Ford	Ranger XL	SUV	Mini	Gas	Passenger Vehicle	GF Agriculture	**11,108**	**503.07**
2011	Ford	Ranger XL	SUV	Mini	Gas	Passenger Vehicle	GF Agriculture	**13,189**	**597.31**
2012	Ford	F-550 XLT	Utility	1-1/2 T regular cab spray truck	Gas	Light-Duty truck	GF Agriculture	**13,124**	**1,329.73**
2006	Dodge	Grand Caravan	Van	Passenger	Gas	Passenger Vehicle	Public Assist. Services & Admin	**2,189**	**75.31**
2011	Ford	Ranger	SUV	extended cab 2WD	Gas	Passenger Vehicle	GF Agriculture	**11,564**	**523.74**
2011	Ford	Ranger	SUV	Mini	Gas	Passenger Vehicle	GF Agriculture	**14,260**	**645.84**
2011	Ford	Ranger	SUV	Mini	Gas	Passenger Vehicle	GF Agriculture	**5,052**	**228.79**
2015	Toyota	Tacoma	SUV	Access cab 4x2	Gas	Passenger Vehicle	GF Agriculture	**9,471**	**428.95**
2016	Nissan	Frontier SV	Pickup	1/2 T King Cab	Gas	Light-Duty truck	GF Agriculture	**6,730**	**515.68**
2016	Nissan	Frontier SV	Pickup	1/2 T King Cab	Gas	Light-Duty truck	GF Agriculture	**4,999**	**383.09**
2018	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**5,062**	**419.70**
2018	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**5,687**	**471.54**
2018	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**7,311**	**606.25**
2018	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**4,343**	**360.13**
2018	Ram	1500 Tradesmar	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**9,679**	**802.59**
2019	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**6,989**	**579.56**
2019	Ram	1500	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**5,912**	**490.21**
2020	Ram	1500 Tradesmar	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**2,549**	**211.34**
2020	Ram	1500 Tradesmar	Pickup	3/4 T Crew cab	Gas	Light-Duty truck	GF Agriculture	**10,880**	**902.18**
2006	Honda	Civic	Car	2-Door Compact-size hybrid	Gas/Electric	Passenger Vehicle	Public Protection-Clerk REC	**2,536**	**54.83**
2008	Ford	Fusion	Car	4-Door Mid-size	Gas	Passenger Vehicle	Public Protection-Clerk REC	**8,007**	**330.85**
2017	Ford	Escape SE	SUV	4WD	Gas	Passenger Vehicle	Public Protection-Clerk REC	**904**	**40.94**
2018	Ford	Explorer	SUV	4WD	Gas	Passenger Vehicle	CAO Office of Emergency S	**6,802**	**308.06**
2020	Ford	F-150	Pickup	1/2 T Super cab 4x4	Gas	Light-Duty truck	CAO Office of Emergency S	**3,280**	**251.35**
2014	Nissan	NV200 SV	Van	Mini Cargo Van	Gas	Passenger Vehicle	DFS-Financial Services	**4,360**	**349.93**

Yolo County Climate Action and Adaptation Plan
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2007	Ford	Ranger XLT	Pickup	Mini truck extended cap	Gas	Light-Duty truck	GSD-Facilities	**2,494**	**191.13**
2006	Ford	E-350 SD	Van	Cargo	Gas	Passenger Vehicle	GSD-Facilities	**4,043**	**324.46**
2006	Ford	F-250	Pickup	3/4T Super Cap Flatbed w lft gt	Gas	Light-Duty truck	GSD-Facilities	**697**	**57.77**
2004	Ford	Ranger XLT	Pickup	Mini truck extended cap	Gas	Light-Duty truck	GSD-Facilities	**4,578**	**350.83**
2009	Ford	F-450	Pickup	Dump, RWD, DRW, 84"C-A 165"WB	Diesel	Light-Duty truck	GSD-Facilities	**833**	**117.15**
2009	Ford	F-150	Pickup	1/2 T Super cab 4x4	Gas	Light-Duty truck	GSD-Facilities	**916**	**70.19**
2014	Ford	F-250 XL	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**3,312**	**274.61**
2014	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**10,252**	**850.10**
2014	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**9,483**	**786.33**
2016	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**12,646**	**1,048.57**
2018	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**7,285**	**604.07**
2018	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**12,409**	**1,028.91**
2019	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**9,914**	**822.07**
2019	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**18,673**	**1,548.34**
2020	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GSD-Facilities	**7,108**	**589.37**
2008	Chevrolet	Uplander	SUV	Passenger	Gas	Passenger Vehicle	GF IT Connectivity Help Desk	**5,785**	**262.01**
2016	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	GF IT Connectivity Help Desk	**4,087**	**185.12**
2019	Nissan	Versa	Car		Gas	Passenger Vehicle	GF IT Connectivity Help Desk	**1,837**	**83.19**
1994	Ford	F-450	Pickup	Stan Cap Dump, DRW	Gas	Light-Duty truck	GF Parks Operation	**287**	**13.02**
2007	Dodge	Durango SXT	SUV	Intermediate 4x4	Gas	Passenger Vehicle	GF Parks Operation	**1,317**	**100.93**
2008	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GF Parks Operation	**12,668**	**1,050.42**
2014	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GF Parks Operation	**13,519**	**1,120.96**
2014	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GF Parks Operation	**13,728**	**1,138.33**
2016	Ford	F-250	Pickup	3/4T standard cap Utility	Gas	Light-Duty truck	GF Parks Operation	**23,683**	**1,963.74**
2018	Chevrolet	Silverado 1500	Pickup	1WT Dbl Cab, 2WD	Gas	Light-Duty truck	GF Parks Operation	**10,232**	**848.43**
2021	Ford	F-250 XL	Pickup	3/4T Crew cab 4WD, 5th wheel utility	Gas	Light-Duty truck	GF Parks Operation	**1,514**	**125.54**
2020	Toyota	Rav4	Car	AWD Hybrid	Gas/Electric	Passenger Vehicle	HHS-HHSA Administration	**46,731**	**1,010.39**
2007	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**2,648**	**119.91**
2007	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**652**	**29.53**
2007	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**1,747**	**79.14**
2002	GMC	Savana 3500	Van	Full size Cargo	Gas	Passenger Vehicle	HHS-HHSA Administration	**190**	**15.74**
2008	Ford	E-350 SD	Van	Cargo 138"WB	Gas	Passenger Vehicle	HHS-HHSA Administration	**1,853**	**153.67**
2008	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**1,498**	**67.84**
2014	Ford	Focus SE	Car	4 Door Sedan	Gas	Passenger Vehicle	HHS-HHSA Administration	**1,042**	**47.21**
2015	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**4,914**	**222.56**
2016	Nissan	Altima SR	Car	Mid-sized 4 door	Gas	Passenger Vehicle	HHS-HHSA Administration	**1,735**	**78.58**
2019	Toyota	Prius C	Car	Hybrid	Gas/Electric	Passenger Vehicle	HHS-HHSA Administration	**3,634**	**78.58**
2020	Toyota	Camry	Car	Hybrid	Gas/Electric	Passenger Vehicle	HHS-HHSA Administration	**71,851**	**1,553.53**
2020	Chrysler	Pacifica	Car	Hybrid	Gas/Electric	Passenger Vehicle	HHS-HHSA Administration	**19,445**	**609.38**
2020	Ford	Transit 150 XL	Van	MR 8-passenger sliding side door	Gas	Passenger Vehicle	HHS-HHSA Administration	**127**	**10.56**
2020	Chevrolet	Colorado	Pickup	1/2T CrewCab	Gas	Light-Duty truck	HHS-HHSA Administration	**635**	**48.68**
2007	Ford	Fusion S	Car	Mid-sized 4 door	Gas	Passenger Vehicle	Public Assist. Services & Admin	**7,936**	**269.03**
2007	Nissan	Altima	Car	Intermediate	Gas	Passenger Vehicle	Public Assist. Services & Admin	**11,755**	**192.99**
2002	GMC	Savana 3500	Van	Full size Cargo	Gas	Passenger Vehicle	Public Assist. Services & Admin	**982**	**44.48**
2006	Ford	Taurus SE	Car	Intermediate	Gas	Passenger Vehicle	Public Assist. Services & Admin	**3,460**	**156.71**
2007	Ford	Fusion	Car	Intermediate	Gas	Passenger Vehicle	Public Assist. Services & Admin	**11,876**	**537.88**
2008	Ford	Escape	Car	Small Hybrid	Gas/Electric	Passenger Vehicle	Public Assist. Services & Admin	**3,022**	**65.35**
2014	Ford	Focus SE	Car	4 Door Sedan	Gas	Passenger Vehicle	Public Assist. Services & Admin	**21,008**	**951.46**
2015	Dodge	Grand Caravan	SUV	Passenger	Gas	Passenger Vehicle	Public Assist. Services & Admin	**4,310**	**195.22**

Yolo County Climate Action and Adaptation Plan
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County Vehicle Fleet Data

2015	Ford	Fusion SE	Car	Intermediate Hybrid	Gas/Electric	Passenger Vehicle	Public Assist. Services & Admin	**33,974**	**734.58**
2016	Nissan	Altima SR	Car	Intermediate Hybrid	Gas/Electric	Passenger Vehicle	Public Assist. Services & Admin	**28,292**	**611.72**
2020	Toyota	Camry	Car	Hybrid	Gas/Electric	Passenger Vehicle	Public Assist. Services & Admin	**202,998**	**4,389.14**
2020	Chrysler	Pacifica	Van	PHV 16kWh	Gas/Electric	Passenger Vehicle	Public Assist. Services & Admin	**14,304**	**448.26**
2020	Chevrolet	Colorado	Pickup	2WD Crew cab 128"	Gas	Light-Duty truck	Public Assist. Services & Admin	**2,081**	**159.50**
2008	Ford	Fusion	Car	Intermediate	Gas	Passenger Vehicle	Public Assist. Services & Admin	**1,146**	**51.91**
2020	Ram	1500 Classic Tr	Pickup	Tradesman reg cab 4x2 lWB	Gas	Light-Duty truck	Public Assist. Services & Admin	**581**	**44.54**
2004	Ford	Expedition	SUV	Full size	Gas	Passenger Vehicle	DCS-Environmental Health	**7,316**	**331.34**
2011	Ford	F-450	Pickup	Stan Cab DRW HazMat Box	Diesel	Light-Duty truck	DCS-Environmental Health	**3,702**	**520.62**
2012	Ford	Focus SE	Car		Gas	Passenger Vehicle	DCS-Environmental Health	**1,993**	**90.28**
2014	Ford	Fusion	Car	Intermediate Hybrid	Gas/Electric	Passenger Vehicle	DCS-Environmental Health	**30,655**	**662.82**
2013	Toyota	Prius C	Car	Compact Hybrid	Gas/Electric	Passenger Vehicle	DCS-Environmental Health	**7,713**	**166.77**
2016	Ford	Escape SE	SUV	4x4 SUV	Gas	Passenger Vehicle	DCS-Environmental Health	**8,081**	**365.98**
2016	Toyota	Prius C	Car	Compact Hybrid	Gas/Electric	Passenger Vehicle	DCS-Environmental Health	**1,627**	**35.17**
2018	Ford	Escape	SUV	4WD EcoBoost	Gas	Passenger Vehicle	DCS-Environmental Health	**6,051**	**274.07**
2018	Nissan	Frontier	SUV	4x4 SUV	Gas	Passenger Vehicle	DCS-Environmental Health	**13,946**	**631.62**
2020	Ram	R4500	Van	4x4 Ambulance Prep	Diesel	Passenger Vehicle	DCS-Environmental Health	**908**	**75.25**
2020	Toyota	Rav4 LE	Car	Hybrid AWD	Gas/Electric	Passenger Vehicle	DCS-Environmental Health	**1,405**	**44.02**
2007	Pontiac	Grand Prix	Car	Intermediate	Gas	Passenger Vehicle	Health Services-Comm Hlth Prot	**645**	**29.23**
2008	Dodge	Grand Caravan	Van	Passenger	Gas	Passenger Vehicle	Health Services-Comm Hlth Prot	**107**	**8.86**
2014	Chevrolet	Tahoe LS	SUV		Gas	Passenger Vehicle	Health Services-Comm Hlth Prot	**1,478**	**66.94**
2015	Dodge	Grand Caravan	Van	Passenger	Gas	Passenger Vehicle	Health Services-Comm Hlth Prot	**1,640**	**136.01**
2016	Ford	Fusion S	Car	Intermediate Hybrid	Gas/Electric	Passenger Vehicle	Health Services-Comm Hlth Prot	**8,309**	**179.66**
2015	Ford	F-150	Pickup	1/2T Reg Cab	Gas	Light-Duty truck	Health Services-Comm Hlth Prot	**982**	**75.27**
2016	Chevrolet	Tahoe PPV	SUV	Full Size	Gas	Passenger Vehicle	Health Services-Comm Hlth Prot	**18,149**	**821.98**
2002	Dodge	Caravan SE	Van	Intermediate	Gas	Passenger Vehicle	DCSS-Child Support Services	**372**	**30.87**
2017	Ford	Fusion S	Car	Intermedisate	Gas	Passenger Vehicle	DCSS-Child Support Services	**3,543**	**160.45**
2020	KIA	Niro LX	SUV	small station wagon hybrid	Gas/Electric	Passenger Vehicle	DCSS-Child Support Services	**5,582**	**174.94**
2017	Chevrolet	Tahoe LS	SUV	4WD	Gas	Passenger Vehicle	DCS-Cannabis Cultivation	**6,597**	**298.76**
2018	Ford	SUV PI	SUV	AWD	Gas	Passenger Vehicle	DCS-Cannabis Cultivation	**4,822**	**218.40**
2007	Nissan	Sentra	Car	Compact	Gas	Passenger Vehicle	District Attorney	**491**	**22.22**
2005	Nissan	Xterra SE	Car	4WD	Gas	Passenger Vehicle	District Attorney	**146**	**6.59**
2006	Chrysler	Town & Contry	SUV	Passenger	Gas	Passenger Vehicle	District Attorney	**1,108**	**50.19**
2007	Dodge	Charger	Car	Full Size	Gas	Passenger Vehicle	District Attorney	**342**	**15.47**
2004	Nissan	Altima	Car	Intermediate	Gas	Passenger Vehicle	District Attorney	**3,270**	**148.09**
2006	Ford	Taurus SE	Car	Intermediate	Gas	Passenger Vehicle	District Attorney	**1,999**	**90.53**
2007	Ford	Explorer	SUV	Intermediate	Gas	Passenger Vehicle	District Attorney	**2,066**	**93.55**
2009	Subaru	TribeCA	SUV	Intermediate	Gas	Passenger Vehicle	District Attorney	**1,592**	**72.09**
2010	Chevrolet	Express	Van	Cargo AWD	Gas	Passenger Vehicle	District Attorney	**472**	**37.92**
2013	Honda	CR-V	SUV	Compact	Gas	Passenger Vehicle	District Attorney	**10,011**	**453.39**
2016	Ford	Fusion	Car	Intermediate	Gas/Electric	Passenger Vehicle	District Attorney	**25,651**	**554.62**
2015	Toyota	Camry LE	Car	Intermediate	Gas	Passenger Vehicle	District Attorney	**8,422**	**381.45**
2016	Ford	Taurus SE	Car	Intermediate FWD	Gas	Passenger Vehicle	District Attorney	**18,757**	**849.51**
2016	Nissan	Altama	Car	Intermediate	Gas	Passenger Vehicle	District Attorney	**1,008**	**45.65**
2016	Nissan	Frontier SV	Pickup	Crew cab 4x4	Gas	Light-Duty truck	District Attorney	**7,303**	**559.59**
2016	Honda	Accord Sport	Car	Full Size	Gas	Passenger Vehicle	District Attorney	**784**	**35.51**
2017	Ford	Explorer	SUV	Full size 4WD	Gas	Passenger Vehicle	District Attorney	**3,829**	**173.43**
2016	Ford	F-150 XL	Pickup	SuperCrew Cab 4x4	Gas	Light-Duty truck	District Attorney	**4,135**	**316.83**
2017	Hyundai	Sonata	SUV	Intermediate Hybrid	Gas/Electric	Passenger Vehicle	District Attorney	**6,284**	**196.93**

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2018	Toyota	Camry	Car	Hybrid	Gas/Electric	Passenger Vehicle	District Attorney	**15,780**	**341.19**
2018	Ford	Fusion	Car	Hybrid	Gas/Electric	Passenger Vehicle	District Attorney	**21,548**	**465.91**
2019	Toyota	Camry LE	Car	Hybrid	Gas/Electric	Passenger Vehicle	District Attorney	**61,684**	**1,333.71**
2019	Chevrolet	Impala	Car		Gas	Passenger Vehicle	District Attorney	**12,531**	**567.54**
2014	Ford	Focus SE	Car	4 Door Sedan	Gas	Passenger Vehicle	PS Grants DA Byrne Memorial	**978**	**44.29**
2014	Dodge	Avenger SE	Car	Full size	Gas	Passenger Vehicle	PS Probation Administration	**378**	**17.14**
2017	Ford	Fusion	Car	Intermediate	Gas/Electric	Passenger Vehicle	PS Probation Administration	**1,101**	**23.81**
2018	Dodge	Charger	Car		Gas	Passenger Vehicle	PS Probation Administration	**9,519**	**431.10**
2019	Ford	Police	Car	Police Responder	Gas	Passenger Vehicle	PS Probation Administration	**1,239**	**56.12**
2019	Ford	Fusion SE	Car	Hybrid	Gas/Electric	Passenger Vehicle	PS Probation Administration	**8,862**	**191.60**
2020	Ford	SUVPI	Car	AWD	Gas	Passenger Vehicle	PS Probation Administration	**4,629**	**209.65**
2008	Ford	CVPI	Car	Full Size	Gas	Passenger Vehicle	PS Probation Servces Adult	**2,550**	**115.51**
2010	Ford	Crown Victoria	Car	Full Size	Gas	Passenger Vehicle	PS Probation Servces Adult	**26,806**	**1,214.06**
2019	Ford	Police Resp	Car	Police Responder-Hybrid	Gas/Electric	Passenger Vehicle	PS Probation Servces Adult	**2,757**	**86.39**
2006	Ford	E-150 EX	Van	8 passenger van sliding sd	Gas	Passenger Vehicle	PS Probation Servces Adult	**3,341**	**268.15**
2014	Chevrolet	Tahoe LS	SUV	Full Size	Gas	Passenger Vehicle	PS Probation Servces Adult	**4,720**	**213.75**
2015	Chevrolet	Express 3500	Van	extended cab 2WD	Gas	Passenger Vehicle	PS Probation Servces Adult	**494**	**39.68**
2017	Ford	Transit 150 XL	Van	15-passenger, hinged s/d	Gas	Passenger Vehicle	PS Brobation Services Adult	**812**	**65.17**
2019	Ford	Fusion SE	Car	Hybrid sedan	Gas/Electric	Passenger Vehicle	PS Brobation Services Adult	**6,921**	**149.64**
2004	Ford	E-150 Econoline	Van	Cargo van	Gas	Passenger Vehicle	PS Brobation Work Program	**5,133**	**411.92**
2002	GMC	Savana 3500	Van	15 passenger sliding side door	Gas	Passenger Vehicle	PS Brobation Work Program	**3,204**	**257.17**
2005	Dodge	Ram 2500	Pickup	Full size	Gas	Passenger Vehicle	PS Brobation Work Program	**2,588**	**207.06**
2006	Ford	E-350 XL SD	Van	15 passenger hindged side dr	Gas	Passenger Vehicle	PS Brobation Work Program	**36,162**	**2,902.23**
2008	Ford	CVPI	Car	Full size	Gas	Passenger Vehicle	PS Brobation Services Juvnl	**19,832**	**898.21**
2016	Ford	Fusion SD	Car	Inermediate	Gas	Passenger Vehicle	PS Brobation Court Wrds Plc	**7,454**	**337.59**
2017	Ram	1500	Pickup	Tradesman crew cab 4x2 lWB	Gas	Light-Duty truck	PS Brobation Court Wrds Plc	**3,520**	**281.56**
2017	Chevrolet	Express 2500	Van	12 passenger hindged sd	Gas	Passenger Vehicle	PS Brobation Court Wrds Plc	**609**	**48.87**
2018	Chevrolet	Tahoe	SUV	Police pkg. 2WD	Gas	Passenger Vehicle	PS Sheriff Civil Process	**40,214**	**1,821.27**
2012	Chevrolet	Caprice	Car	Full size	Gas	Passenger Vehicle	PS Sheriff Management	**1,716**	**77.70**
2013	Dodge	Charger	Car	Full size	Gas	Passenger Vehicle	PS Sheriff Management	**2,526**	**114.41**
2014	Ford	Explorer	SUV	Police Utility AWD	Gas	Passenger Vehicle	PS Sheriff Management	**342**	**15.49**
2017	Jeep	Grand Cherokee	SUV	Laredo 4x2	Gas	Passenger Vehicle	PS Sheriff Management	**7,736**	**350.35**
2020	Ford	F150	Pickup	Crew cab 4x4	Gas	Light-Duty truck	PS Sheriff Management	**10,741**	**823.08**
2020	Jeep	Grand Cherokee	SUV	4x2	Gas	Passenger Vehicle	PS Sheriff Management	**20,052**	**908.13**
2011	Ford	F-250	Pickup	Crew cab utility	Gas	Light-Duty truck	PS Sheriff Boat Patrol	**12,287**	**1,018.84**
2015	Ford	F-250 XL	Pickup	Crew cab utility	Gas	Light-Duty truck	PS Sheriff Boat Patrol	**13,597**	**1,127.47**
2017	Ford	F-250 XL	Pickup	Crew cab utility	Gas	Light-Duty truck	PS Sheriff Boat Patrol	**1,823**	**151.16**
2019	Ford	F-250 XL	Pickup	Crew cab utility	Gas	Light-Duty truck	PS Sheriff Boat Patrol	**2,496**	**206.94**
2007	Ford	CVPI	Car	Full Size	Gas	Passenger Vehicle	PS Sheriff Patrol	**5,142**	**232.89**
2007	Dodge	Dakota ST	Pickup	Full Size	Gas	Light-Duty truck	PS Sheriff Patrol	**313**	**25.95**
2005	Ford	E-350	Van	Cargo SWAT	Gas	Passenger Vehicle	PS Sheriff Patrol	**1,145**	**91.87**
2007	Ford	Expedition SSV	SUV	Full Size SWAT/Crisis Negot	Gas	Passenger Vehicle	PS Sheriff Patrol	**2,569**	**116.35**
2009	Suzuki	DR-Z400S	SUV	Other	Gas	Passenger Vehicle	PS Sheriff Patrol	**57**	**2.58**
2014	Chevrolet	Tahoe LS	SUV	Full Size 2WD	Gas	Passenger Vehicle	PS Sheriff Patrol	**7,158**	**324.18**
2014	Ram	1500	Pickup	Crew Cab 4x4 Hemi	Gas	Passenger Vehicle	PS Sheriff Patrol	**4,600**	**352.52**
2015	Ford	SUV PI	SUV	Police Utility	Gas	Passenger Vehicle	PS Sheriff Patrol	**326**	**14.76**
2015	Chevrolet	Tahoe PV	SUV	Full Size Unmarked	Gas	Passenger Vehicle	PS Sheriff Patrol	**19,679**	**891.27**
2016	Ford	Transit 150 MR	Van	Cargo Medium Roof CSI	Gas	Passenger Vehicle	PS Sheriff Patrol	**496**	**39.77**
2016	Chevrolet	Tahoe PPV	SUV	Full Size Decoy	Gas	Passenger Vehicle	PS Sheriff Patrol	**72,960**	**3,304.34**

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2016	Nissan	Frontier SV	Pickup	Crew cab 4x4	Gas	Light-Duty truck	PS Sheriff Patrol	**6,135**	**470.12**
2016	Nissan	Altima SR	Car	4 door Intermediate	Gas	Passenger Vehicle	PS Sheriff Patrol	**13,716**	**621.19**
2017	Ford	F-150 XL	Pickup	4WD Supercrew	Gas	Light-Duty truck	PS Sheriff Patrol	**13,307**	**1,019.67**
2017	Chevrolet	Tahoe PPV	SUV	Full Size	Gas	Passenger Vehicle	PS Sheriff Patrol	**165,089**	**7,476.86**
2017	Ford	F-250	Pickup	Crew Cab 4x4	Gas	Light-Duty truck	PS Sheriff Patrol	**1,996**	**165.53**
2017	Nissan	Altima SR	Car	Intermediate	Gas	Passenger Vehicle	PS Sheriff Patrol	**36,778**	**1,665.68**
2018	Chevrolet	Tahoe PPV	SUV	Police pkg. 2WD	Gas	Passenger Vehicle	PS Sheriff Patrol	**291,726**	**13,212.23**
2018	Ram	1500	Pickup	Crew Cab 4x4	Gas	Light-Duty truck	PS Sheriff Patrol	**20,268**	**1,621.40**
2019	Ford	F-250	Pickup	SRW 4x4 Crew Cab	Gas	Light-Duty truck	PS Sheriff Patrol	**3,713**	**307.87**
2018	Ford	SUV PI	SUV		Gas	Passenger Vehicle	PS Sheriff Patrol	**20,876**	**945.46**
2019	Ford	T150	Van	Cargo Medium Roof	Gas	Passenger Vehicle	PS Sheriff Patrol	**318**	**25.54**
2019	Chevrolet	Tahoe	SUV	Police 2WD	Gas	Passenger Vehicle	PS Sheriff Patrol	**266,178**	**12,055.18**
2019	Ram	1500 Classic Tr	Pickup	Tradesman Quad Cab	Gas	Light-Duty truck	PS Sheriff Patrol	**3,329**	**276.00**
2020	Chevrolet	Tahoe	SUV	Police 2WD Patrol	Gas	Passenger Vehicle	PS Sheriff Patrol	**97,252**	**4,404.54**
2012	Chevrolet	Tahoe LS	SUV	Police 4WD	Gas	Passenger Vehicle	PS Sheriff Det Transport	**8,698**	**393.91**
2013	Chevrolet	Express 3500	Van	15 Passenger	Gas	Passenger Vehicle	PS Sheriff Det Transport	**4,890**	**392.47**
2013	Chevrolet	Tahoe LS	SUV	Police 4WD	Gas	Passenger Vehicle	PS Sheriff Det Transport	**58,726**	**2,659.68**
2014	Ford	Explorer	SUV	Police Utility AWD	Gas	Passenger Vehicle	PS Sheriff Det Transport	**5,362**	**242.85**
2015	Ford	Starcraft	Bus	12 + 2	Gas	Light-Duty truck	PS Sheriff Det Transport	**4,730**	**463.72**
2019	Chevrolet	Express 2500	Van	12 passenger sliding side door	Gas	Passenger Vehicle	PS Sheriff Det Transport	**4,431**	**355.61**
2016	Chevrolet	Tahoe PV	SUV	Full Size	Gas	Passenger Vehicle	PS Sheriff Training	**25,579**	**1,158.48**
2015	Ford	Escape	Car	4WD	Gas	Passenger Vehicle	PS Sheriff Coroner	**3,759**	**170.26**
2015	Chevrolet	Equinox AWD LS	SUV	Full Size	Gas	Passenger Vehicle	PS Sheriff Coroner	**12,050**	**545.75**
2015	Dodge	Charger	Car	Full Size	Gas	Passenger Vehicle	PS Sheriff Coroner	**11,130**	**504.06**
2015	Dodge	Durango SXT	Car	Special Service RWD	Gas	Passenger Vehicle	PS Sheriff Coroner	**9,741**	**441.16**
2017	Ford	Escape XLS	Car	Small	Gas	Passenger Vehicle	DCS Road Engineering	**17,848**	**808.34**
2017	Ford	F-150	Pickup	Regular cab long bed	Gas	Light-Duty truck	DCS Road Engineering	**2,172**	**166.47**
2017	Nissan	Frontier 4x4	Pickup	Crew cab, 4x4 w shell	Gas	Light-Duty truck	DCS Road Engineering	**12,074**	**925.22**
2009	Peterbilt	365	truck	Dump tandem	Diesel	Heavy-Duty Truck	DCS Road Engineering	**4,890**	**1,022.96**
2008	Chevrolet	CT8500	truck	Regular Tilt Cab paint Truck	Diesel	Heavy-Duty Truck	DCS Road Engineering	**2,743**	**573.76**
2010	Ford	Escape	Car	Small	Gas	Passenger Vehicle	DCS Road Engineering	**13,908**	**629.90**
2008	Ford	F-350	Pickup	Medium Duty	Diesel	Medium-Duty Truck	DCS Road Engineering	**5,448**	**552.01**
2014	Mack	MRU613	truck	Patch Truck	Diesel	Heavy-Duty Truck	DCS Road Engineering	**7,970**	**1,667.36**
2016	Ford	F-350 XL	Pickup	C&C super cab 4x4 flatbed	Diesel	Medium-Duty Truck	DCS Road Engineering	**62,697**	**5,015.77**
2017	International	Workstar	truck	Dump, 6x4, Tandem SBA	Diesel	Heavy-Duty Truck	DCS Road Engineering	**14,316**	**2,995.00**
2017	Peterbilt	337	truck	Tree Truck Altec LR7-56 Aerial de	Diesel	Heavy-Duty Truck	DCS Road Engineering	**1,238**	**259.06**
2017	Ford	F-450 XL	truck	std cab 4x4 DRW-Sign Truck	Diesel	Medium-Duty Truck	DCS Road Engineering	**22,375**	**2,266.96**
2018	International	7400 SBA	truck	Patch Body, 10yd	Diesel	Heavy-Duty Truck	DCS Road Engineering	**11,748**	**2,457.70**
2018	International	HX620	truck	Semi Class 8 SBA	Diesel	Heavy-Duty Truck	DCS Road Engineering	**2,444**	**511.36**
2018	Chevrolet	Silverado 1500	Pickup	4WD 1WT Dbl cab	Diesel	Light-Duty truck	DCS Road Engineering	**19,635**	**1,989.39**
2018	Ford	F-350	Pickup	Reg cab flat bed	Diesel	Medium-Duty Truck	DCS Road Engineering	**37,918**	**3,033.45**
2019	Ford	F-250	Pickup	std cab 4x2 LWB	Gas	Light-Duty truck	DCS Road Engineering	**52,472**	**4,350.90**
2019	Ford	F-350	Pickup	Reg cab flat bed	Diesel	Medium-Duty Truck	DCS Road Engineering	**53,610**	**4,288.76**
2019	Ford	F650	truck	C&C dually utility	Diesel	Heavy-Duty Truck	DCS Road Engineering	**5,974**	**1,249.87**
2020	Jeep	Wrangler	SUV	4x4 sport	Gas	Passenger Vehicle	DCS Road Engineering	**16,002**	**724.75**
2005	Dodge	Caravan	Van	Passenger	Gas	Passenger Vehicle	Mental Hlth-Realignment	**2,853**	**228.98**
2006	Ford	E150 XL	Van	8 passenger van sliding sd	Gas	Passenger Vehicle	Mental Hlth-Realignment	**659**	**52.85**
2011	Ford	CVPI	Car	Full Size, cage	Gas	Passenger Vehicle	Mental Hlth-Realignment	**1,178**	**53.36**
2015	Ford	Transit 150 XL	Van	Medium Roof Wagon	Gas	Passenger Vehicle	Mental Hlth-Realignment	**16,419**	**1,317.70**

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2016	Ford	Fusion S	Car	Full Size	Gas	Passenger Vehicle	Mental Hlth-Realignment	**2,194**	**176.08**
2019	Toyota	Prius C	Car	Compact Hybrid	Gas/Electric	Passenger Vehicle	Mental Hlth-Realignment	**23,589**	**510.03**
2020	Toyota	Camry	Car	Hybrid	Gas/Electric	Passenger Vehicle	Mental Hlth-Realignment	**66,091**	**1,428.99**
2020	Chrysler	Pacifica	Car	PHEV 16kWh	Gas/Electric	Passenger Vehicle	Mental Hlth-Realignment	**6,827**	**234.84**
2020	Toyota	Highlander	SUV	Hybrid	Gas/Electric	Passenger Vehicle	Mental Hlth-Realignment	**7,124**	**245.07**
2018	Ford	Sedan PI	Car	Full Size	Gas	Passenger Vehicle	PS Probation Administration	**19,936**	**902.90**
2010	Ford	CVPI	Car	Full Size Cage	Gas	Passenger Vehicle	PS Probation Administration	**17,090**	**774.00**
2011	Ford	Escape XLT	SUV	Small	Gas	Passenger Vehicle	District Attorney-Environmental	**1,246**	**56.42**
2016	Chevrolet	Tahoe LS	SUV	Full size 4WD	Gas	Passenger Vehicle	District Attorney-Environmental	**3,985**	**180.49**
2019	Ford	F-150	Pickup	SuperCrew Cab 4x4 camp cover	Gas	Light-Duty truck	District Attorney-Environmental	**14,869**	**1,139.38**
2014	Ram	1500	Pickup	Crew Cab 4x4	Gas	Light-Duty truck	DA Juv Account Incen	**4,206**	**322.28**
2006	Dodge	Grand Caravan	Van	Passenger	Gas	Passenger Vehicle	Education Library Operations	**719**	**57.74**
2008	Ford	Ranger XLT	Pickup	Mini truck	Gas	Light-Duty truck	DCS Fleet Services	**1,138**	**87.17**
2008	Ford	Fusion	Car	Intermediate	Gas	Passenger Vehicle	DCS Fleet Services	**508**	**23.00**
2006	Frightliner	Renegaded	Van	Motor Home	Gas	Passenger Vehicle	DCS Fleet Services	**3,908**	**313.65**
2014	Chevrolet	Express2500	Van	Cargo Van	Gas	Passenger Vehicle	Telecommunications Operation	**1,224**	**98.23**
2016	Ford	Transit	Van	Cargo Van	Gas	Passenger Vehicle	Telecommunications Operation	**1,706**	**136.91**
2008	Ford	F-250 XL	Pickup	Supercab 4x4	Gas	Light-Duty truck	Sanitatoin Operation	**9,454**	**783.94**
2009	Ford	Escape XL	SUV	Small	Gas	Passenger Vehicle	Sanitatoin Operation	**199**	**9.00**
2011	Ford	F-350 XL	Pickup	4x4 std cab utility	Diesel	Light-Duty truck	Sanitatoin Operation	**4,961**	**502.62**
2002	Dodge	Grand Caravan	Van	Handicap access w ramp	Gas	Passenger Vehicle	Admin Public Authority	**299**	**24.03**
								3,484,959	**185,998.37**

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Off-Road GHG Emissions

Off-Road Emissions

Total Emissions (metric tons CO2e)

	Gasoline	Diesel	Total
CO2	0.28	65.30	65.58
NO2	0.000	0.006	0.006
CH4	0.000	0.006	0.006
Total	0.30	67.10	67.39

	Gasoline	Diesel	Total
Gal. used	32	6,396	6,428
% of Total	0%	100%	100%

Fuel Use				Diesel Emissions (MT CO2e/year)				Diesel Emissions (MT/year)			
	Location	Gas	Diesel	CO2	NO2	CH4	Total	CO2	NO2	CH4	Total
Off Road Equipment	Other	32	6,396	65.58	1.6209	0.1916	67.39	65.581670	0.005938	0.006429	65.59
Total		32	6,396	65.58	1.62	0.19	67.39	65.58	0.01	0.01	65.59

Emission Factors for Off-Road Sources (kg/gal)

	Gasoline	Diesel
CO2	8.78	10.21
NO2	0.00167	0.000920
CH4	0.00303	0.000990

Source: The Climate Registry 2022 Default Emission Factors (May 2022). CO2 based on Table 2.1 and N20 and CH4 based on Table 2.7.

And EPA 2018. Emission Factors for Greenhouse Gas Inventories. Tables 2 and 5. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

	GWP
GWP - CO2	1
GWP - CH4	29.8
GWP - N2O	273

Source: AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change)

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Off-Road Equipment Data

Offroad Equipment

Make/Model	Year	2021-22 FuelGal	Fuel
CAT 120M Grader	2008	748.30	On-Road Diesel
Peterbilt 365 Tractor	2008	443.76	On-Road Diesel
Alkota Steam Pressure Washer	2013	59.50	On-Road Diesel
John Deer 6110M Boom and rear Flai	2015	488.40	On-Road Diesel
John Deer 210k Skip Loader	2012	125.00	On-Road Diesel
John Deer 210k Skip Loader	2017	165.90	On-Road Diesel
CAT Skidsteer	2008	30.00	On-Road Diesel
John Deer Backhoe	2012	46.70	On-Road Diesel
John Deer Backhoe Loader	2017	234.40	On-Road Diesel
Bomag BW11RH-5 Pneumatic Compactor	2016	119.30	On-Road Diesel
John Deer 672GP Grader	2012	1,144.70	On-Road Diesel
Bandit 250 XP Brush Chipper	2016	32.00	Gasoline
Bomag BW141AD-5 Vibratory Roller-Tandem	2016	117.60	On-Road Diesel
Bomag BW141AD-5 Vibratory Roller-Tandem	2021	68.80	On-Road Diesel
John Deer 5090 Utility Tractor/Ditcher	2019	148.50	On-Road Diesel
Broce BB-250-B 3-Wheel Broom	2016	59.50	On-Road Diesel
John Deer 672G 6WD	2018	2,395.40	On-Road Diesel
	TOTAL	**6427.76**	

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Energy Consumption

Energy Consumption

Natural Gas

Source	Energy Consumption		units	Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)						Emissions (MT/year)				Emissions (MT CO2e/year)			
				CO_2	GWP	N_2O	GWP	CH_4	GWP	CO2	N2O	CH4	Total	CO_2	N_2O	CH_4	Total
Yolo County Facilities	142	-	therm	53.060	1.000	0.0001	273.000	0.005	29.800	0.753452	0.000001	0.000067	0.75	0.75	0.000	0.002	0.76
		-	therm	53.060	1.000	0.0001	273.000	0.005	29.800	0.000000	0.000000	0.000000	-	0.0	0.000	0.000	-
Total	**142**									**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0.76**

Source: The Climate Registry 2022 Default Emission Factors (May 2022). CO2 based on Table 1.1 for US Default Factors for Calculating CO2 Emissions from Combustion of Fossil Fuel and Biomass (Natural Gas, US Weighted Average). N20 and CH4 based on Table 1.10 for Default Factors for Calculating CH4 and N20 Emissions by fuel type for the residential and comm
Source: GWP based on AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

Electricity

Source	Energy Consumption (Includes Solar Generated)	Energy Consumption (Includes Solar Consumed)	units	Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)						Emissions (MT/year)				Emissions (MT CO2e/year)			
				CO_2	GWP	CH_4	GWP	N_2O	GWP	CO2	CH4	N2O	Total	CO_2	CH_4	N_2O	Total
Yolo County Facilities (PG&E)	2,725,418	2,725,418	kWh	56.000	1.000	0.031	29.800	0.004	273.000	69.228801	0.038323	0.004945	69.272	69.229	1.142	1.350	71.72
Yolo County Facilities (VCE)		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.00000000	0.00000000	0.00000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
		-	kWh	56.000	1.000	0.031	29.800	0.004	273.000	0.000000	0.000000	0.000000	0.000	0.0	0.000	0.000	-
Total	**2,725,418**	**2,725,418**								**69.23**	**0.0383**	**0.0049**	**69**	**69.23**	**1**	**1.3**	**71.72**

*Solar On-Site
Source: The Climate Registry 2022 Default Emission Factors (May 2022). CO2, CH4 and N20 based on Table 3.1 for eGRID subregion of CAMX (WECC California).
Source: GWP based on AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

Conversion Factors		
1 MWH	1000	KWH
1 MT	2204.623	lb
1 MT	1000	kg
1 Therm	0.1	MMBtu
1 kg	1000	gram

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Electricity Emission Factors

Electricity Emission Factors

2022

Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)					
CO_2	**GWP**	**CH_4**	**GWP**	**N_2O**	**GWP**
56.000	1.000	0.031	29.800	0.004	273.000

Source:
Greenhouse Gas Emissions Intensity (lbs CO2e/MWh) based on PGE 2021 Power Content Label (September 2022)
Source:
GWP based on AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change)

Conversion Factors

Conversion Factors	
1 lb	0.0004536 metric tons
0.294	Lbs CO2 per KWh
294	Lbs CO2 per MWh

2027

Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)					
CO_2	**GWP**	**CH_4**	**GWP**	**N_2O**	**GWP**
43.570	1.000	0.024	29.800	0.0031	273.000

2030

Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)					
CO_2	**GWP**	**CH_4**	**GWP**	**N_2O**	**GWP**
32.310	1.000	0.018	29.800	0.0023	273.000

2045

Emission Factors and GWP (lb/MWh delivered) and (kg/MMBtu)					
CO_2	**GWP**	**CH_4**	**GWP**	**N_2O**	**GWP**
0.000	1.000	0.000	29.800	0.000	273.000

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Water-Related GHG Emissions

Water-Related Emissions

2022

Yolo County Operations											**Emissions (MT/year)**				**Emissions (MT CO2e/year)**			
	Total Consumption (acre-feet/yr)	**Indoor Water Use (MG)**	**Outdoor Water Use (MG)**	**MWh**	**Emission Factor CO_2 (lb/MWh)**	**GWP**	**Emission Factor CH_4 (lb/MWh)**	**GWP**	**Emission Factor N_2O (lb/MWh)**	**GWP**	**CO_2**	**CH_4**	**N_2O**	**Total**	**CO_2**	**CH_4**	**N_2O**	**Total**
Facilities and Parks		1.37	5.22	1.82	56.00	1	0.031	29.8	0.004	273	0.05	2.5567E-05	3.299E-06	0.05	0.05	2.557E-05	3.29902E-06	0.05
Offices		0.51		0.23	56.00	1	0.031	29.8	0.004	273	0.01	3.2519E-06	4.196E-07	0.01	0.006	3.252E-06	4.196E-07	0.01
Total		1.9	5.2								0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.052

Source: The Climate Registry 2022 Default Emission Factors (May 2022). CO2, CH4 and N20 based on Table 3.1 for eGRID subregion of CAMX (WECC California).

Source: GWP based on AR6 Synthesis Report (IPCC, 2022: Climate Change 2022: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change)

	Indoor (kWh/MG)	**Outdoor (kWh/MG)**
	Sacramento	**Sacramento**
Water Supply&Conveyance	114.05	114.05
Water Treatment	76.57	76.57
Water Distribution	38.45	38.45
Wastewater Treatment	227.12	
Regional Total	456.19	229.07

The Pacific Institute, September 2021: The Future of California's Water-Energy-Climate Nexus
Conversions made between acre-feet and MG

Groundwater Pumping	350	kWh/AF	114.05	kWh/MG
Water Treatment	235	kWh/AF	76.57	kWh/MG
Water Distribution (local)	118	kWh/AF	38.45	kWh/MG
Wastewater Treatment	697	kWh/AF	227.12	kWh/MG
Regional Indoor Total	1400.00	kWh/AF	456.19	kWh/MG
Regional Outdoor Total	703.00	kWh/AF	229.07	kWh/MG

Conversions	Acre Foot (AF)	Gallons	Million Gallons (MG)
	1	325,851	0.325851

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Water-Related GHG Emissions

Water-Related Emissions
ABAU
2027

										Emissions (MT/year)				Emissions (MT CO2e/year)			
Total Consumption (acre-feet/yr)	Indoor Water Use (MG)	Outdoor Water Use (MG)	MWh	Emission Factor CO_2 (lb/MWh)	GWP	Emission Factor CH_4 (lb/MWh)	GWP	Emission Factor N_2O (lb/MWh)	GWP	CO_2	CH_4	N_2O	Total	CO_2	CH_4	N_2O	Total
	1.41	5.38	0.64	43.57	1	0.024	29.8	0.003	273	0.01	7.0E-06	9.0E-07	0.01	0.0127	6.983E-06	9.02E-07	0.01
	0.00		0.00	43.57	1	0.024	29.8	0.003	273	0.00	0	0	0.00	0	0	0	0.00
	1.4	5.4								0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.013

ABAU
2030

										Emissions (MT/year)				Emissions (MT CO2e/year)			
Total Consumption (acre-feet/yr)	Indoor Water Use (MG)	Outdoor Water Use (MG)	MWh	Emission Factor CO_2 (lb/MWh)	GWP	Emission Factor CH_4 (lb/MWh)	GWP	Emission Factor N_2O (lb/MWh)	GWP	CO_2	CH_4	N_2O	Total	CO_2	CH_4	N_2O	Total
	1.43	5.48	0.65	32.31	1	0.018	29.8	0.002	273	0.01	5.3E-06	6.8E-07	0.01	0.0096	5.339E-06	6.82E-07	0.01
	0.00		0.00	32.31	1	0.018	29.8	0.002	273	0.00	0.000	0	0.00	0	0	0	0.00
	0.00		0.00	32.31	1	0.018	29.8	0.002	273	0.00	0	0	0.00	0	0	0	0.00
	0.00		0.00	32.31	1	0.018	29.8	0.002	273	0.00	0	0	0.00	0	0	0	0.00
	1.4	5.5								0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.010

ABAU
2045

										Emissions (MT/year)				Emissions (MT CO2e/year)			
Total Consumption (acre-feet/yr)	Indoor Water Use (MG)	Outdoor Water Use (MG)	MWh	Emission Factor CO_2 (lb/MWh)	GWP	Emission Factor CH_4 (lb/MWh)	GWP	Emission Factor N_2O (lb/MWh)	GWP	CO_2	CH_4	N_2O	Total	CO_2	CH_4	N_2O	Total
	1.57	6.00	0.72	0.00	1	0.000	29.8	0.000	273	0.00	0.0E+00	0.0E+00	0.00	0	0	0	0.00
	0.00		0.00	0.00	1	0.000	29.8	0.000	273	0.00	0.000	0	0.00	0	0	0	0.00
	0.00		0.00	0.00	1	0.000	29.8	0.000	273	0.00	0	0	0.00	0	0	0	0.00
	0.00		0.00	0.00	1	0.000	29.8	0.000	273	0.00	0	0	0.00	0	0	0	0.00
	1.6	6.0								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000

Note: Emission Factor for 2045 is 0.00 lbs/MWh because electricity at this time the RPS for utilities is 100% zero emissions renewables

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Wastewater GHG Emissions

Wastewater Sector

	Influent Emissions (CH4)							Effluent Emissions (N2O)							
Facility/Jurisdiction	**Influent (MGD)**	**Influent (gal/yr)**	**Influent BOD (mg/L)**	**Influent BOD (kg/yr)**	**Adjusted BOD Emission Factor (kg CH4/kg BOD)**	**Influent Emissions (MT)**	**Influent Emissions (MT CO_2e)**	**Effluent (MGD)**	**Effluent (gal/yr)**	**Effluent Nitrogen Content (mg/L)**	**Effluent Nitrogen Content (kg/yr)**	**N2O Emissions (kg/yr)**	**Effluent Emissions (MT)**	**Effluent Emissions (MT CO_2e)**	**Total (MT CO2e)**
Yolo County Buildings/facilities	0.0011	401,500	300	455.903	0.12	0.05471	1.63	0.0011	401500	28	42.551	0.334329	0.000334	0.091	1.72
		-	300	0	0.12	0.00000	0.00	0.0000	0	28	0	0	0.000000	0.000	0.00
		-	300	0	0.12	0.00000	0.00	0.0000	0	28	0	0	0.000000	0.000	0.00
		-	300	0	0.12	0.00000	0.00	0.0000	0	28	0	0	0.000000	0.000	0.00
Total	0.0011	401,500			0.12	0.05	1.63	0.0011	401,500			0.334329	0.000334	0.091	1.72

Source:
Intergovernmental Panel on Climate Change 2006. IPCC Guidelines for National Greenhouse Gas Inventories; Chapter 6: Wastewater Treatment and Discharge
Influent BOD and Effluent Nitrogen Content for Wildwings

Yolo County Climate Action and Adaptation Plan
Municipal GHG Inventory
Solid Waste GHG Emissions

Solid Waste
Waste-in-Place

Landfill	Total Facility GHG Emissions Reported as CO2e	Fugitive CH_4 emissions	AR6 Adjusted CO2e	LFG Captured (MMSCFD)	LFG Flaring (MMSCFD)	LFG Electricity Generation	Tonnage Reported (Total)	Metric tons reported (2022) and Esitmated (2027-2045)	Tons Reported
Year **2022**									
Yolo County Central Landfill (YCCL)	37,821.4	1355.61	37821.40	1.552	0.152	1.4	8,957,438	180,045	198,465
Year **2027**									
Yolo County Central Landfill (YCCL)	39,281.87	1407.95	39281.87	1.552	0.712	0.84		186,997	
Year **2030**									
Yolo County Central Landfill (YCCL)	40,158.14	1439.36	40158.14	1.552	0.712	0.84		191,169	
Year **2045**									
Yolo County Central Landfill (YCCL)	44,539.53	1596.40	44539.53	1.552	0.712	0.84		212,026	