

San Rafael Climate Change Action Plan

Greenhouse Gas Emissions Reduction Strategy

2011 Annual Report

This annual report has been prepared to support the City's continued use of the Climate Change Action Plan (CCAP) as a qualified GHG reduction strategy, as defined by the California Environmental Quality Act and supported by the Bay Area Air Quality Management District's (BAAQMD) GHG Plan Level Guidance.

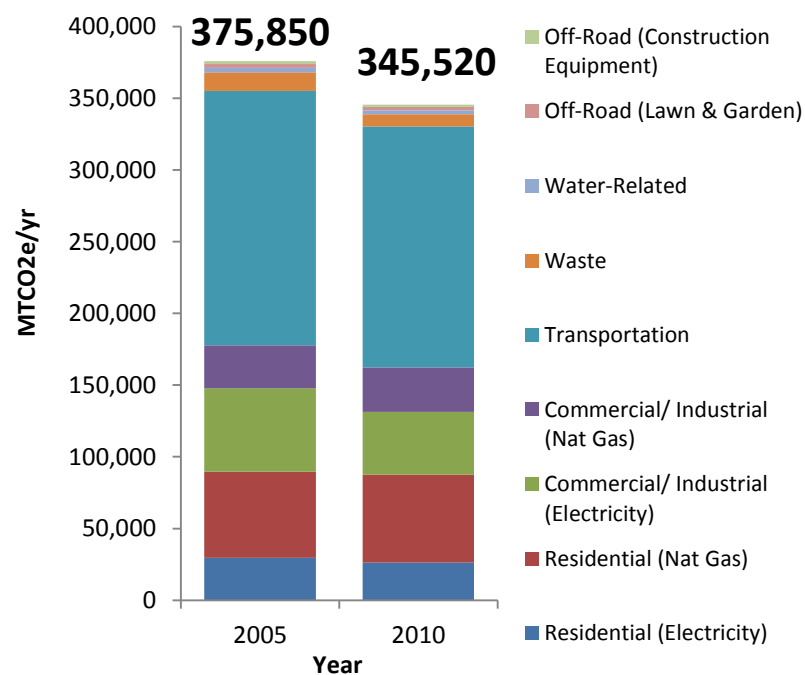
Background

In 2011, the City completed an update to the CCAP to allow the City to utilize the CCAP as a qualified GHG reduction strategy. As part of the 2011 CCAP update, the City committed to preparing an annual assessment of the City's GHG emissions, progress toward achieving the local and state-recommended GHG reduction targets, and status of state and local policies implemented to reduce GHG emissions. This report fulfills the City's monitoring and reporting policies included in the CCAP.

2005 and 2010 GHG Emissions Inventories

In 2012 and 2013, the City participated in a project through the Marin County Energy Watch Partnership to update the 2005 baseline GHG emissions inventory and to prepare an inventory of 2010 GHG emissions. Both inventories include GHG emissions from communitywide sources and municipal operations. The work effort was led by the Marin Climate and Energy Partnership and, in addition to the City of San Rafael, included updated inventories for Belvedere, Fairfax, Larkspur, Mill Valley, Novato, Ross, San Anselmo, Sausalito, and Tiburon.

The updated 2005 and 2010 inventories for all 10 cities were prepared using a consistent methodology, satisfying BAAQMD guidance to address greenhouse gas emissions, and the Governor's Office of Planning and Research (OPR) guidance to use the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions released in 2012. The emissions inventory results for 2005 and 2010 for community activities are identified below. Between 2005 and 2010, emissions decreased approximately 8% from 375,850 to 345,520 MTCO₂e¹.



¹ To emphasize the estimated nature of the GHG emissions inventory, we have rounded all emissions estimates to the nearest ten.

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Annual Monitoring and Reporting

The City utilizes a Microsoft Excel-based monitoring and reporting tool that integrates the 2005 and 2010 baseline emissions inventories, GHG emissions forecast, and reduction measures to facilitate the preparation of annual assessments. The implementation and monitoring tool identifies key metrics the City needs to track on an annual basis, and it provides a template to summarize the City's annual emissions and reduction measure implementation progress.

2011 GHG Emissions Assessment²

In 2011, San Rafael's community emissions decreased approximately 13% below 2005 emissions levels, and dropped approximately 5% between 2010 and 2011. The largest percent decreases in emissions came from the waste disposal (-33%) and construction equipment (-31%) sectors, while the largest overall decrease in emissions came from the transportation (-22,450 MTCO₂e) and nonresidential energy (-14,530 MTCO₂e) sectors. The likely reasons for these emissions decreases are described in further detail in the remainder of this report.

Year	Residential Energy	Nonresidential Energy	Transportation	Waste	Water & Wastewater	Lawn & Garden	Construction	Total	% Change from 2005
2005	89,720	88,120	177,340	12,970	2,980	2,650	2,070	375,850	0%
2006	91,190	82,320	180,370	13,850	2,960	2,650	1,940	375,290	0%
2007	98,590	98,370	179,900	12,590	2,990	2,650	1,820	396,910	6%
2008	98,560	96,520	175,030	10,690	3,000	2,660	1,690	388,130	3%
2009	95,030	86,500	167,540	9,000	2,720	2,660	1,560	365,000	-3%
2010	87,690	74,710	167,860	8,600	2,560	2,660	1,440	345,520	-8%
2011	83,430	73,590	154,890	8,700	2,540	2,660	1,440	327,240	-13%
% Change from 2005	-7%	-16%	-13%	-33%	-15%	0%	-31%	-13%	

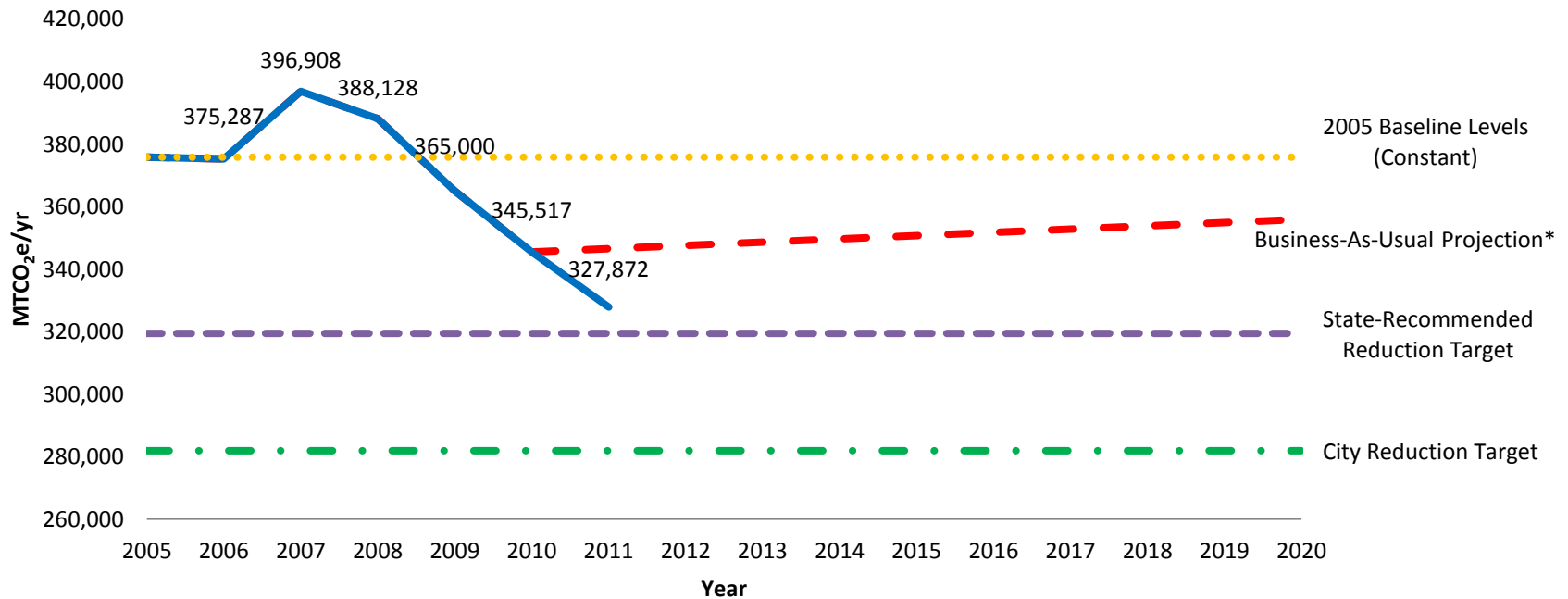
² While the priorities and accomplishments listed in subsequent sections are listed through 2012, the most current information available to assess GHG emissions is for the calendar year of 2011.

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Overall GHG Emissions Progress Toward Target

The City's emissions in 2011 were nearly 13% lower than the 2005 baseline year, and will need to reduce emissions 8,400 MTCO₂e over the next 8 years to achieve the State-Recommended GHG reduction target of 15% below baseline by 2020. The City will continue to work toward meeting and exceeding the State-Recommended reduction target and achieving the City's adopted target of 25% below baseline levels by 2020. By conducting annual monitoring and reporting the City can regularly assess progress towards both targets, and adjust programs and policies to ensure the City's CCAP can continue to serve as a qualified GHG reduction strategy.

San Rafael Annual GHG Emissions & Target, 2005-2020



* The Business as Usual Projection looks at how emissions are likely to grow between the years of 2010 and 2020 if additional efforts to reduce emissions are not implemented.

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The following sections provide a year-by-year analysis of the changes in GHG emissions from the City’s largest sources: electricity, natural gas, transportation, and waste. Whenever possible, each section discussion includes the change in emissions from previous years, the likely influence of state and local programs or policies on reducing emissions, and progress toward target achievement based on each sector’s contribution to the overall GHG reduction target.

Electricity Use Activity and GHG Emissions

Electricity related greenhouse gas emissions in the residential and nonresidential sectors decreased from 69,860 MTCO₂e to 66,500 MTCO₂e between 2010 and 2011. This 5% decrease in emissions occurred despite a 17% increase in the amount of electricity used from 247 million kWh in 2010 to 288 million kWh in 2011.

The decreased emissions from the electricity sectors are a result of the increased use of renewable energy by PG&E, and the broader introduction of Marin Clean Energy (MCE) to San Rafael residents and businesses³. In 2011, MCE provided approximately 18% of total electricity used in the community.

Efforts to improve energy efficiency (both electricity and natural gas use) in the community in 2012 are described in the City Council’s Ad Hoc Sustainability Subcommittee priorities report⁴ and included:

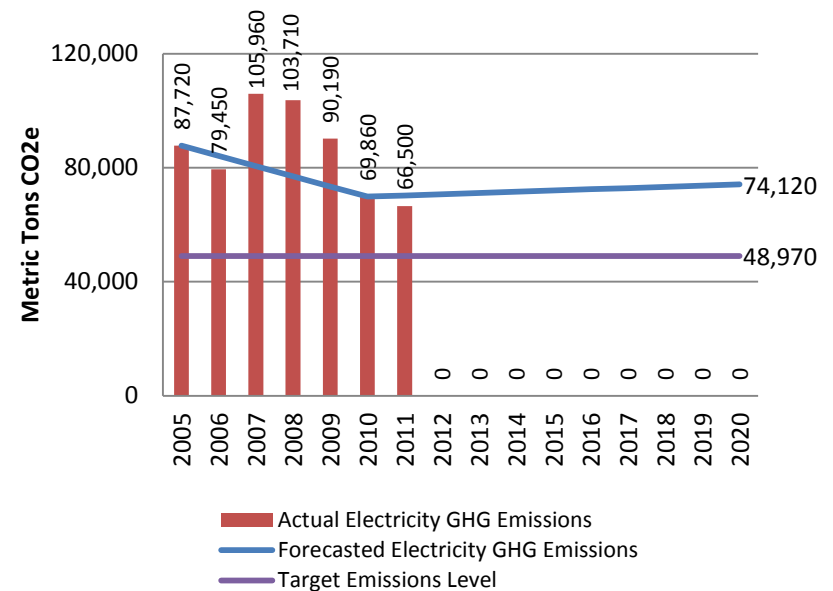
- New energy-efficient HVAC installation at City hall

³ All customers in San Rafael were eligible to enroll in MCE in July 2012. Marin Clean Energy is administered by the Marin Energy Authority.

⁴http://docs.cityofsanrafael.org/CityMgr/Green/2013%20committee%20goals_SustSubcom_FINAL.pdf

- Participation in Marin Clean Energy, and enrollment of City facilities in Light Green power option
- Energy-efficient lighting retrofits in City buildings, street lights, and parking garages
- Authorizing an MOU with Solar SEED project to provide solar installations at City facilities
- Support and coordination of the Greening for Profit and Resilient Neighborhoods programs
- Support of the solar feed-in tariff at the San Rafael Airport

Annual Electricity Emissions & Target, 2005-2020



Natural Gas Use Activity and GHG Emissions

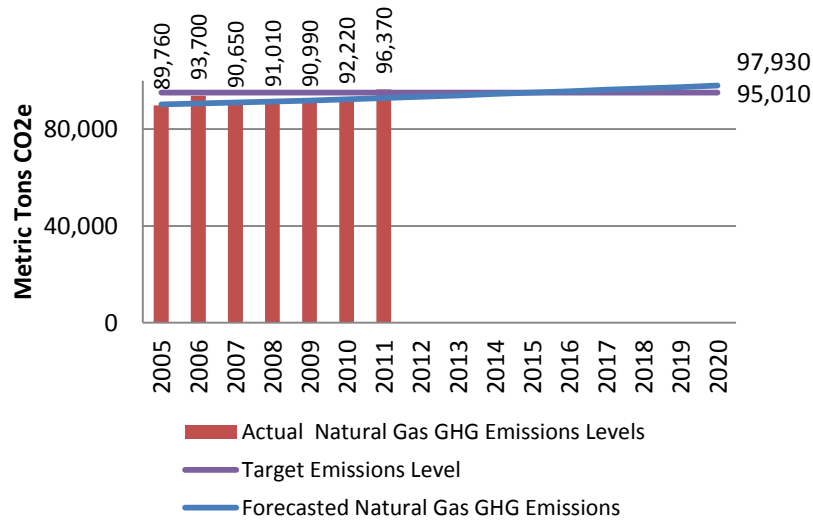
Natural gas is used by residential and commercial activities to provide space heating and power equipment. Use of natural gas is highly variable depending on the weather conditions in a given year.

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This variability has led the GHG emissions from natural gas use to fluctuate from year to year, increasing from 89,760 MTCO₂e in 2005 to 96,370 MTCO₂e in 2011.

Natural gas presents fewer opportunities to decrease associated emissions and therefore the target GHG emissions from this sector are less aggressive than other sectors.

Annual Natural Gas Emissions & Target, 2005-2020



Transportation Activity and GHG Emissions

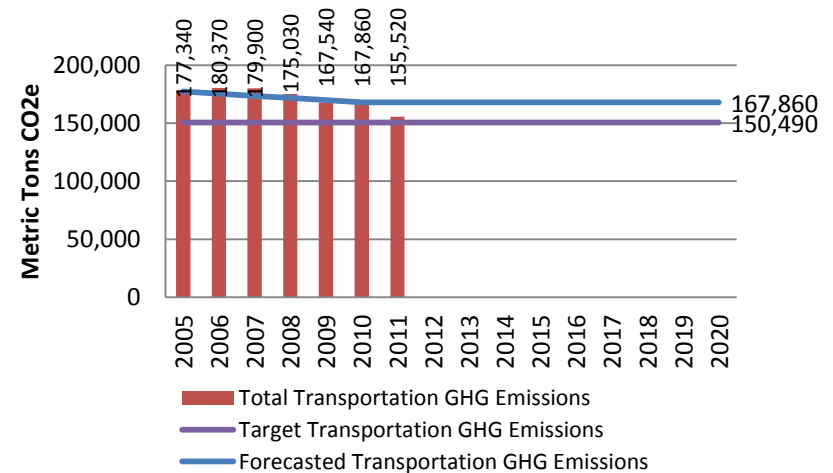
According to the updated GHG Emissions Inventory prepared in 2013, transportation activities accounted for approximately 47% of the City’s emissions in 2005. Emissions from transportation peaked in 2006 at 180,370 MTCO₂e and have steadily declined hitting a low of 154,890 MTCO₂e in 2011. Decreased emission in the transportation sector are due to a combination of more fuel efficient and alternatively fueled cars and a reduction in the amount

of vehicle miles traveled. The California clean car fuel standards, and regular turnover of the vehicle fleet has resulted in the average emissions generated to decrease 5% from 1.07 pounds per mile in 2005 to 1.02 pounds per mile in 2011.

While it is difficult to pinpoint exactly how each land use and transportation policy affects emissions, the City has undertaken many efforts to curb single occupant vehicle travel. These recent efforts included:

- SMART Station Area Planning
- Installation of electric vehicle charging stations
- Support and coordination of the Greening for Profit and Resilient Neighborhoods programs
- Implemented bicycle and pedestrian infrastructure improvements such as the Lincoln Avenue/Highway 101 Bike and Pedestrian Path and re-opened the CalPark Tunnel

Annual Transportation Emissions & Target, 2005-2020



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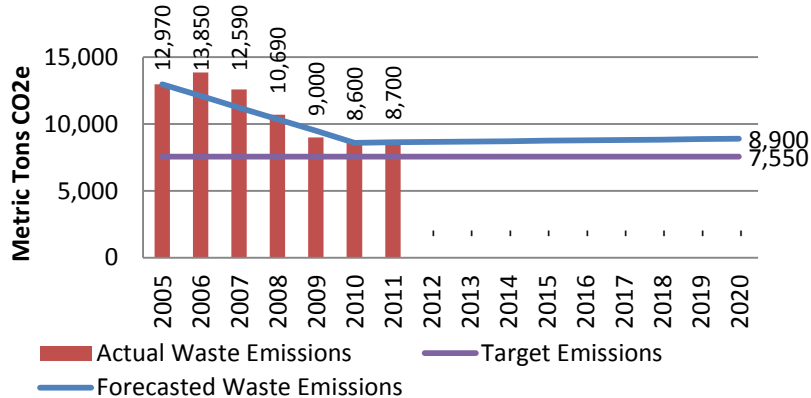
Waste Disposal Activity and Emissions

Waste disposal and associated GHG emissions in the community declined nearly 33% in just the last 6 years. In 2005, activities in San Rafael produced 54,087 tons of waste sent to the landfill, and 12,047 tons used as alternative daily cover at the landfill. With an expansion in the types of materials collected and recycled, the waste generated by the community hit a low of 39,846 tons in 2011, with alternative daily cover decreasing to 4,489 tons.

The associated decrease in emissions from waste disposal is a result of the community's and County's goals to move toward Zero Waste by 2025 as well as the following efforts accomplished in 2012:

- Began residential curbside composting program
- Conducted commercial/multifamily recycling ordinance outreach
- Adopted construction and demolition (C&D) debris recycling and reuse ordinance
- Approved Food to Energy project

Annual Waste Emissions & Target, 2005-2020



2013 High Priority Goals

While San Rafael has made significant progress in reducing GHG emissions since 2005, the City will continue to implement policies and programs that further reduce emissions to achieve the 2020 GHG reduction target. The City Council's Ad Hoc Sustainability Subcommittee identified the following high priority goals to implement in the coming year:

- Marin Sanitary Service refuse rate structure analysis & zero waste implementation
- Ban non-recyclable plastic single use bags
- SMART Rail Planning (ongoing)
- Pedestrian/Bicycle Infrastructure (Public Works)
- Update, tracking of GHG inventory
- Investigate feasibility of a Climate Vulnerability Assessment
- Solar installation parking garages and City buildings (future goal to sell power to Marin Energy Authority)

Continuing to implement GHG reduction measures and regularly reporting on the City's progress will ensure that the City's CCAP can continue to serve as a qualified GHG reduction strategy and provide streamlining opportunities for new projects in San Rafael.