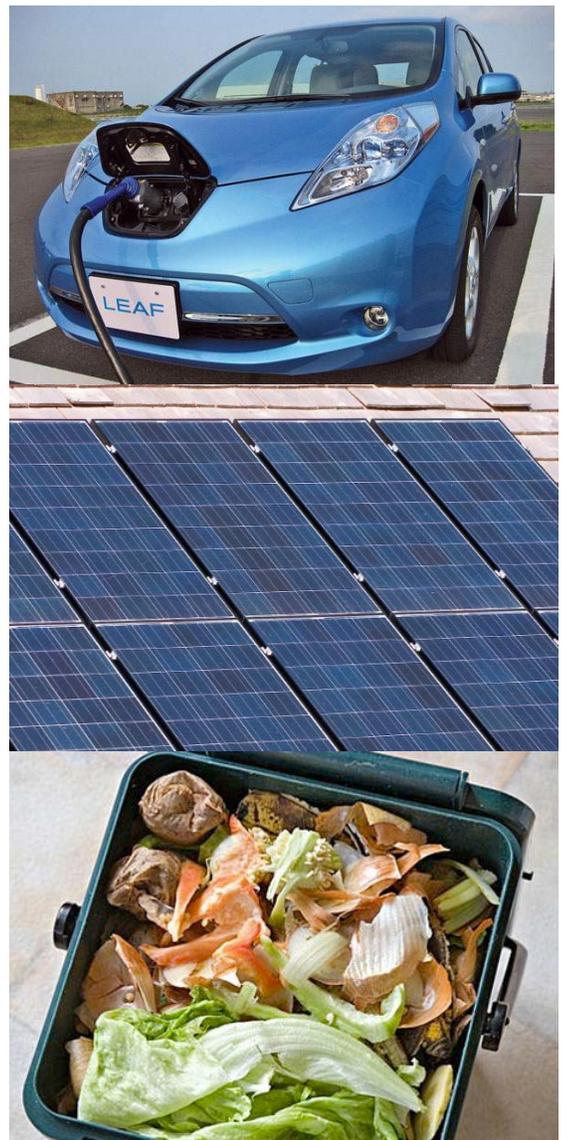


# TOWN OF SAN ANSELMO

## COMMUNITY GREENHOUSE GAS EMISSIONS INVENTORY FOR YEAR 2015

December 2017

Prepared by the  
Marin Climate & Energy Partnership



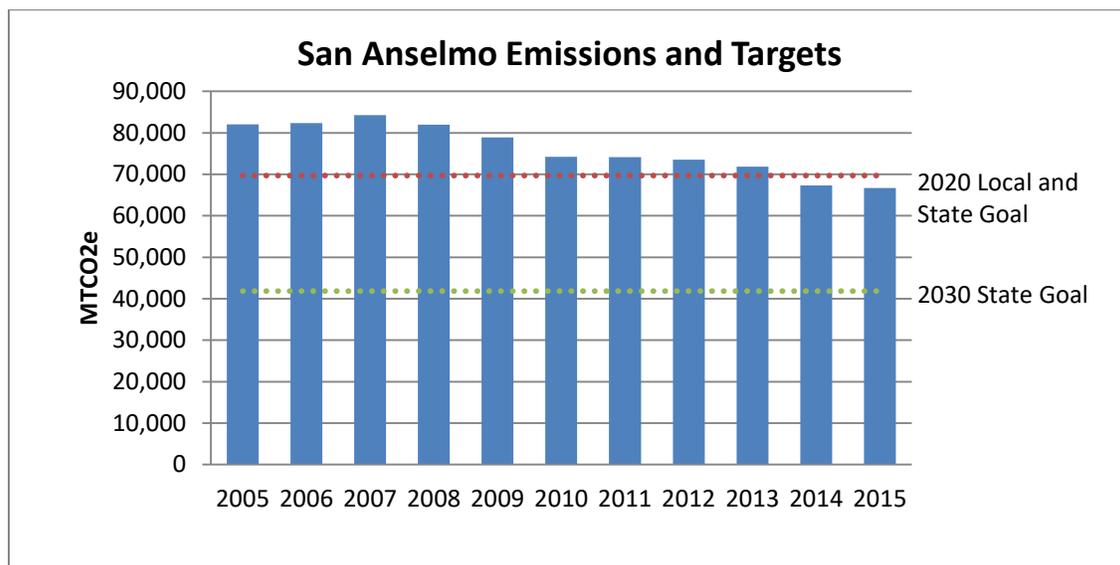
## The Takeaway

San Anselmo's greenhouse gas emissions dropped 19% between 2005 and 2015, meaning the Town has met local and statewide reduction goals for 2020. The largest reductions were due to decreases in electricity and natural gas use emissions as well as transportation emissions. Although San Anselmo has met the local and statewide target to reduce emissions 15% by 2020, the State has enacted a longer-term goal to reduce emissions another 40% by 2030.

## Introduction

San Anselmo publishes annual community greenhouse gas (GHG) emissions estimates through the Marin Climate & Energy Partnership (MCEP). Annual inventories help the Town to more closely monitor its progress in meeting its local goal to reduce community emissions 15% below baseline (2005) emissions by 2020.

This report reviews emissions generated from the community from 2005 through 2015 (the most recent year data is available). The inventory shows that the Town has met this target, with emissions 19% below baseline emissions in 2015. Emissions dropped from about 82,040 metric tons carbon dioxide equivalent (MTCO<sub>2</sub>e) in 2005 to 66,710 MTCO<sub>2</sub>e in 2015. The emissions trend and targets are shown below.



Recognizing the need for a collaborative approach to greenhouse gas reductions, Town and county leaders launched the Marin Climate and Energy Partnership (MCEP) in 2007. The Town of San Anselmo is a member of MCEP and works with representatives from the County of Marin and all of 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. The annual inventories will be available on the MCEP website at [marinclimate.org](http://marinclimate.org) and will be used to update the [Marin Sustainability Tracker](#).

## Emissions Reductions by Sector

This annual assessment tracks emissions in the seven sectors.

- The **Residential** and **Commercial** sectors represent emissions generated from the use of electricity, natural gas and propane in San Anselmo homes and commercial and governmental buildings and facilities.
- The **Transportation** sector includes tailpipe emissions from passenger vehicle trips originating and ending in San Anselmo, as well as a share of medium and heavy-duty vehicles and busses travelling on Marin County roads.
- The **Off-Road** sector represents emissions from off-road vehicles and equipment used for construction and lawn and garden maintenance.
- The **Water** and **Wastewater** sectors represent emissions from energy used to pump, convey and treat water and wastewater, as well as fugitive greenhouse gasses that are created during the wastewater treatment process.
- The **Waste** sector includes fugitive methane emissions that are generated over time as organic material decomposes in the landfill.

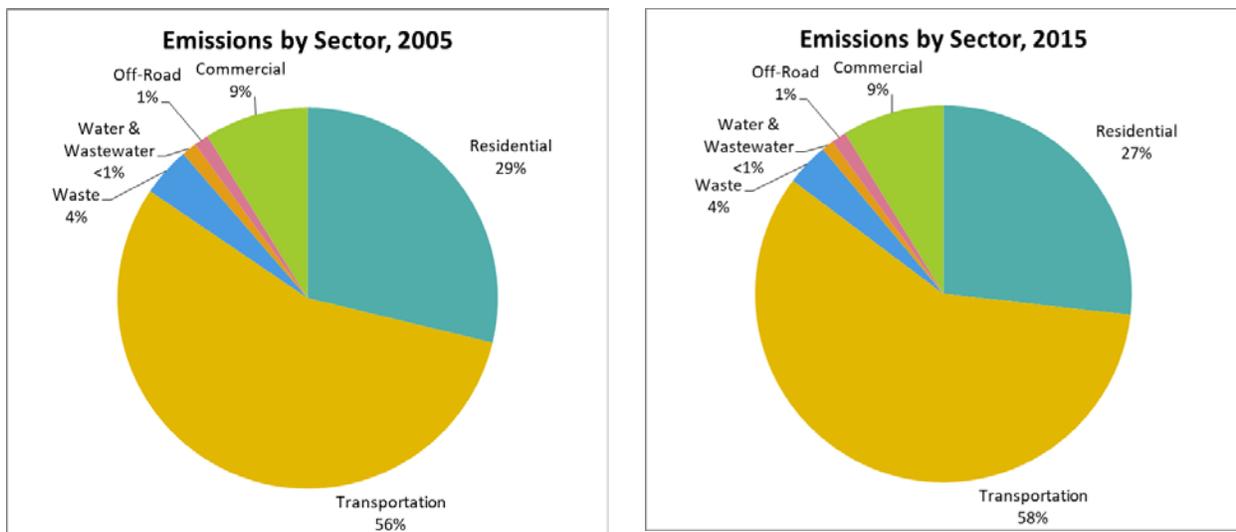
**Table 1** shows how emissions in these sectors have changed since 2005. The greatest reductions have occurred in the Transportation sector (-6,705 MTCO<sub>2</sub>e), which accounts for 44% of total reductions. There have also been significant declines in other sectors. The likely reasons for the largest emissions decreases are described in further detail in the remainder of this report.

**Table 1: San Anselmo Greenhouse Gas Emissions by Sector, 2005-2015**

Year	Residential	Commercial	Transportation	Waste	Water	Wastewater	Off-Road	Total	% Change from 2005
2005	23,594	7,243	45,713	3,422	545	498	1,021	82,036	
2006	23,968	7,089	45,866	3,423	515	488	996	82,346	0%
2007	25,603	8,202	45,245	3,118	600	556	972	84,297	3%
2008	25,500	7,813	43,830	2,678	634	565	947	81,967	0%
2009	24,768	7,520	42,353	2,298	540	520	923	78,921	-4%
2010	23,087	6,426	40,709	2,265	362	471	898	74,219	-10%
2011	23,076	6,378	40,873	2,207	301	455	892	74,181	-10%
2012	22,138	6,362	41,065	2,293	308	484	885	73,535	-10%

2013	21,256	6,225	40,354	2,329	327	492	874	71,857	-12%
2014	17,766	5,926	39,666	2,351	261	475	862	67,307	-18%
2015	17,864	5,834	39,008	2,447	234	458	863	66,708	-19%
Change from 2005	-5,730	-1,409	-6,705	-975	-312	-40	-158	-15,328	
% Change from 2005	-24%	-19%	-15%	-29%	-57%	-8%	-15%	-19%	

The charts below illustrate how the relative share of emissions has changed over time. As emissions decreased in the Residential sectors, emissions from the Transportation sector have taken on a larger proportionate share, increasing from 56% of emissions in 2005 to 58% of emissions in 2015.



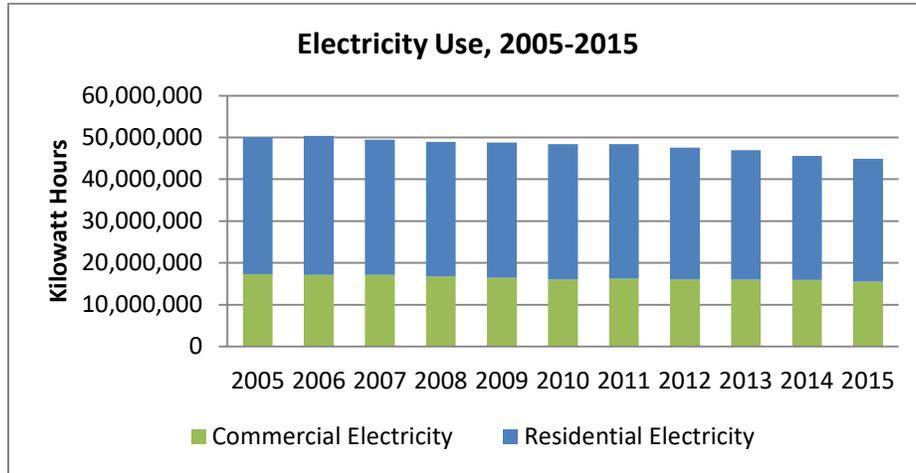
## Major Emissions Sources

The following sections provide a year-by-year analysis of the changes in GHG emissions from the Town's largest sources: electricity, natural gas, transportation, waste, and water use. Whenever possible, each section discussion includes the change in emissions from previous years and the likely influence of state and local programs or policies and external factors on reducing emissions.

### Electricity Use and GHG Emissions

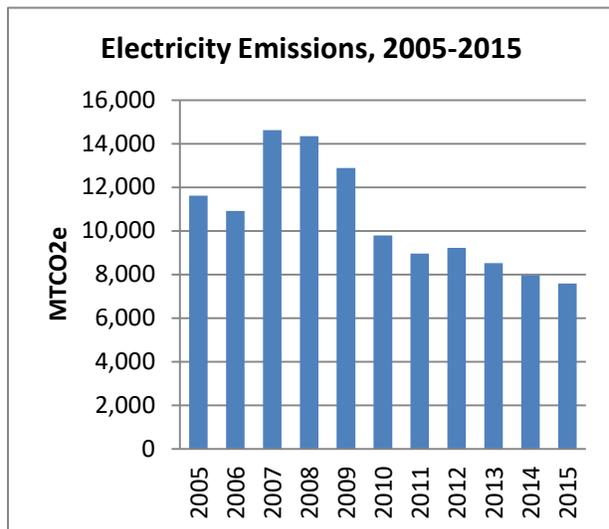
Electricity use in homes and businesses in San Anselmo decreased about 2% between 2014 and 2015, and has dropped 10% since 2005, from about 50.0 million kWh in 2005 to 44.9 million kWh in 2015. The Residential sector, which uses 65% of all electricity in San Anselmo, has reduced its electricity use 10% since 2005. Electricity use decreased 10% in the Commercial sector over the same period. Electricity

reductions have most likely occurred due to improved energy efficiency, conservation, and solar installation. Countywide, distributed (i.e., rooftop, ground-mount and carport) solar systems have been growing at about 20% annually. Distributed solar currently generates about 4% of the County's electricity needs.



Electricity-related greenhouse gas emissions in the Residential and Commercial sectors decreased 5% between 2014 and 2015. Emissions dropped 35% since 2005. This is primarily due to the lower carbon intensity of electricity. PG&E electricity has been steadily increasing the amount of renewable energy in its power mix, and its electricity was 17% less carbon intensive in 2015 than it was in 2005. MCE, which began providing electricity to San Anselmo customers in 2010, has historically provided electricity that is less carbon intensive than PG&E electricity. In 2015, MCE electricity was 18% less carbon intensive than PG&E. MCE carries about 71% of the electricity load in San Anselmo. In 2015, about 4% of MCE electricity purchased by San Anselmo customers was Deep Green.

The Town has taken steps to reduce energy use and greenhouse gas emissions from energy use within government operations. In 2014, the Town began purchasing Deep Green electricity for all government operations. The Town has converted nearly all (96%) of its streetlights to LED and energy-efficient induction lights, and has installed LED traffic signals and an energy-efficient water heater at Town Hall.

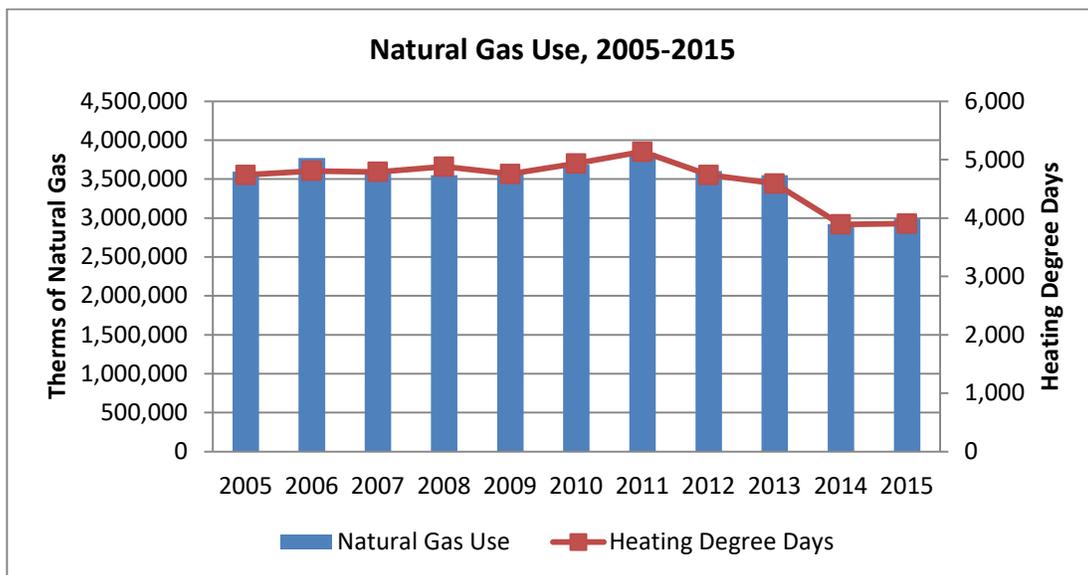


2017, MCE's goal is to have the Light Green product be entirely GHG emissions-free by the year 2025, through a combination of new renewable energy combined with existing hydropower. At the request of the Town Sustainability Commission (formerly called the Quality of Life Commission), the Town urged

MCE to analyze whether this 100% GHG emissions-free goal could be achieved by 2020 rather than 2025 to help accelerate achievement of all aspects of The Town climate change goals, including not only commercial and residential energy use, but also transportation-related emissions through use of electric vehicles.

### Natural Gas Use and GHG Emissions

Natural gas is used in residential and commercial buildings to provide space and water heating and power appliances. Use of natural gas is highly variable depending on the weather conditions in a given year. This variability has led natural gas use consumption in San Anselmo to fluctuate from year to year, from a high of 3.83 million therms in 2011 to a low of 2.92 million therms in 2014. Emissions from natural gas consumption increased 2% between 2014 and 2015, most likely due to colder temperatures. The chart below compares natural gas usage in San Anselmo to regional heating degree days, a measure of how much energy is required to warm the interior of a building relative to the outside temperature. Warmer days result in fewer heating degree days. As shown below, natural gas consumption is highly correlated to heating degree days. Reduction in energy use may also be attributed to energy efficiency programs and rebates, local green building ordinances, and State building codes. California’s goal is to require all new residential buildings to be net zero electricity use by 2020 and all new commercial buildings to be zero net energy by 2030.



Source (heating degree days): U.S. Department of Commerce, National Climatic Data Center

### Transportation and GHG Emissions

Transportation activities accounted for approximately 58% of the San Anselmo’s emissions in 2015. Vehicle miles travelled have decreased approximately 13% since 2005, and transportation emissions have decreased 15% due to more fuel-efficient and alternatively fueled cars. Marin County continues to be a leader in zero emission vehicles (ZEVs) – second only to Santa Clara County – with an estimated 18

ZEVs per thousand residents.<sup>1</sup> ZEVs include battery electric cars, plug-in hybrid electric cars, hydrogen fuel cell cars, and zero-emission motorcycles.

While it is difficult to pinpoint exactly how each land use and transportation policy affects emissions, the Town has undertaken many efforts to reduce emissions from transportation, to encourage workforce housing, and make it easier for residents to use alternative modes of transportation, including bicycling, walking and public transportation. These include:

- Supported Safe Routes to Schools programs by adding bike lanes and constructing new sidewalks, curb ramps and crossings. In 2017, the Town completed Safe Routes to School projects on Sir Francis Drake, near Brookside School, and began a project on San Francisco Boulevard.
- Installed bicycle detection cameras at intersections and bicycle racks and encouraged new development and uses to add bicycle parking.
- Approved a Bicycle and Pedestrian Master Plan in 2016.
- Installed four Electric vehicle charging stations at Magnolia Avenue parking lot in 2013 and free parking is provided for electric vehicles downtown.
- Replaced three 1984 and one 2001 trucks with 2014-2015 models.
- Purchased two electric bicycles for staff use in 2014.
- Contributed funding for the school yellow bus program in 2015, 2016 and 2017.
- Planned for housing developments close to transit, shopping, schools and services in the 2015-2023 Housing Element and approved housing developments in 2015-2017.

### **Waste Disposal and GHG Emissions**

Waste generated by the community hit a low in 2011 but has since increased as shown in the chart below (based on countywide disposal data). Emissions from waste disposal were 29% below 2005 levels in 2015.

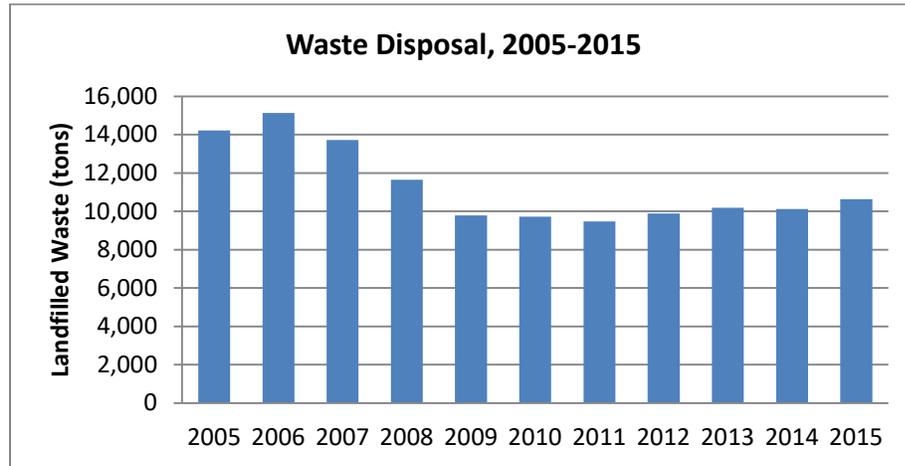
The decrease in emissions from waste disposal is a result of the community's and County's goals to move toward Zero Waste by 2025. Ongoing waste diversion programs include a residential food waste composting program and mandatory food waste recycling service for large commercial producers. The Town encourages waste reduction by:

- Maintaining recycling containers in public areas.
- Providing compost buckets and reusable shopping bags to residents in 2014.
- Installing water bottle refilling stations in public areas.
- Providing recycling and composting receptacles at Town events.

---

<sup>1</sup> Center for Sustainable Energy (2017), California Air Resources Board Clean Vehicle Rebate Project, Rebate Statistics. Data last updated December 1, 2017. Retrieved December 12, 2017 from <https://cleanvehiclerebate.org/rebate-statistic>. Assumes 69% participation rate in Marin County as reported by the Center for Sustainable Energy, Clean Vehicle Rebate Project Participation Rates: The First Five Years (March 2010-March 2015), retrieved December 12, 2017 from <https://cleanvehiclerebate.org/sites/default/files/attachments/2015-10%20CVRP%20Participation.pdf>.

- Requiring construction and demolition debris to be recycled. The diversion requirement increased from 70% to 85% between 2011 and 2016.
- Adopting a ban on plastic bags.
- Purchasing office paper with 30% recycled content and setting all printers to print double sided by default.

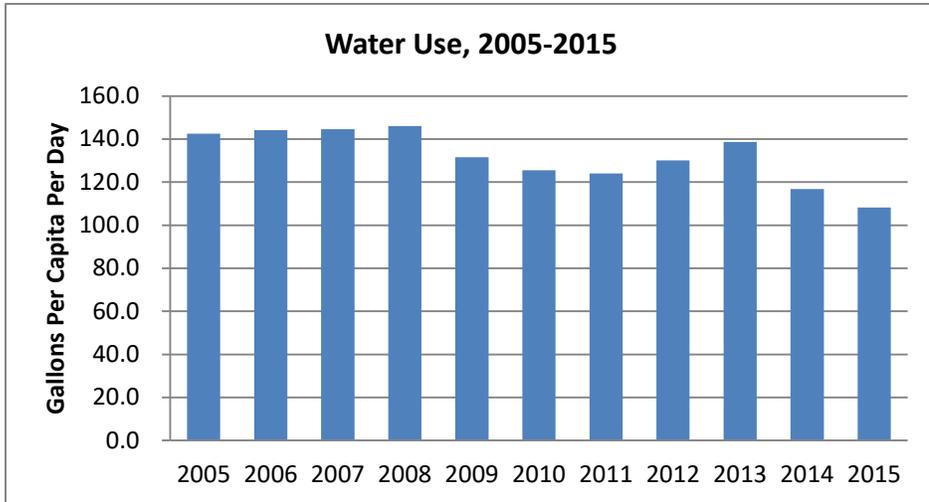


Source: CalRecycle

### Water Use and GHG Emissions

Water use declined nearly 7% between 2014 and 2015, and 19% since 2005 (based on district-wide data). Emissions, which are based on an estimate of energy used to pump, treat and convey water to users in San Anselmo, dropped 57% between 2005 and 2015 due to the lower carbon intensity of electricity. The Marin Municipal Water District began purchasing MCE Light Green electricity in 2010 and switched to MCE Deep Green electricity in July 2017.

The Marin Municipal Water District (MMWD) provides rebates and programs to reduce water use. Rebates are available to replace fixtures with high-efficiency toilets and clothes washers, and to purchase pool covers, hot water recirculating systems, organic mulch, laundry-to-landscape system components, and rain barrels. MMWD also provides rebates for irrigation improvements for commercial and multi-family customers. MMWD provides free high-efficiency shower heads and faucet aerators, and free home, business, and landscape water use evaluations.



Source: Marin Municipal Water District

### Outreach and Coordination

In addition to the programs and actions described above, the Town pursued a range of outreach activities and participated in several multi-agency efforts, including:

- Supported the Sustainability Commission in its work to implement the Town’s Climate Action Plan. The Commission’s past education work has included having a booth at the Country Day Fair, presenting a Speaker Series, publishing articles in the Ross Valley Reporter to highlight environmental efforts, supporting student efforts to have local restaurants provide plastic straws only on demand, and a solar fair at Town Hall.
- Utilized the Town’s newsletter, social media, and press to promote sustainability efforts including, but not limited to, green waste pick up and participation in Marin Clean Energy.
- Supported and promoted local green festivals, lectures, workshops and activities including, but not limited to, allowing two farm stands at Town Hall.
- Participated in and supported the Marin Climate and Energy Partnership. Planning Department staff attends monthly MCEP meetings and has served on MCEP subcommittees and Executive Committee. The Town contributes \$2,000 per year of financial support to MCEP.
- Partnered with Resilient Neighborhoods to enroll San Anselmo households in a program to learn about sustainability and take actions to reduce household greenhouse gas emissions. Between 2011 and 2017, ten Resilient Neighborhood Teams with 67 people reduced CO2 by 183,288 pounds. Town Library will be hosting a Resilient Neighborhoods series in January 2018.

### Summary, Priorities and Next Steps

San Anselmo has made significant progress in reducing GHG emissions since 2005 and has met local and state reduction goals for 2020. However, the Town will need to continue to implement policies and programs that further reduce emissions to achieve statewide targets for 2030.

The Sustainability Commission has set 2018 goals to:

1. Update the Climate Action Plan;
2. Conduct a study to determine if providing compost containers to residents will increase household composting and explore the cost of providing these containers to all residents in the Town;
3. Increase local resident participation in the Resilient Neighborhood Program; and
4. Consider a “car free” day on San Anselmo Avenue and efforts to encourage cleaner transportation.

Staff plans to act on the following new and ongoing Climate Action Plan programs in 2018:

1. Implement remainder of Safe Routes to School project.
2. Create an interdepartmental Green Team to review and implement a Green Purchasing Policy & Implementation Plan and engage Town staff in support and implementation of green purchasing goals and processes.
3. Include sustainability elements in Median Master Plan (low water use plants, new trees and water conserving fixtures and technology).
4. Adopt and implement San Francisco Boulevard and Lincoln Park traffic calming plans.
5. Include and install bicycle racks and energy efficient lighting as part of public works LID projects.
6. Inform Planning Commission of Annual GHG update and report.
7. Update the Climate Action Plan with the Marin Climate Energy Partnership.