



SAN RAFAEL CITY COUNCIL AGENDA REPORT

Department: City Manager's Office

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City Manager Approval: _____

TOPIC: GREENHOUSE GAS EMISSIONS REPORT AND CLIMATE ACTION PRIORITIES UPDATE

SUBJECTS:

1. SAN RAFAEL GREENHOUSE GAS INVENTORY REPORT
2. 2023-2025 TWO-YEAR WORKPLAN PRIORITIES REPORT

RECOMMENDATIONS:

1. Accept the Greenhouse Gas Inventory and Reduction Strategy Annual Report for 2021.
2. Accept the 2023-2025 Two-Year Workplan Priorities Report.

EXECUTIVE SUMMARY:

The City conducts annual greenhouse gas (GHG) emissions inventory reports to gauge progress toward GHG reduction targets as reflected in the [Climate Change Action Plan 2030](#) (CCAP). The latest report is for calendar year 2021 which is the latest data available. This report shows the City has achieved a 33% reduction in GHG emissions since 2005, and a 21% reduction from 1990 levels. In addition, every two years staff submits a two-year workplan for review and updates the City Council on achievements from the previous two years. Proposed priority focus areas include some similar areas of focus from the prior two years, including implementing more electric vehicle adoption programs, energy efficiency programs, economic development initiatives, and adaptation planning. New proposed initiatives include integrating climate action and resilience into department goals and projects, exploring a Climate Resilience District, and reimagining the Volunteer Program.

BACKGROUND:

State of the Climate

Greenhouse gas emissions reached a new high worldwide in 2022, and 28 countries saw their warmest year on record. 2022 was also the warmest year on record for ocean heat content, which is a more significant indicator than surface temperature since over 90% of heat trapped in the atmosphere goes into the oceans. Antarctic sea ice extent dropped to the lowest level on record in February, and sea levels have risen to a new high as well. These climate trends contributed to record-breaking extreme heat events in several countries and catastrophic flooding in others. More information regarding these statistics can be found at [Carbon Brief](#) and [World](#)

FOR CITY CLERK ONLY

Council Meeting:

Disposition:

[Meteorological Organization.](#)

Major insurance companies no longer take new customers in California due to the rapid growth of catastrophes such as wildfires, of which California saw over 7,000 in 2022. The State and Federal government are focusing more policies and funding on both reduction of the greenhouse gases that are contributing to climate change and efforts to plan and adapt accordingly. Climate change and the efforts to address it touch every aspect of society from infrastructure to health, natural ecosystems, the economy, and housing.

California Climate Goals

The State of California has responded to growing concerns over the effects of climate change by adopting a comprehensive approach to addressing emissions in the public and private sectors. This approach was officially initiated with the passage of the Global Warming Solutions Act of 2006 (AB 32), which requires the state to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020. The AB 32 Scoping Plan was developed to identify strategies for meeting the AB 32 goal and was adopted by the California Air Resources Board (CARB) in December 2008. Among many other strategies, it encourages local governments to reduce emissions in their jurisdictions by fifteen percent below 2005 baseline levels by 2020, and proposed longer-term goals established by Executive Order S-3-05 to reduce emissions 80 percent below 1990 levels by 2050.

In 2016, the State Legislature passed [SB 32](#), which set interim targets of 40% reductions below 1990 levels by 2030. CARB subsequently updated its Climate Change Scoping Plan in 2017 to lay out a strategy to achieve the 2030 target. In 2018, Executive Order B-55-18 committed California to achieve carbon neutrality – the point at which the removal of carbon from the atmosphere meets or exceeds emissions – by 2045.

City's Climate Change Action Plan

San Rafael's first [Climate Change Action Plan \(CCAP\)](#) was developed by a 17-member Green Ribbon Committee in 2008 and adopted by the City Council in 2009. In 2011, the City incorporated the CCAP measures into General Plan 2020 as a new Sustainability Element. A GHG Emissions Reduction Strategy was also prepared to provide technical support to the Sustainability Element and adopted CCAP. In 2017, then Councilmember Kate Colin and the City Manager's Office convened a 20-member community working group to update the CCAP to meet the new 2030 State targets. The working group developed the greenhouse gas reduction measures/activities with the assistance of nineteen local subject matter experts. Over 350 San Rafael residents and business representatives gave input on the plan, which was adopted by the City Council on [May 19, 2019](#).

City's Greenhouse Gas Reduction Strategy

The City's Climate Change Action Plan has also been integrated into [General Plan 2040](#) and serves as the City's Greenhouse Gas Reduction Strategy. This strategy meets the California Environmental Quality Act (CEQA) for a "qualified" greenhouse gas reduction strategy. It commits the City to track implementation measures and emissions reductions while providing a valuable streamlining tool for reviewing new development and building projects. It allows applicants to demonstrate that they comply with greenhouse gas reduction strategy measures through utilization of a compliance checklist, saving time and cost for contractors and staff, while ensuring that GHG emissions reduction activities are included in projects. San Rafael is currently the only local jurisdiction in Marin County with such a strategy.

As part of the CCAP implementation, a City Council sustainability liaison meets quarterly with

primary staff involved with implementing the CCAP as well as the president of Sustainable San Rafael, with occasional additional meetings as needed to address specific initiatives of high importance. Councilmember Llorens Gulati is the current sustainability liaison. As liaison, Councilmember Llorens Gulati chairs the quarterly public CCAP implementation forums consisting of staff and interested members of the community. The liaison's role is important in helping staff prioritize requests from the public and in shaping projects and programs for City Council action.

Greenhouse Gas Inventory

The City measures progress toward GHG reduction goals through completion of an annual community greenhouse gas (GHG) inventory report. These reports provide the City Council with an overview of community-wide emissions as well as status of City actions accomplished in that same year. The report also fulfills the City's requirement to report annual emissions for the strategy to reduce greenhouse gas emissions. GHG emissions and reductions are calculated for various sectors, including energy, transportation, waste, and water. This is done using a common protocol cities use to show what is called in-boundary emissions, meaning the emissions created most directly within the geographical boundary of the City. Emissions data is typically not available for a year and a half; thus, inventories have a lag time. The last community inventory was conducted in in 2022 for the 2020 calendar year.

In addition, approximately every five years, the City conducts a municipal inventory which provides a deep analysis of the emissions from municipal operations and facilities. The last municipal inventory was conducted in 2018 for calendar year 2016. The next municipal inventory will cover calendar year 2023 which staff believes will result in a better comparison to prior years, avoiding significant anomalies that occurred due to the COVID-19 pandemic. Municipal emissions typically comprise approximately 1% of community-wide emissions. Almost 99% come from the community: residents, businesses, and visitors.

The City partners with the Marin Climate and Energy Partnership (MCEP) for conducting the inventory and developing the report. MCEP publishes all the results on the MCEP website, MarinClimate.org, and at MarinTracker.org so that members of our community can easily access the data using an interactive map.

Two-Year Priorities

Every two years staff identifies key priorities taken from the Climate Change Action Plan to focus limited resources on. These are reviewed with the City Council Sustainability Liaison and at the Climate Change Action Plan quarterly community forum for review before finalizing into a workplan. These priorities and workplan align with the subset of objectives represented in the *Sustainability, Climate Change and Disaster Preparedness Policy Focus Area* in the City Council's adopted fiscal year [2023-24 & 2024-25 goals and objectives](#).

ANALYSIS:

Greenhouse Gas Inventory Report

The 2021 Greenhouse Gas Inventory Report (Attachment A) provides the City Council with an overview of community-wide emissions as well as status of City actions accomplished in that same year. The report also fulfills the City's requirement to report emissions for the greenhouse gas reduction strategy. The report provides broad category, best-estimate community-wide emissions data for calendar year 2021 based on publicly available data. This data shows an overall reduction of approximately 33% of community-wide emissions since 2005, including an approximate 7% reduction between 2019 and 2021. Table 1 below shows where our emissions reductions came from.

	Percent Change in Emissions 2005-2021
Transportation	-21%
Built Environment - Electricity	-83%
Built Environment – Natural Gas	-13%
Waste	-45%
Water	-95%
Off-Road	-33%
Wastewater	+14%
TOTAL	-33%

Table 1: Change in Emissions by Sector

Following are a sampling of programs and policies the City undertook to reduce GHG emissions and increase resilience in 2021 and 2022:

- Promoted ride and drive clean events.
- Contributed to development of a Countywide Electric Vehicle Acceleration Strategy.
- Installed new bike lanes and wayfinding signage.
- Adopted new mandatory composting ordinance in compliance with SB 1383, the Short-Lived Climate Pollutants law.
- Adopted new Green Building reach codes limiting gas and requiring increased energy efficiency and electric vehicle charging requirements for all new residential construction.
- Supported residential and commercial outreach programs such as Resilient Neighborhoods, Canal Community Resilience Council, California Youth Environmental Services’ Green House Calls, the Chamber Green Business Committee, the Electric Vehicle Working Group, and Marin School of Environmental Leadership, among others.
- Conducted fire fuel reduction efforts, education, support programs for fire safety, and other measures in our Wildfire Prevention and Protection Action Plan.
- Secured over \$750,000 in funding for equity-based adaptation planning for sea level rise in and around the Canal neighborhood.
- Hired a new Climate Adaptation and Resilience Planner and convened an internal cross-departmental adaptation and resilience working group to plan for climate impacts such as sea level rise and flooding.
- Completed energy efficiency, electrification, and lighting projects at several facilities to reduce energy consumption.
- Increased zero emissions vehicles in the fleet in Fire Department (1), Public Works (1) and Parking Services (2).

The City has made significant progress towards implementation of its CCAP and has a strong commitment toward continuing to implement policies and programs. San Rafael met its interim goal of a 25% reduction in communitywide GHG emissions from 2005 baseline by 2020. However, State targets set by SB 32 and the CCAP referenced above establish a new baseline of 1990 GHG emissions for 2030 reduction targets. This 40% reduction by 2030 using the new baseline means that emissions reductions will have to be even greater to meet the mark since GHG emissions were significantly lower in 1990. Translating current reductions to a 1990 baseline means San Rafael reduced emissions 21% since 1990. In order to meet our CCAP targets of 80% reductions by 2050, San Rafael will need to continue to innovate, collaborate, and be at the forefront of local GHG reduction strategies.

Finally, regarding GHG inventories, the value of this in-boundary type of inventory is that it isolates emissions from local sources, providing a snapshot of sectors and activities that can be affected to some degree by local government actions. In addition, it allows for a rough aggregation of data to allow for county-wide, regional, state and larger groupings of emissions calculations. This can be helpful to understand California-wide emissions for instance or to compare to the U.S. at large. One thing it does not do, however, is get at the larger set of emissions driven by consumption.

Consumption includes all the “upstream” emissions from the things individuals buy, including the mining, manufacturing, packaging, and transportation of products, which carry a lot of embedded GHG emissions. A consumption-based inventory would show a very different picture of San Rafael’s GHG emissions. It could easily triple or even quadruple emissions per capita due to the number of materials and products we consume, mainly from imported food and goods. In San Rafael, we have chosen to include consumption messaging – our “carbon footprint” – in our engagement rather than just rely on an in-boundary inventory. This is a primary focus of the [Resilient Neighborhoods](#) program, which works county-wide to educate residents about this and help them reduce their household carbon footprint.

2021-2023 Two-Year Workplan Priorities

Every two years staff proposes workplan priorities from the CCAP in order to be efficient with City resources and stay focused on key initiatives. These are reviewed with our Sustainability Liaison to the Council and at the quarterly CCAP implementation forums, which are open to the public, as a means of aligning the workplan with other City priorities and with community concerns. The practice of setting two-year priorities was established due to the fact that most items require more than one year to complete.

Below is a snapshot of the accomplishments from the past two years. City Council will receive a report on one of the 2021-2023 Action Strategies, *Develop Electric Vehicle Strategy for San Rafael*, at this City Council meeting.

2021-2023 ACTION STRATEGIES

STATUS

1. ZEV Policies and Programs	
Develop Electric Vehicle Strategy for San Rafael	In process, expected Fall 2023
Continue to transition fleet to low-carbon alternatives	3 electric fleet vehicles added
Promote Drive Clean Marin and other low-carbon transportation programs	4 events promoted
Develop policies to reduce off-road emissions and increase EV chargers	Leaf blower ordinance adopted
2. Mandatory Recycling and Organics	
Develop and adopt ordinance and implement programs for SB 1383 compliance	Adopted
Identify opportunities for organic waste diversion that also sequesters carbon	Study underway
3. Adaptation Planning	
Secure funding and conduct adaptation planning process with focus on equity & sea level rise	Funding secured; project started
Begin comprehensive adaptation planning with county-wide coordination	Staff person hired, plan under consideration
4. Microgrids Assessment and Development	
Develop an analysis of opportunities for municipal and community microgrids with a special focus on underserved communities	Not started
Seek funding to implement a microgrid project with community partners such as MCE Clean Energy	Grant applied for but not funded
5. Building Energy Efficiency & Electrification	
Work with Marin Energy Watch Partnership to promote EE & electrification	Website updates, countywide engagements, e-news, etc. ongoing
Adopt new Green Building Code with analysis of all-electric and other reach codes	Adopted Nov 2022
Identify & include incentives & technical assistance with permit requirements	In development
6. Equitable Low Carbon Economy	
Convene thought leader team to develop plan of action	Completed and ongoing
Conduct specific, time-limited business engagement to develop a work plan and recommendations	Recommendations expected by December 2023
7. Illegal Dumping	
Conduct Pilot program for Canal Neighborhood	Pilot completed with MRC and data on participation
Bring recommendations to Council for further programs to address disposal needs and dumping	In development and final suite of options expected fall 2024

Many of the actions in the CCAP 2030 will be completed using existing funding sources, grants, or other incentives and funding from utilities and community partners. Fortunately, the State is continually coming out with new programs, mandates, and funding opportunities to assist cities with climate action and adaptation planning and projects. A table showing the key objectives of the Draft Two-Year Priorities is below, and can be found in Attachment B. Some earlier priorities

will continue as they have become more of an ongoing effort, such as continuing to promote solar and renewable energy, adaptation planning, and installation of electric vehicle charging infrastructure.

Draft Two-Year Priorities: 2023-2025

ACTION STRATEGIES	COLLABORATING DEPARTMENTS	TARGET START DATE
1. Work with City departments to integrate climate action and resilience into department goals and projects.	All Depts	Jan 2024
2. Implement SB 1383 , including enforcement, reporting, procurement, and edible food recovery requirements.	Code Enforcement	In progress
3. Explore a Climate Financing District with County & other stakeholders to help plan adaptation and mitigation combined with housing security	City Manager	In progress
4. Adopt and implement an Electric Vehicle Strategy Workplan based on the Countywide EV Acceleration Strategy. Include City fleet as well as public charging infrastructure and a focus on equity.	Public Works	In progress
5. Work with County to promote energy efficiency and electrification of existing buildings , including investigating potential for community Microgrids	Community Development	In progress
6. Develop the Equitable Low Carbon Economy program recommendations and begin work on relevant projects.	Economic Development	In progress
7. Continue the Illegal Dumping program pilots and bring a suite of solutions to Council for consideration for long-term dumping reductions.	Together San Rafael Team	In progress
8. Complete the grant-funded Canal Collaboration and SLR Feasibility Assessment project toward identifying adaptation priorities to pursue.	Community Development Public Works	In Progress
9. Develop a citywide climate resilience plan and integrate with Local Hazard Mitigation Plan and other resilience planning efforts and documents.	Community Development Public Works	January 2024
10. Implement and respond to state laws such as automated solar permitting, green building, renewable energy, and others that arise.	Community Development Public Works City Attorney	Ongoing
11. Reimagine and rebuild the Volunteer Program including development of new positions in departments and new community volunteer opportunities such as increasing community cleanups and tree and landscape programs.	All Departments	January 2024

In all cases, staff has communicated with and developed these draft priorities based on input from community partners such as the County of Marin Sustainability Team, Sustainable San Rafael, members of our quarterly CCAP community forums, the Marin Climate and Energy Partnership, our utility partners, and others. This allows for county-wide collaboration and resource sharing. In addition, whenever possible, staff seeks opportunities to develop work products that other cities or organizations can use as well to extend their impact. For example, the Chief Building Official

identified a significant source of emissions coming from extension of gas lines for luxury items such as hot tubs and Council adopted a novel limitation on gas line extensions in our Green Building Reach Code that other jurisdictions are employing now as well.

COMMUNITY OUTREACH:

Staff has given presentations with opportunities for input and feedback to the following organizations: the CCAP quarterly implementation forums (twice), the Canal Community Resilience Council, Dominican University student and faculty Earth Day committee, and the San Rafael Chamber of Commerce Green Business Committee. Information has gone out to the public through the City's sustainability email list, the City Manager's Snapshot, and through City social media channels.

FISCAL IMPACT:

There is no direct fiscal impact to accepting the reports. However, funding for implementation of programs identified as two-year priorities will be supported through existing budget resources as well as grants, and utility-sponsored programs. Where required, supplemental funding requests for supplemental General Fund support will be contingent on separate City Council action through the budget process.

RECOMMENDED ACTIONS:

1. Accept the Greenhouse Gas Inventory and Reduction Strategy Annual Report for 2021.
2. Accept the 2023-2025 Two-Year Priorities Report.

ATTACHMENTS:

Attachment A: Greenhouse Gas Emissions Reduction Strategy 2021 Annual Report
Attachment B: 2023-2025 Two-Year Sustainability Priorities



CITY OF SAN RAFAEL

COMMUNITY GREENHOUSE GAS EMISSIONS INVENTORY FOR THE YEAR 2021



August 2023

Prepared by the
Marin Climate & Energy Partnership



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EXECUTIVE SUMMARY

THE TAKEAWAY:

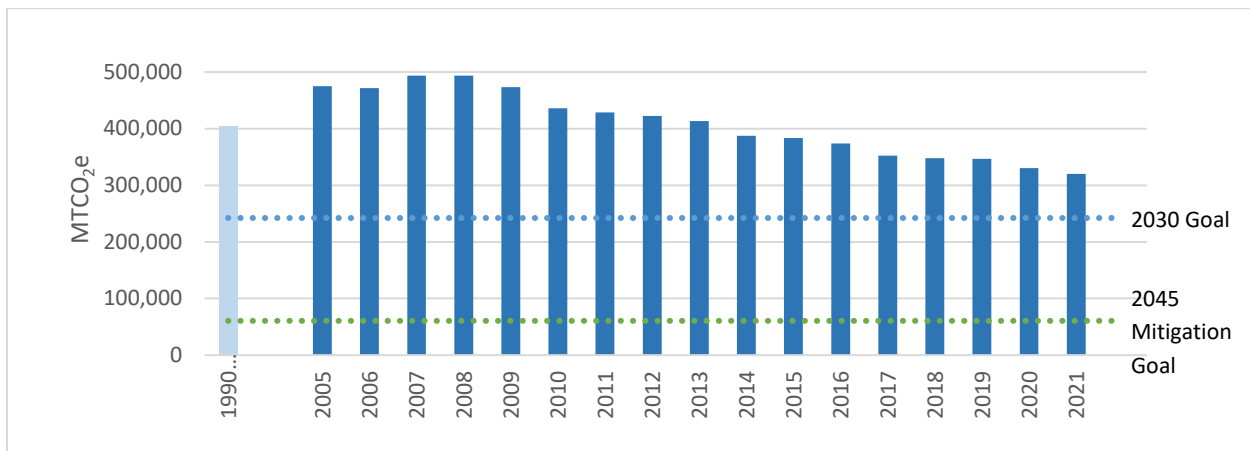
**COMMUNITY EMISSIONS ARE
DOWN 33% SINCE 2005 AND
21% SINCE 1990**

San Rafael publishes annual community greenhouse gas (GHG) emissions estimates through the Marin Climate & Energy Partnership (MCEP). Annual inventories help the City to more closely monitor its progress in meeting its goal to reduce community emissions at least 40% below 1990 emissions by 2030. The City also publishes GHG emissions inventories for municipal operations approximately every five years. Municipal emissions accounted for less than 1% of community emissions when the municipal inventory was

last conducted for year 2016.

This report reviews emissions generated from the community from 2005 through 2021, the most recent year data is available. The inventory shows that emissions dropped from about 475,000 metric tons carbon dioxide equivalents (MTCO_{2e}) in 2005 to 320,370 MTCO_{2e} in 2021, which is equivalent to 33% below the 2005 baseline and 21% below 1990 levels. The community emissions trend and targets are shown below. San Rafael needs to reduce emissions another 78,140 MTCO_{2e} to meet the local and State target for 2030. San Rafael adopted a Climate Emergency Resolution in 2021 that establishes a goal to achieve net-zero emissions by 2045 or earlier, similar to the State's long-term goal. This is expected to be accomplished by reducing GHG emissions approximately 85% below 1990 levels and employing sequestration and/or carbon capture strategies to offset the remaining emissions. San Rafael needs to reduce GHG emissions another 259,810 MTCO_{2e} to meet the GHG mitigation target for 2045, as shown in Figure 1.

FIGURE 1: SAN RAFAEL GHG EMISSIONS AND REDUCTION TARGETS



Recognizing the need for a collaborative approach to greenhouse gas reductions, City and county leaders launched the Marin Climate and Energy Partnership (MCEP) in 2007. The City of San Rafael is a member of MCEP and works with representatives from the County of Marin and the other Marin cities and towns to address and streamline the implementation of a variety of greenhouse gas reduction measures. Funding for this inventory was provided by the Marin County Energy Watch Partnership, which administers public goods charges collected by PG&E. Community inventories are available on the MCEP website at marinclimate.org and are used to update the [Marin Sustainability Tracker](#).

INTRODUCTION

PURPOSE OF INVENTORY

The objective of this greenhouse gas emissions inventory is to identify the sources and quantify the amounts of greenhouse gas emissions generated by the activities of the San Rafael community in 2021. This inventory provides a comparison to 2005 and estimated 1990 emissions and identifies the sectors where significant reductions in greenhouse gas emissions have occurred. In some instances, previous year emissions were updated with new data and/or recalculated to ensure the same methodology was employed for all inventory years.

GENERAL METHODOLOGY

This inventory uses the national standard for the accounting and reporting of community-wide greenhouse gas emissions, the [U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, version 1.2 \(July 2019\)](#). Quantification methodologies, emission factors, and activity and source data are detailed in the appendix.

Community emissions are categorized according to seven sectors:

- Built Environment - Electricity
- Built Environment – Natural Gas
- Transportation
- Off-Road Vehicles and Equipment
- Waste
- Water
- Wastewater

CALCULATING EMISSIONS

Emissions are quantified by multiplying the measurable activity data – e.g., kilowatt hours of electricity, therms of natural gas, gallons of diesel or gasoline, etc. – by emissions factors specific to the greenhouse gas-generating source. Most emissions factors are the same from year to year. Emission factors for electricity, however, change from year to year due to the specific sources that are used to produce electricity. For example, electricity that is produced from coal generates more greenhouse gases than electricity that is generated from natural gas and therefore has a higher emissions factor. Electricity that is produced solely from renewable energy sources such as solar and wind has an emissions factor of zero.

This inventory calculates individual greenhouse gases – i.e., carbon dioxide, methane, and nitrous oxide – and converts each greenhouse gas emission to a standard metric, known as “carbon dioxide equivalents” or CO₂e, to provide an apple-to-apples comparison among the various emissions. Table 1 shows the greenhouse gases identified in this inventory and their global warming potential (GWP), a measure of the amount of warming each gas causes when compared to a similar amount of carbon dioxide over 100 years. Methane, for example, is 28 times as potent as carbon dioxide over 100 years; therefore, one metric ton of methane is equivalent to 28 metric tons of carbon dioxide. Greenhouse gas emissions are reported in this inventory as metric tons of carbon dioxide equivalents, or MTCO₂e.

TABLE 1: GREENHOUSE GASES

Gas	Chemical Formula	Emission Source	Global Warming Potential
Carbon Dioxide	CO ₂	Combustion of natural gas, gasoline, diesel, and other fuels	1
Methane	CH ₄	Combustion, anaerobic decomposition of organic waste in landfills and wastewater	28
Nitrous Oxide	N ₂ O	Combustion, wastewater treatment	265

Source: IPCC Fifth Assessment Report (2014), 100-year values

TYPES OF EMISSIONS

Emissions from each of the greenhouse gases can come in a number of forms:

- **Stationary or mobile combustion** resulting from the on-site combustion of fuels (natural gas, diesel, gasoline, etc.) to generate heat or electricity, or to power vehicles and equipment.
- **Purchased electricity** resulting from the generation of power from utilities outside the jurisdictional boundary.
- **Fugitive emissions** resulting from the unintentional release of greenhouse gases into the atmosphere, such as methane from waste decomposition.
- **Process emissions** from physical or chemical processing of a material, such as wastewater treatment.

UNDERSTANDING TOTALS

The totals listed in the tables and discussed in the report are a summation of emissions using available estimation methods. Each inventoried sector may have additional emissions sources associated with them that were unaccounted for due to a lack of data or robust quantification methods. For example, greenhouse gas emissions associated with air travel and the production of goods outside the community's boundary are not included in the inventory. Additionally, the community inventory does not include refrigerants released into the atmosphere from the use of air conditioning in cars and buildings.

COMMUNITY INVENTORY

COMMUNITY INVENTORY SUMMARY

In 2005, the activities taking place by the San Rafael community resulted in approximately 475,000 metric tons of CO₂e.¹ In 2021, those activities resulted in approximately 320,369 metric tons of CO₂e, a reduction of 33% from 2005 levels, which is equivalent to 21% below 1990 levels.

The community inventory tracks emissions in seven sectors:

- The **Built Environment – Electricity** sector represents emissions generated from the use of electricity in San Rafael homes and commercial, industrial, and governmental buildings and facilities.
- The **Built Environment – Natural Gas** sector represents emissions generated from the use of natural gas in San Rafael homes and commercial, industrial, and governmental buildings and facilities. Propane used as a primary heating source is also included, although it represents less than 1% of emissions in this sector.
- The **Transportation** sector includes tailpipe emissions from passenger vehicle trips originating and ending in San Rafael, as well as a share of tailpipe emissions generated by medium and heavy-duty vehicles travelling on Marin County roads. The sector also includes emissions from Marin Transit and Golden Gate Transit buses and the SMART train as these vehicles travel within San Rafael’s boundaries. Electricity used to power electric vehicles is embedded in electricity consumption reported in the Built Environment - Electricity sector.
- The **Waste** sector represents fugitive methane emissions that are generated over time as organic material decomposes in the landfill. Although most methane is captured or flared off at the landfill, approximately 25% escapes into the atmosphere.
- The **Off-Road** sector represents emissions from the combustion of gasoline and diesel fuel from the operation of off-road vehicles and equipment used for construction and landscape maintenance.
- The **Water** sector represents emissions from energy used to pump, treat, and convey potable water from the water source to the San Rafael water users.
- The **Wastewater** sector represents stationary, process and fugitive greenhouse gases that are created during the treatment of wastewater generated by the community. Emissions created from energy used to convey and treat wastewater are included in the Built Environment sectors.

Table 2 shows how emissions in each sector have changed since 2005. The greatest reductions have occurred in the Built Environment – Electricity sector (73,812 MTCO₂e), followed by the Transportation sector (56,205 MTCO₂e) and the Built Environment – Natural Gas sector (12,156 MTCO₂e). The likely reasons for the largest emissions decreases are described in the remainder of this report.

¹ Baseline and historical emissions are recalculated in the annual inventory to integrate new data and improved calculation methodologies and to ensure consistent comparison across each year. For this reason, emission levels may differ from levels reported in previous inventories.

TABLE 2: EMISSIONS SUMMARY BY SECTOR (MTCO₂E), 2005 THROUGH 2021

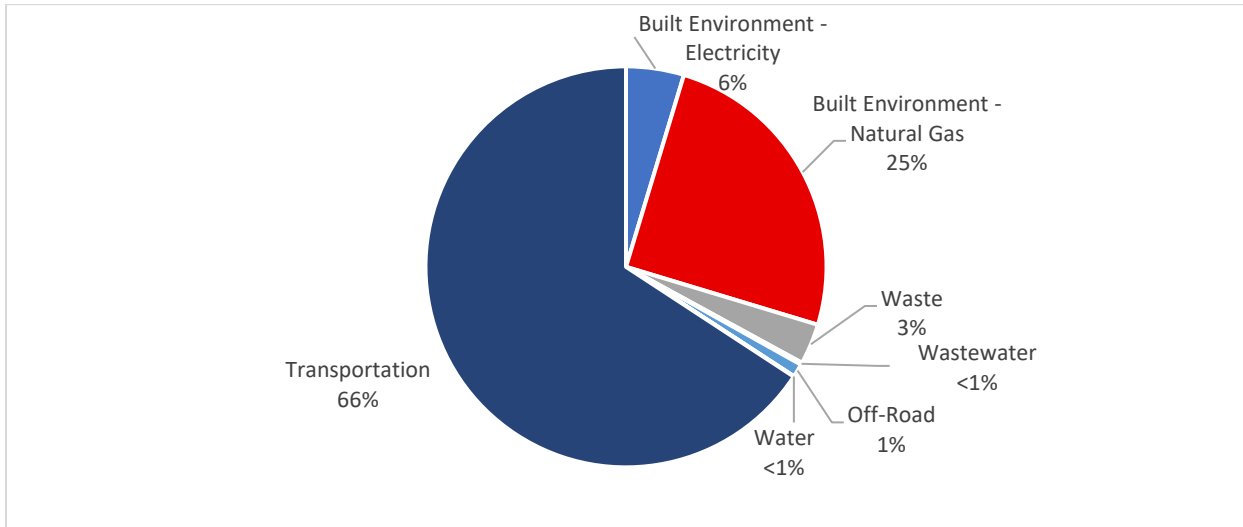
Year	Built Environment - Electricity	Built Environment - Natural Gas	Transportation	Waste	Water	Wastewater	Off-Road	Total	% Change from 2005	% Change from 1990 ²
1990 (est.) ¹								403,713		
2005	88,767	92,247	266,928	19,075	2,371	484	5,085	474,956		
2006	83,610	95,425	266,209	18,913	2,074	485	5,008	471,723	-1%	
2007	111,739	92,455	264,388	17,101	2,804	488	4,895	493,868	4%	
2008	112,024	93,985	265,598	14,205	2,579	490	4,611	493,491	4%	
2009	101,128	92,767	259,960	12,223	2,593	492	4,235	473,398	0%	
2010	76,081	93,296	248,651	12,006	1,486	496	3,895	435,911	-8%	
2011	71,056	96,073	244,487	11,718	1,053	498	3,784	428,670	-9%	
2012	72,706	90,344	241,741	12,149	1,136	503	3,707	422,286	-10%	
2013	68,716	89,797	236,978	12,303	1,323	506	3,666	413,289	-11%	
2014	61,976	76,304	231,401	12,437	1,189	517	3,645	387,469	-16%	
2015	61,260	77,920	226,110	12,887	933	491	3,609	383,209	-16%	
2016	49,936	81,715	222,389	15,147	692	551	3,554	373,984	-18%	
2017	26,412	85,650	220,291	15,852	202	541	3,491	352,440	-24%	
2018	25,961	85,625	218,402	14,054	71	539	3,396	348,049	-25%	
2019	25,813	86,037	217,805	13,397	77	538	3,295	346,961	-26%	-13%
2020	18,412	79,630	215,766	12,732	95	553	3,244	330,430	-30%	-17%
2021	14,955	80,091	210,723	10,507	115	550	3,427	320,369	-33%	-21%
Change from 2005	-73,812	-12,156	-56,205	-8,568	-2,256	66	-1,658	-154,587		
% Change from 2005	-83%	-13%	-21%	-45%	-95%	14%	-33%	-33%		

¹ Per California Air Resources Board guidance, 1990 levels are estimated at 15% below 2005 levels.

² In 2019, San Rafael adopted a Climate Action Plan that established a goal to reduce emissions 40% below 1990 levels by 2030. This column will track that progress over time.

Figure 2 shows the relative contribution of emissions from these sectors in 2021. Transportation emissions represent the largest share of communitywide emissions (66%), while the use of natural gas and propane in the Built Environment accounts for one-quarter of emissions.

FIGURE 2: EMISSIONS BY SECTOR, 2021

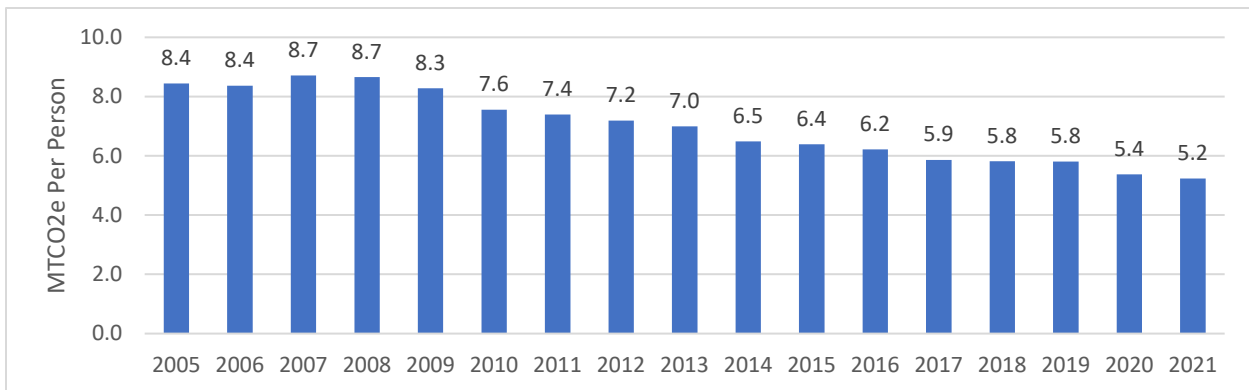


PER CAPITA EMISSIONS

Per capita emissions can be a useful metric for measuring progress in reducing greenhouse gases and for comparing one community’s emissions with neighboring cities and against regional and national averages. That said, due to differences in emission inventory methods, it can be difficult to produce directly comparable per capita emissions numbers. Per capita emission rates may be compared among Marin jurisdictions, although some jurisdictions may have higher rates due to the presence of commercial and industrial uses.

Dividing the total communitywide GHG emissions by residents yields a result of 8.4 metric tons CO₂e per capita in 2005. Per capita emissions decreased 36% between 2005 and 2021, falling to 5.2 metric tons per person. Figure 3 shows the trend in per capita emissions over time. It is important to understand that this number is not the same as the carbon footprint of the average individual living in San Rafael, which would include lifecycle emissions, emissions resulting from air travel, etc.

FIGURE 3: EMISSIONS PER CAPITA



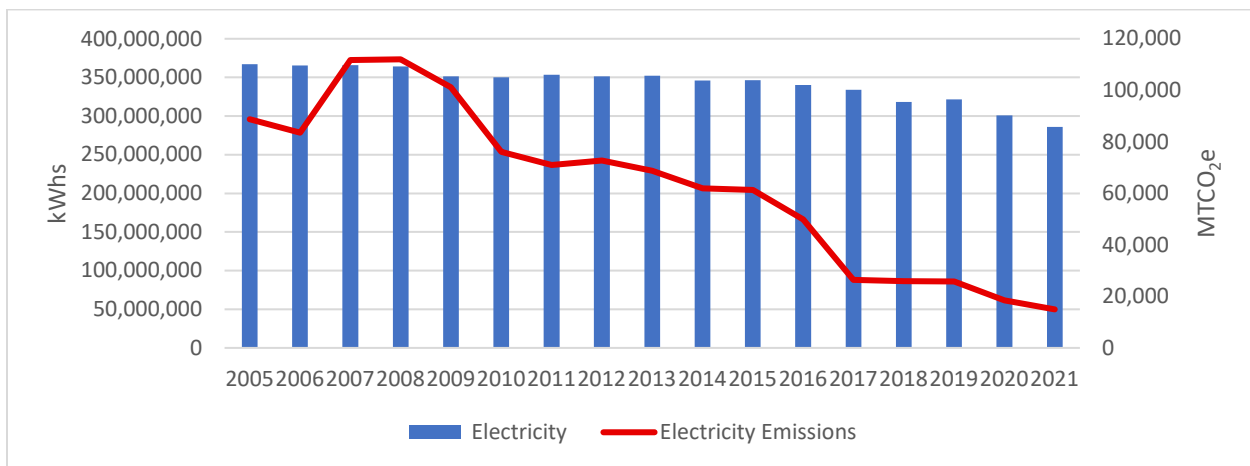
SIGNIFICANT SOURCES OF EMISSIONS

The following sections provide a year-by-year analysis of the changes in source GHG emissions in the Built Environment, Transportation, Waste, and Water sectors. Whenever possible, each section discusses the change in emissions from previous years and the likely influence of state and local programs or policies and external factors on reducing emissions.

BUILT ENVIRONMENT - ELECTRICITY

Purchased electricity consumption in homes and businesses in San Rafael decreased about 22% between 2005 and 2021. Greenhouse gas emissions from this electricity use decreased 83% since 2005, as shown in Figure 4. This is primarily due to the lower carbon intensity of electricity. PG&E has been steadily increasing the amount of renewable energy in its electricity mix. In 2021, PG&E electricity came from a mix of renewable (48%), large hydroelectric (4%), nuclear (39%), and natural gas (9%) energy sources and was 91% GHG-free.² MCE Light Green electricity came primarily from renewable (61%) and hydroelectric (37%) sources and was 98% GHG-free.³ In 2021, about 12% of MCE electricity purchased by San Rafael customers was 100% renewable Deep Green electricity, including electricity purchased by the City for facilities and operations.

FIGURE 4: ELECTRICITY USE AND EMISSIONS



BUILT ENVIRONMENT - NATURAL GAS

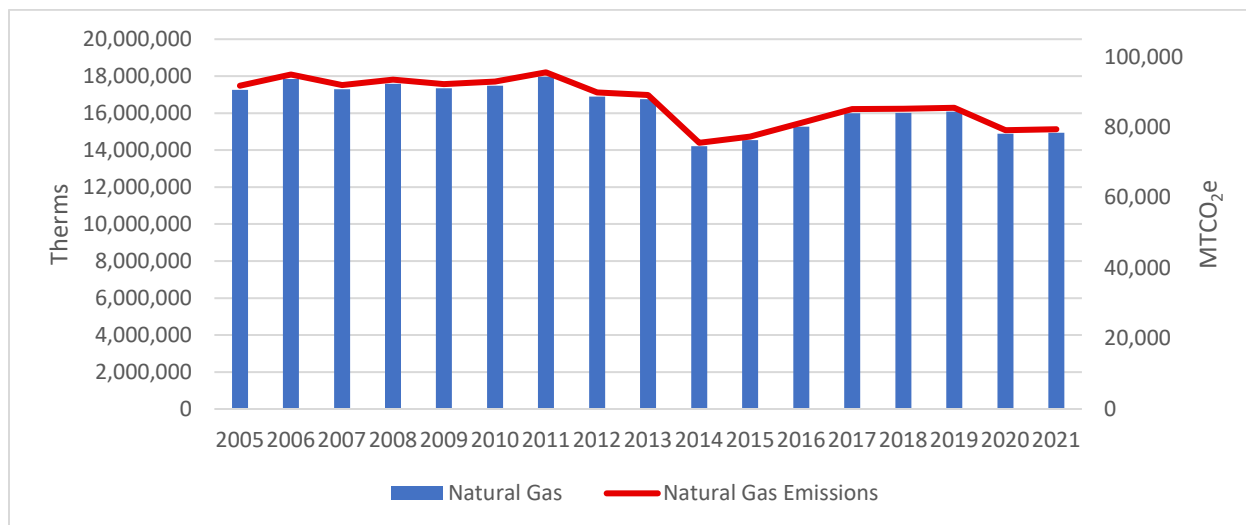
Natural gas is used in residential, commercial, and industrial buildings to provide space and water heating and power appliances. Use of natural gas is highly variable depending on the weather conditions. This variability has led natural gas use consumption in San Rafael to fluctuate from year to year, from a high of 18 million therms in 2011 to a low of 14.2 million therms in 2014. Reduction in energy use may also be attributed to energy efficiency programs and rebates, local green building ordinances, and State building codes.

² PG&E 2021 Power Content Label, [2021 Power Content Label submitted by Pacific Gas and Electric Company \(ca.gov\)](#). Nuclear and large hydro sources are considered GHG-free.

³ MCE 2021 Power Content Label, [2021 Power Content Label submitted by MCE \(ca.gov\)](#).

Natural gas consumption was virtually flat between 2020 and 2021 and was 13% below the 2005 level. Unlike electricity emissions which reflect the power content mix, natural gas emissions track the amount of natural gas consumed (Figure 5).

FIGURE 5: NATURAL GAS USE AND EMISSIONS



TRANSPORTATION

Transportation activities accounted for approximately 66% of San Rafael’s emissions in 2021. According to the transportation model and annual data the City uses to calculate passenger and commercial vehicle miles, vehicle miles traveled (VMT) have decreased approximately 2% since 2005.

On-road transportation emissions have decreased 21% since 2005 due to more fuel-efficient and alternatively fueled cars (Figure 6). As shown in Figure 7, most transportation emissions come from passenger vehicles, which accounted for 72% of transportation emissions in 2021. Marin County continues to be a leader in zero emission vehicles (ZEVs) – second only to Santa Clara County – with 15,449 ZEVs in Marin at the end of 2022, or about 8.1% of registered automobiles. ZEVs include battery electric cars, plug-in hybrid electric cars, hydrogen fuel cell cars, and zero-emission motorcycles. San Rafael had 2,779 ZEVs by the end of 2021, or 4.8% of registered light-duty vehicles.

While it is difficult to pinpoint exactly how each land use and transportation policy affects emissions, the City has undertaken many efforts to reduce transportation emissions. The City encourages workforce housing and has made improvements to the transportation network to make it easier for residents to bicycle, walk, and take public transportation. The City has also promoted electric vehicle adoption by installing chargers and providing free electricity at select municipal EV charging stations.

FIGURE 6: ON-ROAD TRANSPORTATION VEHICLE MILES TRAVELED AND EMISSIONS

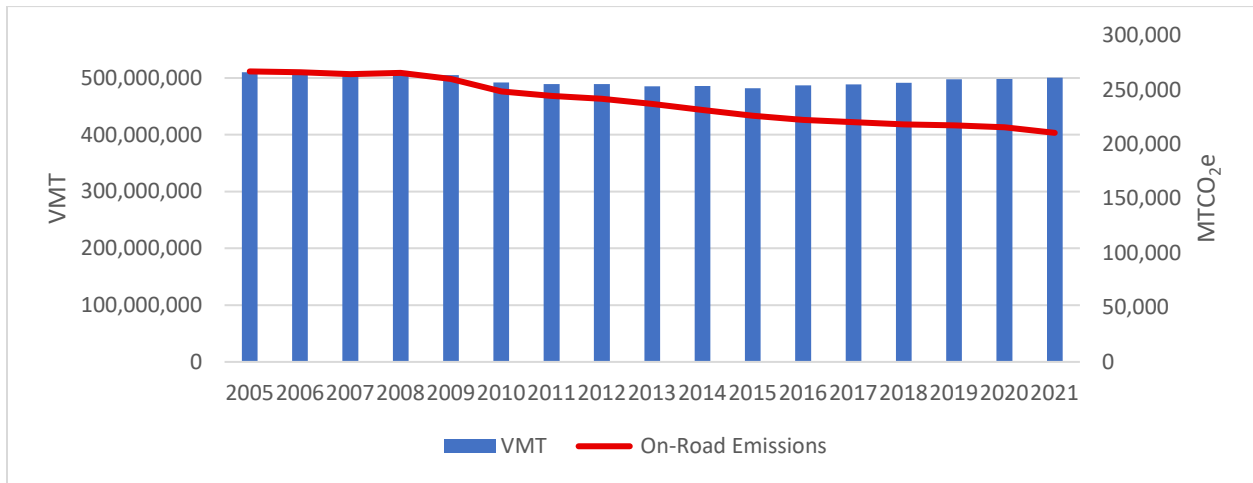
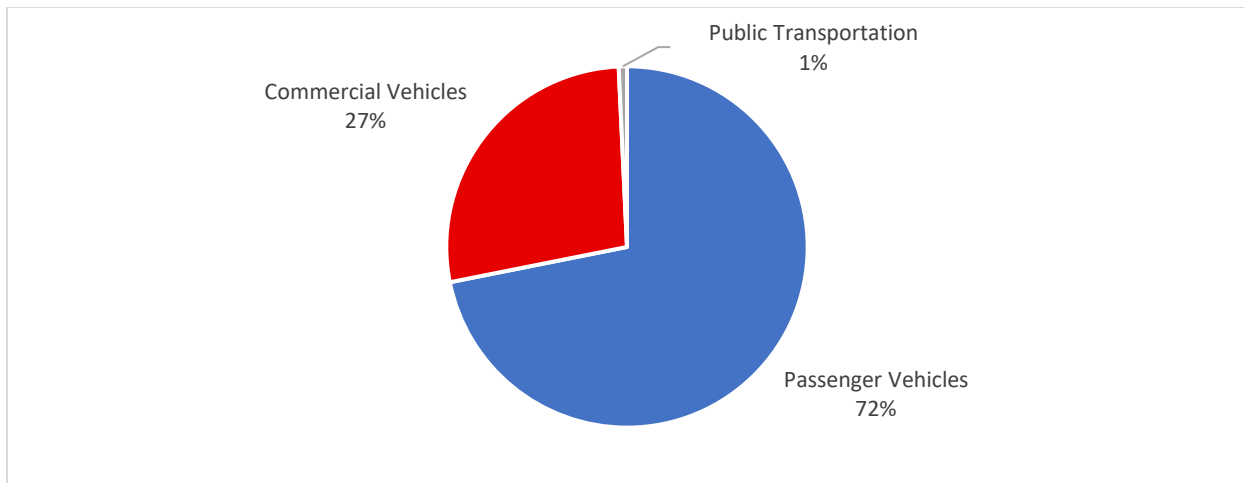


FIGURE 7: TRANSPORTATION EMISSIONS BY VEHICLE CATEGORY, 2021



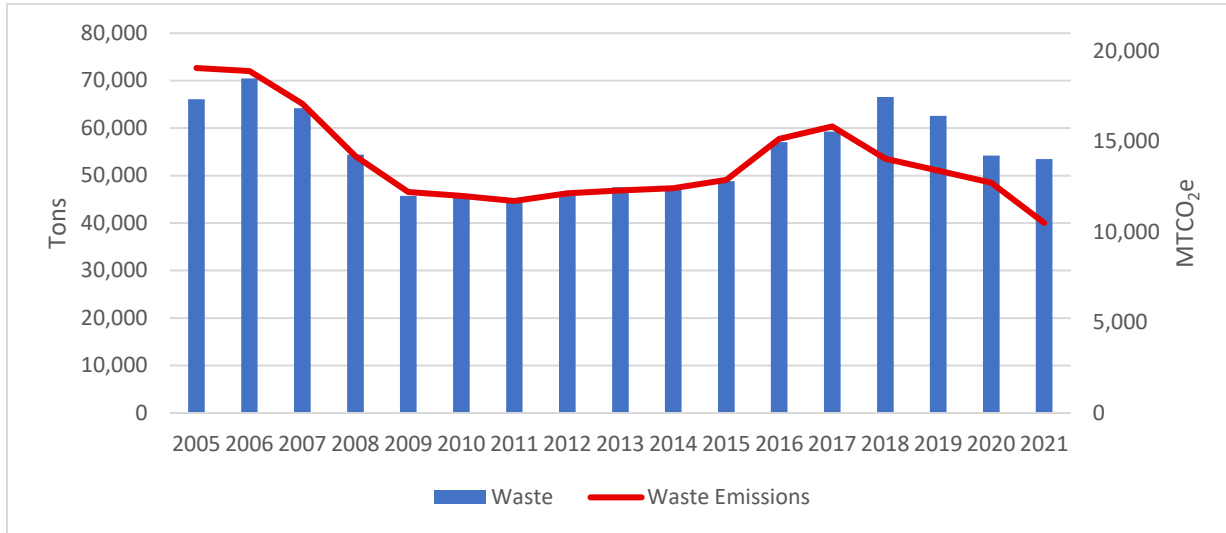
Note: Public transportation includes emissions from Marin Transit and Golden Gate Transit fixed-route buses and the SMART train.

WASTE DISPOSAL

Waste generated by the community decreased 1% between 2020 and 2021 and was 19% below the 2005 level by 2021 as shown in Figure 8 (based on countywide disposal data). Total landfilled waste includes alternative daily cover.⁴ Emissions from waste disposal decreased 45% due to the lower organic content of landfilled waste and material used for alternative daily cover (Figure 8).

⁴ Alternative daily cover is cover material other than earthen material placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging.

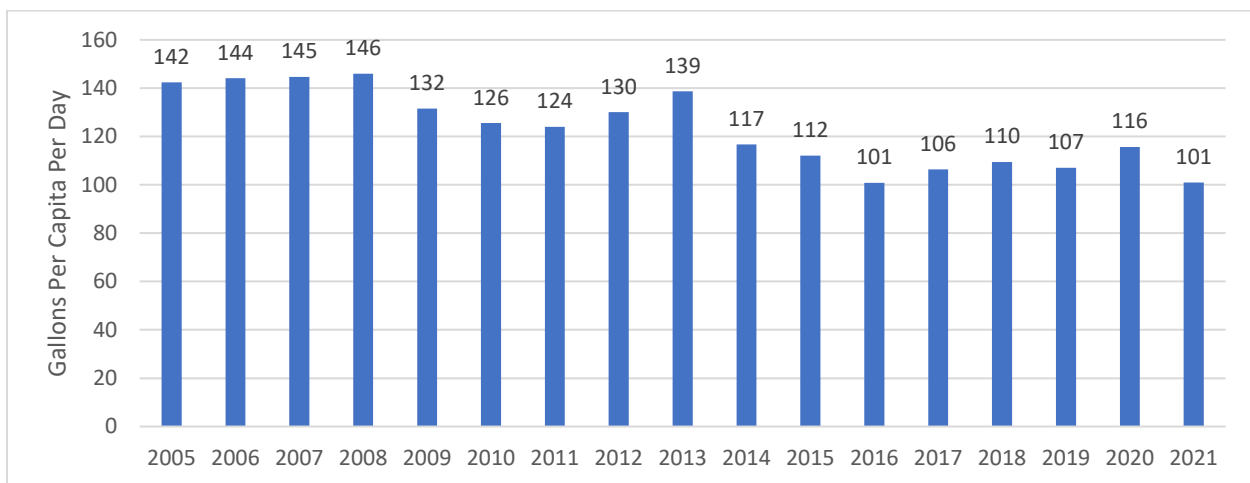
FIGURE 8: DISPOSED WASTE



WATER USE

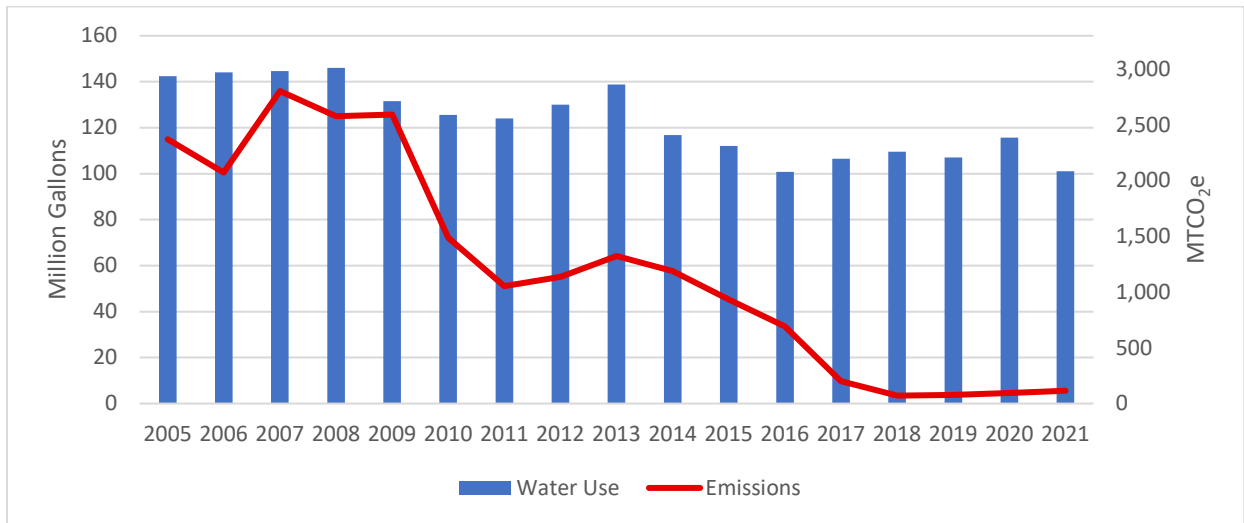
Per capita water use declined 29% since 2005, as shown in Figure 9, based on Marin Municipal Water District (Marin Water) district-wide data. Emissions, which are based on an estimate of energy used to pump, treat, and convey water from the water source to the City limits, dropped 95% between 2005 and 2021 (Figure 10). The reduction is primarily due to the lower carbon intensity of electricity. Marin Water began purchasing MCE Deep Green electricity in mid-2017. The Sonoma County Water Agency (SCWA), which supplied approximately 38% of Marin Water’s water in 2021, uses renewable and carbon-free sources for its electricity needs; a small amount of emissions comes from stationary and mobile combustion of fuels used in SCWA’s operations.

FIGURE 9: PER CAPITA WATER USE



Source: Marin Water

FIGURE 10: WATER USE AND EMISSIONS



Marin Water provides rebates and programs to reduce water use. Rebates are available to replace fixtures with high-efficiency clothes washers and to purchase cisterns and rain barrels. Marin Water provides free home and landscape water-use evaluations as well as free high-efficiency showerheads and faucet aerators. The City of San Rafael actively promotes water conservation and Marin Water rebates and programs to residents and businesses.

WASTEWATER

Greenhouse gas emissions are created during the treatment of wastewater generated by the community. These emissions have increased 14% since 2005 as San Rafael’s population has increased.

Emissions created from energy used to convey and treat wastewater are included in the Built Environment sectors. The Central Marin Sanitation Agency (CMSA), located in San Rafael, has two anaerobic digesters that process primary sludge, thickened waste-activated sludge, and organic waste to produce biogas. The biogas is used to generate heat and renewable electricity via the cogeneration system. CMSA normally produces 100% of the facility’s power needs, and, at times, exports renewable energy to the grid, which is procured by MCE.

In 2023, the Las Gallinas Valley Sanitary District completed a Secondary Treatment Plant that expanded the treatment plant’s capacity and the recycled water facility’s capacity from 1.4 million to over 5 million gallons per day.

APPENDIX: COMMUNITY INVENTORY

Community GHG Emissions Summary Table

Jurisdiction: City of San Rafael

Population: 61,179 (CA Department of Finance)

Number of Households: 23,373 (CA Department of Finance)

Inventory Year: 2021

Date Prepared: August 7, 2023

Reporting Framework: Communitywide Activities

ID	Emissions Type	Source or Activity	Included, Required Activities	Included, Optional Activities	Excluded (IE, NA, NO or NE)	Notes	Emissions (MTCO ₂ e)
1.0	Built Environment						
1.1	Use of fuel in residential and commercial stationary combustion equipment	Both	•				80,091
1.2	Industrial stationary sources	Source			NE		
1.3	Power generation in the community	Source			NO		
1.4	Use of electricity in the community	Activity	•			Includes transmission and distribution losses	14,955
1.5	District heating/cooling facilities in the community	Source			NE		
1.6	Use of district heating/cooling facilities in the community	Activity			NE		
1.7	Industrial process emissions in the community	Source			NO		
1.8	Refrigerant leakage in the community	Source			NE		
2.0	Transportation and Other Mobile Sources						
2.1	On-road passenger vehicles operating within the community boundary	Source			IE	Obtained data for preferred activity-based method instead	
2.2	On-road passenger vehicles associated with community land uses	Activity	•				151,449
2.3	On-road freight and service vehicles operating within the community boundary	Source			IE	Obtained data for preferred activity-based method instead	
2.4	On-road freight and service vehicles associated with community land uses	Activity	•				57,725
2.5	On-road transit vehicles associated with community land uses	Activity		•			1,306
2.6	Transit rail vehicles operating with the community boundary	Source		•			244
2.7	Use of transit rail travel by the community	Activity			NE		

2.8	Inter-city passenger rail vehicles operating within the community boundary	Source			NO		
2.9	Freight rail vehicles operating within the community boundary	Source			NO		
2.10	Marine vessels operating within the community boundary	Source			NE		
2.11	Use of ferries by the community	Activity			NE		
2.12	Off-road surface vehicles and other mobile equipment operating within the community boundary	Source		•			3,427
2.13	Use of air travel by the community	Activity			NE		
3.0	Solid Waste						
3.1	Operation of solid waste disposal facilities in the community	Source			NE		
3.2	Generation and disposal of solid waste by the community	Activity	•			Includes alternative daily cover	10,507
4.0	Water and Wastewater						
4.1	Operation of water delivery facilities in the community	Source			IE	Energy use is included in 1.1 and 1.4	
4.2	Use of energy associated with use of potable water by the community	Activity	•				115
4.3	Use of energy associated with generation of wastewater by the community	Activity	•			Energy use is included in 1.1 and 1.4	
4.4	Process emissions from operation of wastewater treatment facilities located in the community	Source			NE	Wastewater treatment facilities are located in the community but only process emissions associated with generation of wastewater by the community are reported in 4.5	
4.5	Process emissions associated with generation of wastewater by the community	Activity	•				550
4.6	Use of septic systems in the community	Source			NE		
5.0	Agriculture						
5.1	Domesticated animal production	Source			NE		
5.2	Manure decomposition and treatment	Source			NE		
6.0	Upstream Impacts of Communitywide Activities						
6.1	Upstream impacts of fuels used in stationary applications by the community	Activity			NE		
6.2	Upstream and transmission and distribution (T&D) impacts of purchased electricity used by the community	Activity			IE	Transmission and distribution losses included in 1.4	
6.3	Upstream impacts of fuels used by water and wastewater facilities for water used and wastewater generated within the community boundary	Activity			IE		
6.4	Upstream impacts of select materials (concrete, food, paper, carpets, etc.) used by the whole community.	Activity			NE		

Legend

IE – Included Elsewhere: Emissions for this activity are estimated and presented in another category of the inventory. The category where these emissions are included should be noted in the explanation.

NE – Not Estimated: Emissions occur but have not been estimate or reported (e.g., data unavailable, effort required not justifiable).

NA – Not Applicable: The activity occurs but does not cause emissions; explanation should be provided.

NO – Not Occurring: The source or activity does not occur or exist within the community.

Community Emissions Data Sources and Calculation Methodologies

Sector/ID	Emissions Source	Source and/or Activity Data	Emission Factor and Methodology
1.0 Built Environment			
1.1 Stationary Combustion	Stationary Combustion (CO ₂ , CH ₄ & N ₂ O)	Known fuel use (meter readings by PG&E) and estimated fuel use (American Community Survey 5-Year Estimates, and U.S. Energy Information Administration Household Site Fuel Consumption data).	Default CO ₂ , CH ₄ & N ₂ O emission factors by fuel type (U.S. Community Protocol v. 1.1, Appendix C, Tables B.1 and B.3). U.S. Community Protocol v. 1.1, Appendix C, Method BE.1.1 and BE.1.2.
1.4 Electricity Use	Electricity Use (CO ₂ , CH ₄ & N ₂ O)	Known electricity use (meter readings by PG&E and MCE) and estimated direct access electricity consumption.	Verified utility-specific emission factors (PG&E and MCE) and eGrid subregion default emission factors. U.S. Community Protocol v. 1.1, Appendix C, Method BE.2.1.
	Electric Power Transmission and Distribution Losses (CO ₂ , CH ₄ & N ₂ O)	Estimated electricity grid loss for Western region from eGrid.	U.S. Community Protocol v. 1.1, Appendix C, Method BE.4.1.
2.0 Transportation and Other Mobile Sources			
2.2 On-Road Passenger Vehicle Operation	On-Road Mobile Combustion (CO ₂)	Estimated passenger vehicle miles traveled associated with origin and destination land uses (Metropolitan Transportation Commission, CAPVMT Data Portal 2.0 (mtcanalytics.org)).	CO ₂ for on-road passenger vehicles quantified in the EMFAC2021 v.1.0.2 model. Passenger vehicle emissions calculated according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.1.A.
	On-Road Mobile Combustion (CH ₄ & N ₂ O)	Estimated vehicle miles traveled associated with origin and destination land uses (Metropolitan Transportation Commission, CAPVMT Data Portal 2.0 (mtcanalytics.org)).	CH ₄ and N ₂ O for on-road passenger vehicles quantified in the EMFAC2021 v.1.0.2 model. Passenger vehicle emissions calculated according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.1.A.
2.4 On-Road Freight and Service Truck Freight Operation	On-Road Mobile Combustion (CO ₂)	Estimated commercial vehicle miles traveled within the boundary (Metropolitan Transportation Commission utilizing Plan Bay Area 2050).	CO ₂ for on-road commercial vehicles quantified in the EMFAC2021 v.1.0.2 model. Emissions allocated utilizing LEHD data according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.2.A.
	On-Road Mobile Combustion (CH ₄ & N ₂ O)	Estimated commercial vehicle miles traveled within the boundary (Metropolitan Transportation Commission utilizing Plan Bay Area 2050).	CH ₄ and N ₂ O for on-road commercial vehicles quantified in the EMFAC2021 v.1.0.2 model. Emissions allocated utilizing LEHD data according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.2.A.
2.5 On-Road Transit Operation	On-Road Mobile Combustion (CO ₂)	Estimated vehicle miles traveled within the boundary (Marin Transit and Golden Gate Transit) and estimated diesel fuel efficiency for transit fleet (Golden Gate Transit). Fuel type provided by Marin Transit and Golden Gate Transit.	Renewable diesel emission factor provided by NEXGEN . U.S. Community Protocol v. 1.1, Appendix D, Method TR.4.A.
	On-Road Mobile Combustion (CH ₄ & N ₂ O)	Estimated vehicle miles traveled within the boundary (Marin Transit and Golden Gate Transit) and estimated diesel fuel efficiency for transit fleet (Golden Gate Transit). Fuel type provided by Marin Transit and Golden Gate Transit.	Renewable diesel emission factor provided by NEXGEN . U.S. Community Protocol v. 1.1, Appendix D, Method TR.4.B.

2.6 Passenger Rail	Mobile Combustion (CO ₂ , CH ₄ & N ₂ O)	Estimated train-miles by multiplying the number of train cars per day (in both directions, according to the SMART published schedule) by the railway track mileage located within the community boundary (Marin Map). Average Diesel Multiple Unit fuel efficiency provided by SMART.	U.S. Community Protocol v. 1.1, Appendix D, Method TR.5. Emission factors from Equation TR.5.2.
2.12 Off-Road Vehicles and Equipment	Off-Road Mobile Combustion (CO ₂)	Estimated fuel use from OFFROAD 2021 v.1.0.1 for Lawn and Garden and Construction equipment. All categories are allocated by share of countywide households.	CO ₂ emissions calculated according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.8. Emission factors provided in Table TR.1.6.
	Off-Road Mobile Combustion (CH ₄ & N ₂ O)	Estimated fuel use from OFFROAD 2021 v.1.0.1 for Lawn and Garden and Construction equipment. All categories are allocated by share of countywide households.	CH ₄ and N ₂ O emissions calculated according to U.S. Community Protocol v. 1.1, Appendix D, Method TR.8. Emission factors provided in the Local Government Operations Protocol Table G.11 and G.14.
3.0 Solid Waste			
3.2 Solid Waste Generation and Disposal	Fugitive Emissions from Landfilled Waste (CH ₄)	Estimated landfilled tons based on reporting to CalRecycle by Marin County Solid and Hazardous Waste JPA and allocated to jurisdiction based on share of countywide population. Waste characterization based on the Statewide Waste Characterization Study (2008, 2014, 2018 and 2021) and Alternative Daily Cover by Jurisdiction of Origin and Material Type as reported to CalRecycle.	Emission factors calculated utilizing U.S. Community Protocol for Accounting and Report of Greenhouse Gas Emissions, Version 1.1, July 2013, Appendix E, Method SW.4.
4.0 Water and Wastewater			
4.2 Water Supply & Conveyance, Treatment and Distribution	Electricity Use (CO ₂)	Water consumption data provided by Marin Water. Sonoma County Water Agency (SCWA) delivery amount provided by SCWA .	Verified utility-specific emission factors (PG&E, MCE and SCWA). Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.14.
	Electricity Use (CH ₄ & N ₂ O)	Water consumption data provided by Marin Water. Electricity consumption data provided by MMWD.	eGrid subregion default emission factors. Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.14.
4.5 Treatment of Wastewater	Stationary Emissions from Combustion of Digester Gas (CH ₄)	Known amount of digester gas produced per day and known percent of methane in digester gas provided by Central Marin Sanitation Agency. Known amount of digester gas produced per day (2016) and known percent of methane in digester gas (2017) provided by Las Gallinas Valley Sanitary District.	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.1.a.
	Stationary Emissions from Combustion of Digester Gas (N ₂ O)	Known amount of digester gas produced per day and known percent of methane in digester gas provided by Central Marin Sanitation Agency. Known amount of digester gas produced	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.2.a.

		per day (2016) and known percent of methane in digester gas (2017) provided by Las Gallinas Valley Sanitary District.	
	Process Emissions from Wastewater Treatment Plant without Nitrification or Denitrification	Estimated population served by wastewater treatment plant provided by Central Marin Sanitation Agency.	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.8.
	Process Emissions from Wastewater Treatment Plant with Nitrification or Denitrification	Estimated population served by wastewater treatment plant provided by Las Gallinas Valley Sanitary District (2010 data).	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.7.
	Fugitive Emissions from Effluent Discharge (N ₂ O)	Estimated population served by wastewater treatment plant provided by Central Marin Sanitation Agency. Assumed significant industrial or commercial input.	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.12(alt).
	Fugitive Emissions from Effluent Discharge (N ₂ O)	Estimated population served by wastewater treatment plant provided by Las Gallinas Valley Sanitary District. Assumed no significant industrial or commercial input.	Emissions calculated according to U.S. Community Protocol v. 1.1, Appendix F, Method WW.12.



CLIMATE ACTION PLAN PROGRAM WORKPLAN

Draft Two-Year Priorities: 2023-2025

ACTION STRATEGIES	COLLABORATING DEPARTMENTS	TARGET START DATE
1. Work with City departments to integrate climate action and resilience into department goals and projects.	All Depts	Jan 2024
2. Implement SB 1383 , including enforcement, reporting, procurement, and edible food recovery requirements.	Code Enforcement	In progress
3. Explore a Climate Financing District with County & other stakeholders to help plan adaptation and mitigation combined with housing security	City Manager	In progress
4. Adopt and implement an Electric Vehicle Strategy based on the Countywide EV Strategy done by TAM and MCEP. Include City fleet as well as public charging infrastructure and focus on equity.	Public Works	In progress
5. Work with County to promote energy efficiency and electrification of existing buildings , including investigating potential for community microgrids	Community Development	In progress
6. Develop the Equitable Low Carbon Economy program recommendations and begin work on relevant projects.	Economic Development	In progress
7. Continue the Illegal Dumping program pilots and bring a suite of solutions to Council for consideration for long-term dumping reductions.	Together San Rafael Team	In progress
8. Complete the grant-funded Canal Collaboration and SLR Feasibility Assessment project toward identifying adaptation priorities to pursue.	Community Development Public Works	In Progress
9. Develop a citywide climate resilience plan and integrate with Local Hazard Mitigation Plan and other resilience planning efforts and documents.	Community Development Public Works	January 2024
10. Implement and respond to state laws such as automated solar permitting, green building, renewable energy, and others that arise.	Community Development Public Works City Attorney	Ongoing
11. Reimagine and rebuild the Volunteer Program including development of new positions in departments and new community volunteer opportunities such as increasing community cleanups and tree and landscape programs.	All Departments	January 2024