

November 2016

# Climate Action Plan



**RICAPS**  
Regionally Integrated Climate Action Planning Suite

*Prepared in collaboration with City/County Association of Governments of San Mateo County*

## Acknowledgements

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## Letter from the Mayor

Right now is a critical time for our community, our economy, and our environment. We are fortunate here in Atherton to be surrounded by a wealth of knowledge and opportunity, emboldened by our residents' drive to protect natural resources. Caring for the environment is one of the core values of our community. However, natural resources fundamental to the vibrancy of the Town are at risk from the effects of climate change, which in San Mateo County, including Atherton, threatens to increase sea level, summer temperatures, the prevalence and strength of storms, and air pollution; aggravate health problems; and decrease the reliability of the water supply.



Climate change is a global problem and only through local solutions designed to meet the needs of our community can we mitigate and adapt to its impacts and protect the environment. Together, we can conserve our scarce resources, thereby saving our families and companies money, increasing the resilience of our economy and emergence of new markets that prioritize green technologies. This plan is a comprehensive and strategic approach to sustainability, offering a suite of recommended actions that will engage all members of Atherton's community in this journey to safeguard our environment. The Plan also includes ideas to allow our Town government to "walk the talk" by implementing practices that minimize our own impacts on the environment by echoing the energy efficiency, water conservation and alternative transportation programs and services our Climate Action Plan proposes to establish for our community.

This small but important step is just the beginning of an exciting time of environmental stewardship for Atherton. But, as you can see when reviewing this Plan, the proposed efforts of the Town are small when compared to the collective action of our citizenry. Sustainability requires more than just environmental protection; it will take leadership and partnership to deploy these actions. We invite you to actively join Atherton's transition to a clean environment, healthy community, and prosperous future. The key to the Town's success is you!

Elizabeth Lewis

Mayor

# Introduction



The Town of Atherton is pleased to present the following Climate Action Plan (Plan). This Plan is designed to be a blueprint of our community's response to the challenges posed by climate change. Climate scientists around the world, represented by the Intergovernmental Panel on Climate Change, have an unequivocal position: human activity is changing the earth's climate through the release of greenhouse gas (GHG) emissions resulting from the combustion of fossil fuels. The longer communities delay taking action, the greater the risk humans face of irreversibly depleting nonrenewable resources and harming our environment. However, it is conceivable, and increasingly foreseeable, that humans will delay so long that useful policy and programs will become infeasible and both human civilization and the biosphere will be permanently damaged.

Our Town cannot solve the climate crisis alone. Together with our partners in county, state, and federal government, the Town has committed to taking steps to reduce our emissions and create new programs and services that will support our community and our families in doing the same. The Town's Climate Action Plan serves as a guiding document to identify methods that the Town and community can implement to significantly reduce GHG emissions. The Plan provides a comprehensive roadmap of programs that can be implemented to reduce emissions and increase sustainability. The Climate Action Plan includes the following components:

- Climate change impacts on Atherton and climate change legislation
- Major sources and quantities of Atherton's

emissions which constitute the baseline inventory

- Atherton’s emissions reduction target
- Emission reduction programs and policy recommendations
- Implementation, funding, and next steps
- Recommendation for adaptation to climate change.

## 1.1 Why the Town of Atherton has a Climate Action Plan

In 2006, the California state legislation passed Assembly Bill 32, California’s Global Warming Solutions Act of 2006. Assembly Bill 32 committed the state to reduce its greenhouse gas emissions to 1990 levels by 2020, with 15 percent below 2005 levels by 2020 to be considered an equivalent goal.<sup>1</sup> In September of 2016, the California legislature approved Senate Bill 32, which extends the state’s targets for reducing greenhouse gas from 2020 to 2030. Under SB 32, the state will reduce greenhouse gas emissions 40 percent below 1990 levels by 2030, with 49 percent below 2005 levels by 2030 to be considered an equivalent goal.<sup>2</sup>

Atherton recognized the potential issues associated with climate change and joined the Local Governments for Sustainability (formerly known as ICLEI) in 2008. The Town, with our partner the City and County Association of Governments (C/CAG) of San Mateo County, with partial grant funding from the Bay Area Air Quality Management District (BAAQMD) and Pacific Gas and Electric Company (PG&E), has developed this Climate Action Plan in order to support Atherton in achieving a number of objectives, including:

- **To demonstrate environmental leadership** – We as a community can rise to the difficult challenge of reducing the impact of climate change by taking reasonable steps to reduce our GHG emissions.
- **To promote energy and water efficiency** – Residents and municipal operations can reduce their utility costs through increased energy and water efficiency. A focus on efficiency contributes to protecting our environmental resources.
- **Promote creativity and innovation in pursuit of state environmental initiatives** – California is taking the lead in tackling climate change while driving the new energy markets and fostering new environmental services. As such,

We have developed this Climate Action Plan in order to support Atherton in achieving a number of different objectives

<sup>1</sup> First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB32 – The California Global Warming Solutions Action of 2006

<sup>2</sup> [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB32](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32)

we have a responsibility to help the state meet its goals to reduce greenhouse gas emissions.

- **To promote sustainable development and activities** – By developing this Climate Action Plan according to Bay Area Air Quality Management District guidelines along with other ordinances, that can serve to advise, guide and encourage both municipal and residential segments of the community to be more sustainable in their processes.
- **Create programs and incentives** to help educate and foster these goals within the community and work with regional and Town groups such as the Atherton Disaster Preparedness Team (ADPT) and Certified Emergency Response Team (CERT).
- **Build resiliency** — Help prepare the community to address extreme weather events and build resiliency.

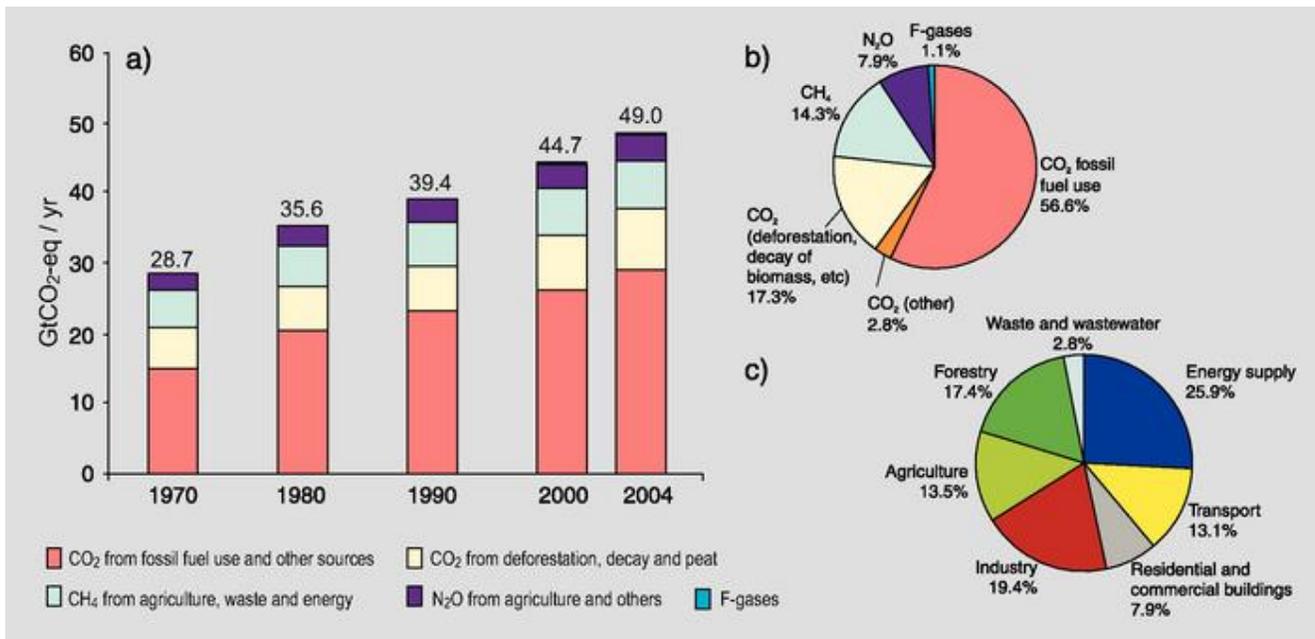
## 1.2 Climate Science

Climate change presents one of the most profound challenges of our time. A broad international consensus exists among atmospheric scientists that the Earth's climate system is being destabilized in response to elevated levels of greenhouse gas emissions in the atmosphere.

This is primarily from the combustion of fossil fuels for energy use. Greenhouse gas emissions include carbon dioxide (CO<sub>2</sub>) methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and three man-made gasses: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

The following graphic from the Intergovernmental Panel on Climate Change (IPCC), the leading international scientific body on climate change, shows the growth and distribution of anthropogenic (human-caused) greenhouse gas emissions in the atmosphere.

**Figure 1: Growth and Distribution of Global Anthropogenic GHG emissions**



Source: International Panel on Climate Change, Fourth Assessment Report

The largest contributor to climate change is carbon dioxide emissions, followed by methane and nitrous oxide. Carbon dioxide is emitted through the combustion of fossil fuels such as coal and petroleum as well as through the decomposition of clear-cut forests (deforestation).

A recent comprehensive study of climate impacts on the United States, written by a task force of U.S. government science agencies, led by the National Oceanic and Atmospheric Administration (NOAA),<sup>3</sup> makes the following key conclusions:

- 1. Global warming is unequivocal and primarily human-induced.** Average global temperature has increased over the past 50 years. This observed increase is due primarily to human-induced emissions of heat-trapping gases.
- 2. Climate changes are underway in the United States and are projected to grow.** Climate-related changes have already been observed in the United States and within its coastal waters. These changes include increases in heavy downpours, rising temperatures and sea level, rapidly retreating glaciers, thawing permafrost, lengthened growing seasons, lengthened ice-free seasons in the

Widespread climate-related impacts are occurring now and are expected to increase

<sup>3</sup>U.S. Global Change Research Program 2009. "Global Climate Change Impacts in the United States." Page 12. <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts>

ocean and on lakes and rivers, earlier snowmelt, and alterations in river flows.

- 3. Widespread climate-related impacts are occurring now and are expected to increase.** Climate changes are already affecting water, energy, transportation, agriculture, ecosystems, and health. These impacts are different from region to region and will grow under projected climate changes.
- 4. Climate change will stress water resources.** Access to clean water is an issue in every region, but the nature of the potential impacts varies. Drought, related to reduced precipitation, increased evaporation, and increased water loss from plants, is an important issue, especially in the West. Floods and water quality problems are likely to be amplified by climate change in most regions. Declines in mountain snowpack are important in the West and Alaska, where snowpack provides vital natural water storage and supply.
- 5. Crop and livestock production will be increasingly challenged.** Agriculture is considered one of the sectors most adaptable to changes in climate. However, increased heat, pests, water stress, diseases, and weather extremes will pose adaptation challenges for crop and livestock production.
- 6. Coastal areas are at increasing risk from sea-level rise and storm surge.** Sea-level rise and storm surges place many U.S. coastal areas at increasing risk of erosion and flooding, especially along the Atlantic and Gulf Coasts, Pacific Islands, and parts of Alaska. Energy and transportation infrastructure and other property in coastal areas are very likely to be adversely affected.
- 7. Threats to human health will increase.** Health impacts resulting from climate change are related to heat stress, waterborne diseases, poor air quality, extreme weather events, and diseases transmitted by insects and rodents.
- 8. Climate change will interact with many social and environmental stresses.** Climate change will combine with pollution; population growth; overuse of resources; urbanization; and other social, economic, and environmental stresses to create larger impacts than from any of these factors alone.
- 9. Thresholds will be crossed, leading to large changes in climate and ecosystems.** There are a variety of thresholds in the climate system and ecosystems. These thresholds determine, for example, the presence of sea ice and permafrost and the survival of species, from fish to insect pests. These all have implications for society.

- 10. Future climate change and its impacts depend on choices made today.** The amount and rate of future climate change depend primarily on current and future human-caused emissions of heat-trapping gases and airborne particles. Responses involve reducing emissions to limit future warming and adapting to the changes that are unavoidable.

According to the current scientific consensus, a 2°C increase in average global temperature over the next century is a “safe” level of global warming. To limit the average global temperature increase to 2°C, GHG concentrations need to be stabilized at a level well below 450 parts per million (ppm). As of 2012, global atmospheric concentration of CO<sub>2</sub> stands at 390.5 ppm<sup>4</sup>. Achieving this level requires global GHG emissions to be reduced by at least 50 percent below their 1990 levels by the year 2050.

## 1.3 Projected California and San Francisco Bay Area Climate Impacts

Climate change refers to all aspects of climate, including disruptions to weather patterns that include shrinking of glaciers, accelerated sea level rise, more intense heat waves, shifts in animal and plant ranges, and changes in the timing of plant reproduction. In California and western North America, a changing climate is evident. During the past 50 years, the region has experienced warmer winter and spring temperatures, reduced spring snow levels in mountains and earlier snowpack melt.

### 1.3.1 Rising Sea Levels

Historical records show that sea level in San Francisco Bay has risen about 7 inches (18 cm) over the past 100 years. Scientists agree that the rate of sea level rise is accelerating, but projections of future sea levels vary considerably. Present projections used by the State of California<sup>5</sup> are for 14 inches of sea level rise by 2050 (using 2000 as the baseline) and for between 40 and 55 inches by 2100, depending upon the emission scenario used. In 2009, the Bay Conservation and Development Commission (BCDC) released *Living With a Rising Bay*, an assessment that included the following<sup>6</sup>:

- Increased flooding risk for 270,000 Bay Area residents with a 55 inch rise.

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<sup>4</sup> Carbon Dioxide Information Analysis Center of the Oak Ridge National Laboratory and the U.S. Department of Energy: [http://cdiac.ornl.gov/pns/current\\_ghg.html](http://cdiac.ornl.gov/pns/current_ghg.html)

<sup>5</sup> Sea-Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), 2010. State of California Sea-Level Rise Interim Guidance Document. October 2010.

<sup>6</sup> San Francisco Bay Conservation and Development Commission. 2009. (April) Draft Staff Report. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline. Available at: [http://www.bcdc.ca.gov/proposed\\_bay\\_plan/bp\\_1-08\\_cc\\_draft.pdf](http://www.bcdc.ca.gov/proposed_bay_plan/bp_1-08_cc_draft.pdf)

- Estimated \$36 billion in at-risk property by 2050, and \$62 billion by 2100.
- Estimated 95% of tidal wetlands vulnerable to sea level rise, which may increase flooding and erosion.



The Pacific Institute, with support from the California Energy Commission (CEC), California Department of Transportation (Caltrans), and the Ocean Protection Council (OPC), has produced inundation maps for the shores of San Francisco Bay that indicate which areas are vulnerable to 16-inch and 55-inch rises in sea level.<sup>7</sup>

According to a 2009 study<sup>8</sup> by the CEC, the Pacific Institute, and others, 110,000 people live in areas of San Mateo County that are vulnerable to a 100-year flood event with a 1.4 meter rise in sea level. The County infrastructure and facilities at risk from the same event include:

- \$24 billion worth of buildings and contents, mostly along the Bay (replacement value).
- 530 miles of roadways.
- 10 miles of railroads.
- San Francisco Airport (SFO), including the 31 MW United Cogen power plant located there.
- Wastewater treatment plants operated by the Cities of South San Francisco/San Bruno, City of Millbrae, City of San Mateo, South Bayside System Authority, Mid-Coastside Sewer Authority, and SFO (total treatment capacity of approximately 44 million gallons per day (MGD)).
- 78 Environmental Protection Agency (EPA)-regulated hazardous materials sites.
- 34 square miles of coastal wetlands.

<sup>7</sup> Maps available at [http://www.pacinst.org/reports/sea\\_level\\_rise/hazmaps.html](http://www.pacinst.org/reports/sea_level_rise/hazmaps.html)

<sup>8</sup> Heberger, Matthew, Heather Cooley, Pablo Herrera, Peter H. Gleick, and Eli Moore (2009). The Impacts of Sea Level Rise on the California Coast. PIER Research Report, CEC-500-2009-024-D, Sacramento, CA: California Energy Commission.

Figure 2: Projected Sea Level Rise - San Mateo County Shoreline<sup>9</sup>



<sup>9</sup> [http://www.pacinst.org/reports/sea\\_level\\_rise/gmap.html](http://www.pacinst.org/reports/sea_level_rise/gmap.html)

The range of current sea level rise estimates present very different scenarios to cities that must decide how to expend limited resources to protect critical land uses and infrastructure. As the shoreline migrates landward, habitats and flood hazard areas will also shift.

### 1.3.2 Extreme Weather Patterns

California in general should expect overall hotter and drier conditions with a reduction in winter rain (and concurrent snow in the mountains), as well as increased average temperatures. There is a high likelihood that extreme weather events, including heat waves, wildfires, droughts, and floods will be among the earliest climate impacts experienced.<sup>10</sup> In San Mateo County, higher average sea levels means that storms will impact the Pacific coast and Bay shore more severely with higher storm surges, more extensive inland flooding, and increased erosion. If more frequent or severe natural disasters occur, more emergency and public health services will be needed to deal with the consequences.

Heat related illness and mortality are expected to increase. Though extreme heat events in coastal areas like San Mateo County are not expected to be as severe or as long-lasting as further inland, the resident population is not as well prepared or equipped to deal with higher temperatures. Air conditioning is far less common, for example. Outdoor workers, elderly populations, and infants are particularly vulnerable to extreme temperatures.

Higher temperatures and drier summer conditions produce higher levels of ozone, which can exacerbate respiratory illnesses, particularly among vulnerable populations such as children and the elderly. Higher temperatures and drier conditions can also increase the potential for wildfires,



<sup>10</sup> California Natural Resources Agency, 2009, *California Climate Adaptation Strategy*, <http://www.climatechange.ca.gov/adaptation/>

which could lead to declines in air quality and also cause negative impacts to respiratory and cardiovascular health.

Local agriculture is also likely to be impacted by extreme weather events, higher temperatures, and less water availability, resulting in lower agricultural production and a potential decline in food security.

### 1.3.3 Public Health

Most Californians are not aware of recent statistics that suggest that California is home to the worst air quality in the nation, with over 90% of Californians breathing unhealthy air. According to the California Air Resources Board, unhealthy levels of ozone (smog) and particulate matter annually contribute to:

- 19,000 premature deaths.
- 9,400 hospital admissions for respiratory and cardiovascular disease.
- 280,000 asthma and other lower respiratory symptoms.
- 22,000 cases of acute bronchitis.
- Millions of school and work days lost due to respiratory conditions.<sup>11</sup>

In addition, climate change, including increased summer temperatures, can have adverse effects for the health of the Town's residents and workers, especially the vulnerable populations such as children, seniors, and those with existing chronic illnesses, as mentioned in Section 1.3.1.

San Mateo County Health System, in accordance with the Centers for Disease Control, serves a number of functions to reduce health risks related to climate change.

These include informing cities about the risk to public health from climate change, creating tools that support decision-making and capacity building related to mitigating adverse health outcomes from climate change, and serving as a credible leader in planning for the public health



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<sup>11</sup> American Lung Association. Land Use, Climate Change & Public Health Issue Brief: Improving Public Health and combating climate change through sustainable land use and transportation planning. Spring 2010.

impacts of climate change. The Town and the San Mateo County Health System will support programs that promote more walk and bikeability, which not only promote healthier lifestyles, but also decrease reliance on vehicles that contribute to climate change.

### 1.3.4 Decreasing Fresh Water Supply

With shifting climate patterns, significant uncertainty exists related to whether the drought conditions are the “new normal” for California. However, all climate projections show increases in average temperatures and reduced snowpack where Atherton sources much of its water. Rising temperatures compounded by decreased precipitation have already severely reduced spring snowpack in the Sierra Nevada. The Sierra Nevada snowpack is projected to be reduced by at least 25 percent by 2050<sup>12</sup> and will pose severe water supply challenges for California, including the Hetch-Hetchy system on which Atherton relies. Additionally, California may see longer drought periods and decreased groundwater levels. Atherton must continue to reduce consumption of water and seek to capture more water locally through rainwater, graywater, and storm water retention, as well as investments in local green infrastructure.

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<sup>12</sup> Scenarios of Climate Change in California: An Overview. Final report from California Energy Commission, Public Interest Energy Research (PIER) Program, California Climate Change Center, publication No. CEC-500-2005-186- SF, posted: February 27, 2006.



## Additional Resources about Climate Change

- International Panel of Climate Change Fourth Assessment Report: [http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.shtml](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml)
- [United Nations Framework on Climate Change: http://newsroom.unfccc.int/about/](http://newsroom.unfccc.int/about/)
- U.S. Global Change Research Program <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts>
- Pew Center on Climate Change: <http://www.pewclimate.org/>
- National Ocean and Aeronautical Administration (NOAA) [http://www.climate.gov/#Data\\_And\\_services](http://www.climate.gov/#Data_And_services)
- [Climate Dashboard: http://www.climate.gov](http://www.climate.gov)
- U.S. Environmental Protection Agency: <http://www.epa.gov/climatechange/indicators.html>
- Sustainable Silicon Valley: <http://www.sustainablesv.org>
- Real Climate <http://www.realclimate.org/>
- [Skeptical Science: http://www.skepticalscience.com](http://www.skepticalscience.com)
- [Union of Concerned Scientists: http://www.ucsusa.org/global\\_warming/science\\_and\\_impacts/science/scientific-consensus-on.html#.Vd1m8c6aTLc](http://www.ucsusa.org/global_warming/science_and_impacts/science/scientific-consensus-on.html#.Vd1m8c6aTLc)
- [National Academy of Sciences: www.nasonline.org/](http://www.nasonline.org/)
- *California Air Resources Board: <http://www.arb.ca.gov/>*
- *National Climatic Data Center—billion-dollar weather events: <https://www.ncdc.noaa.gov/billions/>*
- *San Francisco Bay Conservation and Development Commission: [http://www.bcdc.ca.gov/planning/climate\\_change/climate\\_change.shtml](http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml)*
- National Association of Insurance Commissioners: Climate Change and Risk Disclosure: [http://www.naic.org/cipr\\_topics/topic\\_climate\\_risk\\_disclosure.htm](http://www.naic.org/cipr_topics/topic_climate_risk_disclosure.htm)

## 1.4 State Policy and Regulatory Context

The State of California has been a leader in developing and implementing policies and regulations to directly address the risk of severe climate change. Below we summarize the key statewide legislation aimed to reduce GHG emissions. There are many supporting pieces of legislation and other related initiatives that are sector specific. These are more fully described in Chapter 3.

### **Assembly Bill 32, the California Global Warming Solutions Act of 2006**

In September 2006, the California legislature passed Assembly Bill (AB) 32, which set the goal of reducing GHG emissions back to 1990 levels by 2020. AB 32 finds and declares that “global warming poses a serious threat to economic well-being, public health, natural resources and the environment of California.” The legislation granted authority to the Air Resources Board to establish multiple mechanisms (regulatory, reporting, voluntary and market) to achieve quantifiable reductions in GHG emissions to meet the statewide goal.

### **Senate Bill 32, the California Global Warming Solutions Act of 2006 Emissions Limit**

In September of 2016, the California legislature approved Senate Bill (SB) 32, which extends the state’s targets for reducing greenhouse gas from 2020 to 2030. Under SB 32, the state will reduce greenhouse gas emissions 40 percent below 1990 levels by 2030. The bill piggybacks on AB 32, the California Global Warming Solutions Act of 2006, which calls for California to reduce greenhouse gases to 1990 levels by 2020. Governor Jerry Brown set the targets contained in SB 32 in an executive order in 2015. SB 32 codifies the targets set by that executive order.

### **Assembly Bill 197, State Air Resources Board Greenhouse Gases Regulations**

In September of 2016, the California legislature approved Assembly Bill 197, a bill linked to SB 32, which increases legislative oversight over the California Air Resources Board and directs the California Air Resources Board to prioritize disadvantaged communities in its climate-change regulations, and to evaluate the cost-effectiveness of measures it considers. AB 197 requires ARB to “protect the state's most impacted and disadvantaged communities ... [and] consider the social costs of the emissions of greenhouse gases” when developing climate change programs. The bill also adds two new legislatively appointed non-voting members to the ARB Board, increasing the Legislature's role in the ARB Board's decisions.

### **Senate Bill 350, Clean Energy and Pollution Reduction Act of 2015**

In October of 2015, Senate Bill (SB) 350 was signed into law, establishing new clean energy, clean air and greenhouse gas reduction goals for 2030 and beyond. SB 350 codifies Governor Jerry Brown’s aggressive clean energy goals and establishes California’s 2030 greenhouse gas reduction target of 40 percent below 1990 levels. To achieve this goal, SB 350 increases California’s renewable electricity procurement goal from 33 percent by 2020 (legislation originally enacted in 2002) to 50 percent by 2030. Renewable resources include wind, solar, geothermal, wave, and small hydroelectric power. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030.

## **California Energy Efficiency Strategic Plan of 2008**

In September of 2008, the CPUC adopted California's first Long Term Energy Efficiency Strategic Plan, presenting a single roadmap to achieve maximum energy savings across all major groups and sectors in California. The Strategic Plan was subsequently updated in January 2011 to include a lighting chapter. The Strategic Plan sets goals of all new residential construction and all new commercial construction in California to be zero net energy (ZNE) by 2020 and 2030, respectively. Additionally, the Strategic Plan sets goals of 50% of existing commercial building to be retrofit to ZNE by 2030 and all new state buildings and major renovations to be ZNE by 2025.

## **Senate Bill 1275, Charge Ahead Initiative**

In September of 2014, Senate Bill (SB) 1275 was signed into law, establishing a state goal of 1 million zero-emissions and near-zero-emission vehicles in service by 2020 and directing the Air Resources Board to develop a long-term funding plan to meet this goal. SB 1275 also established the Charge Ahead California Initiative requiring planning and reporting on vehicle incentive programs, and increasing access to and benefits from zero-emissions vehicles for disadvantaged, low-income, and moderate-income communities and consumers.

## **Assembly Bill 1493, the Pavley Bill**

In 2002, the California legislature enacted Assembly Bill (AB) 1493 (aka "the Pavley Bill"), which directs the Air Resources Board to adopt standards that will achieve "the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles," taking into account environmental, social, technological, and economic factors. In September 2009, the Air Resources Board adopted amendments to the "Pavley" regulations to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The Pavley Bill is considered to be the national model for vehicle emissions standards. In January of 2012, the Air Resources Board approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirement for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars.

## **Assembly Bill 117 and Senate Bill 790**

AB 117 establishes the creation of Community Choice Aggregation that foster clean and renewable energy markets. Community Choice Aggregation (CCA) allows cities and counties to aggregate the buying power of individual customers. The Californian Community Choice Aggregation markets were created as an answer to the Brown Outs and energy shortages of the early 2000's. AB 117 was passed in 2002 as an answer to California being more energy

independent by using more alternative and renewable energy sources in an energy portfolio. With AB 117, municipalities can provide alternative energy choices to their local carrier (e.g. PG&E). Marin Clean Energy was the first CCA in the state of California in 2010 to go online with a 50% - 100% clean energy portfolio. Peninsula Clean Energy (PCE) was created in February 2016 when all 20 towns/cities in San Mateo County, plus the County of San Mateo, voted unanimously to form a Joint Powers Authority to administer the program. CCAs are governed by the California Public Utilities Commission (CPUC). SB 790 further ensures fair and transparent competition by creating a code of conduct and guiding principles for entrants into the CCA field.

### **Senate Bill 375**

In September 2008, Senate Bill (SB) 375 was signed into law to provide emissions reduction goals related to vehicle-miles traveled on a regional planning level. The bill seeks to align regional transportation planning efforts with regional GHG reduction targets and land use and housing allocations. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy or alternative planning strategy. The Air Resources Board, in consultation with the MPOs, has set a per capita GHG reduction target for emissions of passenger cars and light trucks in the San Francisco Bay Area of 7 percent below 2005 levels by 2020, and 15 percent below 2005 levels by 2035.

### **Senate Bill 97, CEQA Guidelines for Addressing GHG Emissions**

California Environmental Quality Act (CEQA) requires public agencies to review the environmental impacts of proposed projects, including General Plans, Specific Plans and specific kinds of development projects. In February 2010, the California Office of Administrative Law approved the recommended amendments to the State CEQA Guidelines for addressing GHG emissions. The amendments were developed to provide guidance to public agencies regarding the analysis, mitigation, and effects of GHG emissions in draft CEQA documents.

### **Bay Area Air Quality Management District CEQA Guidelines**

The Bay Area Air Quality Management District (BAAQMD) encourages local governments to adopt a GHG Reduction Strategy that is consistent with AB 32 goals. The GHG Reduction Strategy may streamline environmental review of community development projects. According to the BAAQMD, if a project is consistent with a GHG Reduction Strategy, then it can be presumed that the project will not have significant GHG impacts. This approach is consistent with the following State CEQA Guidelines, Section 15183.5.a:

*“Lead agencies may analyze and mitigate the significant impacts of greenhouse gas emissions at a programmatic level, such as...a plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific*

*environmental documents may rely on an [Environmental Impact Report] containing a programmatic analysis of greenhouse gas emissions.”*

This Plan provides a foundation for future development efforts in the community. It is expected that environmental documents for future development projects will identify and incorporate all applicable voluntary and mandatory measures from this Plan for projects undergoing CEQA review.

## 1.5 Regional Efforts

The following regional efforts promoting GHG reductions are already under way:

**City/County Association of Governments of San Mateo County (C/CAG).** C/CAG is a council of governments consisting of the County of San Mateo and its 20 cities. The organization deals with topics such as transportation, air quality, stormwater runoff, hazardous waste, solid waste and recycling, land use near airports, abandoned vehicle abatement, and issues that affect quality of life in general. C/CAG supports a number of sustainability initiatives including the following:

- **San Mateo County Energy Watch.** This program is a local government partnership between PG&E and C/CAG to promote energy efficiency in municipal and non-profit buildings. The program is managed and staffed by RecycleWorks, a program of the County of San Mateo.
- **Congestion Management Agency.** C/CAG serves as the Congestion Management Agency for San Mateo County to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions.
- **Sustainable Communities Strategy/Regional Transportation Plan.** C/CAG is collaborating with local governments in San Mateo County as well as regional agencies to develop a Sustainable Communities Strategy (SCS) in compliance with the requirements of SB 375. The SCS will facilitate more focused development in priority development areas near public transit stations. The aim of the San Mateo County SCS is to better integrate land use with public transportation in order to reduce GHG emissions.

**Peninsula Clean Energy.** Peninsula Clean Energy (PCE) was created in February 2016 when all 20 towns/cities in San Mateo County, plus the County of San Mateo, voted unanimously to form a Joint Powers Authority to administer the program. PCE is a public, locally-controlled electricity provider that gives PG&E customers in San Mateo County the choice of having 50%

to 100% of their electricity supplied from clean, renewable sources at competitive rates. CCAs are governed by the California Public Utilities Commission (CPUC).

**Energy Upgrade California in San Mateo County.** This San Mateo program aims to help residential consumers make improvements to their homes so they will use less energy, conserve water and other natural resources, and become healthier and more comfortable. The program connects homeowners with participating contractors who can help plan and complete energy efficiency projects and take advantage of rebates. Energy Upgrade California is a partnership among California counties, cities, non-profit organizations and the state's investor-owned utilities (e.g. PG&E). More information on this program can be found online at:

<http://www.energyupgradeca.org/en/>

**Joint Venture: Silicon Valley Network.** Established in 1993, Joint Venture: Silicon Valley Network provides analysis and action on issues affecting the local economy and quality of life. The organization brings together established and emerging leaders -- from business, government, academia, labor, and the broader community -- to spotlight issues and work toward innovative solutions. Joint Venture is dedicated to promoting climate-friendly activities that help the local economy and improve quality of life in Silicon Valley.

**PG&E's Sustainable Communities Team.** A PG&E Community Energy Manager has been assigned to San Mateo County to work jointly with each municipality to develop a comprehensive energy management strategy that the Town can implement across institutional, residential and business sectors. In addition, PG&E can provide city and county energy usage data, GHG inventory assistance and information on innovative pilot grant funding for projects that help to reduce GHG emissions in each community.

**Silicon Valley Leadership Group (SVLG) Bay Area Climate Compact.** SVLG is an organization consisting of principal officers and senior managers of member companies to work cooperatively with local, regional, state and federal government officials to address major public policy issues affecting the economic health and quality of life in Silicon Valley. In 2009, SVLG organized the Bay Area Climate Compact, which establishes a framework for regional cooperation and setting aggressive goals for the reduction of greenhouse gas emissions.

**Sustainable San Mateo County (SSMC).** SSMC was established in 1992 by a group of San Mateo County citizens who sought to create a broader awareness of the sustainability concept. SSMC supports multiple programs to promote energy efficiency, alternative transportation and education on sustainability concepts which focus on the intersections of the environment, the economy and social equity. SSMC's core programs include an Indicators Report that has been produced annually since 1997 and the Sustainable San Mateo County Awards Event which has been held annually since 1999.

**Sustainable Silicon Valley (SSV).** SSV is a collaboration of businesses, governments, and non-governmental organizations that are identifying and addressing environmental and resource pressures in Silicon Valley. As its first initiative, SSV engaged Silicon Valley organizations to work towards a goal of reducing regional carbon dioxide emissions 20% below 1990 levels by 2010. SSV's Net Positive Bay Area 2050 goals are to 1) Produce more renewable energy than we consume 2) Sequester more carbon than we emit and 3) Optimize water resources to ensure water resilience. Their current strategy focus on facilitating measure projects, education, events and policies that deliver solutions by activating SSV's member network to reach the Net Positive Bay Area goals.

## 1.6 Local efforts

While cities may be vulnerable to climate impacts, they also can play a critical role in reducing the emissions that exacerbate climate impacts. With their concentrations of people and activities at high densities, cities can use resources such as energy, materials, and land more efficiently. Cities are places where high-level knowledge-based activities congregate, along with the expertise needed to tackle climate change. This is especially true in the San Francisco Bay Area.

AB 32 identifies local governments as essential partners in achieving California's goal to reduce GHG emissions. Local governments have primary authority to plan, zone, and permit how and where land is developed to accommodate population growth and the changing needs of their jurisdiction. Cities have varying degrees of responsibility for the collection and processing of waste and have responsibility for other environmental infrastructures, such as energy and water. Cities own and manage buildings and vehicle fleets and are able to form partnerships with private interests to mobilize and coordinate community action. Atherton has undertaken several sustainability efforts including the creation of the Environmental Programs Committee (EPC), a Pedestrian and Bicycle Master Plan, and submittal of a Sustainable Transportation Planning Grant Application.

Using the power of Community Choice Aggregates under AB 117, Atherton now has access to cleaner energy portfolios offered under the guiding principles of CCAs. Community Choice Aggregates offer both consumer choice and a vehicle to reduce GHG emissions. The Renewable Energy Laboratory (NREL) under the department of the Department of Energy as well as the Environmental Protection Agency (EPA) have both reported that CCAs have both lowered costs while reducing GHG by using better portfolios of renewable energy<sup>13</sup>. Atherton is a part of Peninsula Clean Energy – San Mateo's new official electricity provider – and has opted for the ECO100 option (100% renewable option) for all town-owned accounts.

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<sup>13</sup> ENREL Article <https://financere.nrel.gov/finance/content/newer-kids-block-community-choice-aggregators>

–It is noted that in so far as existing nuclear power plants are performing adequately, the clean energy they produce should be included within California’s Renewable Portfolio Standard, given that they currently produce the vast majority of all of California’s clean energy, and they should be allowed to continue to operate until such time as: 1) they can no longer operate safely, 2) they are replaced by a safer, more efficient form of nuclear power, or 3) all use of fossil fuels has ceased and there are abundant sources of inexpensive, alternative clean energy.

## 1.7 Town of Atherton’s Climate Action Plan Process

This Climate Action Plan (the Plan) was developed in partnership with the City and County Association of Governments of San Mateo County (C/CAG) and was developed to be consistent with California Environmental Quality Act (CEQA) guidelines, including both the CEQA Guidelines Amendments effective March 18, 2010, and the BAAQMD’s CEQA Air Quality Guidelines (Updated May 2011). The method used to develop the Plan follows the Local Governments for Sustainability (ICLEI) 5-Milestone process as seen in the framework below.

### 1.7.1 Framework for Climate Action

The ICLEI 5-Milestone process is a management process based on increasing knowledge through each step to achieve the targeted GHG emissions reductions.

**Figure 3: Iterative Management Processes for Climate Action (Source: ICLEI)**



- **Leadership Commitment:** Define the overall vision and goals for the community.
- **Milestone 1 (Inventory Emissions):** Conduct a baseline emissions inventory and forecast.
- **Milestone 2 (Establish Target):** Adopt an emissions reduction target for the forecast year.
- **Milestone 3 (Develop Climate Action Plan):** Identify feasible and suitable strategies and supporting actions to reduce emissions and achieve co-benefits aligned with the overall vision and goals.
- **Milestone 4 (Implement Climate Action Plan):** Enact the plan.
- **Milestone 5 (Monitor/Evaluate Progress):** Establish feedback loops to assess and improve performance, including an assessment and adjustment of the necessary human, financial and data resources.

In November 2009, all San Mateo County member jurisdictions completed their 2005 community and municipal GHG inventories as part of a joint effort with ICLEI, Joint Venture Silicon Valley Network, and the County of San Mateo and funded by C/CAG.

To support Milestone 5, C/CAG has developed forecasting and calculation tools to allow its member jurisdictions to track total community GHG emissions. In particular, C/CAG has provided technical assistance to cities to complete annual community-wide GHG inventory updates.

### 1.7.2 Atherton's Climate Action Planning Process

The creation of the Climate Action Plan took course over several years and through numerous public meetings. Atherton's 2010 Community Greenhouse Gas Inventory was completed in April of 2014. During the summer and fall of 2014, several Atherton Environmental Programs Committee (EPC) working meetings and a City Council study session took place. The focus of these meetings was to review the Town's 2010 Community GHG Inventory and evaluate potential greenhouse gas (GHG) emission reduction strategies to be included in a draft Climate Action Plan. Following the direction received by the City Council in late fall 2014, the EPC held subsequent meetings during the summer and fall of 2015 to focus on enhancing the GHG reduction measures and developing a draft Climate Action Plan. Two City Council study sessions were held in February and March 2016 to review the GHG reduction measures and draft Climate Action Plan and provide direction on a final, revised document. Final adoption of the Town's Climate Action Plan occurred on October 19, 2016.



## 2. Greenhouse Gas Inventory and Forecast

The Town's 2005 greenhouse gas emissions inventory provides a baseline of emission levels against which progress toward the Town goal of reducing greenhouse emissions 17% by 2020 can be measured. The analysis showed that the Town emitted approximately 72,731 metric tons of CO<sub>2</sub>e in the base year of 2005. The Town has also completed an inventory for 2010; the results from the 2010 inventory are used to demonstrate the trend in emissions between 2005 and 2010.

### 2.1 Inventory Sources and Data Collection Process

An inventory of GHG emissions requires the collection of information (data) from a variety of sectors and sources. The emissions inventories completed for Atherton follows the standard outlined in the BAAQMD's GHG Plan Level Quantification Guidance (dated May 2012), as well as the Local Government Operations Protocol<sup>14</sup>. Furthermore, the 2010 inventory follows The Community Greenhouse Gas Emissions Protocol which was released by ICLEI in October 2012, to the greatest extent possible.<sup>15</sup> All future inventories should utilize the Community GHG Emissions Protocol, as well as the most recent version of the Local Government Operations Protocol, and any updated guidance from the BAAQMD.

Table 1 summarizes the sectors, emissions sources, and energy types included in the two GHG inventories.

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<sup>14</sup> Local Government Operations Protocol – For the quantification and reporting of greenhouse gas emissions inventories (Version 1.0). Developed in partnership by California Air Resources Board, California Climate Action Registry, ICLEI – Local Governments for Sustainability, and The Climate Registry. September 2008. Note that a newer version (version 1.1, dated May 2010) of the LGOP is available; however, at the time the 2005 GHG inventory was completed for the Town of Atherton, version 1.0 was the only version available.

<sup>15</sup> U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Version 1.0). Developed by ICLEI – Local Governments for Sustainability. October 2012.

**Table 1: Sectors and Emissions in the GHG Inventory**

Sector	Emissions sources	Energy types
<b>Residential</b>	Energy and water use in residential buildings	Electricity Natural gas
<b>Commercial</b>	Energy and water use in commercial, government and institutional buildings	Electricity Natural gas
<b>Transportation and Land Use*</b>	All road vehicles Off-road vehicles/equipment Caltrain	Gasoline Diesel Compressed natural gas Liquefied natural gas Biodiesel
<b>Waste</b>	Waste disposal	Landfill gas (methane)
<b>Wastewater**</b>	Process and fugitive emissions from treating wastewater, and associated stationary emissions	Not applicable
<b>Water**</b>	Use of electricity to treat and distribute potable water	Electricity
<b>Stationary Sources**</b>	Stationary combustion of fuel in various equipment, such as boilers and backup generators.	Various – may include natural gas, propane, and diesel

\* Some sectors may be updated in a new version of the BAAQMD GHG Plan Level Quantification Guidance.<sup>16</sup> Caltrain emissions were available for 2010, but not for the 2005 GHG inventory.

\*\* Water, Wastewater, and Stationary Sources were included in the 2010 inventory, but not the 2005 inventory.

Since there are no open or closed landfills within the Town boundaries, these are not relevant to the Town’s 2005 and 2010 inventories. While the BAAQMD GHG Plan Level Guidance recommends the inclusion of GHG emissions from water processing, delivery and wastewater treatment that occurs outside of the Town’s boundary, these emissions are not included in Town of Atherton’s 2005 baseline inventory due to lack of accurate data on water usage in the Town of Atherton in the baseline year, and lack of data on the energy used for water processing and delivery and wastewater treatment in the baseline year. These sources were included in the 2010 inventory. There was also a lack of data for stationary source emissions for the 2005 baseline year, but these sources are included in the 2010 inventory. Also, the following are emission sources that are mentioned in the BAAQMD GHG Plan Level Guidance, but were excluded from the Town’s inventories because they are not applicable in Town of Atherton: Airports and sea ports, Non-road vehicle use (planes, trains, ships), and water travel.

The industry-accepted methodology for quantifying a community-wide GHG emissions inventory focuses on emissions that occur from combustion sources within Town limits and from electricity consumption, as well as waste and wastewater generated within Town limits, and water consumption. In the future, there may be the opportunity and need to quantify GHG emissions

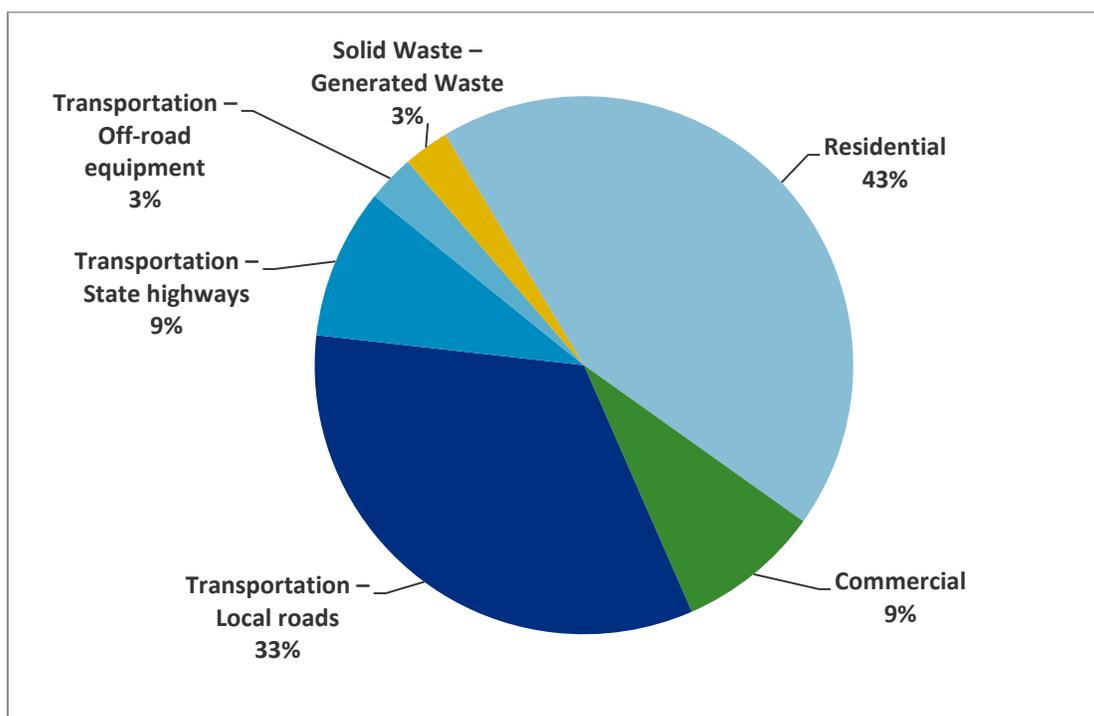
<sup>16</sup> For updates to the GHG Plan Level Quantification Guidance, check the BAAQMD website: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>

associated with the goods and products procured by communities and its residents. This type of lifecycle emissions accounting is not included in this Climate Action Plan.

## 2.2 Baseline Emissions Inventory for 2005 and the 2010 Inventory Update

In the base year of 2005, the Town of Atherton emitted approximately 72,731 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) from the residential, commercial, transportation, waste, and municipal sectors.<sup>17 18</sup> Figure 4 shows the relative contribution of each sector to Atherton’s baseline inventory, with the residential sector and local transportation comprising the majority of Atherton’s GHG emissions.

**Figure 4: 2005 Community Emissions by Sector**



In comparison, Atherton emitted 71,906 metric tons of CO<sub>2</sub>e from these same sectors and sources in 2010, a decrease of 825 metric tons of CO<sub>2</sub>e, or 1 percent of 2005 baseline

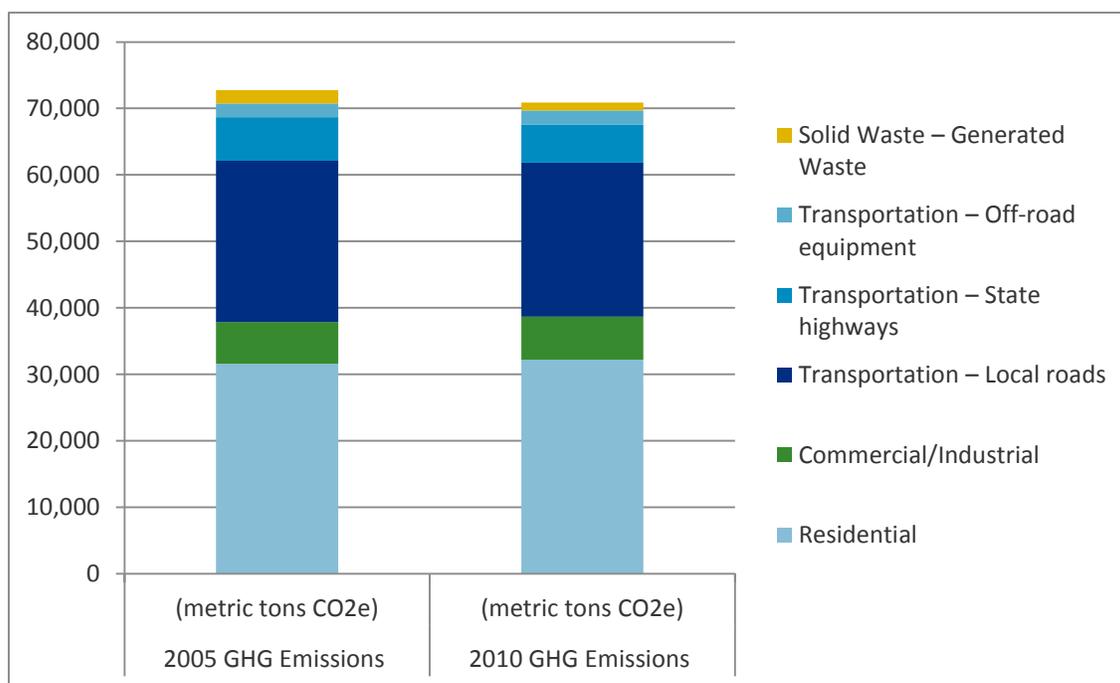
<sup>17</sup> Carbon dioxide equivalent is a unit of measure that normalizes the varying climate warming potencies of all six GHG emissions, which are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). For example, one metric ton of methane is equivalent to 21 metric tons of CO<sub>2</sub>e. One metric ton of nitrous oxide is 210 metric tons of CO<sub>2</sub>e.

<sup>18</sup> The commercial emissions for both the 2005 and 2010 inventories are based off natural gas + electricity use data provided by PG&E. The specific breakdown by building is not known, however PG&E groups the energy use into these categories. The “nongovernment” category (private businesses, etc.) is the largest energy user within commercial.

emissions. While the emission sources and data sources have remained mostly unchanged, some of the methodologies used for calculating emissions have been updated since the 2005 inventory was completed. Thus, the comparison from 2005 to this 2010 inventory is not an exact comparison, but does show a general trend of the decrease of emissions.

Figure 5 shows the decrease in emissions in Atherton from 2005 to 2010, with very little change in the proportion of emissions from each sector.

**Figure 5: Town of Atherton Emissions Trend from 2005 to 2010**



As shown above, the residential sector (residential electricity and natural gas consumption) accounted for the largest source of emissions at 45%. The second highest source of emissions was transportation at 43%; these two largest sectors comprise 88% of total emissions.<sup>19</sup> There is a smaller amount from commercial activities at 9% that was primarily generated from the Town schools, Country Club and municipal operations, while the remaining 3% of total emissions is accounted from solid disposed waste.

The residential and commercial sectors represent emissions that result from electricity and natural gas used in both private- and public-sector buildings and facilities.<sup>20</sup> The transportation sector includes emissions from private, commercial, and fleet vehicles driven within the Town's

<sup>19</sup> The state highway transportation emissions factored in pass through travel on State Route 82/El Camino Real.

<sup>20</sup> The commercial emissions are based off of natural gas and electricity use categorical data provided by Pacific Gas and Electric (PG&E).

geographical boundaries as well as the emissions from transit vehicles and the Town-owned fleet. Off-road equipment includes lawnmowers, garden equipment, and construction, and light commercial equipment.

Solid waste disposal refers to landfilled waste generated in the Town's limits, which is sent to landfills outside of the Town. Similarly, the emissions from treating and delivering potable water and emissions from treating and processing wastewater are included in the 2010 inventory. Emissions from potable water consumption and wastewater generation occur outside of Town limits. Emissions from potable water consumption are due to the electricity needed to treat and pump water from other regions to Atherton.

Finally, stationary sources (included in the 2010 inventory) refer to equipment consuming fuels such as diesel and propane that is typically used by public and commercial facilities. Certain stationary sources must receive a permit from the Bay Area Air Quality Management District (BAAQMD), and the BAAQMD provides the data for the emissions from these sources.

Some sectors and sources were included in the 2010 GHG inventory that were not included in the baseline 2005 inventory; these emissions include: Caltrain, water conveyance, wastewater treatment, and stationary sources. These emissions make up 1.5 percent of the 2010 inventory. With these sources added, the total 2010 emissions are 71,906 MTCO<sub>2</sub>e, which is a 1 percent decrease from 2005 emissions.

Table 2 illustrates the source sectors in both 2005 and 2010, whether the overall percentage of the source sector increased or decreased between the years, and the total percentage the source sector contributes to the overall total amount of the Town's GHG emissions.

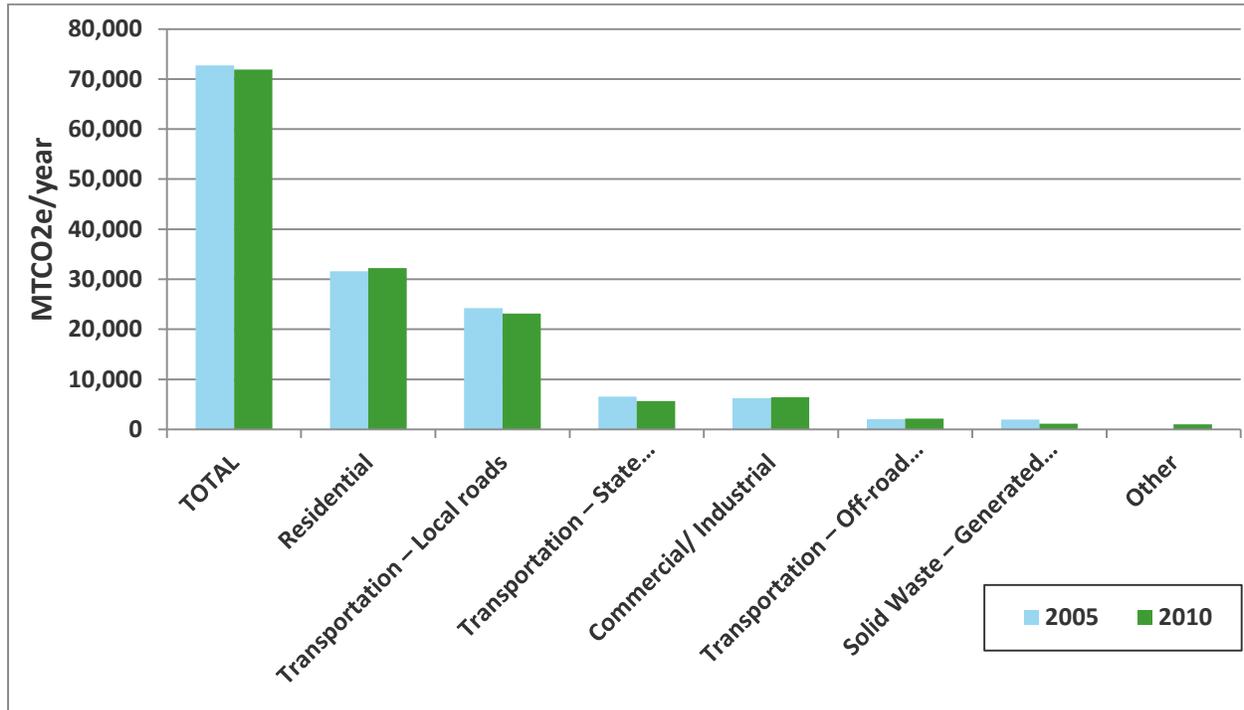
Figure 6 shows the proportion of Atherton's total GHG emissions from all major sources for 2005 and 2010.

**Table 2: 2005 and 2010 Community Emissions by Sector**

Sectors Included in the Baseline Inventory	2005 GHG Emissions	2010 GHG Emissions	Increase or Decrease in GHG Emissions	Percentage of 2010 GHG Emissions
<b>Residential</b>	31,608	32,227	619	44.82%
<b>Commercial</b>	6,247	6,453	206	8.97%
<b>Transportation – Local roads</b>	24,256	23,172	-1,084	32.23%
<b>Transportation – State highways</b>	6,569	5,657	-912	7.87%
<b>Transportation – Off-road equipment</b>	2,057	2,182	125	3.03%
<b>Solid Waste – Generated Waste</b>	1,995	1,170	-825	1.63%

New Sectors (not included in the Baseline Inventory)	2005 GHG Emissions	2010 GHG Emissions	Increase or Decrease in GHG Emissions	Percentage of 2010 GHG Emissions
<b>Stationary Sources</b>	Not available	12	Not applicable	0.02%
<b>Transportation – CalTrain</b>		586		0.82%
<b>Transportation – Freight Trains</b>		77		0.11%
<b>Wastewater</b>		170		0.24%
<b>Water</b>		199		0.28%
<b>SUBTOTAL</b>		<b>1,043</b>		<b>1.45%</b>
<b>GRAND TOTAL OF 2010 EMISSIONS</b>	<b>71,906</b>	<b>metric tons CO2e</b>		
<b>Total of 2005 Baseline Emissions</b>	<b>72,731</b>	<b>metric tons CO2e</b>		
<b>Total Decrease from the 2005 Baseline Including only Baseline Sources</b>	<b>-825</b>	<b>metric tons CO2e</b>		

**Figure 6: 2005 and 2010 Community Emissions by Sector**



Atherton’s community GHG inventory provides an understanding of where the highest percentages of emissions originate in the Town and enabled analysis of focused emission reduction strategies.

### 2.2.1 Electricity and Natural Gas Emissions

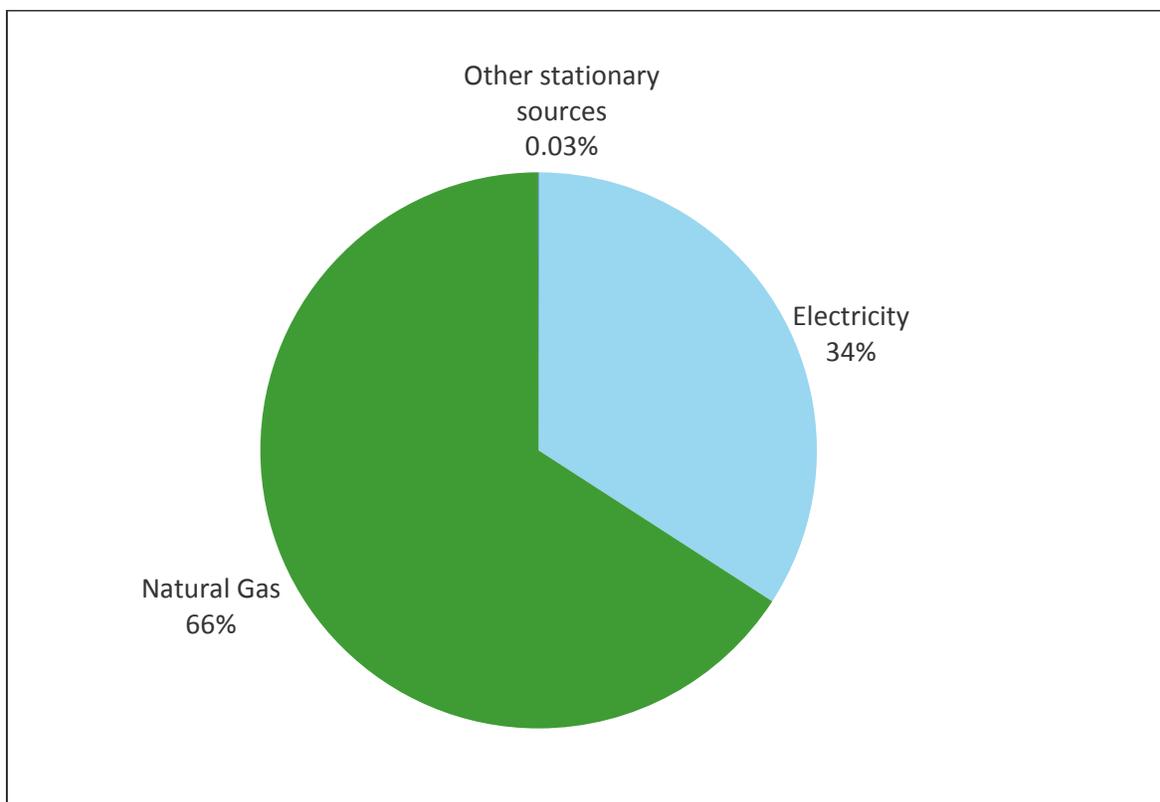
Electricity and natural gas consumption by all community sectors (residential, commercial, and municipal activities) accounts for 54% percent of total GHG emissions in Atherton; the largest in the Town. In 2010, Atherton’s stationary natural gas and electricity use resulted in a total of 38,681 MTCO<sub>2</sub>e emissions due to use of 65,073,255 kilowatt-hours (kWh) of electricity and 4,792,106 therms of natural gas. An additional 12 MTCO<sub>2</sub>e from other stationary sources (such as propane or diesel) were emitted in 2010. Both the 2005 and 2010 inventories assume that no Direct Access<sup>21</sup> consumption of energy occurs in Atherton.

Of the total 38,692 MTCO<sub>2</sub>e emitted due to energy use in buildings (including electricity, natural gas, and stationary sources), the residential sector contributes a much greater portion (83 percent) of GHG emissions compared with the commercial sector (17 percent). Also,

<sup>21</sup> Direct Access refers to purchasing electricity or natural gas on the wholesale market, rather than from PG&E. In Direct Access arrangements, PG&E delivers the energy, but the energy is purchased from another entity. Direct Access energy typically is used by large commercial and industrial customers.

Figure 7 shows that natural gas combustion contributes a much greater portion of GHG emissions compared with the use of electricity or stationary sources.

**Figure 7: Building Energy Use – Fuel Type (2010)**



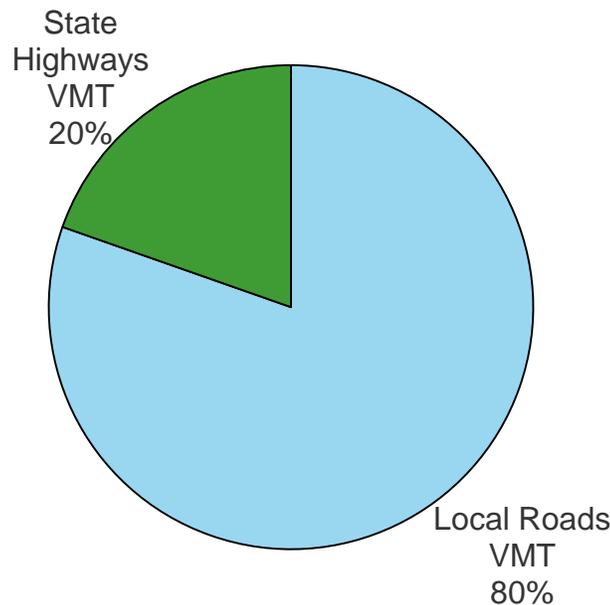
It is important to note that emissions associated with the generation of electricity, which make up a significant portion of the greenhouse gasses associated with building energy, can vary widely from year to year. The GHG emissions associated with electricity use is based on an emissions factor specific to PG&E's territory, which is calculated by dividing PG&E's total emissions from their power plants (in pounds of CO<sub>2</sub>) by the total amount of electricity (in megawatt-hours or MWh) delivered to end users. This factor varies year over year because PG&E's electricity sources change. For instance, the utility specific emissions factor for PG&E in 2006 was 456 lbs/MWh whereas in 2008 it was 641 lbs/MWh and in 2010 it was 445 lbs/MWh. For PG&E, the variance is typically dependent on the availability of hydroelectric resources. During low precipitation years, there is less water available to generate emissions free hydropower. Because of this, PG&E must compensate by supplying more electricity generated from natural gas or coal. For this reason, Atherton encourages the CA Energy Commission to include nuclear energy within the renewable energy portfolio, since its use creates zero net carbon emissions, whereas resorting to natural gas or coal continues to contributing life-threatening emissions.

## 2.2.2 Transportation Emissions

The transportation sector is responsible for approximately 44 percent of Atherton's overall 2010 GHG emissions when including vehicle emissions on state highways within Town limits, local roads in the Town, off-road use, Caltrain and freight trains. On-road motor vehicles driven within the Town's boundaries on both local and state roads emitted 23,172 MTCO<sub>2</sub>e in 2010, compared with 2,182 MTCO<sub>2</sub>e from off-road equipment.

Figure 8 shows the breakdown of GHG emissions by vehicle miles traveled (VMT) from local roads and state highways.<sup>22</sup> Of the total 28,830 MTCO<sub>2</sub>e emitted from these two sources, 80 percent was from local roads in Atherton.

**Figure 8: Transportation Emissions – Highways v. Local Travel (2010)**



Off-road equipment comprises a relatively small portion of transportation and total community emissions. Some examples of off-road equipment include residential lawn and garden equipment, such as lawn mowers. Commercial off-road equipment includes construction and light commercial equipment such as tractors, forklifts, and leaf blowers.

## 2.2.3 Solid Waste

In 2010, Atherton sent 3,289 tons of solid waste to landfills, which was about 1,650 tons less than 2005 amounts. Emissions from waste result from organic materials decomposing in the

<sup>22</sup> State highways include State Route 82/El Camino Real.

anaerobic environment of a landfill that produces methane—a GHG 21 times more potent than carbon dioxide. Organic materials (e.g., paper, plant debris, food waste, and so forth) generate methane within the anaerobic environment of a landfill while non-organic materials do not (e.g., metal, glass, and so on). Table 3 shows the approximate breakdown of the materials Atherton sent to landfills in 2010. Materials that do not release GHGs as they decompose are included in the “All Other Waste” category.

**Table 3: Assumed Waste Composition<sup>23</sup>**

Waste Type	Waste Share
<b>Corrugated Containers</b>	4.8%
<b>Newspaper</b>	1.3%
<b>Office Paper</b>	1.9%
<b>Magazines/Third Class Mail</b>	0.7%
<b>Food Scraps</b>	15.5%
<b>Grass</b>	1.9%
<b>Leaves</b>	1.9%
<b>Branches</b>	0.6%
<b>Dimensional Lumber</b>	14.5%
<b>All Other Waste</b>	56.9%
<b>Total</b>	<b>100 %</b>

## 2.2.4 Water

Total emissions from water consumption, a new source for the 2010 inventory, were estimated to be 199 MTCO<sub>2</sub>e/year in 2010, which is 0.3% of the 2010 inventory. Consumption of water in the community is associated with GHG emissions due to the energy use that is needed to extract, treat, and distribute water to the end-user. In Atherton, water is provided by the California Water Service Company (CWS) Bear Gulch Water District. A large percentage of the water consumed is purchased from the San Francisco Public Utilities Commission (SFPUC), and the water source is the Hetch Hetchy reservoir in the Yosemite area of the Sierra Nevada Mountains. This water is mostly transported in a gravity-based system, although a modest amount of energy is needed for water transportation, treatment and distribution.

<sup>23</sup> Waste characterization: CIWMB 2004 Statewide Waste Characterization Study. This state average waste characterization accounts for residential, commercial and self-haul waste. <http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097>

To estimate emissions from water treatment and delivery, the 2010 inventory estimates total water usage in the Town for 2010, based on data from CWS Bear Gulch Water District. The average water consumption is estimated to be 202.2 gallons per capita per day in Atherton, resulting in a total water consumption in 2010 of approximately 516.9 million gallons per year. Energy and associated emissions are then estimated based on water usage, using a factor of 0.00145 kWh/gallon of water consumed. This data was not available for the 2005 inventory so no comparison is presented.

### 2.2.5 Wastewater

Total emissions from wastewater were estimated to be 170 MTCO<sub>2</sub>e/year in 2010, which is 0.2% of the 2010 inventory. There is no wastewater treatment plant located in Atherton, so wastewater is delivered to the South Bayside System Authority for treatment. In addition to Atherton, South Bayside System Authority also serves Redwood City, portions of Belmont, San Carlos, Menlo Park, Portola Valley, Woodside portions of East Palo Alto, portions of Santa Clara and San Mateo County. Emissions from wastewater treatment plants are based on stationary fuel use other than natural gas (such as diesel), as well as the types of treatment in place for the wastewater. In addition to energy-related emissions, wastewater treatment leads to process and fugitive emissions of methane and/or nitrogen oxide.

Because the wastewater treatment plant serves multiple jurisdictions, this inventory includes an estimate of wastewater emissions allocated to Atherton based on population. This data was not available for the 2005 inventory so no comparison is presented.

### 2.2.6 Stationary Sources

Stationary sources include boilers, generators, and co-generation, and may include a number of fuel types, including natural gas, propane, and diesel. The data for stationary sources is from the BAAQMD; these emitting facilities receive a permit from or must otherwise report emissions to the BAAQMD. The data provided by the BAAQMD includes total GHG emissions from all fuel consumption, but does not include details on the amounts or types of fuel consumed.

The stationary sources in the 2010 inventory include emissions from five sources totaling 12 MTCO<sub>2</sub>e in 2010. This data was not available for the 2005 inventory so no comparison is presented.

### 2.2.7 Municipal Operations

Government operations are a subset of community-wide emissions, but are often inventoried separately due to the large amount of influence and control over these emissions. The GHG

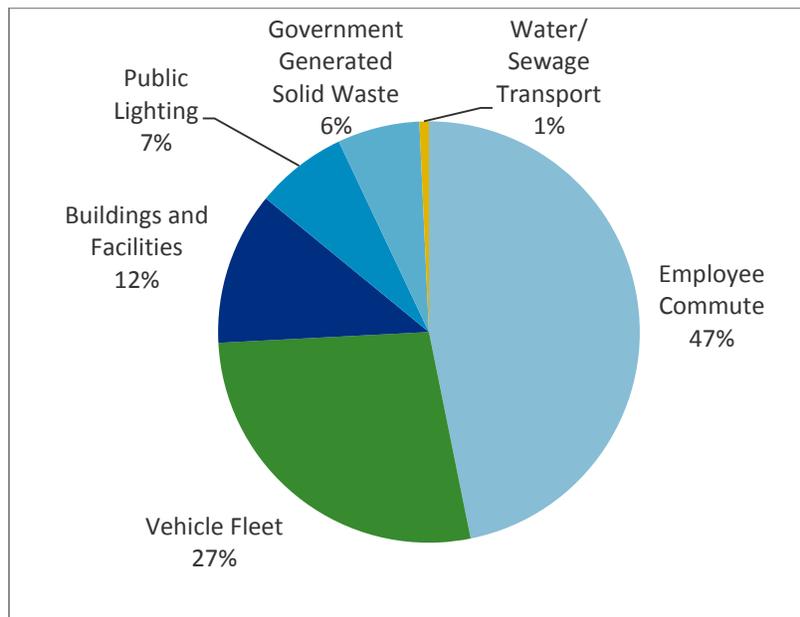
emissions from government operations were calculated for 2005, but have not yet been measured for 2010.

In 2005, the base year, the Town of Atherton’s municipal operations generated 639 MTCO<sub>2</sub>e, which represents only 0.9% of community-wide emissions from that year. As Table 4 and Figure 9 show, Employee Commute was the largest source of GHG emissions, followed by municipal Vehicle Fleet.

**Table 4: 2005 Atherton Government Operations Emissions by Sector**

Sector	Greenhouse Gas Emissions (metric tons CO <sub>2</sub> e)
Buildings and Facilities	75
Vehicle Fleet	175
Public Lighting	45
Water/Sewage Transport	5
Government Generated Solid Waste	40
Employee Commute	299
<b>TOTAL</b>	<b>639</b>

**Figure 9: Municipal Operations – Greenhouse Gas Emissions**



## 2.2.8 Emissions Forecast for 2020

Based on the 2005 and 2010 community emissions inventories, the Town projected a forecast of future emissions for the year 2020. The emission forecast represents a “business-as-usual” prediction of how GHG emissions would grow in the absence of GHG policy. Conducting an emission forecast is essential for developing the Climate Action Plan because one must compare future reductions with future emissions levels.

The projected business-as-usual GHG emissions are based on the emissions from the existing growth pattern and General Plan prior to the adoption of this Climate Action Plan. More specifically, business-as-usual emissions would occur if the Town were to continue its 2005 patterns of home building and expansions, travel, energy and water consumption, and waste generation and disposal. Therefore, the business-as-usual emissions are projected in the absence of any mitigation measures, policies or actions that would reduce emissions over time, including landmark state legislation described in Section 1.3. Programs, policies, and measures implemented after 2005 are considered beyond business-as-usual. The projections from the baseline year of 2005 uses growth factors specific to each of the different economic sectors. Table 5 summarizes the results of the forecast.

**Table 5: Town of Atherton “Business as Usual” Emissions Forecast for 2020**

Emissions Sources	2005 (MTCO <sub>2</sub> )	2010* (MTCO <sub>2</sub> )	2020 (MTCO <sub>2</sub> )	Annual Growth Rate	Percent change from 2005 to 2020
<b>Residential</b>	31,608	32,227	33,098	0.27%	4.7%
<b>Commercial</b>	6,247	6,465	6,565	0.15%	5.1%
<b>Transportation</b>	32,882	31,675	35,142	1.04%	6.9%
<b>Generated Waste and Wastewater</b>	1,995	1,340	1,376	0.27%	-31.0%
<b>Water</b>	Unknown	199	203	0.21%	NA
<b>TOTAL</b>	72,732	71,906	76,384	Not applicable	5.0%

- Note that 2010 emissions include five sources that were not included in the 2005 inventory: stationary sources (12 MTCO<sub>2</sub>e, included in the Commercial category), wastewater (170 MTCO<sub>2</sub>e, included in the Generated Waste and Wastewater category), water (199 MTCO<sub>2</sub>e), Caltrain (586 MTCO<sub>2</sub>e) and freight trains (77 MTCO<sub>2</sub>e). Please see Appendix E for full documentation and data sources.

Emission forecasts were projected for each sector, because specific factors affect each sector differently (e.g. new building energy codes or new fuel economy standards for vehicles). This

approach provides a better approximation of future emissions. The following points explain how the emission forecast was estimated for each sector:

- For the residential energy sector, the compounded annual growth rate of 0.27 percent was calculated using 2020 population projections from the Association of Bay Area Governments (ABAG). In order to project emissions in the residential sector, a 2010 → 2020 compound annual growth rate estimate was needed. Since the Town does not maintain population projections out to 2020, this report defaults to Association of Bay Area Governments (ABAG) projections for Atherton, while considering the Town's 2010 population estimate consistent with Atherton's Adopted Housing Element.
- For the commercial energy sector, a compounded annual growth rate of 0.15 percent was calculated using job growth projections from ABAG.
- For transportation, the Town relied on "Transportation 2035 Plan for the San Francisco Bay Area" from the Metropolitan Planning Commission, which projects VMT in 2020. This prediction is used to calculate an annual rate of 1.044 percent per year through 2020.<sup>24</sup> Federal Corporate Average Fuel Economy standards and the State of California's tailpipe emission standards could significantly reduce the demand for transportation fuel in Town of Atherton. An analysis of potential fuel savings from these measures has not been included in this business-as-usual forecast. Regardless of future changes in the composition of vehicles on the road as a result of state or federal rulemaking, emissions from the transportation sector will continue to be largely determined by growth in VMT.
- For waste and wastewater-related emissions growth, the primary determinate for growth in emissions for the waste sector is population. Therefore, the compounded annual population growth rate of 0.27 percent (the same as the residential sector projection) was used to estimate future emissions in the waste and wastewater sector.
- The annual growth rates for the residential and commercial sectors was averaged together to find the annual growth rate for water use of 0.21 percent.

## 2.3 Emission Reduction Targets

The *California AB 32 Scoping Plan* and subsequent updates seeks to bring California to a low carbon future, reaching 1990 emissions levels by 2020. As part of that reduction, the plan asks municipal governments to reduce their emissions by at least 15 percent by 2020 compared with current levels (current levels are defined as 2008 levels or earlier). The plan also directs local governments to assist the state in meeting California's emissions goals. Many cities have consequently adopted community-wide emissions reduction targets at least 15 percent below

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<sup>24</sup> Report available at: [http://www.mtc.ca.gov/planning/2035\\_plan/Supplementary/T2035-Travel\\_Forecast\\_Data\\_Summary.pdf](http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035-Travel_Forecast_Data_Summary.pdf)

2005 levels by 2020. Some cities in the Bay Area have sought even stricter emissions targets. For example, since 2002, the City of San Francisco has sought to reduce its emissions to 20 percent below 1990 levels by 2012<sup>25</sup>. Seattle, Portland, and Denver have set similar targets. However, the vast majority of Bay Area cities have adopted the 2020 target of 15 percent reduction compared with 2005 levels as it is in line with State objectives and technically achievable. Additionally, with the California legislature approving Senate Bill 32 in September of 2016, many cities in California are focused on achieving the State's established goal of a 40 percent reduction below 1990 emissions by 2030. Since limited information is available on 1990 emission levels, this 2030 emission reduction goal is commonly accepted as 49 percent below 2005 emission levels by 2030.

The Climate Action Plan is designed to place Atherton on a path to achieve at least a 17% reduction in emissions below 2005 levels by 2020. While the Climate Action Plan in its current form does not put Atherton on course to achieve a 49% reduction in emissions below 2005 levels by 2030 in accordance with the State's goal, the Town will continue to explore new measures over the coming years that work towards achieving this ultimate goal.

### 2.3.1 Reductions from State-Level Actions

In addition to the actions outlined here, regulations aimed at reducing GHG emissions at the state and regional levels will also contribute to emissions reductions in Town of Atherton. For example, the California Renewable Portfolio Standard (RPS) mandates that 33 percent of electricity sold by the State's investor-owned utilities be generated from renewable resources by 2020. These actions were summarized in Section 1.5 of this report.

The impact of state-level actions on reducing local emissions is significant, and is shown in relation to the Town's emissions baseline, business-as-usual forecast, and reduction target in Figure 10. Two of the state-level initiatives lead to reductions in transportation emissions, which comprise 44 percent of the 2010 Atherton GHG inventory. Thus, these two initiatives are especially helpful in helping reduce Atherton's emissions.

A summary of the expected emission reductions from state programs is provided in Table 6.

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<sup>25</sup> City of San Francisco 2004. *Climate Action Plan*. <http://www.sfenvironment.org/downloads/library/climateactionplan.pdf>

**Table 6: Total Emission Reductions from State of California Programs**

State Initiative	Sector	% Reduction from 2020 GHG Inventory	Reduction in City's Emissions by 2020
<b>AB 1493 (Pavley)</b>	Transportation	19.7%	<b>6,923</b>
<b>LCFS</b>	Transportation	7.2%	<b>2,530</b>
<b>33% RPS</b>	Electricity (Energy)	17%	<b>2,313</b>
<b>A. Total Statewide Initiative Emissions Reductions</b>			<b>11,767</b>

### 2.3.2 The Town of Atherton Reduction Target

Based on guidance provided by the State of California, and in line with the state’s reduction goals, Atherton has also adopted a target of 15 percent below 2005 levels by 2020. While the Town acknowledges that the current selection of measures in this version of the Climate Action Plan do not set the Town on a course to achieving a 49 percent reduction in emissions below 2005 levels by 2030, the Town will continue to explore new measures over the coming years that work towards achieving this ultimate goal. This climate action plan summarizes the additional actions that Atherton is planning to take to reduce emissions within our community.

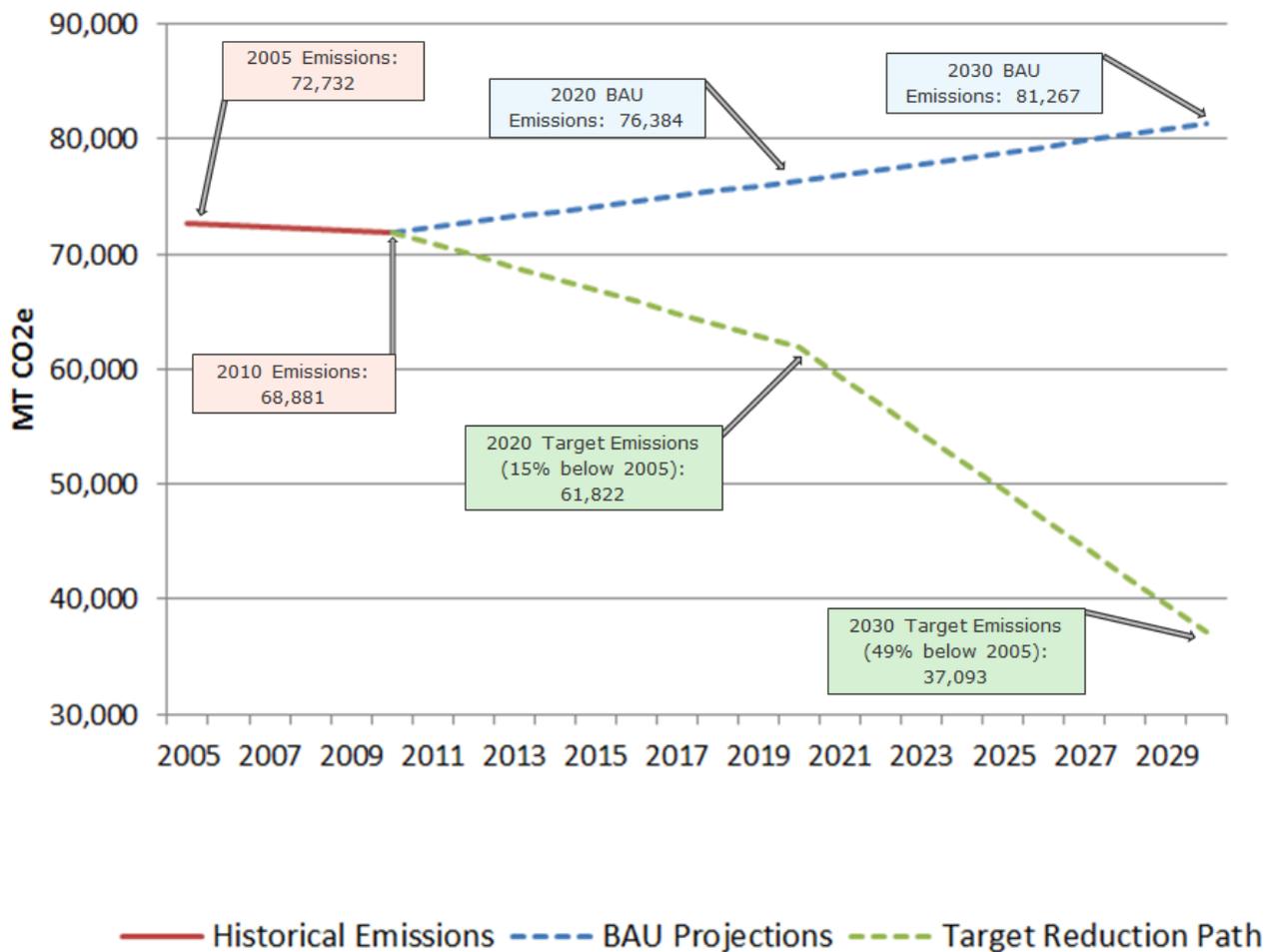
Figure 10 below illustrates how the business-as-usual emissions are estimated to increase slightly from 2010 to 2020, thus widening the emissions reductions needed by 2020. If continuation of home expansions occurs—without corresponding increases in the implementation of energy efficiency and renewable energy sources to offset them—this gap will further increase.

Figure 10 also shows the emissions reductions expected from State-Level actions, and the reductions needed to reach the Town’s emission target. The baseline emissions, forecasted emissions, targeted emissions, and emissions needed to reach the target are shown in Table 7. In addition, as evident from Figure 10, the state-level initiatives that will reduce emissions in Atherton are projected to have a large impact on Atherton’s emissions. Reductions from two of the three state-level programs included in this climate action plan will affect the transportation sector, which makes up 44 percent of Atherton’s 2010 inventory (see Section 2.2.2). However, this climate action plan includes a set of local, Town-specific measures intended to reduce emissions in Atherton, in the case that state-level policies do not reduce emissions as much as intended. Atherton’s local strategies for reducing emissions are detailed in Chapter 3 of this climate action plan.

**Table 7: GHG Emissions Projection and Reduction Targets**

Target Year	Baseline 2005 Emissions (MTCO <sub>2</sub> e)	Target Emissions by Target Year (MTCO <sub>2</sub> e)	Target Year BAU Emissions (MTCO <sub>2</sub> e)	Emissions Reductions Required (MTCO <sub>2</sub> e)
<b>2020</b>	72,732	61,822	76,384	<b>14,562</b>
<b>2030</b>	<b>72,732</b>	37,093	81,267	<b>44,174</b>

**Figure 10. Town of Atherton GHG Reduction Targets (15% below 2005 levels by 2020 and 49% below 2005 levels by 2030)**





## 3. Climate Action Plan Program and Policy Recommendations

This Climate Action Plan is the beginning of a journey towards a more sustainable Atherton. In these pages, the community will find policies and programs that aim to reduce emissions, save energy and help the Town continue to be a beautiful and healthy place to live as time goes on.

By adopting this Climate Action Plan, the Town is committing to take action to reduce GHG emissions. The programs and policies described give Atherton a viable path towards reducing emissions that, combined with emissions reductions resulting from State and regional policies, will meet and even exceed the emissions reduction goals established in AB 32.

The previous chapters presented Steps 1 and 2 in the Framework for climate action, the emissions inventory of the Town, and the community emissions reduction targets. The following sections represent Step 3: the Climate Action Plan.

The development of the Atherton Climate Action Plan occurred over several months and began with the environmental consultant and staff discussing several alternatives of emission reduction strategies that were discussed, evaluated, and modified by the Environmental Programs Committee during public meetings, Town staff, the energy consultant, and the City Council. These final draft program and policy recommendations focused on encouraging and supporting implementation through enhanced public education and outreach and/or incentives without mandates and efficient programs and policies that the Town was either already implementing and/or could utilize the existing services of outside supporting organizations that would enable Atherton to meet the emissions reduction target.

Each section below outlines the specific actions, called “measures,” that seek to reduce GHG emissions from the Town from both community and municipal operations. Some measures aim to reduce emissions from the community at large, while other measures may specifically focus on the operations of the Town. All measures are assumed to lead to specific, quantifiable

reductions of GHG emissions, except for the more general supporting measures as described within.

The avoided emissions calculations in the following sections for 2020 and 2030 are intended to capture the avoided emissions in the given calendar year. So, for example, if a measure is estimated to result in 100 MT CO<sub>2</sub>e of avoided emissions in 2020, that 100 MT CO<sub>2</sub>e is not the sum of emissions avoided in 2017, 2018, 2019 and 2020. Rather, the 100 MT CO<sub>2</sub>e avoided is strictly an estimate of emissions avoided as a result of that measure in calendar year 2020. Some measures do have a “cumulative impact” that results in increased emissions avoided in calendar year 2020. For example, if a policy enacted in January 2017 requires newly constructed homes to install solar panels, newly constructed homes in 2017, 2018, 2019 and 2020 will all install solar panels. If 10 new homes are built in each of those years, a total of 40 new homes with solar panels will be in operation by the end of 2020. The avoided emissions calculations for this measure would be based on 40 solar homes operating in 2020.

To guide the program and policy recommendations, these four major strategies were selected:

- 3.1 Energy efficiency, water conservation, and green building
- 3.2 Transportation and land use
- 3.3 Waste reduction and recycling
- 3.4 Education and promotion



### 3.1 Energy and Water

In the United States, buildings account for 70 percent of total electricity use and about 40 percent of GHG emissions.<sup>26</sup> Since the 1970s, California has led the nation in developing and implementing successful energy-efficiency efforts. The California Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the California Code of Regulations) mandates minimum levels of energy efficiency in both new construction and renovation projects. California has also set targets for “zero net-energy” new buildings, in which efficiency and on-site generation are combined to reduce residential buildings to zero net-energy use by 2020 and commercial buildings by 2030.<sup>27</sup>

Design and construction of new buildings, major renovations of existing ones and certain repairs—such as the installation of new roofs or new landscaping—provide opportunities to

<sup>26</sup> Fuller *et al.* 2009. *Toward a Low-Carbon Economy: Municipal Financing for Energy Efficiency and Solar Power*. Environment Magazine

<sup>27</sup> California Energy Commission, 2007 *Integrated Energy Policy Report*, CEC-100-2007-008-CMF

implement energy and water-saving measures that reduce GHG emissions and impacts from drought conditions. Generous utility rebates and federal tax incentives<sup>28</sup> make investing in energy efficiency increasingly attractive. Energy and water use are linked. Energy is needed to transport and to treat water so that it is safe for public consumption. Energy is also used to treat wastewater so that it can be discharged back to the environment. Reducing water consumption through efficiency and conservation can make a big impact on energy consumption as well as protect against drought.

Building energy is the sector with the most immediately achievable and affordable reduction opportunities. Energy efficiency provides the fastest and most economical means to reduce emissions and has the added advantage of cost savings to residents. Atherton's 2010 GHG Community Inventory showed that of the 83% emissions from the residential sector, 34% is from electricity and 66% is from natural gas consumption. Accordingly, there is a primary focus on residential energy efficiency strategies to significantly reduce existing emissions in Atherton's Climate Action Plan and on the voluntary implementation of new building standards which incentivize new home builders towards designing net zero energy homes, so that new homes add less to the Town's total emissions footprint.

The majority of Atherton's existing homes were built prior to the adoption of the California Title 24 Energy Code<sup>29</sup> and these homes have significant potential to increase energy efficiency. The California Public Utility Commission's 2008 Strategic Plan, updated in 2011, calls for new net zero energy homes and a 40% improvement of the existing home stock by 2020. The household energy use per capita in Atherton is approximately three times higher than the average energy use per household in San Mateo County<sup>30</sup>. Typically, homes (that have not yet taken any steps towards efficiency) can increase energy efficiency 30% to 40%,<sup>31</sup> and reduce water consumption by 20% with comprehensive energy and water efficiency upgrades and these efficiencies can provide Atherton residents the added incentive of reducing energy and water costs.

In this chapter, Town programs and initiatives are proposed that will promote energy and water efficiency as well as renewable energy in both existing and new buildings.

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<sup>28</sup> More information about tax incentives, or "tax credits" can be found here - [https://www.energystar.gov/about/federal\\_tax\\_credits](https://www.energystar.gov/about/federal_tax_credits)

<sup>29</sup> Town of Atherton Adopted Housing Element 2014

<sup>30</sup> 2009 Sustainable San Mateo County Indicators Report and Pacific Gas and Electric Company

<sup>31</sup> California Public Utility Commission 2008 Strategic Plan

### 3.1.1 Goal: Increase residential and commercial energy efficiency and reduce water consumption to meet AB 32 emission reduction target

GHG Reduction Program Measure	Detailed Description	2020 GHG Reduction (MTCO2e)	2030 GHG Reductions (MTCO2e)
<b>EC1: Voluntary residential green building ordinance for new construction</b>	Promote voluntary building code of zero net energy for new residential buildings. Encourage achievement of CALGreen Tier 2 energy performance and the CALGreen recommendation to install electric vehicle supply equipment. Encourage planting of shade trees for new construction with eastern, southern or western exposure, when feasible.	81	74
<b>EC2. Incorporate available Energy Upgrade programs and similar rebate</b>	The City will consider a Residential Energy Conservation Program to increase energy efficiency and water conservation through professional home energy audits. The Program may include recognition awards, a Residential Energy and Water Efficiency Checklist, public outreach, and expanded promotion of rebates/programs funded through PG&E and other organizations among other features.	291	458
<b>EC3. Implement program for residential shade trees</b>	Education and outreach to encourage existing homes to plant deciduous shade trees for houses with eastern, western or southern exposures that heat up during the summer and create alternatives as to not conflict with the priority installation of solar panels. Leverage the services of the Atherton Tree Committee to assist in planting of trees.	61	111

<b>EC4. Voluntary commercial green building ordinance for new construction and major additions</b>	Encourage use of green building code to achieve higher building performance in new commercial buildings or major additions to commercial buildings. Promote achievement of Net Zero Energy standards.	7	19
<b>EC5. Promote PG&amp;E commercial energy efficiency/demand response programs</b>	The Town will promote and assist with marketing and outreach for PG&E energy efficiency and demand response programs. Leverage existing rebates/add additional rebates for energy efficient retrofits.	129	101
<b>EC6. Community Choice Aggregation (CCA)</b>	The Town is part of the Peninsula Clean Energy (PCE) Community Choice Aggregation (CCA) Program. Enabled by California legislation (AB117), Community Choice Aggregation (CCA) allows local governments to purchase and generate power to sell to residential and business customers. The Town has opted for the ECO100 option (100% renewable energy) for all Town facilities.	2,797	4,295
<b>EM1. Energy efficient street lighting</b>	Replace street, signal lights, parks and parking lot lighting with efficient lighting (LEDs, induction, etc.) where feasible.	6	4
<b>EM2. Environmentally preferred purchasing policy - Energy</b>	Implement a sustainable purchasing policy that emphasizes ENERGY STAR equipment	2	1
<b>EM3. Renewable energy installation on municipal property</b>	Review and consider installation of solar or other renewable energy projects at Town facilities. Implement where practical and financially feasible. Consider installation of electric car charging stations at Town facilities and provide plug-in areas, where feasible. Conduct an initial feasibility study to set a goal for on-site renewable projects.	29	12

<b>EM4. Energy efficiency in municipal buildings</b>	Encourage all new Town facilities be built to Net Zero Energy if financially feasible and where practical. Audit older Town facilities for energy efficiency opportunities and implement energy efficient retrofits if financially feasible. Town participate in San Mateo County Energy Watch and leverage benchmarking to identify opportunities for EE upgrades and tracking energy performance. Leverage other programs that provide funding.	105	61
<b>EM5. Implement municipal program for shade trees</b>	Plant deciduous shade trees within public right-of-way and Town facilities with eastern, western or southern exposure that heat up during the summer. Create alternatives so as to not conflict with the priority installation of solar panels, where feasible.	3	2
<b>WTRC1. Water conservation incentives</b>	Make concerted effort to promote and expand the distribution of existing and/or new rebates for water efficient appliances and fixtures. Encourage landscape/irrigation professionals to participate in community landscape conservation and water efficient landscaping workshops.	64	93
<b>WTRC2. Water conservation ordinance</b>	Adopt Bay Area Water Supply and Conservation Agency (BAWSCA) Indoor Ordinance and Outdoor Ordinance if haven't already and enhance BAWSCA Outdoor Ordinance (all cities required to adopt).	58	84
<b>WTRC3. Voluntary water conservation programs</b>	Make concerted effort to promote and educate the community on water recapture efforts and how to implement them such as rain barrels, permeable pavement and gray water systems.	1	1
	<b>TOTAL</b>	<b>3,364</b>	<b>5,316</b>

Note: EC = Energy Community, EM = Energy Municipal, WTRC = Water Community

## 3.2 Transportation and Land Use



Thirty-eight percent of the California's GHG emissions stem from transportation<sup>32</sup> — the cars and trucks that move people and goods throughout the state. In Atherton, approximately 44% percent of emissions stem from transportation. Travel on local roads and state highways represent 80% and 20% of on-road transportation emissions respectively. Thus, reducing transportation emissions is a critical component of the climate action strategy. Reducing emissions from the transportation sector requires addressing three constituent components: reducing the carbon intensity of fuels, increasing vehicle efficiency, and reducing vehicle miles travelled (VMT). The Town is committed to providing transportation options that are convenient, safe, and affordable. Policies proposed in this Climate Action Plan strive to maintain a quality of life that is environmentally and economically sustainable. These priorities and commitments are reflected and incorporated in this chapter on transportation and land use.

### 3.2.1 **Goal: Allow for changes in the traditional transportation system to reduce vehicle miles traveled and the modes of transportation types to meet AB 32 emission reduction target**

GHG Reduction Program Measure	Detailed Description	2020 GHG Reduction (MTCO2e)	2030 GHG Reductions (MTCO2e)
<b>TRC1. Implement the Town's Bike Pedestrian Master Plan to create a walkable / bikeable street landscape</b>	Remake sub-urban landscape to make walking and biking more desirable. Bike lanes, bike parking, traffic calming, beautification, etc. Install new bicycle racks outside Town Hall.	233	198
<b>TRC2. Fund and implement Bike Master Plan priorities and make having safe routes to school a Town priority</b>	Work with Safe Routes to Schools program to ensure that our plan to develop safe bike and pedestrian routes will work; provide bike safety programs to encourage active transportation for students where practical and feasible.	119	162

<sup>32</sup> Air Resources Board 2008 *Scoping Plan*.

<b>TRM1. Efficient fleet policy</b>	Prioritize purchase of electric vehicles and other alternative fuel vehicles where it meets operational requirement of the Police Department. Encourage staff to drive minimally and efficiently, where feasible and need dependent.	4	7
<b>TRM2. Flexible schedules</b>	Where feasible, establish alternative work schedules and telecommuting to reduce employee commute. Continue to support housing options to encourage off-duty police officers or other Town employees to stay overnight near the Town Center, where feasible and need dependent.	31	30
<b>TRM3. Explore Town participation in County-wide rideshare or bus program</b>	Explore Town participation in county-wide ride share or bus program for public employee commuting.	1	1
	<b>TOTAL</b>	<b>388</b>	<b>398</b>

Note: TRC = Transportation Community, TRM = Transportation Municipal

### 3.3 Solid Waste



While it may not be immediately obvious, reducing the amount of waste deposited into the landfill through material reuse, reduction, and recycling is an important strategy Atherton’s residents can take to reduce GHG emissions. As landfill waste decomposes, methane gas is generated and released into the atmosphere, which is 21 times more potent than CO2.

To address the issues of escalating waste production, California AB 939 was passed in 1989 and mandated local jurisdictions to meet a solid waste diversion goal of 50 percent by the year 2000. Each jurisdiction was required to create an Integrated Waste Management Plan that looked at recycling programs, purchasing of recycled products and waste minimization. These plans form the foundation of the waste programs in place today.

Greenhouse gas emissions are also associated with product supply chains. Upstream from the consumer, fossil fuel energy is used to extract the raw materials, such as wood, metals, and so forth, from which products are made. Additional energy is needed to manufacture consumer goods in factories. Petroleum is used for the transportation of raw materials to the factory,

moving manufactured goods to market, moving goods from inventory locations to the home and moving waste from the consumer’s curbside to landfills. These emissions do not show up in Atherton’s inventory; however, it is good to be aware of them. As consumers, we each have a responsibility to support products that reduce waste and encourage manufacturers to design environmentally-friendly products, as well as to consider alternatives to purchasing unnecessary products, excessive materialism and limiting acquisitions to retail sources. Atherton’s programs can educate residents about the environmental benefits of re-use programs and services such as Craig’s List, Freecycle, and the Share Economy.



Waste reduction and recycling are powerful tools for reducing emissions all along the consumer materials’ lifecycle. Reducing the amount of single-use materials required by adopting the habits of re-use — for example carrying canvas bags instead of plastic and paper bags that now need to be purchased from the grocery store but then are thrown away immediately — represent opportunities to reduce waste in the environment and will cumulatively reduce GHG emissions in a meaningful way.

Recycling represents another opportunity to reduce GHG emissions. For these materials, recycling reduces energy-related carbon dioxide emissions in the manufacturing process and avoids emissions from waste management.

### 3.3.1 **Goal: Reduce the total amount of community waste generated and sent to landfills to meet AB 32 emission reduction target**

GHG Reduction Program Measure	Detailed Description	2020 GHG Reduction (MTCO <sub>2</sub> e)	2030 GHG Reductions (MTCO <sub>2</sub> e)
<b>WC1. Set higher community waste diversion goal</b>	Increase participation in recycling programs and ensure weekly collection of recyclables and organic waste to achieve 86% diversion rate (increase from 71.8% diversion rate in 2010).	1,253	1,253

<b>WC2. Require commercial recycling through mandatory ordinance</b>	Provide outreach, education and training to commercial customers and schools to support recycling habits and understanding. All businesses and entities that generate four or more cubic yards of garbage per weeks are required to recycle under California law. Commercial customers subscribed to Recology's garage collection services receive recycling and compost collection for no additional cost.	Supporting Measure	Supporting Measure
<b>WC3. Promotion of recycling/diversion of yard waste</b>	Encourage the recycling/diversion of yard waste by landscapers and landscape maintenance businesses. Comply with updates to the California Integrated Waste Management Act requiring businesses to recycle organic waste by 2016. Provide residents, businesses and private schools with food scraps collection. Explore incentives for local composting of these organics.	Supporting Measure	Supporting Measure
<b>WM1. Create Sustainable Vendor Policy for public events</b>	Encourage recycling at major public events (including at schools) of cardboard, paper, containers and food/organics. Encourage use of recyclable silverware and food take-out packaging. Ensure provision of proper landfill, recycling and organic bins.	Supporting Measure	Supporting Measure
<b>WM2. Environmentally preferred purchasing policy - Waste reduction</b>	Implement a sustainable purchasing policy that emphasizes recycled materials.	Supporting Measure	Supporting Measure
<b>WM3. Approach a zero waste policy in government operations</b>	Government Policy to improve diversion in Town operations by 2020/2030.	Supporting Measure	Supporting Measure
	<b>TOTAL</b>	<b>1,253</b>	<b>1,253</b>

Note: WC = Waste Community, WM = Waste Municipal

### **3.4 Education and Promotion:**

Education is a means of accelerating the program implementation of our Town's climate goals. Education offerings will vary based on demand and further identifying issues that citizens are responding to during the rollout of the various programs. By education, civic participation will be heightened and further goals achieved. If more people know how to take action, they will often choose to make behavioral changes and new choices.

The majority of promotion will be done through community outreach through existing communication channels (such as the Town's website, electronic News Flash and Atherton Online), new education outlets that may be created, and at various Town events. Since the Town has no true downtown or meeting point, the outreach will need to be through committees, clubs, activities, and events.

The majority of the activities are outlined in Chapter Four below.



## 4. Implementation, Funding and Next Steps

The preceding chapters describe the principal sources of the Atherton's GHG emissions and outline related goals and measures for achieving the community's targets of reducing emissions to 17% below 2005 levels by 2020 and 49% below 2005 levels by 2030. This chapter outlines the main components of the process for putting this plan into action.

Atherton does not have any existing dedicated staff to implement the Climate Action Plan. Given the importance and magnitude of this endeavor, it is recommended that the town hire a Climate Action Plan staff – or Sustainability Coordinator. The Town's EPC will continue to serve as a recommending body on related policies that may be considered in order to implement the Plan.

### 4.1 Town Policy & Implementation Recommendations to the City Council.

Atherton can establish policies to encourage conformance by specific commercial groups operating within the Town with specific Town goals. While this CAP provides a first statement of policies, there may be others developed that can enable improvements in the Town's carbon emissions. Therefore, it will be important to help prioritize the most important policies and draft some implementation guidelines for the roll-out and future implementation of the policies by the Town. Some improvements can be achieved simply by the issuance of Town policies, along with targeted communication of these new policies to the proper groups—such as with the private schools. Some may require that the Town provide some assistance with the requested changes. It is recommended that the Town consider reserving some funding to support those willing to implement changes (such as improved recycling at the schools).

### 4.2 Design and Implementation of Residential Programs.

With respect to the engagement of existing residents in support of the goals of this Plan, the issuance of Town policies by itself is not sufficient. It takes more to win the hearts and minds

and then support of residents. Some residents will be anxious to help address climate change but others will be resistant, even skeptical. Engaging the overall community, which is by nature busy, distracted and diverse in opinion, is a big challenge and requires a careful approach which can appeal to a very broad swath of the community. Time and effort must be taken to educate residents. In Atherton, not all residents will even respond to appeals to take actions that can help them save money: thus other types of social rewards and intangible benefits must be designed to achieve broad participation of Atherton residents. Therefore, the creation, design and promotion of community programs that provide the framework within which residents can learn about their impacts on the environment, easily access resources to enable them to make the requested changes, and readily share their successes and failures with others, while taking ownership and pride in the overall achievement of worthy and ambitious goals by the community will be required.

### **4.3 Funding of Residential CAP Programs.**

One of the major barriers to implementing climate action programs is lack of available funds and staff resources. Currently, there are several avenues that could be taken by the Town to fund its climate action goals:

- 1) Obtain federal, state or regional grants or funds that are targeted to helping communities improve their carbon footprint;
- 2) Use volunteer support and low-cost implementations to create low-cost programs;
- 3) Pass a Utility User Tax (UUT)-type tax (discussed below) through a ballot measure that can be used to generate tax revenue from those who use excessive amounts of energy and water to provide for program funding and financial incentives for the reduction of residential carbon emissions.

The Town should evaluate in their annual, fiscal budget consideration of appropriate funding to further support the implementation of this Plan.

#### **4.3.1 Grants.**

There are multiple grant and loan programs through federal, state and regional programs that could assist in funding emission reduction programs. One example was the Energy Efficiency and Conservation Grants, the federal stimulus program from the U.S. Department of Energy (American Recovery and Reinvestment Act of 2009), which helped to fund the development of Atherton 2011 home audit program. To determine if there are other available funding sources, the Town could use staff resources to research additional grant funds. Currently, because of AB-32's Cap and Trade program launched by the State of California, which requires the largest

carbon polluters to purchase carbon credits, there is AB 32 funding available for a wide range of carbon reducing activities.

#### **4.3.2 Home-Spun Solutions.**

While it is recommended that the Town continue to explore methods to obtain funding for external grant sources to support its climate protection programs, the framework and funding options of prior Town programs could be re-evaluated for resurgence in the context of implementation of this Plan as appropriate.

#### **4.3.3 Utility User Tax Funding.**

Atherton could consider putting the issue of a conservation-style Utility User Tax in place through a ballot measure. While a tax of this type will require the approval of more 50% of the voters, the tax can be designed to be an assessment on a utility bill from PG&E or CalWater for user of that utility over a set amount. This means that the tax would only apply to those residents or users whose use of energy or water exceeds that baseline which is deemed reasonable for their property. The tax collected can then be used to provide support to them for energy or water reductions. This places the burden of funding the conservation work needed by the town on those who most require remedial help—and the more they conserve, the less painful the tax will become for them, so this is a win-win funding option. The proceeds of such tax could be used to fund the Climate Action Plan programs.

#### **4.3.4 Monitoring Progress.**

An essential component is monitoring Atherton's progress toward the 2020 target. Progress should be reassessed approximately every two years using the Town's GHG inventory to ensure that Atherton is on track to meet the year 2020 and 2030 targets. Climate Action Plan progress reports that provide the status on how the Town's is achieving the emission reduction targets should be produced. These progress reports could be posted and/or disseminated on the Town's website to educate the community on Atherton's progress.

It is also recommended that the approved Climate Action Plan program and policies are included in the future General Plan Element updates. The approved Climate Action Plan policies should be made consistent in the associated Elements of the General Plan. Staff and or consultants can identify and assess regional climate change vulnerabilities that are specific to Atherton and work with neighboring cities and regional agencies to establish more uniform approaches to climate change adaptation strategies. Recent reports from the International Panel on Climate Change (IPCC) state that climate change is occurring now and that the current goal is to first slow and then reverse emissions to avert more serious impacts in the

future. It is recommended that the Town prepare itself for the potential of increasing challenges that climate change can bring that include shrinking water supplies, rising temperatures, increased wildfires, rising bay levels and increased public health issues for the elderly and young. It is recommended that the Town participate in regional efforts for climate change adaptation. Additionally, the Town could include climate change adaptation measures and policies in the General Plan updates. Involvement and support from the Town City Council, staff and the entire community will be essential for the meeting GHG emission reduction targets. Atherton's Climate Action Plan should be viewed as a living document and programs should be revised as new technologies emerge and as new regional, state and federal policies evolve.

#### **4.4 Summary of Measures**

A summary of all the emission reduction measures is provided in Table 8 below.

**Table 8: Summary of Measures**

Measure Category	Description of Measure	2020 Annual Emissions Reduction (MT CO2e)	2030 Annual Emissions Reduction (MT CO2e)
<b>Energy and Water</b>			
<p><b>EC1: Voluntary residential green building ordinance for new construction</b></p>	<p>Promote voluntary building code of zero net energy for new residential buildings. Encourage achievement of CALGreen Tier 2 energy performance and the CALGreen recommendation to install electric vehicle supply equipment. Encourage planting of shade trees for new construction with eastern, southern or western exposure, when feasible.</p>	<p>81</p>	<p>74</p>
<p><b>EC2. Incorporate available Energy Upgrade programs and similar rebate</b></p>	<p>The City will consider a Residential Energy Conservation Program to increase energy efficiency and water conservation through professional home energy audits. The Program may include recognition awards, a Residential Energy and Water Efficiency Checklist, public outreach, and expanded promotion of rebates/programs funded through PG&amp;E and other organizations among other features.</p>	<p>291</p>	<p>458</p>

<p><b>EC3. Implement program for residential shade trees</b></p>	<p>Education and outreach to encourage existing homes to plant deciduous shade trees for houses with eastern, western or southern exposures that heat up during the summer and create alternatives as to not conflict with the priority installation of solar panels. Leverage the services of the Atherton Tree Committee to assist in planting of trees.</p>	<p>61</p>	<p>111</p>
<p><b>EC4. Voluntary commercial green building ordinance for new construction and major additions</b></p>	<p>Encourage use of green building code to achieve higher building performance in new commercial buildings or major additions to commercial buildings. Promote achievement of Net Zero Energy standards.</p>	<p>7</p>	<p>19</p>
<p><b>EC5. Promote PG&amp;E commercial energy efficiency/demand response programs</b></p>	<p>The Town will promote and assist with marketing and outreach for PG&amp;E energy efficiency and demand response programs. Leverage existing rebates/add additional rebates for energy efficient retrofits.</p>	<p>129</p>	<p>101</p>
<p><b>EC6. Community Choice Aggregation (CCA)</b></p>	<p>The Town is part of the Peninsula Clean Energy (PCE) Community Choice Aggregation (CCA) Program. Enabled by California legislation (AB117), Community Choice Aggregation (CCA) allows local governments to purchase and generate power to sell to residential and business customers. The Town has opted for the ECO100 option (100% renewable energy) for all Town facilities.</p>	<p>2,797</p>	<p>4,295</p>

<p><b>EM1. Energy efficient street lighting</b></p>	<p>Replace street, signal lights, parks and parking lot lighting with efficient lighting (LEDs, induction, etc.) where feasible.</p>	<p>6</p>	<p>4</p>
<p><b>EM2. Environmentally preferred purchasing policy - Energy</b></p>	<p>Implement a sustainable purchasing policy that emphasizes ENERGY STAR equipment</p>	<p>2</p>	<p>1</p>
<p><b>EM3. Renewable energy installation on municipal property</b></p>	<p>Review and consider installation of solar or other renewable energy projects at Town facilities. Implement where practical and financially feasible. Consider installation of electric car charging stations at Town facilities and provide plug-in areas, where feasible. Conduct an initial feasibility study to set a goal for on-site renewable projects.</p>	<p>29</p>	<p>12</p>
<p><b>EM4. Energy efficiency in municipal buildings</b></p>	<p>Encourage all new Town facilities be built to Net Zero Energy if financially feasible and where practical. Audit older Town facilities for energy efficiency opportunities and implement energy efficient retrofits if financially feasible. Town participate in San Mateo County Energy Watch and leverage benchmarking to identify opportunities for EE upgrades and tracking energy performance. Leverage other programs that provide funding.</p>	<p>105</p>	<p>61</p>

<b>EM5. Implement municipal program for shade trees</b>	Plant deciduous shade trees within public right-of-way and Town facilities with eastern, western or southern exposure that heat up during the summer. Create alternatives so as to not conflict with the priority installation of solar panels, where feasible.	3	2
<b>WTRC1. Water conservation incentives</b>	Make concerted effort to promote and expand the distribution of existing and/or new rebates for water efficient appliances and fixtures. Encourage landscape/irrigation professionals to participate in community landscape conservation and water efficient landscaping workshops.	64	93
<b>WTRC2. Water conservation ordinance</b>	Adopt Bay Area Water Supply and Conservation Agency (BAWSCA) Indoor Ordinance and Outdoor Ordinance if haven't already and enhance BAWSCA Outdoor Ordinance (all cities required to adopt).	58	84
<b>WTRC3. Voluntary water conservation programs</b>	Make concerted effort to promote and educate the community on water recapture efforts and how to implement them such as rain barrels, permeable pavement and gray water systems.	1	1
	<b>ENERGY AND WATER TOTAL</b>	<b>3,634</b>	<b>5,316</b>

**Transportation and Land Use**

<p><b>TRC1. Implement the Town's Bike Pedestrian Master Plan faster to create walkable / bikeable street landscape</b></p>	<p>Remake sub-urban landscape to make walking and biking more desirable. Bike lanes, bike parking, traffic calming, beautification, etc. Install new bicycle racks outside Town Hall.</p>	<p>233</p>	<p>198</p>
<p><b>TRC2. Fund and implement Bike Master Plan priorities and make having safe routes to school a Town priority</b></p>	<p>Work with Safe Routes to Schools program to ensure that our plan to develop safe bike and pedestrian routes will work; provide bike safety programs to encourage active transportation for students where practical and feasible.</p>	<p>119</p>	<p>162</p>
<p><b>TRM1. Efficient fleet policy</b></p>	<p>Prioritize purchase of electric vehicles and other alternative fuel vehicles where it meets operational requirement of the Police Department. Encourage staff to drive minimally and efficiently, where feasible and need dependent.</p>	<p>4</p>	<p>7</p>
<p><b>TRM2. Flexible schedules</b></p>	<p>Where feasible, establish alternative work schedules and telecommuting to reduce employee commute. Continue to support housing options to encourage off-duty police officers or other Town employees to stay overnight near the Town Center, where feasible and need dependent.</p>	<p>31</p>	<p>30</p>
<p><b>TRM3. Explore Town participation in County-wide rideshare or bus program</b></p>	<p>Explore Town participation in county-wide ride share or bus program for public employee commuting.</p>	<p>1</p>	<p>1</p>
	<p><b>TRANSPORTATION AND LAND USE TOTAL</b></p>	<p><b>388</b></p>	<p><b>398</b></p>

<b>Solid Waste</b>			
<b>WC1. Set higher community waste diversion goal</b>	Increase participation in recycling programs and ensure weekly collection of recyclables and organic waste to achieve 86% diversion rate (increase from 71.8% diversion rate in 2010).	1,253	1,253
<b>WC2. Require commercial recycling through mandatory ordinance</b>	Provide outreach, education and training to commercial customers and schools to support recycling habits and understanding. All businesses and entities that generate four or more cubic yards of garbage per weeks are required to recycle under California law. Commercial customers subscribed to Recology's garage collection services receive recycling and compost collection for no additional cost.	Supporting Measure	Supporting Measure
<b>WC3. Promotion of recycling/diversion of yard waste</b>	Encourage the recycling/diversion of yard waste by landscapers and landscape maintenance businesses. Comply with updates to the California Integrated Waste Management Act requiring businesses to recycle organic waste by 2016. Provide residents, businesses and private schools with food scraps collection. Explore incentives for local composting of these organics.	Supporting Measure	Supporting Measure

<b>WM1. Create Sustainable Vendor Policy for public events</b>	Encourage recycling at major public events (including at schools) of cardboard, paper, containers and food/organics. Encourage use of recyclable silverware and food take-out packaging. Ensure provision of proper landfill, recycling and organic bins.	Supporting Measure	Supporting Measure
<b>WM2. Environmentally preferred purchasing policy - Waste reduction</b>	Implement a sustainable purchasing policy that emphasizes recycled materials.	Supporting Measure	Supporting Measure
<b>WM3. Approach a zero waste policy in government operations</b>	Government Policy to improve diversion in Town operations by 2020/2030.	Supporting Measure	Supporting Measure
	<b>SOLID WASTE TOTAL</b>	<b>1,253</b>	<b>1,253</b>
	<b>ALL SECTORS TOTAL</b>	<b>5,275</b>	<b>6,967</b>

## 4.5 Meeting the emission targets

**Table 9: Meeting the 2020 Target (17% below 2005)**

State Initiative	Sector Impacted	2020 BAU Emissions in Sector	% Reduction from 2020 BAU in Sector	Reduction in City's Emissions by 2020
<b>AB 1493 (Pavley)</b>	Transportation	31,985	19.7%	<b>6,301</b>
<b>LCFS</b>	Transportation	31,985	7.2%	<b>2,303</b>
<b>33% RPS</b>	Electricity (Energy)	13,529	17.1%	<b>2,313</b>
<b>A. Total Statewide Initiative Emissions Reductions</b>				<b>10,918</b>
<b>B. Total City Climate Action Plan Reductions Measures</b>				<b>5,275</b>
<b>C. Total Expected Emissions Reductions by 2020 (A+B)</b>				<b>16,193</b>
<b>D. Town of Atherton Emissions Reduction Requirement for 2020</b>				<b>14,562</b>
<b>E. Percent Emissions Below 2005 Target</b>				<b>17%</b>
<b>F. Percent Emissions Below 2005 with Current Measures</b>				<b>17.2%</b>
<b>G. Meets/exceeds CAP goals? (F &gt; E)</b>				<b>YES</b>

**Table 10: Meeting the 2030 Target (49% below 2005)**

State Initiative	Sector	2030 BAU Emissions in Sector	% Reduction from 2030 BAU in Sector	Reduction in City's Emissions by 2030
<b>AB 1493 (Pavley)</b>	Transportation	33,690	19.7%	<b>6,637</b>
<b>LCFS</b>	Transportation	33,690	7.2%	<b>2,426</b>
<b>50% RPS</b>	Electricity (Energy)	13,859	34.1%	<b>4,726</b>
<b>Governor Proposed 50% Petroleum Reduction</b>	Transportation	33,690	11.1%	<b>3,740</b>
<b>Net Zero New Residential Construction (100%) by 2020</b>	Residential	33,993	18.0%	<b>6,119</b>
<b>Net Zero Existing Commercial Construction (50%) by 2030</b>	Commercial	6,666	50.0%	<b>3,333</b>
<b>A. Total Statewide Initiative Emissions Reductions</b>				<b>26,980</b>
<b>B. Total City Climate Action Plan Reductions Measures</b>				<b>6,967</b>
<b>C. Total Expected Emissions Reductions by 2020 (A+B)</b>				<b>33,947</b>
<b>D. Town of Atherton Emissions Reduction Requirement for 2030</b>				<b>44,174</b>
<b>E. Percent Emissions Below 2005 Target</b>				<b>49%</b>
<b>F. Percent Emissions Below 2005 with Current Measures</b>				<b>34.9%</b>
<b>G. Meets/exceeds CAP goals? (F &gt; E)</b>				<b>NO</b>

## 4.6 Public Participation and Community Engagement

The Town can play a substantial role in generating awareness and educating residents about ways to reduce emissions. While the Town can help initiate a movement that emphasizes sustainable practices, it is crucial that other members of the community, such as residents and businesses, are engaged in the process in order to achieve the reduction targets mentioned in this plan while minimizing costs. The target will only be achieved by building a movement that achieves sustained action and coordination across all stakeholders and sectors.

As mentioned previously, there are significant opportunities for the City to leverage existing programs funded by the State of California, PG&E, and others to support community efforts to improve energy efficiency, install renewable energy technologies, facilitate transit/biking/walking initiatives, and support households and businesses in taking other actions. Atherton seeks to distribute information more widely on funding opportunities for residents. Actions may include more information posted on the City website and marketing materials posted at key locations, including City Hall and the library. Additional actions may include partnering with PG&E and local water districts to further develop marketing presentations and workshops for the community.

Specific actions that community members can take today are included in Appendix B of this climate action plan. Funding opportunities are listed in Appendix C.

## 4.7 Timeline

The following timeline lists the major milestones in the Climate Action Plan implementation process. Progress and updates to this schedule should be submitted to City Council and the public as part of an annual Plan Implementation Report.



**Table 10. Climate Action Plan Implementation**

Milestone	Target Date
<b>GHG Inventory Completed</b>	April 2014
<b>GHG Reduction Target Established</b>	April 2014
<b>Environmental Programs Committee Working Meetings and City Council study session on Reviewing Town’s Existing Greenhouse Gas Inventory and Preparing Recommended Greenhouse Gas Reduction Measures</b>	Late Summer – Fall 2014
<b>Environmental Programs Committee Working Meetings on Preparing a Recommended Draft CAP</b>	July – September 2015
<b>City Council Study Sessions on Draft CAP</b>	February and March 2016
<b>CAP Adoption</b>	October 19, 2016



## 5. Monitoring and Improvement

Monitoring progress is a critical component to ensure that the emissions targets are met. Should monitoring efforts find that the Climate Action Plan is falling short of its goals, the Town will add additional measures to the Plan in order to meet the GHG reduction targets. Ongoing monitoring is critical in order to demonstrate that the Plan is achieving its goals, thereby maintaining its status as a GHG Reduction Strategy over time. The implementation and monitoring of the Plan will be critical to the ability of subsequent projects to tier their GHG analysis under CEQA.

The following describes the monitoring and improvement program.

- A full GHG inventory will be conducted every five years as required by the BAAQMD according to the ICLEI community emissions protocol. The inventory will allow the city to understand how emissions levels are tracking in a top-down manner. PG&E can provide annual updates on electricity and natural gas usage to track associated GHG emissions.
- This Plan may need to be updated based on the results of the GHG inventory. The Town may modify and/or add new measures to ensure that the city is on track to meeting its greenhouse gas reduction goals.



## Conclusion

Climate change is a global problem and only through local solutions designed to meet the needs of our community can we mitigate and adapt to its impacts and protect the environment. While the challenge of climate change is unprecedented, local-level solutions can reduce emissions, increase efficiency, promote economic development, and improve quality of life for residents.

The Town has taken a significant step toward a more sustainable future with this Climate Action Plan. This Plan has identified areas and opportunities to reduce GHG emissions within the community and Town operations that, along with statewide efforts, can achieve our environmental goals. Atherton is poised to reap the benefits of a clean energy economy.

These are difficult issues. When reviewing this Plan, the proposed efforts of Atherton are small when compared to the collective action of our citizenry. What can a single individual do? Appendix B provides 10 ways that individuals can reduce their GHG footprint and help safeguard our environment for future generations.

While an important first step, this plan will remain a living document, to be updated as technology and policies progress, to support the Town's efforts to manage GHG emissions for a sustainable future for all.

## 6.1 Appendix A. Glossary of Terms

AB32	The California Global Warming Solutions Act of 2006
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
CAP	climate action plan
CAPPA	Climate and Air Pollution Planning Assistant
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
EIR	environmental impact review
GHG	greenhouse gas
ICLEI	Local Governments for Sustainability
kWh	kilowatt hour
MFD	multifamily dwelling
MPO	metropolitan planning organization
MT	metric ton
PACE	property-assessed clean energy
PG&E	Pacific Gas and Electric Company
ppm	parts per million
PV	photovoltaic
RPS	renewable portfolio standard
U.S. EPA	United States Environmental Protection Agency
TOD	Transit-oriented development

## 6.2 Appendix B. 10 Steps to Reduce Your Carbon Footprint

Modified from CoolClimate.org

### 1. Change your commute

Did you know that one third of the CO<sub>2</sub> produced in the U.S. is from the transportation of people or goods? Pick one day a week to walk, bike, take public transportation or carpool to work or when you are running errands. Silicon Valley Bicycle Coalition (<http://bikesiliconvalley.org/>) has great resources and can help you plan your bike commute. Another resource for planning trips via public transportation is 511.org. If possible, live close to your workplace and talk to your employer about working from home or subsidizing the costs of public transportation. When driving, remember to combine several car trips into one trip and avoid idling. Additionally, you can get better fuel efficiency by following the speed limit. Exceeding the speed limit by just 5 mph during highway travel results in an average fuel economy loss of 6 percent.

### 2. Be a better consumer

Did you know that the average American generates about 4.4 lbs of trash each day? To reduce the amount of trash you generate, follow these few easy steps. Use re-usable coffee mugs and shopping bags. If you forget your mug or bag at the store, buy a new reusable mug or bag and keep the extra one in your purse or car for use the next time you are out. Alternatively, set aside \$1 each time you forget your mug or bag; depending on your memory, you will have enough funds to purchase a reusable item sooner or later. Also, reuse as many things as possible and recycle at home, work, and school. Compost pick-up is now available in more parts of San Mateo County.

### 3. Shop local

The shorter the distance your food travels to your plate or that product travels to your home, the fewer greenhouse gases are produced. Declare one day a week to be a "buy local day" and eat foods produced within 50 miles of your house. Participate in community-supported agriculture and community-supported fishery programs and shop at farmers markets.

Buy produce and fish labeled "As Fresh As It Gets," signifying that it was grown or harvested in San Mateo County. Support restaurants and businesses accredited by the "As Fresh As It Gets" campaign, signifying that they use county-grown produce, fish, and other products. For a list of in-season produce and fish, farmers market locations, and accredited businesses and restaurants, visit <http://freshasitgets.com/>.

#### **4. Dry-up Household Water Consumption**

Did you know that water-related energy use consumes 19 percent of California's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel every year? To reduce your water consumption at home, turn off your water when it's not being used, take shorter showers, stop unseen leaks by reading your meter, install low-flow shower heads and aerators on your faucet, install and use water-efficient landscaping and irrigation methods (for example, plant drought tolerant plants and/or install permeable surfaces and drip irrigation systems), and use EnergyStar appliances. The Bay-Friendly Gardening Program (<http://www.stopwaste.org/>) provides resources for selecting plants, conserving water and fostering soil health.

#### **5. Unplug it**

Did you know that appliances, chargers, home theater equipment, stereos, and televisions use electricity even when their power is off? Eliminating this "leaking" electricity could save you 6–26 percent on your average monthly electricity bill. Take a walking tour of your home, unplug seldom-used appliances, and install power strips so that the power to frequently used items can be easily turned off.

#### **6. Change the lights**

Replace any incandescent light bulbs that remain in your home with compact fluorescent lights (CFLs). Replacing one incandescent light bulb with a CFL can save \$30 or more in electricity costs over the bulb's lifespan.

#### **7. Set your Thermostat for the Season**

Set your thermostat in winter to 68° or less during the daytime, and 55° before going to sleep (or when you are away for the day), to save 5 to 20 percent of your space-heating costs. During the summer, set thermostats to 78° degrees or more to save 5 to 20 percent of your cooling costs. For an easy fix, purchase an inexpensive programmable thermostat that makes these changes for you.

#### **8. Increase Energy Efficiency at Home**

Did you know that you can save up to 350 pounds of CO<sub>2</sub> and \$150 per year at home by simply keeping air filters clean? To determine more ways to increase energy efficiency, take advantage of subsidized home energy audits offered through Energy Upgrade California. When you are ready to purchase an appliance, ensure that you purchase an EnergyStar appliance. To reduce carbon emissions associated with energy use, install or purchase alternative energy for your electricity needs.

#### **9. Stop Unwanted Services**

Did you know that junk mail production in the U.S. consumes as much energy as 2.8

million cars? Stop your junk mail at [www.directmail.com/junk\\_mail](http://www.directmail.com/junk_mail). Stop unwanted catalogs at [www.catalogchoice.org](http://www.catalogchoice.org).

**10. Get your friends and families to reduce their carbon emissions**

## 6.3 Appendix C. Summary of Funding Sources

For implementation of the Climate Action Plan, Atherton must evaluate strategies for financing climate protection actions and provide adequate, reliable, and consistent long-term program funding. This appendix provides an overview of available funding sources to help determine appropriate potential program funding sources and funding levels to support existing and new programs outlined in this plan. Other funding sources may be available that are not listed here.

### 6.4 Federal Funding

#### **Federal Transportation Investment Generating Economic Recovery (TIGER) Grant**

<https://www.transportation.gov/tiger>.

The Federal Transportation Investment Generating Economic Recovery (TIGER) grant program was created by the American Investment and Recovery Act (ARRA) of 2009. In 2016, U.S. Transportation Secretary Anthony Foxx announced that nearly \$500 million will be made available for transportation projects across the country in the eighth round of the highly successful TIGER grant program. Cities can apply for a TIGER grant to fund parking garages, and infrastructure to support electric battery-swap station and parking for electric vehicles.

### 6.5 State Funding

#### **Energy Conservation Assistance Act (ECAA) Program Loans**

<http://www.energy.ca.gov/efficiency/financing/index.html>

Since 1979, more than \$399 million has been allocated to more than 850 recipients through ECAA Program Loans. The program offers loans with a one percent interest rate to finance energy efficiency improvements. The maximum loan amount is \$3 million per application. Eligible projects include lighting system upgrades, pumps and motors, streetlights and LED traffic signals, energy management systems and equipment controls, building insulation, energy generating including renewable and combined heat and power projects, HVAC equipment, water and waste water treatment equipment and load shifting projects.

#### **Energy Upgrade California**

<https://energyupgradeca.org>

The Energy Upgrade California program helps residential and commercial consumers and the building industry to access available rebate programs and financing options for energy efficiency and renewable energy projects. It is supported by an alliance of the California Public Utilities Commissions, the California Energy Commissions, utilities, regional energy networks, local governments, businesses and nonprofits. Funding comes from investor-owned utility customers under the auspices of the California Public Utilities Commission.

## 6.6 Utility Rebate Programs

Pacific Gas and Electric (PG&E) offers a full suite of energy efficiency rebates programs to support its customers in saving energy and money.

- Rebates for households: [https://www.pge.com/en\\_US/residential/save-energy-money/savings-solutions-and-rebates/rebates-by-product/rebates-by-product.page?](https://www.pge.com/en_US/residential/save-energy-money/savings-solutions-and-rebates/rebates-by-product/rebates-by-product.page?)
- Rebates for businesses: [https://www.pge.com/en\\_US/business/save-energy-money/business-solutions-and-rebates/product-rebates/product-rebates.page](https://www.pge.com/en_US/business/save-energy-money/business-solutions-and-rebates/product-rebates/product-rebates.page)

Below, we provide some specific examples of PG&E programs available to the community.

### **PG&E San Mateo County Energy Watch Program**

<http://www.smcenergywatch.com>

San Mateo County Energy Watch provides energy efficiency services and retrofits and assists businesses and moderately low-income households to identify cost-effective projects. The program's services include energy audits, special rebates and incentives

### **PG&E Residential Appliance Rebates**

<http://www.pge.com/myhome/saveenergymoney/rebates/appliance/>

PG&E offers rebates to customers who purchase qualifying energy efficient appliances, including clothes washer, gas storage water heaters, electric heat pump water heaters and variable speed pool pumps/motors.

### **PG&E LED Streetlight Replacement Program**

<http://www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/ref/lighting/lightemittingdiodes/incentives/index.shtml>

The Town Atherton may be eligible for PG&E's LED streetlight replacement program which provides rebates to cities that replace existing streetlights with more energy efficient LED fixtures (up to \$125 per fixture). More information on this program is available at

### **PG&E Commercial Appliance Rebates**

<http://www.pge.com/en/mybusiness/save/rebates/erebates/index.page>

PG&E offers rebates to business customers on hundreds of products including refrigeration units, lighting fixtures, heating systems, food service appliances, boilers and water heaters, and

insulation. More information and a complete list of products eligible for rebates is available online at

### **PG&E Home Energy Efficiency Improvements Rebates**

<http://www.pge.com/myhome/saveenergymoney/rebates/remodeling/>

PG&E offers rebates to customers who make energy efficiency improvements when remodeling their homes. Currently PG&E offers a rebate of up to \$0.20 per square foot for cool roof installations and \$0.15 per square foot of attic and wall installation installed. Additionally, PG&E has rebates for homeowners who upgrade their home's heating and cooling systems. Rebates are available for installing energy efficient furnaces (up to \$300), air conditioning units (up to \$50) and whole house fans (up to \$100). Finally, PG&E will provide up to \$400 in rebates to customers who test and seal their home's duct system. More information on this program is available at

## **6.7 Local Energy Programs**

### **California Youth Energy Services**

<http://www.risingsunenergy.org>

Since 2000, Rising Sun Energy Center has run CYES, a summer youth employment and community efficiency retrofit program in the Bay Area. CYES hires young people (ages 15-22) and trains them to become Energy Specialists, serving their communities with a FREE Green House Call. Energy Specialists install free energy and water saving devices, and provide personalized recommendations and education for further savings in homes. CYES provides services to all community members regardless of income. However, it was designed to serve hard-to-reach residents including renters, non-English speaking households, and low-moderate income households. It provides youth with opportunities for training and meaningful employment; which are often not adequately available to them. CYES youth receive employability skills training, paid summer employment, and the foundation for a green career.

### **Green@Home House Calls**

<http://www.acterra.org/programs/greenathome/index.html>

Green@Home House Calls help fight climate change by saving residents energy, money and CO2. Trained volunteers meet with residents in their homes to install simple energy-saving devices and create home energy conservation plans. Volunteers demonstrate environmentally friendly choices and foster a deeper awareness of the need for change. House Calls are available to all residents of participating cities whether you rent or own.

## **6.8 Other Funding Opportunities**

### **American Forests Global ReLeaf Grant Program**

<http://www.americanforests.org/discover-american-forests/our-work/>

American Forests is a non-profit organization founded in 1875 that promotes forest conservation. American Forest's Global ReLeaf Program provides grants to fund tree-planting projects in urban and natural areas.

### **California ReLeaf Urban Forestry Grant Program**

<http://californiareleaf.org/programs/grants>

The California ReLeaf Urban Forestry grant program provides funding to assist nonprofit and community-based groups throughout California with urban forestry projects. The program is funded through a contract with the California Department of Forestry and Fire Protection (CAL FIRE).

### **Large Landscape Audit**

<http://bawasca.org/conserves/programs/audits>

BAWSCA and its participating member agencies offer this audit program to select large landscapes within the service area free of charge. This program includes the development and monthly distribution of landscape water budgets for selected accounts and actual large landscape surveys to assess landscape watering needs. A key component of the program is ongoing monitoring/tracking of actual water use and estimated water savings for the sites surveyed. If you have water conservation related questions, please call 650-349-3000 or send an email to [bawasca@bawasca.org](mailto:bawasca@bawasca.org). You can also check with your local water company; some offer water audits for no charge.

### **Waste Audits by Recology**

<https://www.recology.com/index.php/commercial-beyond-the-cart/84-commercial>

Recology offers a free waste audit to its business customers. A Waste Zero Specialist will come to your facility to advise you on the size/type of bins you could use and make other recommendations to help you reduce the amount of waste generated. To make an appointment, call (650) 595-3900.

## 6.9 Appendix D. Adaptation Planning for Climate Impacts

Effective adaptation planning and management entails dealing with uncertainty. It is a long-term process that should allow immediate action when necessary and adjust to changing conditions and new knowledge. Adaptation will likely be an ongoing process of planning, prioritization and specific project implementation.

As discussed in the introduction, the impacts of climate change include sea level rise, increased wildfires, and drought due to reduced snow pack in the Sierra Nevada Mountains, an increase in unpredictable weather, negative impacts on wildlife and a deterioration of public health.

Between 1900 and 2000, the San Francisco Bay rose seven inches. The California Climate Action Team found that the San Francisco Bay could rise an additional five inches to three feet by the end of this century.

Climate change adaptation strategies will be necessary as the climate changes and sea levels rise. Adaptation measures are important in order to allow Atherton to proactively prepare for potential effects of climate change to come. It has become clear that regardless of the efforts to reduce greenhouse gas emissions, not all the effects of climate change can be prevented or reversed. The challenge will be to reduce the effects to the lowest level possible and enable Atherton to remain healthy and effective.

It is recommended that the Town identify and reassess regional climate change vulnerabilities and work with neighboring jurisdictions and regional agencies to establish more uniform approaches to addressing climate change, where feasible. Consistency with state goals regarding emission reductions could potentially open sources of funding that the Town could use to expand or maintain climate programs.

## 6.10 Appendix E. Baseline 2010 GHG Inventory, April 14, 2014

Table 4: 2010 Community Emissions by Sector

Sectors Included in the Baseline Inventory	2005 GHG Emissions (metric tons CO <sub>2</sub> e)	2010 GHG Emissions (metric tons CO <sub>2</sub> e)	Increase or Decrease in GHG Emissions (metric tons CO <sub>2</sub> e)	Percentage of 2010 GHG Emissions
Residential	31,608	32,227	619	44.82%
Commercial/Industrial	6,247	6,453	206	8.97%
Transportation – Local roads	24,256	23,172	-1,084	32.23%
Transportation – State highways	6,569	5,657	-912	7.87%
Transportation – Off-road equipment	2,057	2,182	125	3.03%
Solid Waste – Generated Waste	1,995	1,170	-825	1.63%
<b>SUBTOTAL</b>	<b>72,731</b>	<b>70,862</b>	<b>-1,869</b>	<b>98.55%</b>
New Sectors (not included in the Baseline Inventory)	2005 GHG Emissions (metric tons CO <sub>2</sub> e)	2010 GHG Emissions (metric tons CO <sub>2</sub> e)	Increase or Decrease in GHG Emissions (metric tons CO <sub>2</sub> e)	Percentage of 2010 GHG Emissions
Stationary Sources	Not available	12	Not applicable	0.02%
Transportation – CalTrain		586		0.82%
Transportation – Freight Trains		77		0.11%
Wastewater		170		0.24%
Water		199		0.28%
<b>SUBTOTAL</b>		<b>1,043</b>		<b>1.45%</b>
<b>GRAND TOTAL OF 2010 EMISSIONS</b>	<b>71,906 MTCO<sub>2</sub>e</b>			
<b>Total of 2005 Baseline Emissions</b>	<b>72,731 MTCO<sub>2</sub>e</b>			
<b>Total Decrease</b>	<b>-825 MTCO<sub>2</sub>e -1%</b>			

## 6.11 Appendix G. Emission Reduction Measures: Calculations

Measure Category	2020 Measure Calculations Assumptions	2030 Measure Calculations Assumptions
<p><b>EC1: Voluntary residential green building ordinance for new construction</b></p>	<p>Estimated new residential square footage based on historical permit data: 215,000 square feet of new residential construction per year. Voluntary Net Zero Energy residential new construction policy in place beginning in 2017. Assume 5% of total new residential construction achieves Net Zero Energy (43,000 square feet) by 2020. Results in estimated 90% reduction in natural gas and grid electricity consumption for impacted residential buildings.</p>	<p>Estimated new residential square footage based on historical permit data: 215,000 square feet of new residential construction per year. Voluntary Net Zero Energy residential new construction policy in place beginning in 2017. Assume 5% of total new residential construction achieves Net Zero Energy (43,000 square feet) by 2020. For new residential construction after 2020, GHG emissions avoided are attributable to state policy. Results in estimated 90% reduction in natural gas and grid electricity consumption for impacted residential buildings.</p>
<p><b>EC2. Incorporate available Energy Upgrade programs and similar rebate</b></p>	<p>Estimated 17% participation rate in home energy audits and associated energy efficiency improvements by 2020. Results in 20% natural gas and electricity savings for participating households. The avoided emissions associated with residential energy efficiency were split between measure ER2 and measure ER3, due to the similarities between these two measures.</p>	<p>Estimated 30% participation rate in home energy audits and associated energy efficiency improvements by 2030. Results in 20% natural gas and electricity savings for participating households. The avoided emissions associated with residential energy efficiency were split between measure ER2 and measure ER3, due to the similarities between these two measures.</p>
<p><b>EC3. Implement program for residential shade trees</b></p>	<p>Estimated 100 homes would plant shade trees by 2020 as a result of the measure. Results in 5% electricity and gas savings for participating homes.</p>	<p>Estimated 200 homes would plant shade trees by 2030 as a result of the measure. Results in 5% electricity and gas savings for participating homes.</p>

<p><b>EC4. Voluntary commercial green building ordinance for new construction and major additions</b></p>	<p>Estimated new commercial square footage based on historical permit data: 12,000 square feet of new commercial construction per year. Voluntary Net Zero Energy commercial new construction policy in place beginning in 2017. Assume 5% of total new commercial construction (2,400 square feet) achieves Net Zero Energy by 2020. Results in 90% reduction in natural gas and grid electricity consumption for commercial buildings impacted.</p>	<p>Estimated new commercial square footage based on historical permit data: 12,000 square feet of new commercial construction per year. Voluntary Net Zero Energy commercial new construction policy in place beginning in 2017. Assume 5% of total new commercial construction (8,400 square feet) achieves Net Zero Energy by 2020. Results in 90% reduction in natural gas and grid electricity consumption for commercial buildings impacted.</p>
<p><b>EC5. Promote PG&amp;E commercial energy efficiency/demand response programs</b></p>	<p>Estimated total commercial space in Atherton at 1,366,192 square feet based on data provided by the Town. Assumed 30% of commercial space would receive energy efficiency upgrades by 2020 as a result of the program, resulting in a 10% reduction in natural gas and electricity consumption for those buildings.</p>	<p>Estimated total commercial space in Atherton at 1,366,192 square feet based on data provided by the Town. Assumed 30% of commercial space would receive energy efficiency upgrades by 2030 as a result of the program, resulting in a 10% reduction in natural gas and electricity consumption for those buildings.</p>
<p><b>EC6. Community Choice Aggregation (CCA)</b></p>	<p>Used data from Phase 1 of the Peninsula Clean Energy roll-out in 2016 to estimate future participation rates. Estimated 94.6% of customers participating in "ECOplus" option (50% RE) and 4.8% of customers participating in "ECO100" option (100% RE).</p>	<p>Used data from Phase 1 of the Peninsula Clean Energy roll-out in 2016 to estimate future participation rates. Estimated 94.6% of customers participating in "ECOplus" option (50% RE) and 4.8% of customers participating in "ECO100" option (100% RE).</p>
<p><b>EM1. Energy efficient street lighting</b></p>	<p>226 street lights with an average wattage of 99 watts replaced with LEDs based on data provided by Town.</p>	<p>226 street lights with an average wattage of 99 watts replaced with LEDs based on data provided by Town.</p>
<p><b>EM2. Environmentally preferred purchasing policy - Energy</b></p>	<p>100% of eligible electronic devices replaced with ENERGY STAR devices by 2020, resulting in 15% reduction in electricity consumption of devices.</p>	<p>100% of eligible electronic devices replaced with ENERGY STAR devices by 2020, resulting in 15% reduction in electricity consumption of devices.</p>
<p><b>EM3. Renewable energy installation on municipal property</b></p>	<p>Estimated that total square footage of municipal buildings (26,600 square feet) is capable of accommodating 133 kW of installed solar capacity, resulting in the generation of 221,000 kWh per year.</p>	<p>Estimated that total square footage of municipal buildings (26,600 square feet) is capable of accommodating 133 kW of installed solar capacity, resulting in the generation of 221,000 kWh per year.</p>

<p><b>EM4. Energy efficiency in municipal buildings</b></p>	<p>Estimated 34,000 square feet of new municipal construction by 2020 based on data provided by Town (including recent Civic Center project). Results in estimated 90% reduction in natural gas and grid electricity consumption for new buildings impacted. Assumed all existing municipal facilities (26,600 square feet) receive energy retrofits by 2020, resulting in 10% reduction in electricity and gas consumption.</p>	<p>Estimated 51,000 square feet of new municipal construction by 2020 (including recent Civic Center project). Results in estimated 90% reduction in natural gas and grid electricity consumption for new buildings impacted. Assumed all existing municipal facilities (26,600 square feet) receive energy retrofits by 2030, resulting in 10% reduction in electricity and gas consumption.</p>
<p><b>EM5. Implement municipal program for shade trees</b></p>	<p>Estimated 50% of municipal buildings would receive energy consumption benefits from planting of shade trees. Buildings impacted by policy would see 10% reduction in electricity and natural gas consumption. Used baseline municipal buildings energy consumption from 2005 Government Operations Inventory.</p>	<p>Estimated 50% of municipal buildings would receive energy consumption benefits from planting of shade trees. Buildings impacted by policy would see 10% reduction in electricity and natural gas consumption. Used baseline municipal buildings energy consumption from 2005 Government Operations Inventory.</p>
<p><b>WTRC1. Water conservation incentives</b></p>	<p>Estimated 30% of households (699) would install water efficient appliances and fixtures by 2020 as a result of the measure, resulting in a 15% reduction in water use (and associated electricity and gas use).</p>	<p>Estimated 45% of households (699) would install water efficient appliances and fixtures by 2030 as a result of the measure, resulting in a 15% reduction in water use (and associated electricity and gas use).</p>
<p><b>WTRC2. Water conservation ordinance</b></p>	<p>Estimated that 20% of households impacted by the BAWSCA ordinance by 2020, resulting in 20% indoor water use reduction and 27% outdoor water use reduction (and associated energy reductions).</p>	<p>Estimated that 30% of households impacted by the BAWSCA ordinance by 2030, resulting in 30% indoor water use reduction and 27% outdoor water use reduction (and associated energy reductions).</p>
<p><b>WTRC3. Voluntary water conservation programs</b></p>	<p>Estimated that 20% of total outdoor water use reduction and associated energy use reductions by 2020 (as calculated in measure WRM1) is the result of water recapture efforts.</p>	<p>Estimated that 20% of total outdoor water use reduction and associated energy use reductions by 2030 (as calculated in measure WRM1) is the result of water recapture efforts.</p>
<p><b>TRC1. Implement the Town's Bike Pedestrian Master Plan faster to create walkable / bikeable street landscape</b></p>	<p>9 miles of bicycle lanes, and bicycle parking located in nonresidential projects by 2020, resulting in 1% reduction in total community-wide vehicle miles traveled.</p>	<p>9 miles of bicycle lanes, and bicycle parking located in nonresidential projects by 2020, resulting in 1% reduction in total community-wide vehicle miles traveled.</p>

<p><b>TRC2. Fund and implement Bike Master Plan priorities and make having safe routes to school a Town priority</b></p>	<p>Estimated 5% increase in total number of students walking or bicycling to school as a result of the program, resulting in a 0.5% reduction in community-wide VMT.</p>	<p>Estimated 8% increase in total number of students walking or bicycling to school as a result of the program, resulting in a 0.8% reduction in community-wide VMT.</p>
<p><b>TRM1. Efficient fleet policy</b></p>	<p>Used baseline emissions associated with municipal fleet from 2005 Government Operations Inventory as a baseline. Assumed 5% of fleet switched to EV or alternative fuel vehicles, resulting in a 1% decrease in municipal fleet emissions.</p>	<p>Used baseline emissions associated with municipal fleet from 2005 Government Operations Inventory as a baseline. Assumed 10% of fleet switched to EV or alternative fuel vehicles, resulting in a 2% decrease in municipal fleet emissions.</p>
<p><b>TRM2. Flexible schedules</b></p>	<p>Used average employee commute distance from 2005 Government Operations Inventory as a baseline. Assumed 8 Town employees regularly working from home and 19 nights per month of police officers staying at Gilmore House, resulting in 60,000 miles of vehicle travel avoided per year.</p>	<p>Used average employee commute distance from 2005 Government Operations Inventory as a baseline. Assumed 10 Town employees regularly working from home and 19 nights per month of police officers staying at Gilmore House, resulting in 60,000 miles of vehicle travel avoided per year.</p>
<p><b>TRM3. Explore Town participation in County-wide rideshare or bus program</b></p>	<p>Used average employee commute distance from 2005 Government Operations Inventory as a baseline. Estimated 10% of employees participating in program by 2020, resulting in a 0.5% reduction in employee commute VMT.</p>	<p>Used average employee commute distance from 2005 Government Operations Inventory as a baseline. Estimated 10% of employees participating in program by 2030, resulting in a 0.5% reduction in employee commute VMT.</p>
<p><b>WC1. Set higher community waste diversion goal</b></p>	<p>Assumed community-wide waste diversion rate would increase from 2010 baseline of 71.8% to 86% by 2020. 2010 waste diversion data provided by SPWMA.</p>	<p>Assumed community-wide waste diversion rate would increase from 2010 baseline of 71.8% to 86% by 2030. 2010 waste diversion data provided by SPWMA.</p>
<p><b>WC2. Require commercial recycling through mandatory ordinance</b></p>	<p>N/A: Supporting Measure</p>	<p>N/A: Supporting Measure</p>

<b>WC3. Promotion of recycling/diversion of yard waste</b>	N/A: Supporting Measure	N/A: Supporting Measure
<b>WM1. Create Sustainable Vendor Policy for public events</b>	N/A: Supporting Measure	N/A: Supporting Measure
<b>WM2. Environmentally preferred purchasing policy - Waste reduction</b>	N/A: Supporting Measure	N/A: Supporting Measure
<b>WM3. Approach a zero waste policy in government operations</b>	N/A: Supporting Measure	N/A: Supporting Measure