Town of Woodside

Climate Action Plan

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

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LETTER FROM SUSTAINABILITY & CONSERVATION COMMITTEE CHAIR

Right now is a critical time for our community, our economy, and the world we leave future generations. Woodside residents are fortunate to live in a beautiful, coveted area while also surrounded by a wealth of knowledge and opportunity, fostered by the innovation of our regions businesses and emboldened by our residents' entrepreneurial spirit. Woodside has a strong history of supporting environmental sustainability and preservation principles, as exemplified by its protection of forests and trees, streams, wildlife, wildlife corridors, hillsides, and other environmentally sensitive areas and species. Yet, there is more to be done, and more opportunities to strengthen and protect, for now and the future, our environment, our beautiful community and its natural resources. This drive to protect natural resources has been one of the core values of our community since its incorporation in 1956. Resources fundamental to the vibrancy of Woodside are at risk, however, from the effects of climate change which, in San Mateo County, including Woodside, threatens to increase sea level (impacting transportation and other infrastructure used by all County residents), summer temperatures, the number of wildfires, the prevalence and strength of storms, and air pollution-related health problems, while possibly deteriorating water service reliability.

Climate change is a global problem, but only through local solutions designed to meet the needs of our community can we mitigate the impacts on our lives and adapt to impacts we cannot avoid. As a community, when we choose to conserve our scarce resources, we not only save money, support local green businesses, and promote the emergence of new markets that prioritize green technologies, but we set a forward-thinking example for other communities. This Climate Action Plan (CAP) is a comprehensive and strategic approach to sustainability, offering a suite of recommended actions that will engage all members of the community in this journey to safeguard our environment. The Plan also includes ideas to empower our Town government to "walk the talk" by implementing practices that minimize our own impacts on the environment and lessen our collective carbon footprint through water conservation, energy efficiency, and solid waste reduction programs and services.

This project is required by the State of California, but it is also an integral part of the Town's commitment to environmental stewardship, and it satisfies the requirement to produce a CAP specified by the Mitigated Negative Declaration for the 2012 Town General Plan. At this time, the Town of Woodside and its Climate Action Task Force are addressing the Town's contribution to climate change. As can be seen by the data presented in the CAP, the impact of the greenhouse gas emission reductions that the Town can undertake are small when compared to the collective action of our residents. To ensure that future generations can experience the environment and resources we enjoy today, Woodside needs not just environmental protection, but environmental leadership and engagement. We invite you to actively join the Town's transition to a more sustainable environment, healthy community, and positive future. The key to the Town of Woodside's success is you!

Jason Mendelson, Chair
Sustainability and Conservation Committee

Introduction

The Town of Woodside 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. It is conceivable, and increasingly foreseeable, however, 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, Woodside 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. This Plan offers ways to conserve water, make our homes more energy efficient, increase the amount of locally produced renewable energy, and decrease locally created waste. The recommendations and programs included in the Plan have been tailored to the rural residential character of Woodside. Finally, this Plan outlines measures that will make our municipal government an efficient and resource-conservation minded organization.

1.1 Why the Town of Woodside has a Climate Action Plan

The Town of Woodside, 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 towns and cities 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 save money and promote green jobs –** Residents, businesses, and government will reduce their utility costs through increased energy and water efficiency. A focus on efficiency creates job opportunities within the community that contribute to protecting our environmental resources.
- **To comply with letter and spirit 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 a responsibility to help the State meet its goals to reduce greenhouse gas emissions.

- **To promote sustainable development –** By developing a Climate Action Plan according to Bay Area Air Quality Management District guidelines, a new class of sustainable development projects will contribute to greenhouse gas reductions in the region.

1.2 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 at reducing GHG emissions. There are many supporting pieces of legislation and other related initiatives that are sector specific. These are more fully under the discussion of local measures 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.

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.

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.

California 33 Percent Renewable Portfolio Standard (RPS)

California's Renewable Portfolio Standard (RPS) was originally established by legislation enacted in 2002. Subsequent amendments to the law have resulted in a requirement for California's electric utilities to have 33 percent of their retail sales sourced from eligible renewable resources in 2020 and all subsequent years. Renewable resources include wind, solar, geothermal, wave, and small hydroelectric power.

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 the goals of AB 32. 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.

1.3 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 and towns. 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.

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).

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, business, and industrial sectors. In addition, PG&E can provide city/town 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 Change 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 Change 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 Energy Ambassador program supports the Energy Upgrade California program by providing homeowners free personal energy reviews and education on home energy efficiency.

Sustainable Silicon Valley (SSV). In 2004, SSV organized a regional voluntary initiative, setting a visionary target of reducing CO_2 emissions by 20% below the region's 1990 levels by the year 2010. SSV partners participating in the voluntary CO_2 emissions reduction program determine their own baseline year and a CO_2 percentage reduction goal to reach by 2010. Each pledging partner also chooses how they will meet this target. Options abound – from improvements in equipment efficiency to energy conservation, the use of renewable energy sources, and purchase of green power and/or promotion of alternative commute options.

1.4 Local efforts

While cities and towns 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, cities and towns can use resources such as energy, materials, and land more efficiently. Cities and towns 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 jurisdictions. Cities and towns 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 and towns own and manage buildings and vehicle fleets and are able to form partnerships with private interests to mobilize and coordinate community action. Furthermore, cities and towns are uniquely positioned to promote economic development that emphasizes sustainable development and local green-collar jobs.

To date, the Town of Woodside has undertaken the following sustainability efforts:

- The Town sponsors an annual Earth Fair, in conjunction with the Town's Sustainability and Conservation Committee. Since 2013, the Towns of Woodside and Portola Valley have celebrated Earth Day together. This effort helps raise awareness of sustainable issues and opportunities for conservation within the community.

- In 2000, the Town Council adopted Ordinance 2000-504 which amended the Municipal Code by adding requirements to recycle and divert construction and demolition debris (effective February 8, 2001).

- Since 2005, the Town has been acquiring and maintaining a fleet of hybrid and low-emission vehicles, on a replacement basis.

- On April 8, 2009, the Town Council committed to participate in the Cities for Climate Protection Campaign. The Town Council authorized an agreement to work with ICLEI to prepare a Government Operations Greenhouse Gas Emissions Inventory as part of a coordinated effort with other San Mateo, Santa Clara, and Santa Cruz County jurisdictions.

- In 2009, the State published a revised Plumbing Code that expanded the allowed use of graywater on residential properties. By adopting the 2009 Plumbing Code, the Town supported updated regulations to allow for the use of graywater, which can be recycled on-site for uses such as landscape irrigation. Single graywater sources, such as a clothes washer or a dishwasher, no longer need to be permitted.

- Since January 1, 2010, Town staff has implemented the State's Water Efficient Landscape Ordinance (WELO) that regulates landscape water use for new residential landscape areas of at least 5,000 square feet, and for existing landscape areas that are at least an acre in size, installed prior to the enactment date.

- In 2011, the California Green Building Standards Code went into effect and has been implemented by the Town since that time.

- On January 10, 2012, following a two-year effort led by a taskforce of residents, volunteers, and Town staff, the Town Council adopted an updated General Plan. At the heart of the 2012 General Plan are 10 Guidling Principles, one of which is Sustainability. The 2012 General Plan includes ten elements, seven of which specially address and support sustainability. The Town Council also adopted a Sustainability Element as part of the 2012 General Plan Update. The goal of the Sustainability Element is to address sustainability on a programmatic level. It seeks to identify a broad range of policies and strategies that the Town can promote in order to reduce or control consumption, and promote the reuse of resources. The Sustainability Element includes three general goals with policies and strategies focused on conserving resources, reducing greenhouse gas emissions, and encouraging community education. (This Climate Action Plan is being developed in conjunction with the 2012 General Plan.) This project is part of a continuum in the Town's commitment to environmental stewardship and satisfies the requirement to produce a CAP, specified by the Mitigated Negative Declaration for the 2012 Town General Plan.

- Since January 1, 2014, all projects submitted to the Town for building, plumbing, electrical, and mechanical review have needed to comply with the 2013 California Code of Regulations (Title 24). The building codes are updated and published in their entirety every three years.

The Town's 2012 General Plan

As described above, on January 10, 2012, the Town Council adopted the updated 2012 General Plan, which includes the addition of a Sustainability Element. The Sustainability Element addresses efforts and practices aimed at minimizing, and reversing where possible, the depletion and degradation of our natural resources, including air, water, fossil fuels, minerals and soils, and flora and fauna, such that a balance between the activities of humankind and the quality of the natural environment can be sustained. The Sustainability Element directed the Town to reduce the carbon footprint of all Town activities and established a reduction target: "***The Town shall establish a GHG reduction target that achieves a 15% reduction of GHG emissions from existing conditions by 2020***."

Sustainability is an integral theme that runs through other Elements of the General Plan and its two Area Plans, as well as the Town's two Specific Plans. It has been a fundamental value of the Town since its incorporation in 1956. Sustainability is addressed in the following ways in other Elements:

Land Use and Community Design Element

The Land Use and Community Design Element provides for the grouping of community and commercial activities in two central locations and along major routes of travel. This results in reducing trip generation, air pollution, and consumption of energy.

Historic Preservation Element

The Historic Preservation Element is intended to help preserve the rich history of the Town. The retention of historic structures preserves the "embodied energy" of a structure (materials and labor) and site (mature landscaping).

Circulation Element

The street system is designed to provide efficient access to the most frequently visited locations in Town, accommodating multiple forms of transportation (motor vehicles, bicycles, horses, and pedestrians). It also seeks to reduce energy consumption and air pollution.

Open Space Element

The Open Space Element calls for the preservation of major parts of the Town in a natural state. This contributes to a reduction in greenhouse gas emissions through carbon absorption by plants.

Conservation Element

The Conservation Element defines conservation goals, policies, and strategies for the conservation and utilization of natural resources, and protection of the aesthetic qualities of the community. These resources include: water in streams, water bodies and wetlands; native vegetation; soils and geology; and wildlife. This Element also addresses preservation of the natural environment when new development is considered.

Public Utilities Element

The Public Utilities Element calls for access to utility services of a quality and quantity which will protect health and safety, installed in a manner that preserves the Town's rural character. It recognizes and incentivizes energy efficient alternative utility systems and encourages resource conservation.

Housing Element

The Housing Element seeks to provide affordable housing. Related policies can lead to a reduction of traffic and consequent pollution when residents are employed locally.

Skylonda Area Plan

The Skylonda Center Plan is a guide for the expansion and replacement of existing structures and facilities, and the establishment of new structures and facilities needed to provide reasonable and accustomed services to local residents. The Skylonda Center is the sole commercial area immediately accessible to Woodside residents along the Skyline corridor.

Encouraging local-serving businesses which meet the reoccurring needs of residents could reduce the needed number of trips on Highway 84.

Town Center Area Plan

The Town Center Plan seeks to combine civic functions along with commercial uses, including retail, restaurants, and office space. The grouping of these facilities, and the goal to encourage local-serving businesses which meet the reoccurring needs of residents, contributes to residents being able to accomplish several missions on a single trip, combining shopping with other pleasure and business trips.

General Plan 2012 Initial Study/Mitigated Negative Declaration

The Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the Town of Woodside General Plan 2012 identified preparation of the Climate Action Plan as a required mitigation measure, and indicated "*The General Plan 2012's cumulative contribution to GHG emissions would be potentially significant in the absence of Statewide, regional, or a local GHG reduction strategy for the Town".*[1]

This CAP is being prepared to address this required mitigation measure.

Specific climate protection efforts undertaken by the Town and the community, consistent with the General Plan and its Sustainability Element include:

- The Town continues to purchase hybrid vehicles on a replacement basis for staff use within the Town;
- In 2012, the Town installed new energy efficient HVAC systems in Town Hall and Independence Hall;
- In May 2015, the Town installed water efficient toilets and fixtures in Town Hall and Independence Hall;
- On May 12, 2015, the Town updated the Zoning Code to allow for green energy production and/or distribution in the CC Zoning District with a Conditional Use Permit, and to permit electric vehicle charging stations in all of the Town's zoning districts; and,
- Currently, the Town is in the process of replacing high consumption lighting with energy efficient lighting in Town Hall.

[1] Planning Center/DC&E (now PlaceWorks), *Town of Woodside General Plan 2012 Initial Study/Mitigated Negative Declaration*, October 18, 2011; Notice of Determination (NOD) filed January 13, 2012.

1.5 Town of Woodside's Climate Action Plan Process

This Climate Action Plan was developed in partnership with the City and County Association of Governments of San Mateo County (C/CAG). The Climate Action Plan template project sponsored by C/CAG assists member jurisdictions and other interested local governments to develop Climate Action Plans that are 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). By combining resources, the Climate Action Plan template project promotes high quality Climate Action Plans that can be used to meet regulatory requirements and support planning efforts to reduce GHG emissions. The template project and Woodside's climate strategy is based on the ICLEI ─ Local Governments for Sustainability (ICLEI) 5-Milestone process as seen in the framework below.

1.5.1 Framework for Climate Action

The ICLEI 5-Milestone process, shown in Figure 1, is a management process based on increasing knowledge through each step to achieve the targeted GHG emissions reductions.

Figure 1: Iterative Management Processes for Climate Action (Source: ICLEI)

Leadership Commitment: On April 8, 2009, the Town Council committed to participate in the Cities for Climate Protection Campaign. The Town Council also authorized an agreement to work with the International Council for Local Environmental Initiatives (ICLEI) to prepare a Government Operations Greenhouse Gas Emissions Inventory as part of a coordinated effort with other San Mateo, Santa Clara, and Santa Cruz County jurisdictions.

- **Milestone 1 (Inventory Emissions):** *Conduct a baseline emissions inventory and forecast.* Through its partnership with the Regionally Integrated Climate Action Planning Suite (RICAPS), the Town prepared its baseline inventory in November 2009, based on 2005 figures.

- **Milestone 2 (Establish Target):** *Adopt an emissions reduction target for the forecast year.* The Town of Woodside General Plan 2012 Sustainability Element, adopted January 2012, set forth the following target: "*The Town shall establish a GHG reduction target that achieves a 15% reduction of GHG emissions from existing conditions [baseline 2005] by 2020*.".

- **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.* A Draft Climate Action Plan (CAP) has been drafted (June 2015), which includes a description of State Initiatives and Local Measures that would be implemented to reduce the Town's contribution to cumulative GHGs (Draft CAP, June 2015; CAP Adoption-Fall 2015)

- **Milestone 4 (Implement Climate Action Plan):** *Enact the plan.* The CAP includes a phased implementation plan that would be put into effect between 2015-2020.

- **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.* Following adoption, the CAP would require annual reports for the Town Council and Community that track the Town's progress in reducing emissions.

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; funded by C/CAG. This C/CAG Climate Action Plan template project follows this framework by assisting member jurisdictions with Milestones 2 and 3. The Town of Woodside is responsible for implementing the actions identified in this Climate Action Plan to complete Milestone 4.

To support Milestone 5, C/CAG is developing forecasting and calculation tools to allow its member jurisdictions to track total community GHG emissions. The tool will assist cities to monitor the effectiveness of emissions reduction efforts. Specifically, C/CAG is working with Hara, Inc., a software provider, to develop a customized online solution that may be used by each town or city in the County to track GHG emissions and emission reductions achieved from various strategies. .

1.5.2 Public Outreach and Community Engagement

This Climate Action Plan is being prepared in response to the Town's 2012 General Plan. The Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the Town of Woodside 2012 General Plan identified preparation of the Climate Action Plan as a required mitigation measure. The General Plan Update was a collaborative process involving residents, Town staff, and various experts, which took place over 2 years. This Climate Action Plan incorporates stakeholder input (residents, business community, Town volunteer committees, and Town staff) collected during publically noticed meetings, workshops, and public review periods.

2. Greenhouse Gas Inventory and Forecast

The emissions inventory provides an important foundation for the Climate Action Plan, providing a baseline year, 2005, against which progress towards the Town goal of reducing greenhouse emissions 15% by 2020 can be measured. 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. This Climate Action Plan also includes a business-as-usual (BAU) forecast of GHG emissions, which enables the Town of Woodside to estimate the amount of emissions reductions needed to meet its goal. Results of both inventories and inventory data, assumptions, and methodologies are detailed in Appendix F.

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 the Town of Woodside follows the standard outlined in the BAAQMD's GHG Plan Level Quantification Guidance (dated May 2012), as well as the Local Government Operations Protocol.[2] Furthermore, the 2010 inventory follows The Community Greenhouse Gas Emissions Protocol, which was released by ICLEI in October 2012, to the greatest extent possible.[3] 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 standard sectors, emissions sources, and energy types included in the two GHG inventories.

[2] 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 Woodside, version 1.0 was the only version available.

[3] 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
Residential	Energy and water use in residential buildings	Electricity Natural gas
Commercial	Energy and water use in commercial, government and institutional buildings	Electricity Natural gas
Industrial[4]	Energy and water use in industrial facilities, and processes	Electricity Natural gas
Transportation and Land Use*	All road vehicles Off-road vehicles/equipment	Gasoline Diesel Compressed natural gas Liquefied natural gas Biodiesel
Waste	Waste disposal	Landfill gas (methane)
Wastewater**	Process and fugitive emissions from treating wastewater, and associated stationary emissions	Not applicable
Water**	Use of electricity to treat and distribute potable water	Electricity
Stationary Sources**	Stationary combustion of fuel in various equipment, such as boilers, backup generators, and industrial processing equipment	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.[5]

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

[4] 'Industrial' is a standard category used for purposes of consistency with other RICAP plans and the BAAQMD GHG Plan; however, there are no industrial lands or emission sources in Woodside. For categories described as 'commercial/industrial', this refers only to commercial in the Town of Woodside.

[5] 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

There are no open or closed landfills within the Town boundaries, and there are no rail lines passing through the Town. Thus, landfills and rail-related emissions 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 the Town of Woodside's 2005 baseline inventory due to lack of accurate data on water usage in the Town of Woodside 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 Woodside: Airports and sea ports, Non-road vehicle use (planes, trains, ships), and water travel.

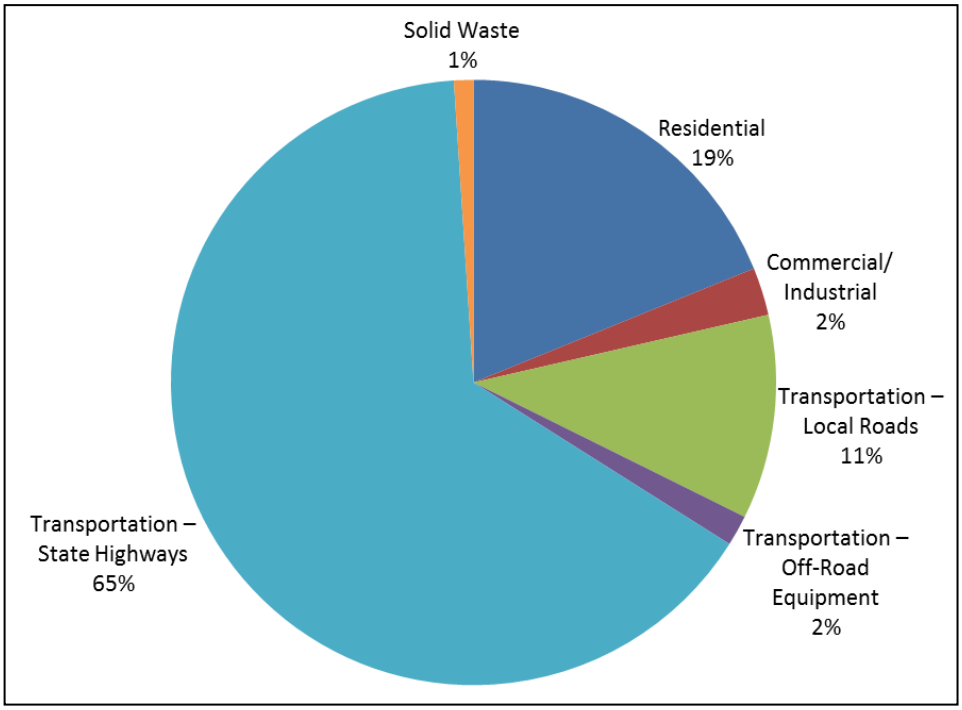
The industry-accepted methodology for quantifying a community-wide GHG emissions inventory focuses on emissions that occur from combustion sources within Town limits and from electricity consumption, as well as waste and wastewater generated within Town limits, and water consumption. In the future, there may be the opportunity and need to quantity GHG emissions 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 Woodside emitted approximately 120,173 metric tons of carbon dioxide equivalent ($MTCO_2e$) from the residential, commercial/industrial, transportation, waste, and municipal sectors.[6] A graph of 2005 emissions is shown in Figure 2.

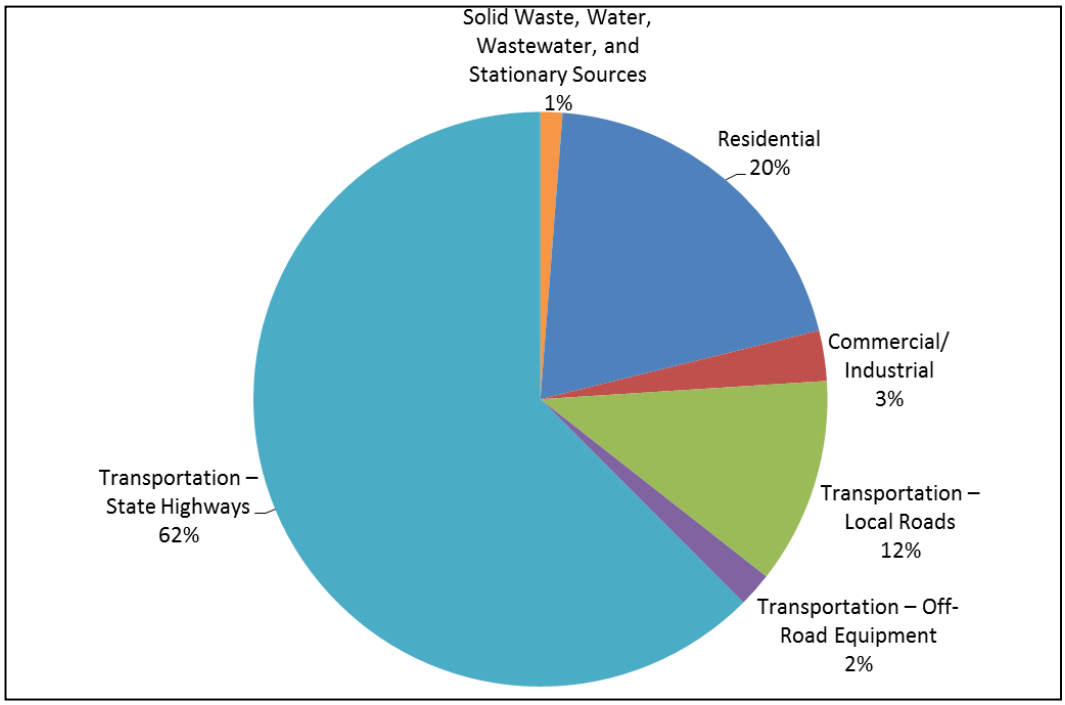
[6] Carbon dioxide equivalent is a unit of measure that normalizes the varying climate warming potencies of all six GHG emissions, which are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). For example, one metric ton of methane is equivalent to 25 metric tons of CO_2e. One metric ton of nitrous oxide is equivalent to 210 metric tons of CO_2e.

Figure 2: 2005 Community Emissions by Sector



In comparison, the Town emitted 107,343 metric tons of CO_2e from these same sectors and sources in 2010, a decrease of 12,830 metric tons of CO_2e, or 11 percent of 2005 baseline 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 3 provides a summary of emission in 2010.

Figure 3: 2010 Community Emissions by Sector



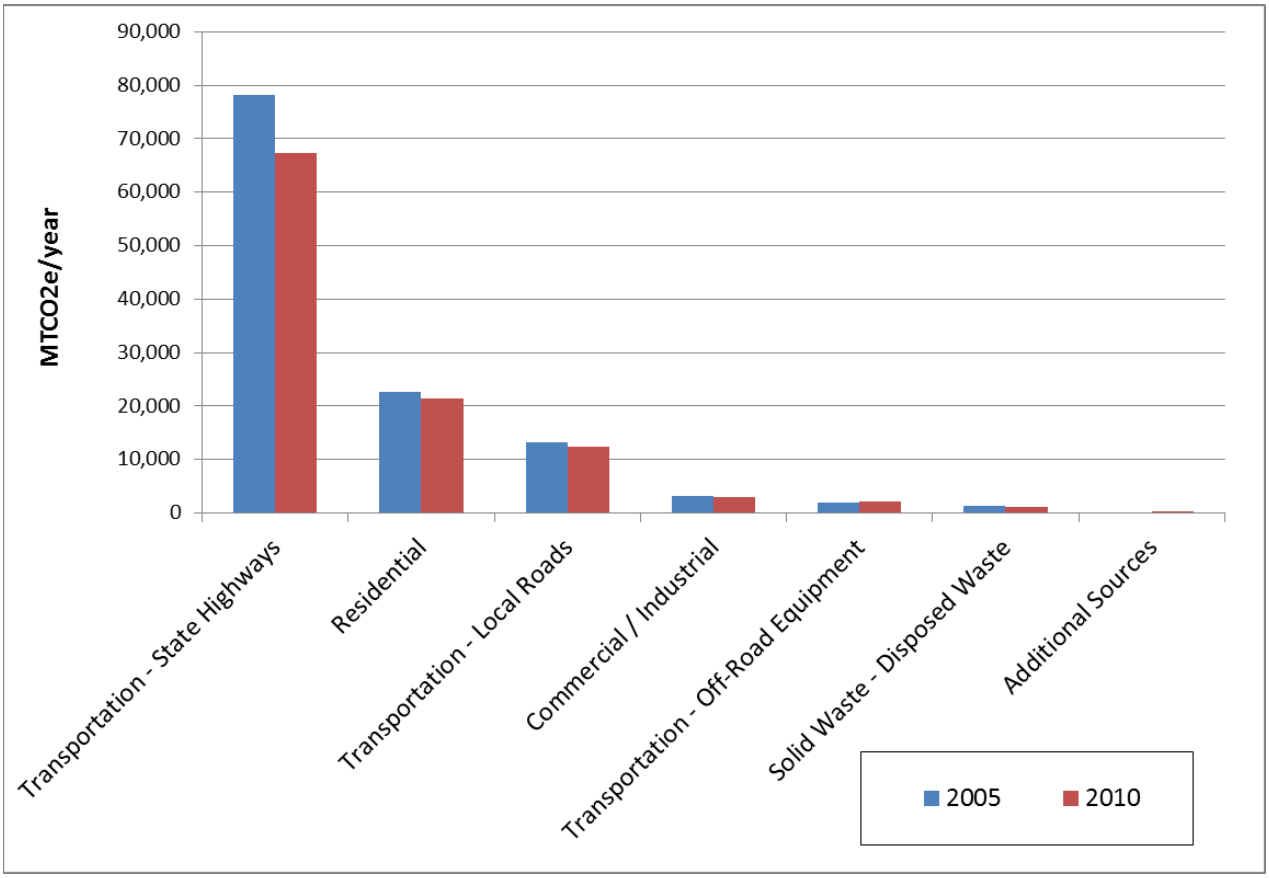
A comparison of Figures 2 and 3 shows that there is very little change in the percentage of emissions from each sector between 2005 and 2010. As shown in Figures 2 and 3, the largest category of emissions is from transportation on state highways, followed by energy use in the residential sector, and the transportation on local roads.

Some sectors and sources were included in the 2010 GHG inventory that were not included in the baseline inventory; these emissions include: water conveyance, wastewater treatment, and stationary sources. These emissions make up 0.4 percent of the 2010 inventory. With these sources added, the total 2010 emissions are 107,814 $MTCO_2e$, which is a 10 percent decrease from 2005 emissions. Table 2 provides a summary of total Townwide (i.e. community and municipal) GHG emissions, and Figure 4 shows the proportion of Woodside'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 ($MTCO_2e$)	2010 GHG Emissions ($MTCO_2e$)	Increase or Decrease in GHG Emissions ($MTCO_2e$)	Percentage of 2010 GHG Emissions
Residential	22,663	21,440	-1,223	19.9%
Commercial/Industrial	3,063	3,042	-21	2.8%
Transportation – Local roads	13,119	12,477	-642	11.6%
Transportation – State highways	78,113	67,268	-10,845	62.5%
Transportation – Off-road equipment	1,965	2,063	98	1.9%
Solid Waste – Generated Waste	1,250	1,053	-197	1.0%
SUBTOTAL	**120,173**	**107,343**	**-12,830**	**99.7%**
New Sectors (not included in the Baseline Inventory)	**2005 GHG Emissions ($MTCO_2e$)**	**2010 GHG Emissions ($MTCO_2e$)**	**Increase or Decrease in GHG Emissions ($MTCO_2e$)**	**Percentage of 2010 GHG Emissions**
Stationary Sources	Not applicable	31	Not applicable	0.03%
Wastewater		130		0.12%
Water		311		0.29%
SUBTOTAL		**472**		**0.44%**
GRAND TOTAL OF 2010 EMISSIONS	**107,815**		**metric tons CO2e**	
Total of 2005 Baseline Emissions	**120,173**		**metric tons CO2e**	
Total Decrease	**-12,358** **-10%**		**metric tons CO2e**	

Figure 4: 2005 and 2010 Community Emissions by Sector



The residential and commercial/industrial sectors represent emissions that result from electricity and natural gas used in both private- and public-sector buildings and facilities. The transportation sector includes emissions from private, commercial, and fleet vehicles driven within the Town's geographical boundaries; as well as the emissions from transit vehicles and the Town-owned fleet. Off-road equipment includes lawnmowers; garden equipment; and construction, industrial, 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. Similary, 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. These emissions are due to the electricity needed to treat and pump water from other regions to Woodside. Furthermore, all wastewater is sent outside of Town limits to the South Bayside System Authority wastewater treatment plant in Redwood City.

Finally, stationary sources (included in the 2010 inventory) refer to equipment consuming fuels such as diesel and propane that is typically used by public, commercial, and industrial 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.

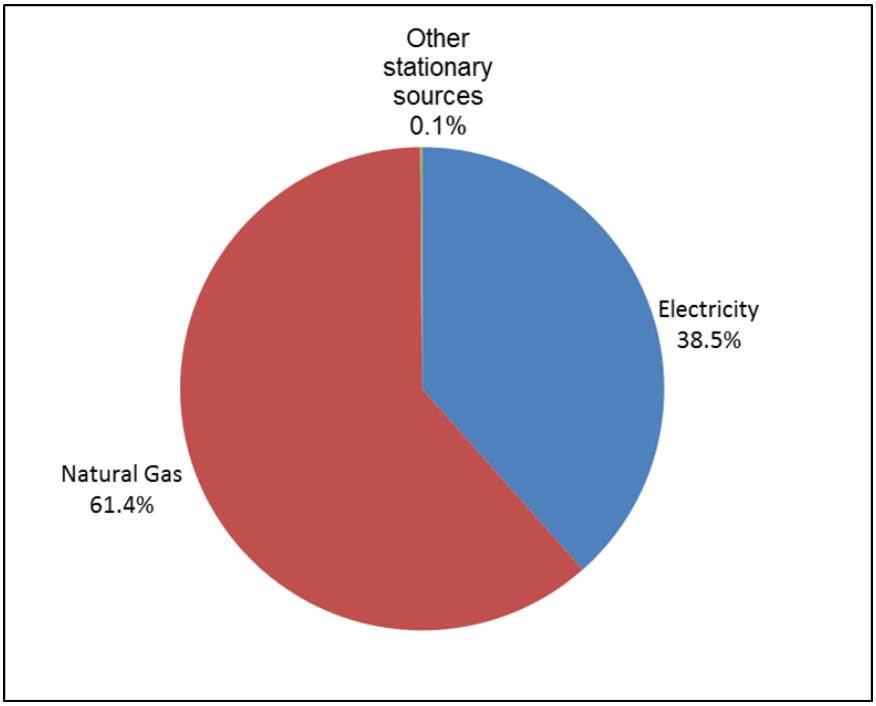
2.2.1 Electricity and Natural Gas Emissions

Electricity and natural gas consumption by all community sectors (residential, commercial/industrial, and municipal activities) accounts for 23% percent of total GHG emissions in Woodside. In 2010, Woodside's stationary natural gas and electricity use resulted in a total of 24,482 $MTCO_2e$ emissions due to use of 46,437,890 kilowatt-hours (kWh) of electricity and 2,832,484 therms of natural gas. An additional 31 $MTCO_2e$ from other stationary sources (such as propane or diesel) were emitted in 2010.

Both the 2005 and 2010 inventories assume that no Direct Access consumption of energy occurs in Woodside. 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. Most of the nonresidential sector in Woodside is made up of small businesses that are not likely to use Direct Access energy.

Of the total 24,512 $MTCO_2e$ emitted due to energy use in buildings (including electricity, natural gas, and stationary sources), the residential sector contributes a much greater portion (87 percent) of GHG emissions compared with the commercial sector (13 percent). Also, as shown in Figure 5, natural gas combustion contributes a much greater portion of GHG emissions compared with the use of electricity or stationary sources.

Figure 5: 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_2) 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.

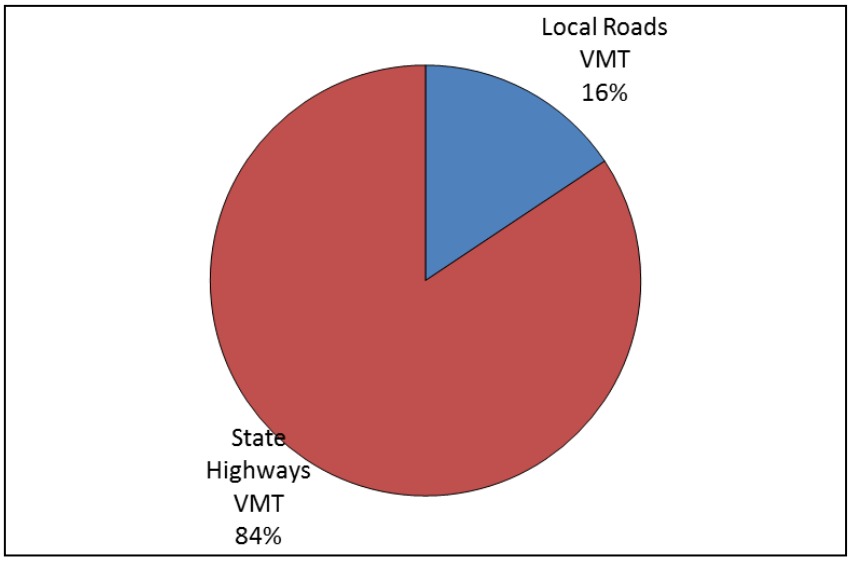
2.2.2 Transportation Emissions

The transportation sector is responsible for approximately 76 percent of Woodside's overall 2010 GHG emissions when including vehicle emissions on State highways within Town limits, local roads in the Town, and off-road use. On-road motor vehicles driven within the Town's

geographical boundaries on both local and state roads emitted 79,745 $MTCO_2e$ in 2010, compared with 2,063 $MTCO_2e$ from off-road equipment.

Figure 6 shows the breakdown of GHG emissions by vehicle miles traveled (VMT) from local roads and State highways. Of the total 79,745 $MTCO_2e$ emitted from these two sources, 84 percent was from State highways.

Figure 6: 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, industrial, and light commercial equipment such as tractors, forklifts, and leaf blowers.

2.2.3 Solid Waste

In 2010, Woodside sent 3,827 tons of solid waste to landfills, which was about 2,230 tons less than 2005 amounts. In 2010, the emissions from solid waste disposal were 596 $MTCO_2e$. Another 2,798 tons of waste and 458 $MTCO_2e$ of emissions are estimated for the alternative daily cover used to cover the surface of the active face of the municipal landfill to control odors, blowing litter, and scavenging.

Emissions from waste result from organic materials decomposing in the anaerobic environment of a landfill, producing methane—a GHG 25 times more potent than carbon dioxide (pound for

pound, the comparative impact of methane (CH_4) on climate change is 25 times greater than carbon dioxide (CO_2) over a 100-year period[7]). 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 and glass). Table 3 shows the approximate breakdown of the materials Woodside 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[8]

Waste Type	Waste Share
Corrugated Containers	4.8%
Newspaper	1.3%
Office Paper	1.9%
Magazines/Third Class Mail	0.7%
Food Scraps	15.5%
Grass	1.9%
Leaves	1.9%
Branches	0.60%
Dimensional Lumber	14.5%
All Other Waste	56.9%
Total	**100 %**

[7] US EPA website, accessed May 13, 2015; June 10, 2015 (http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html)

[8] Waste characterization: California 2008 Statewide Waste Characterization Study. This state average waste characterization accounts for residential, commercial and self-haul waste.
http://www.calrecycle.ca.gov/Publications/Documents/General/2009023.pdf

2.2.4 Water

Total emissions from water consumption, a new source for the 2010 inventory, were estimated to be 311 $MTCO_2e$/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 Woodside, water is provided by the California Water Service Company (CWS) Bear Gulch Water District and Redwood City Water. 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.

To estimate emissions from water treatment and delivery, data on water consumption per capita per day was provided by the California Water Service Company & Town Sustainability and Conservation Committee. On average, the water consumption is 420 gallons per capita per day in Woodside[9], and total water consumption in 2010 was estimated to be approximately 810.5 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, a new source for the 2010 inventory, were estimated to be 130 $MTCO_2e$/year in 2010, which is 0.1% of the 2010 inventory. There is not a wastewater treatment plant located in Woodside, so wastewater is delivered to the South Bayside System Authority for treatment. In addition to Woodside, South Bayside System Authority also serves Redwood City, portions of Belmont, San Carlos, portions of Atherton, Menlo Park, Portola Valley, portions of East Palo Alto, and 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.

[9] California Water Service Company & Town Sustainability and Conservation Committee.

Because the wastewater treatment plant serves multiple jurisdictions, this inventory includes an estimate of wastewater emissions allocated to Woodside 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, co-generation, and industrial processing equipment; 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 seven sources totaling 31 $MTCO_2e$ in 2010. This data was not available for the 2005 inventory so no comparison is presented.

2.2.7 Municipal Operations

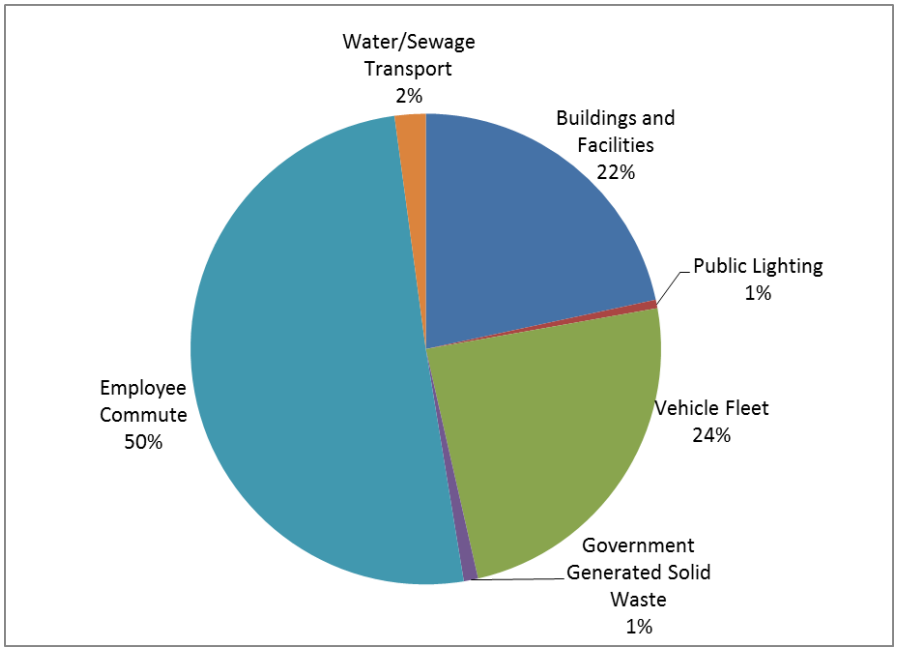
Government operations are a subset of community-wide emissions, but are often inventoried separately due to the large amount of influence and control over these emissions. The GHG emissions from government operations was calculated for 2005, but was not measured for 2010.

In 2005, the base year, the Town of Woodside's municipal operations generated 206 $MTCO_2e$, which represents only 0.2% of community-wide emissions from that year. As Table 4 and Figure 7 illustrate, Employee Commute was the largest source of GHG emissions, followed by municipal Buildings and Facilities.

Table 4: 2005 Woodside Government Operations Emissions by Sector

Sector	Greenhouse Gas Emissions (metric tons CO_2e)
Buildings and Facilities	45
Vehicle Fleet	50
Public Lighting	1
Water/Sewage Transport	4
Government Generated Solid Waste	2
Employee Commute	104
TOTAL	**206**

Figure 7: Municipal Operations – Greenhouse Gas Emissions (2005)



2.2.8 Emissions Forecast for 2020 and 2035

Based on the 2005 and 2010 community emissions inventories, the Town of Woodside 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 emissions forecast is essential for developing the Climate Action Plan because one must compare future reductions with future emissions levels, not current 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 of Woodside were to continue its 2005 patterns of 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 use growth factors specific to each of the different economic sectors. Table 5 summarizes the results of the forecast.

Table 5: Town of Woodside "Business as Usual" Emissions Forecast for 2020

Emissions Sources	2005 ($MTCO_2$)	2010* ($MTCO_2$)	2020 ($MTCO_2$)	Annual Growth Rate	Percent change from 2005 to 2020
Residential	22,663	21,440	22,709	0.58%	0.2%
Commercial/Industrial	3,063	3,073	3,246	0.55%	6.0%
Transportation	93,197	81,808	90,761	1.04%	-2.6%
Generated Waste and Wastewater	1,250	1,183	1,253	0.58%	0.2%
Water	Unknown	311	329	0.56%	NA
TOTAL	120,173	107,815	118,298	Not applicable	-1.6%

* Note that 2010 emissions include three sources that were not included in the 2005 inventory: stationary sources (31 $MTCO_2e$, included in the Commercial/Industrial category), wastewater (130 $MTCO_2e$, included in the Generated Waste and Wastewater category), and water (311 $MTCO_2e$).

The emissions forecast for each sector were projected 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 emissions forecast was estimated for each sector:

- For the residential energy sector, a compounded annual population growth rate of 0.58 percent was calculated using population projections from the Association of Bay Area Governments (ABAG).
- For the commercial energy sector, the Town of Woodside relied on the analysis contained within "California Energy Demand 2008-2018: Staff Revised Forecast,"[10] a report by the California Energy Commission (CEC), which shows that commercial floor

[10] http://www.energy.ca.gov/2007publications/CEC-200-2007-015/CEC-200-2007-015-SF2.PDF

space and the number of jobs have closely tracked the growth in energy use in the commercial sector. Using regional job projections for the San Francisco Bay Area from ABAG's *Projections 2009,*[11] it was calculated that the compounded annual growth in energy use in the commercial sector is 0.55 percent.

- For transportation, the Town of Woodside 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.[12] The recently passed federal Corporate Average Fuel Economy standards and the State of California's pending tailpipe emission standards could significantly reduce the demand for transportation fuel in the Town of Woodside. 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 0.58 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/industrial sectors was averaged together to find the annual growth rate for water use of 0.56 percent.

2.3 Emission Reduction Targets

The *California AB 32 Scoping Plan* and subsequent updates seek 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 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

[11] http://www.abag.ca.gov/planning/currentfcst/regional.html#

[12] Report available at: http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035-Travel_Forecast_Data_Summary.pdf

percent below 1990 levels by 2012.[13] 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.

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 Woodside. 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 of Woodside's emissions baseline, business-as-usual forecast, and reduction target in Figure 8. Two of the Statewide initiatives lead to reductions in transportation emissions, which comprise 88 percent of the 2010 Woodside GHG inventory; thus these two initiatives are especially helpful in helping reduce Woodside's emissions.

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

Table 6: Total Emission Reductions from State of California Programs

State Initiative	Sector	Sector 2020 Business-as-usual Emissions ($MTCO_2e$)	% Reduction from 2005 GHG Inventory	Reduction in Town's Emissions ($MTCO_2e$)
AB 1493 (Pavley)	Transportation	90,761	19.7%	17,880
Low Carbon Fuel Standard Program (LCFS)	Transportation	90,761	7.2%	6,535
33 percent Renewable Portfolio Standard (33% RPS)	Electricity (Energy)	9,978	17.1%	1,706
A. Total Statewide Initiative Emissions Reductions				26,121

[13] City of San Francisco 2004. *Climate Action Plan*. http://www.sfenvironment.org/downloads/library/climateactionplan.pdf

2.3.2 The Town of Woodside Reduction Target

Based on guidance provided by the State of California, and in line with the State's reduction goals, the Town Woodside has also adopted the target of 15 percent below 2005 levels by 2020. This Climate Action Plan summarizes the actions that Town of Woodside is planning to take to reduce emissions within our community.

The Town of Woodside is committing to reducing community-wide greenhouse gas emissions 15 percent by 2020, a reduction of 15,946 metric tons of carbon dioxide equivalent

Figure 8 illustrates how the business-as-usual emissions are estimated to increase slightly from 2010 to 2020, thus widening the emissions reductions needed by 2020. Figure 8 also shows the emissions reductions expected from Statewide actions, and the reductions needed to reach the Town of Woodside's emission target. The baseline emissions, forecasted emissions, targeted emissions, and emissions needed to reach the target are shown in Table 7.

The Town saw a 10 percent decrease in emissions between 2005 and 2010, therefore the reduction target only represents a 5% reduction from 2010 emissions. In addition, as evident from Figure 8, the Statewide initiatives that will reduce emissions in Woodside are projected to have a large impact on Woodside's emissions. Reductions from two of the three Statewide programs included in this Climate Action Plan will affect the transportation sector, which makes up 76% of Woodside's 2010 inventory. As a result, reductions from the Statewide programs alone are projected to allow Woodside to reach the 2020 reduction target. This Climate Action Plan includes, however, a set of local, Town-specific measures intended to reduce emissions in Woodside, in case State-level policies do not reduce emissions to the degree projected. Woodside's local strategies for reducing emissions are detailed in Chapter 3 of this Climate Action Plan.

Figure 8. Town of Woodside GHG Reduction Target (15% below 2005 levels by 2020)

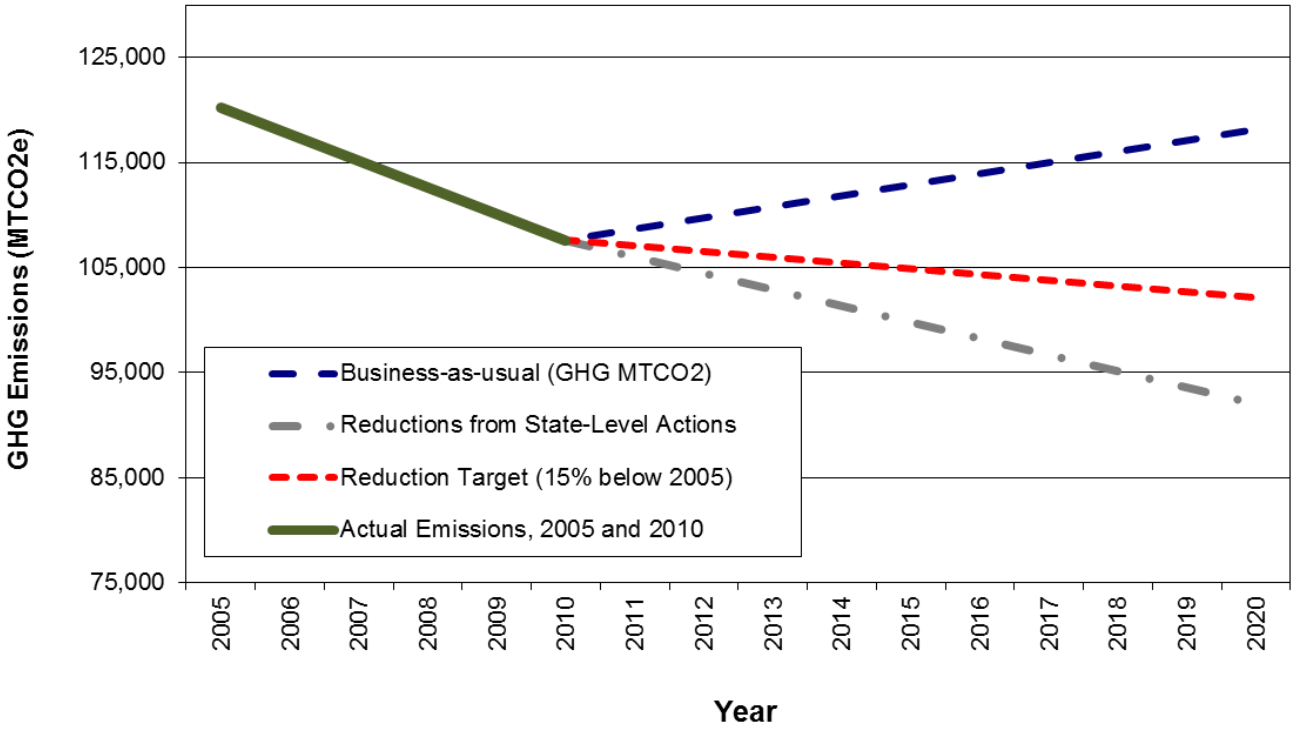


Table 7: GHG Emissions Projection and Reduction Target

2005 Emissions ($MTCO_2e$)	2020 Target Emissions at 15% below 2005 ($MTCO_2e$)	2020 BAU Emissions ($MTCO_2e$)	Emissions Reductions Required ($MTCO_2e$)
120,173	102,147	118,298	17,745

3. Climate Action Strategies

This Climate Action Plan (CAP) is the catalyst towards a more sustainable Woodside. In these pages, the residents of Woodside will find policies, recommendations, and programs that aim to reduce emissions, save energy (and money), and help Woodside continue to be a beautiful and healthy place to live, work, and play into the future.

In its Sustainability Element of the 2012 General Plan, the Woodside Town Council established Policy S2.5 to reduce the carbon footprint of all Town activities. As part of its strategy to reduce its carbon footprint, the Town committed to develop a Climate Action Plan that would enable the Town to achieve a target of a 15% reduction in GHG levels from its 2005 baseline by 2020. The measures set forth in Chapter 3, together with measures implemented State-wide, are designed to implement this commitment.

By adopting this Climate Action Plan, the Town is identifying actions to reduce GHG emissions. The Plan provides a prioritized list of measures, that are being developed, studied, and vetted as part of the process of preparing the CAP, prior to their implementation. The programs and policies described give Woodside a viable path towards reducing emissions that, combined with emissions reductions resulting from State and regional policies, will meet the emissions reduction goals established in AB 32 (GHG reduction to 1990 levels by 2020 (approximately 15% reduction below business-as-usual projections)).

The previous chapters presented Steps 1 and 2 in the Framework for Climate Action (see Section 1.5.1): the Emissions Inventory of Woodside and the Community Emissions Reduction Target. The following sections represent Step 3: the Climate Action Strategies.

Each section below outlines the specific actions, referred to as “measures,” that seek to reduce GHG emissions from the Town of Woodside. For methodology of how measures were selected and prioritized for action, see Section 4.1. Some measures aim to reduce emissions from the community at large, while other measures may specifically focus on the operations of the Town of Woodside. Also, all measures are assumed to lead to specific, quantifiable reduction of GHG emissions.

3.1 Energy

In the United States, buildings account for 70 percent of total electricity use and about 40 percent of GHG emissions.[14] The State of California has long been a leader in implementing policies aimed at improving the energy efficiency of its building stock. The State is committed to first meet its energy needs "through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible."[15]

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's Building Energy Efficiency Standards are updated approximately every three years. The 2013 Standards went into effect July 1, 2014, and improve upon the 2008 Standards for new construction, additions, and alterations to residential and non-residential buildings.[16] The updated standards are designed to:

- Ensure new and existing buildings achieve cost-effective energy efficiency;
- Preserve outdoor and indoor environmental quality;
- Make buildings more comfortable;
- Reduce greenhouse gas emissions; and,
- Lower energy costs.[17]

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.[18]

Building energy is the sector with the most immediately achievable and affordable reduction opportunities. Energy efficiency is the most cost-effective measure for GHG reductions and also has numerous co-benefits, such as cost savings over time and promotion of green collar jobs. Design and construction of new buildings, or major renovations of existing buildings, provides

[14] Fuller *et al.* 2009. *Toward a Low-Carbon Economy: Municipal Financing for Energy Efficiency and Solar Power*. Environment Magazine

[15] "Energy Action Plan I", California Energy Commission, California Public Utilities Commission and Consumer Power and Conservation Financing Authority. May 8, 2003. Available at: http://docs.cpuc.ca.gov/word_pdf/REPORT/28715.pdf

[16] California Energy Commission, website accessed May 15, 2015 (http://www.energy.ca.gov/title24/2013standards/index.html)

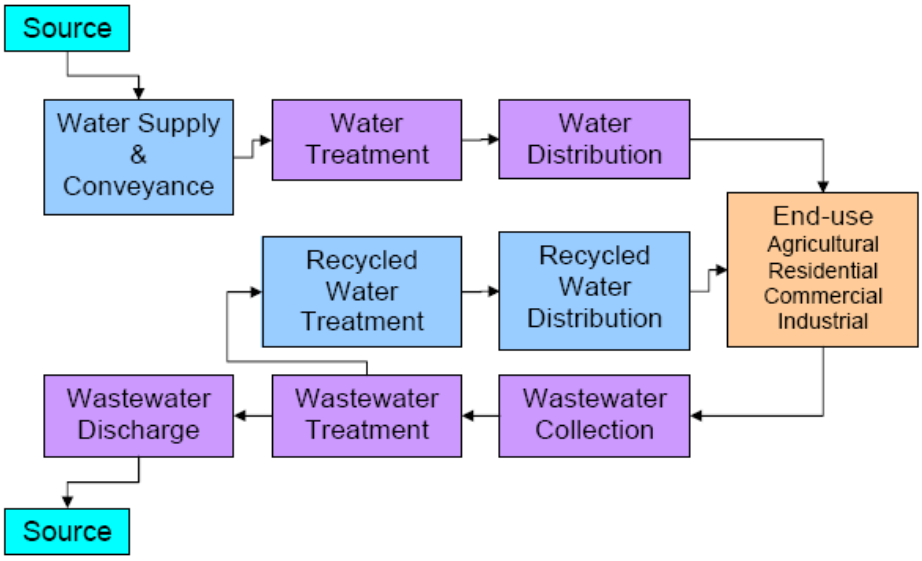
[17] SDGE Utility, website accessed May 15, 2015, (http://www.sdge.com/business/title-24-update)

[18] California Energy Commission, *2007 Integrated Energy Policy Report*, CEC-100-2007-008-CMF

an opportunity to implement energy-saving measures that reduce GHG emissions. Generous utility rebates and federal tax incentives make investing in energy efficiency increasingly attractive. Along with energy efficiency, California has a long history of supporting renewable energy generation. With the idea of "reduce, then produce," a sensible energy policy seeks to first maximize energy efficiency and then look to generate electricity with low-carbon fuels and renewable resources.

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. Figure 9 demonstrates California's water use cycle.

Figure 9: California's Water Use Cycle



Graphic: California Energy Commission

Energy is used in each step of the process. Water is collected, treated, and distributed to end users in farms, residences, businesses, and industries. Energy, usually natural gas, is used to heat water for use in buildings. Energy is then needed to treat water for discharge back to the environment. Nineteen (19) percent of the State's electricity and 32 percent of the state's natural gas is consumed during this cycle.[19] Fifty-eight percent of the electricity and 98.5 percent of the natural gas consumption stems from residential, business, and industrial end users.

[19] California Energy Commission 2005. *California's Water-Energy Relationship.*

Reducing water consumption through efficiency and conservation can have a big impact on energy consumption as well as protect against drought, a common problem in California. Senate Bill X7-7 was enacted in November 2009 (Water Conservation Act of 2009), requiring all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita urban water use by 20 percent by December 31, 2020. The California State Integrated Water Management Planning Process promotes bringing together and prioritizing water-related efforts in a systematic way to ensure sustainable water uses and reliable water supplies. The current California drought is requiring even more stringent water conservation measures. During the spring of 2015, with emergency drought conditions persisting throughout California, the State Water Resources Control Board adopted an emergency regulation requiring an immediate 25 percent reduction in overall potable urban water use Statewide in accordance with Gov. Jerry Brown's April 1, 2015, Executive Order B-29-15.

The Governor's Executive Order required, for the first time in the State's history, mandatory conservation for all residents and directed several State agencies, including the State Water Board, to take immediate action to safeguard the State's remaining potable urban water supplies in preparation for a possible fifth year of drought.

This chapter proposes Town strategies to promote energy and water efficiency as well as renewable energy in both existing and new buildings.

As indicated in Table 2, 95% of the Town's energy use is associated with transportation on State highways (65%); residential energy use (19%); and transportation on local roads (11%). Therefore, these three areas are a major focus of the measures identified to reduce greenhouse gases. In addition, smaller gains are associated with measures to address other sectors. The Town has developed measures that create incentives to conserve both energy and water. As is mentioned above, conserving water also conserves energy, because treating and transporting water requires significant energy.

The Town promotes the development of new buildings that are designed to be energy-efficient. The 2012 Residential Design Guidelines provide guidance on siting buildings to take advantage of shade, prevailing winds, landscaping, and sun screening to utilize passive heating and cooling as a way of reducing energy use. The Guidelines also encourage use of thermal mass of floors and walls to maximize thermal storage and moderate daily temperature swings (RDG, Section 3,5b).

The Town works to remove regulatory or procedural barriers to implementing green building practices within Woodside. The Town's Housing Element (Policy H1.2, Program b. Alternative Construction Methods) notes that the California Building Code provides an option for alternative construction, whereby an applicant submits an alternative design to the Building Official, along

with the alternative design standards and testing of the proposed product, and the rational for the request. Upon reviewing this information, the Building Official may approve an alternate construction methodology. The Town has approved alternate building materials in the past, including rammed earth landscaped walls, green roofs, rainwater retention and reuse systems, fuel cells, ground source heat recovery systems, and styroform core truss wall systems. The Town now encourages the use of green building materials through implementation of the Sustainability Element, and its Residential Design Guidelines, both adopted in 2012.

Recently, the Town Council amended the Woodside Municipal Code, Chapter 153, Zoning, to allow consideration of green energy production and/or distribution as a conditional use in the Community Commercial (CC) Zoning District, and to allow electric vehicle charging stations as accessory uses in all zoning districts. Accessory uses are defined in the Zoning Code as 'The use of a building, or site, or a portion of a building or site, which is incidental to the principal use conducted on or occupying a site. Accessory uses sometimes require design review (such as an accessory living quarters (ALQ) or ALQ with a charging station), but do not require a Use Permit. This change in the Zoning Code removes a barrier to installing vehicle charging stations, thus supporting greater use of green energy.

3.1.1 Goal: Commercial Green Building Requirements

Continue to adopt all new State Commercial Building Codes. Explore higher energy performance requirements for new commercial buildings, and incentives for higher energy performance for tenant improvements.

The Commercial/Industrial Sector accounts for only 2% of Woodside's greenhouse gas emissions. Additionally, new commercial construction is very limited in the Town, while tenant improvements are more common. As the State continues to address climate change, building regulations are updated that result in increased energy efficiency and reduced greenhouse gas emissions. Measure 3.1.1 would help reduce the number of kilowatts and thermals used by businesses, by continuing to adopt all new State Building codes. While they would only provide a minor reduction in GHG emissions due to the limited amount of commercial space within the Town of Woodside, the Town recognizes that many small contributions can result in a significant reduction.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.1 Commercial Green Building Requirements	Continue to adopt all new State Commercial Building Codes. Explore higher energy performance requirements for new commercial buildings, and incentives for higher energy performance for tenant improvements.	1,216	64	1.0

3.1.2 Goal: Residential Green Building Ordinance

Continue to adopt all new State Residential Building Codes. Encourage and incentivize achievement of CALGreen Tier 1 energy performance. Continue to encourage the integration of sustainable design features and elements, such as passive heating and cooling, solar, green roofs, geothermal as described in the Building Design section of the Residential Design Guidelines and the General Plan Sustainability Element. Seek to harmonize with regional Green Building Ordinances. Revise the WMC to require that any new residence seeking a Maximum Residence Size Exception achieve CALGreen Tier 1 energy performance.

As of 2010, the Residential Sector accounted for 19.6% of Woodside's greenhouse gas emissions. As the State continues to address climate change, building regulations are updated that result in increased energy efficiency and reduced greenhouse gas emissions. Measure 3.1.2 would help reduce the number of kilowatts and thermals used by residences, by continuing to adopt all new State Building codes. As Woodside is primarily a residential community with large homes, Measure 3.1.2 has the potential to result in a significant reduction in greenhouse gas emissions.

The Town will seek to encourage and incentivize achievement of higher tiers of energy performance. The Town will encourage residents to participate in the various energy efficient rebate and incentive programs available from PG&E. The Town will continue to provide guidance for the installation of energy efficient components of homes. Additionally, the Town will explore incentive programs, such as reduced fees or expedited plan checks, for homes that achieve higher tiers of energy performance.

The Town will also seek to revise the Woodside Municipal Code to require that any new residence seeking a Maximum Residence Size Exception achieve CALGreen Tier 1 energy performance. Requiring higher tiers of energy performance for Woodside's largest homes will

help reduce the impact of some of the largest users, since larger homes tend to have higher energy requirements.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.2 Residential Green Building Requirements	Continue to adopt all new State Residential Building Codes. Encourage and incentivize achievement of CALGreen Tier 1 energy performance. Continue to encourage the integration of sustainable design features and elements, such as passive heating and cooling, solar, green roofs, geothermal as described in the Woodside Residential Design Guidelines, Building Design, Sustainability section and the General Plan Sustainability Element. Seek to harmonize with regional Green Building Ordinances. Revise the WMC to require that any new residence seeking a Maximum Residence Size Exception achieve CALGreen Tier 1 energy performance.	2,031	2,689	15.0

3.1.3 Goal: Create Incentives for Installing Solar Energy (Solar Arrays/Photo Voltaic Panels) and Other Renewable Energy Systems

Provide financial incentives for installing solar energy (solar arrays/photo voltaic panels), hot water systems, geothermal, and other types of installations. Provide free assistance for project developers through power purchase agreements and interconnection processes. Encourage bulk purchases such as the Portola Valley Bulk purchase.

As of 2010, the Residential Sector accounted for 19.6% of Woodside's greenhouse gas emissions. Woodside residents have considerable interest in installing renewable forms of energy to reduce greenhouse gas emissions associated with residential development. Between 2007 and 2014, the Town of Woodside issued 131 permits for installation of arrays of photovoltaic panels. During this same period, the Town issued permits for geothermal installations. Through Measure 3.1.3, the Town will explore incentives to increase the number of residents installing solar energy systems and other forms of renewable energy. These renewable energy installations help residents meet their own residential energy demand, and with any excess energy produced, can help energy providers meet peak demand. Incentives

that will be considered include reduced permitting fees and expedited processing. The Town will also encourage bulk purchase of renewable technology.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.3 Create Incentives for Installing Solar Energy (Solar Arrays/(Photo Voltaic Panels) and other Renewable Energy Systems	Provide financial incentives for solar arrays (photo voltaic panels), hot water systems, geothermal, and other types of installations. Provide free assistance for project developers through power purchase agreements and interconnection processes. Encourage bulk purchases such as the Portola Valley Bulk purchase.	3,615,326	44,092	704.0

3.1.4 Goal: Participate in Energy Upgrade Programs

Town to provide or encourage residential energy audits and retrofits. Leverage existing rebates/add additional rebates for energy efficient retrofits.

In 2010, the Residential Sector accounted for 19.6 percent of Woodside's greenhouse gas emissions. Residential Sector emissions declined by 1,223 $MTCO_2e$ from 2005 to 2010. Measure 3.1.4 supports continued reductions in residential energy use by promoting energy audits and energy efficient upgrades.

The Town of Woodside provides information on 'Energy Upgrade California' and other organizations that offer rebates and unique financing options for installing energy efficient home improvement measures. The Town also provides information on energy audits and assessments for reducing energy use.

The Energy Upgrade California program is a voluntary energy efficiency retrofit program for residential buildings that matches homeowners with local contractors and also provides rebates and incentives for homeowners that are pursuing energy efficiency. Energy Upgrade California requires an energy audit prior to implementing retrofits. Retrofit projects include, but are not limited to:

- Sealing and insulation;

- Energy-efficient heating and air conditioning;
- Energy-efficient windows;
- Other permanent energy-efficiency improvements;
- Water-saving devices such as low-flow showerheads and toilets;
- Sustainable landscaping/lawn conversions; and,
- Self-adjusting irrigation controllers.

In addition to these upgrades, for homeowners with pools and spas, there may be rebate/incentive opportunties for upgrading pool and spa pumps with more efficent models, and adding pool covers to minimize evaporation. Additional incentives could be developed for upgrading wood-burning fireplaces and stoves to more efficient technologies. This would save energy, reduce greenhouse gases, and also result in less particulate pollution (generally PM_{10}).

The Town will continue to provide its residents and property owners with information on measures they can take to improve the energy efficiency of their homes, while also saving money. A wide variety of environmental rebates and incentives are listed on the San Mateo County Green Business/Recycle Works website (http://www.recycleworks.org/greenbuilding/rebates_incentives.html). Information on sustainability is also posted on the Town website (woodsidtown.org), and is available as brochures and flyers at Town Hall. The Town will also consider partnering to provide energy auditors and energy audit programs to Town residents at little or no cost, as feasible. The Town will also partner with outside agencies, vendors and educators to cost-effectively increase opportunities for sustainability programs.

Measure Name and No.	**Description**	**Electricity Savings by 2020 (kWh/yr)**	**Natural Gas Savings (therms/yr)**	**GHG Emission Reduction by 2020 ($MTCO_2e$/yr)**
3.1.4 Participate in Energy Upgrade Programs	Town to provide or encourage residential energy audits and retrofits. Leverage existing rebates/add additional rebates for energy efficient retrofits.	93,882	8,315	56.0

3.1.5 Goal: Promote PG&E Commercial and Industrial Energy Efficiency/Demand Response Programs

Town to promote and assist with marketing and outreach for PG&E energy efficiency and demand response programs for the nonresidential sector. Leverage existing rebates/add additional rebates for energy efficient retrofits.

In 2010, the Commercial/Industrial Sector accounted for 2.8 percent of Woodside's greenhouse gas emissions. Measure 3.1.5 would support the Town's ongoing work with businesses in its commercial districts to make information available regarding the benefits of installing energy efficient appliances and demand appliances such as water heaters. Other measures to enhance energy efficiency of commercial and instustrial sectors include installation of renewable energy systems such as photovoltaic panels/solar arrays, and upgrading and retrofitting structures with energy efficient windows, insulation, and other measures.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.5 Promote PG&E Commercial and Industrial Energy Efficiency/demand Response Programs	Town to promote and assist with marketing and outreach for PG&E energy efficiency and demand response programs for the nonresidential sector. Leverage existing rebates/add additional rebates for energy efficient retrofits.	27,260	520	6.0

3.1.6 Goal: Plant Shade Trees, and Continue to Preserve Significant Trees and Forest Lands

Continue to promote shade trees during planning entitlement as described in the Building Design section of the Residential Design Guidelines, Sustainability section, and continue to protect Woodside's signficant trees and forest lands.

Guiding Principle #3 in the Woodside General Plan relates to protection of the natural environment: The Woodside Community seeks to preserve, protect, enhance, and restore the Town's riparian corridors, woodlands, and hillsides to protect its wildlife and natural habitat, and to maintain its scenic vistas and the tranquil environment. The Open Space Element calls for the preservation of major parts of the Town in a natural state. These principles contribute to a reduction in greenhouse gas emissions through carbon absorption by plants, consistent with Policy S2.3 in the Sustainability Element: Maintain Carbon Absorption Resources.

Woodside's Residential Design Guidelines (Section 2, 2b) promote protection of trees and vegetation: "Preserve and minimize development within the driplines of Significant Trees."

Woodside Municipal Code Section 153.170 was adopted to promote and enhance a superior community environment, to maintainin the rural character, to maintain air quality and ecologic balance, maintain property values, and to ensure the maximum preservation of the valuable natural features and scenic character, as stated in the General Plan, by establishing minimum standards and requirements related to the protection of trees. The Municipal Code seeks to protect mature trees and significant stands of trees in order to retain as many as possible, consistent with reasonable economic enjoyment of private property. In this context, privately owned trees have an impact on the quality of life for the entire community.

Woodside is a forested community, so it does not experience the 'heat island' effect that is common in many urban areas. The Town will continue to encourage the planting of trees in specific locations to shade the sides of the buildings most exposed to sunlight. The Town's 2012 Residential Design Guidelines already encourages such tree placement. Strategic placement of trees helps support passive heating and cooling and thus, lower greenhouse gas emissions. The Town will continue its primary focus on preserving its existing significant trees and forest lands, and minimizing the effects of drought on its forest lands. Its healthy forest lands contribute to a reduction in greenhouse gas emissions through carbon absorption by plants. Carbon absorption is beneficial for Woodside and the wider region.

Measure Name and No.	**Description**	**Electricity Savings by 2020 (kWh/yr)**	**Natural Gas Savings (therms/yr)**	**GHG Emission Reduction by 2020 ($MTCO_2e/yr$)**
3.1.6 Shade Trees	Continue to promote shade trees during planning entitlement as described in the Woodside Residential Design Guidelines, Building Design, Sustainability section. Continue to protect Woodside's Significant Trees and Forest Lands.	148,991	8,018	62.0

3.1.7 Goal: Energy Efficient Street Lighting

Replace street, signal lights, parks and parking lot lighting with efficient lighting (LEDs, induction, etc).

As of 2010, the Public Lighting Sector accounted for 1.0 percent of Woodside's greenhouse gas emissions. Given its focus on maintaining dark night skies, the Town has a limited number of street lights, traffic signals, and parking lot lights. Upgrading the limited number of existing fixtures over time could be done at a relatively low cost to the Town. Woodside has been in the process of replacing street lights with LED fixtures. In addition, the Town is in the process of replacing existing interior light fixtures in Town Hall with energy efficient LED light fixtures.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.1.7 Energy Efficient Street Lighting	Replace street, signal lights, parks and parking lot lighting with efficient lighting (LEDs, induction, etc).	6,132	0	1.0

3.1.8 Goal: Renewable Energy Installation on Municipal Property

Complete a feasibility study on the installation of solar or other renewable energy projects at select Town facilities and install where feasible. The Town should complete these studies within 2 years of adopting the Climate Action Plan..

The Town recently completed a solar feasibility study for Town Hall and the library remodel and found both economically infeasible. The museum may have the potential to support solar panels as well. Also, as technology changes, solar costs decline and electric rates rise, it may be worthwhile to complete another study focused on Town Hall in the future.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.1.8 Renewable Energy Installation on Municipal Property	Complete a feasibility study on the installation of solar or other renewable energy projects at select Town facilities and install where feasible. Town should set a goal (in order to make this more viable).	24,966	0	3.0

3.1.9 Goal: Energy Efficiency in Municipal Buildings

Audit Town facilities for energy efficiency opportunities and implement energy efficient retrofits. The Town participates in San Mateo County Energy Watch and leveraged benchmarking to identify opportunities for energy efficient upgrades and track energy performance. Leverage other programs that provide funding.

Since 2005, the Town of Woodside has installed new HVAC systems in Town Hall and Independence Hall. The Town has changed the light ballasts in Town Hall and could also explore further energy saving options for lighting and upgrades to other Town facilities.

The Town will explore conducting energy audits of Town facilities periodically (such as every five years) to track energy performance and identify opportunities to upgrade systems for efficiency to achieve additional GHG emission reductions.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.9 Energy Efficiency in Municipal Buildings	Audit Town facilities for energy efficiency opportunities and implement energy efficient retrofits. Town participates in San Mateo County Energy Watch and leveraged benchmarking to identify opportunities for energy efficient upgrades and track energy performance. Leverage other programs that provide funding.	14,400	275	3.0

3.1.10 Goal: Voluntary Real Estate Conservation Disclosure

Voluntary disclosure of energy use information at time of home sale.

As of 2010, the Residential Sector in Woodside accounts for 19.6 percent of greenhouse gases. Measure 3.1.10 would assist individual home buyers in understanding the energy requirements of homes and could influence decisions regarding retrofits and upgrades to improve energy efficiency.

The Town is seeking to create a Voluntary Residential Energy Disclosure Program that will encourage voluntary disclosure of a home's energy use at the time of sale. Such voluntary disclosure builds upon new State regulations that will require disclosure of energy consumption trends in nonresidential buildings at the time of sale or when the building is leased to new tenants. Homeowners are increasingly interested in energy use and the high efficiency "green" features of a home. Homes with increased environmental performance are valued higher than conventional homes. The Town seeks to partner with the real estate community to encourage disclosure of energy consumption. The Voluntary Residential Energy Disclosure Program will encourage homeowners that have not participated in energy audits to have their homes evaluated as homes that have participated in energy audits will find voluntary disclosure simple.

This program would be voluntary and would not require any upgrades; however, research has indicated that public disclosure of energy use information can be a useful force in reduced energy consumption.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.1.10 Voluntary Real Estate Conservation Disclosure	Voluntary disclosure of energy use information at time of home sale.	197,402	16,250	112.0

3.1.11 Goal: Electric Vehicle (EV) Chargers

Encourage the installation of electric vehicle chargers and use of electric vehicles to reduce GHG emissions. Comply with the State Building Code by supplying adequate electric service in new residential garage construction to serve electric vehicles.

On May 12, 2015 (second reading), the Town Council amended the Woodside Municipal Code, Chapter 153, Zoning, to allow consideration of green energy production and/or distribution as a conditional use in the Community Commercial (CC) Zoning District, and to allow electric vehicle charging stations as accessory uses in all zoning districts. Accessory uses are defined in the Zoning Code as "the use of a building, or site, or a portion of a building or site, which is incidental to the principal use conducted on or occupying a site". Accessory uses sometimes still require design review (such as an ALQ or ALQ with a charging station), but do not require a Use Permit. This change in the Zoning Code removes a barrier to installing vehicle charging stations.

Through its Building Permit process, the Town will ensure that development projects comply with the State Building Code by supplying adequate electric service in new residential construction to serve electric vehicles.

Measure Name and No.	**Description**	**Electricity Savings by 2020 (kWh/yr)**	**Natural Gas Savings (therms/yr)**	**GHG Emission Reduction by 2020 ($MTCO_2e$/yr)**
3.1.11 Electric Vehicle (EV) Chargers	Encourage the installation of electric vehicle chargers and use of electric vehicles to reduce GHG emissions. Comply with State Building Code by supplying adequate electric service in new residential garage construction to serve electric vehicles.	0	0	1,055,000 VMT/year reduction & 540,000 kWh/year increase) 458.0

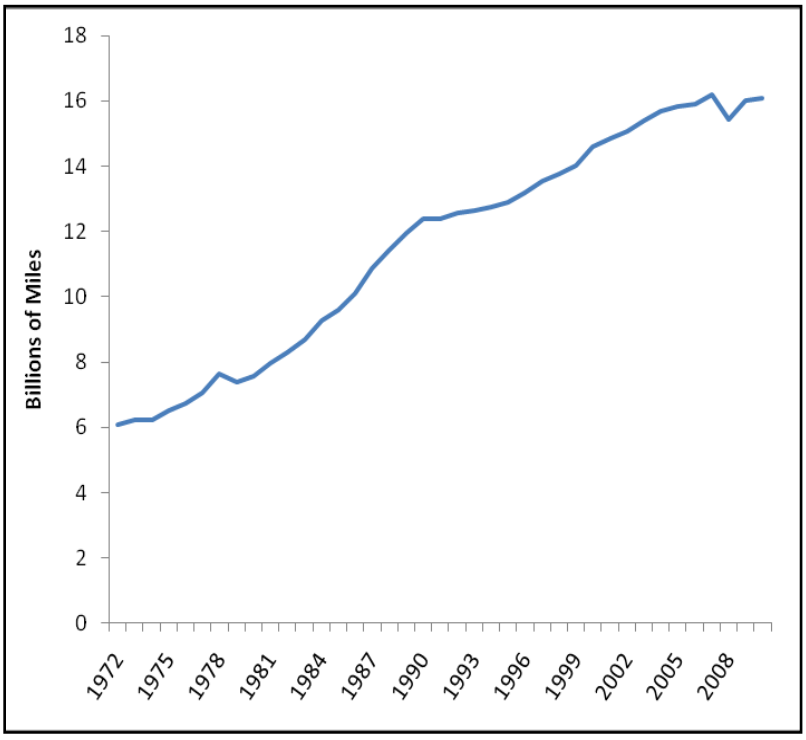
3.2 Transportation and Land Use

Thirty-eight percent of the California's GHG emissions stem from transportation[20] — the cars and trucks that move people and goods throughout the State. As of 2010, In Woodside, 76 percent of emissions result from transportation. Travel on local roads and state highways represent 11.6 and 62.5 percent of transportation emissions respectively. Off-road transportation accounts for 1.9 percent of transportation emissions, and was the only category in which emissions increased between 2005 and 2010. 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). Fuel carbon intensity, defined as the amount of carbon per gallon, is addressed by the State of California's Low Carbon Fuel Standard, which mandates that a 10 percent overall reduction in the carbon intensity of transportation fuels (gasoline, diesel, natural gas, electricity, and so on) by 2020. Vehicle efficiency is addressed by AB 1493; California's Clean Cars Law of 2002 (AB 1493) requiring carmakers to reduce global-warming emissions from new passenger cars and light trucks beginning in 2009. First in the world to reduce global-warming pollution from cars, this law has now been adopted by 11 other states. Affecting nearly one-third of the U.S. market, this law is projected to reduce global-warming emissions in 2020 by 64 million tons per year. Addressing the third component: reducing VMT, however, is considerably more difficult than the previous two. Californians have driven more and more miles per year over the past five decades. Figure 10 shows the growth in VMT from 1972 – 2010.

[20] Air Resources Board 2008 *Scoping Plan*.

Figure 10: California Growth in Vehicle Miles Travelled (VMT)
July of each year, 1972-2010



Data: California Department of Transportation

This growth in VMT is attributable in part to following factors:

- Growth in gross domestic product;
- Lack of affordability in urban core housing causes people to live far away from where they work;
- Lack of viable public transportation options;
- Low cost of gasoline;
- Sprawl development patterns, such as bedroom communities separated from retail and commercial centers; and,
- Streetscapes that discourage pedestrian or bicycle access.

In order to reduce VMT and the associated GHG emissions, Governor Schwarzenegger signed Senate Bill 375 in 2008. SB 375 sets regional emissions targets and tasks regional planning organizations to recalibrate land use and transportation planning to meet those emissions targets. This Climate Action Plan seeks to contribute to reaching the SB 375 regional targets for the San Francisco Bay Area of 7 percent below 2005 levels by 2020 and 15 percent below 2005 levels by 2035.

The benefits of integrated planning and sustainable development go far beyond simply reducing the GHG emissions that contribute to climate change and its damaging effects. Communities that are well designed provide housing options for all income and age groups, and are supported by a range of transportation options that will have many other advantages. Among these are increased mobility and transportation choices; reduced congestion; greater housing choices; improved public health as a result of better air and water quality; natural resource conservation; economic benefits, such as opportunities for neighborhood economic development and lower costs for community infrastructure; reduced dependence on foreign oil; and greater equity through the provision of improved access to jobs, housing, and everyday needs.

The Town of Woodside is fully committed to providing diverse transportation options that are convenient, safe, and affordable. As described in the Circulation Element of the 2012 General Plan, the street system is designed to provide efficient access to the most frequently visited locations in Town, accommodating multiple forms of transportation (motor vehicles, bicycles, horses, and pedestrians). The Circulation Element also seeks to reduce energy consumption and air pollution. For example, "...the Skylonda Center is the sole commercial area immediately accessible to Woodside residents along the Skyline corridor. Encouraging local-serving businesses which meet the recurring needs of residents could reduce the needed number of trips on Highway 84."[21] Similarly, "...the Town Center Area Plan seeks to combine civic functions along with commercial uses including retail, restaurants, and office space. The grouping of these facilities, and the goal to encourage local-serving businesses which meet the reoccurring needs of residents, contributes to residents being able to accomplish several missions on a single trip, combining shopping with other pleasure and business trips."[22] "The Housing Element seeks to provide affordable housing. Related policies can lead to a reduction of traffic and consequent pollution when residents are employed locally."[23]

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.

[21] Woodside General Plan 2012, Sustainability Element, p. 218

[22] Woodside General Plan 2012, Sustainability Element, p. 218.

[23] Woodside General Plan 2012, Sustainablity Element, p. 218.

3.2.1 Goal: Walkable/bikeable Street Landscape

Continue to promote complete streets concepts (walking, biking, equestrian trails, hitching posts, bike lanes, bike parking, traffic calming, beautification, etc.) appropriate for the Town's rural setting, and recognizing the physical constraints of existing rights-of-way and easements including winding roads, adequate sight distance, and steep terrain.

As indicated in Table 2, as of 2010, the Transportation - Local Roads Sector accounted for 11.6 percent of Woodside's greenhouse gas emissions. Measure 3.2.1 would require the Town to prepare and implement community appropriate complete streets policies, which are included in the 2012 General Plan.

The Land Use and Community Design Element of the General Plan provides for the grouping of community and commercial activities in two central locations and along major routes of travel. This results in reducing trip generation, air pollution, and consumption of energy. The Town focuses its complete streets improvements in areas close to commercial centers. For example, the Town is currently making improvements to the Town Center Area under the Safe Routes to School program, which includes locally-appropriate complete streets concepts to improve walking, biking, and possibly equestrian access. The Town continues to promote complete streets concepts (walking, biking, equestrian trails, hitching posts, bike lanes, bike parking, traffic calming, beautification, etc.) appropriate for the Town's rural setting, while recognizing the physical constraints of existing rights-of-way and easements, including winding, narrow roads, adequate sight distance, and steep terrain.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.2.1 Walkable/bikeable Street Landscape	Continue to promote complete street concepts (walking,biking, equestrian trails, hitching posts, bike lanes, bike parking, traffic calming, beautification, etc.) appropriate for the Town's rural setting, and recognizing the physical constraints of existing rights-of-way and easements including winding roads, adequate	0	0	(93,500 VMT/year reduction & 3,740 gallons of gasoline per year reduction) 47.0

3.2.2 Goal: Low Emission Government Vehicles

Target purchase of new or conversion of existing government vehicles to more efficient vehicles.

As of 2010, the Transportation - Local Roads Sector accounted for 11.6 percent of Woodside's greenhouse gas emissions. As a community that has almost no access to public transportation, the greatest opportunities for reducing GHG relate to use of more fuel-efficient vehicles and lower carbon fuels. State policy changes related to vehicle efficiency and fuel carbon intensity will support reductions in GHG emissions on highways as well as local roads. Reducing vehicle miles traveled is dependent on grouping tasks to reduce trips. Since 2005, the Town has purchased hybrid vehicles. This measure would continue that practice, consistent with the Sustainability Element which supports conversion of the vehicle fleet to more fuel-efficient vehicles on a replacement basis. Measure 3.3.2 supports the Town's ongoing commitment to converting to a more fuel efficient vehicle fleet.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.2.2 Low Emission Government Vehicles	Target purchase of new or conversion of existing government vehicles to more efficient vehicles.	0	0	2,374 gallons of gasoline per year reduction) 21.0

3.2.3 Goal: Local Food

Encourage the growth and consumption of local food by promoting local farmers' markets, food swaps, and community gardens.

As of 2010, the Transportation - State Highways Sector accounted for approximately 62.5 percent of Woodside's greenhouse gas emissions. Measure 3.2.3 would help to reduce distances traveled to deliver food and beverages. While this measure might result in some increase in the use of local roads, promoting consumption of local food and beverages supports a reduction in vehicle miles traveled (VMT) on State Highways, the largest GHG sector in Woodside.

The San Mateo organization, 'As Fresh as it Gets,' promotes purchase and consumption of locally grown, produced, or caught food, beverages, and other products to minimize

transportation and cooling costs associated with moving produce, seafood, dairy, and meat greater distances. The organization also keeps a directory of local farmers markets.

Also, providing information on the impacts of food and other organic waste has the potential to reduce emissions, as its decomposition at landfills results in release of considerable methane gas. The Town will encourage appropriate waste composting programs for organic materials and livestock waste.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.2.3 Local Food	Encourage the growth and consumption of local food by promoting local farmers' markets, food swaps, and community gardens.	0	0	(182,208 VMT/year reduction) 91.0

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 Woodside residents can take to reduce GHG emissions. Some landfills capture as much methane as possible and utilize it for electricity generation. At many landfills, however, much of the methane leaks to the atmosphere. This methane leakage is the primary source of Town GHG emissions in the waste category.

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, and moving waste from the consumer's curbside to landfills. These emissions do not show up in the Town'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.

Waste reduction and recycling are powerful tools for reducing emissions all along the consumer materials' lifecycle. Reducing the amount of materials required through reuse — for example using canvas bags instead of plastic and paper bags from the grocery store—represents the best opportunity to reduce GHG emissions in a significant way.

Recycling represents the second best 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. The U.S. EPA estimates that if a city of 100,000 people with average waste generation (4.5 pounds/day per capita), recycling (30 percent), and baseline disposal in a landfill with no gas-collection system would increase its recycling rate to 40 percent, it would reduce emissions by more than 3,400 metric tons of CO_2e per year.

3.3.1 Goal: Set Higher Waste Diversion Rate Goal

Increase participation in recycling programs and ensure weekly collection of recyclables and organic waste. Explore group collection of animal waste. Explore setting a higher diversion rate goal and encouraging waste reduction.

As of 2010, the Solid Waste, Water, Wastewater, and Stationary Sources accounted for 1 percent of Woodside's greenhouse gas emissions. While not a large percentage of overall emissions, Measure 3.3.1 would help the Town continue to reduce emissions associated with this sector.

Recycling and Reuse

The Town of Woodside's Sustainability Element, Residential Design Guidelines, and Municipal Code promote reuse of materials. Woodside Municipal Code Section 50.22 requires that at least the following specified percentages be diverted from the landfill by using recycling, reuse and diversion programs:

- *Demolition:* Sixty percent (60%) of waste tonnage from construction and demolition debris that includes concrete and asphalt; and fifteen percent (15%) of waste tonnage that does not include concrete and asphalt.

- *Re-roofing of homes with shingles or shakes as a separate covered project:* Sixty percent (60%) of waste tonnage from construction and demolition debris.

- *Construction and remodeling:* Sixty percent (60%) of waste tonnage from construction and demolition debris.

The Town makes information available related to tax deductions that are available to property owners that choose to deconstruct an existing building prior to rebuilding. Salvaged materials can include appliances, bricks, cabinets, doors, finished electrical and plumbing, flooring, hardware, lighting, roof tile, and windows. Typically, groups such as the ReUse People are able to save over eight-five percent (85%) of the weight of a single residence from the landfill. Materials can be salvaged, reused, or recycled. Property owners receive a tax deduction for all salvaged materials.

The Town may want to consider establishing graduated targets for increasing the percentage of materials that are diverted from landfills (ie, 60% percent in 2010; 70% in 2020; 80% by 2030).

Preservation of "Embodied Energy"

In addition to reusing, salvaging, and recycling materials associated with demolition, the Town's Historic Preservation Element of the General Plan encourages renovation, preservation, and adaptive reuse of existing structures as a way of taking greatest advantage of the "embodied energy" within existing structures. Prolonging the usable life of structures conserves resources. The Town also encourages persons considering demolition of their homes for replacement to reuse the building materials by employing methods such as deconstruction and reuse; or the use of recycled materials.[24]

Organic Waste

The Town may explore having a role in providing information and education regarding organic waste, as its decomposition at landfills results in the release of considerable amounts of methane gas. The Town will encourage appropriate waste composting programs for organic materials.

Animal Waste

There is increasing interest in the community to coordinate efforts to compost animal waste.[25] Manure collection and composting could be conducted as an additional means of reducing

[24] Town of Woodside General Plan 2012, p. 220.

[25] Town of Woodside General Plan 2012, p. 209.

GHG, particularly methane. With its 594 horses (Town records as of November 2014), Woodside's rural equestrian living environment supports approximately 1 horse for every 9.15 people. Manure collection could potentially be conducted as a joint effort with another community such as Portola Valley for economies of scale. It could result in some increase in the Transportation Sector emissions, but would likely reduce methane, or allow it to be captured as a souce of energy (biogas). Pound for pound, the comparative impact of methane (CH_4) on climate change is 25 times greater than carbon dioxide (CO_2) over a 100-year period.[26] The Town will encourage composting programs for livestock waste and bulk collection.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.3.1 Set Higher Waste Diversion Rate Goal	Increase participation in recycling programs and ensure weekly collection of recyclables and organic waste. Explore group collection of animal waste. Explore setting a higher diversion rate goal and encouraging waste reduction.	0	0	(3,166 tons of waster per year reduction) 551.0

3.3.2 Goal: Environmentally Preferred Purchasing Policy - Waste Reduction

Implement a Town sustainable purchasing policy that emphasizes recycled materials. Prepare a purchasing policy that defines cost not to exceed a certain additional percentage.

As of 2010, the Solid Waste Sector accounts for 1 percent of greenhouse gases. Measure 3.3.2 supports developing continuous use of recycled materials, so they are neither purchased as new resources nor disposed of after a single use.

As part of its commitment to reducing waste, the Town will explore establishing targets for purchasing, for example, 60-80 percent recycled materials, while following purchasing policies that define cost not to exceed percentages.

[26] US EPA website, accessed May 13, 2015 (http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html)

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.3.2 Environmentally Preferred Purchasing Policy - Waste Reduction	Implement a Town sustainable purchasing policy that emphasizes recycled materials. Prepare a purchasing policy that defines cost not to exceed a certain additional percentage.	0	0	0.0

3.3.3 Goal: Reduce Waste at Point-of-Purchase

Encourage ways to reduce waste at Point-of-Purchase

Similar to Measure 3.3.2, this measure involves implementing a Town sustainable purchasing policy that emphasizes recycled materials and green production processes. It would likely involve developing a purchasing policy that defines cost not to exceed a certain additional percentage. As part of this measure, the Town would give priority to suppliers that minimize packaging, and utilize sustainable production methods (i.e., use of reclaimed water; minimization of use of pesticides and chemicals; support of local, sustainable products in production process). Similarly, with technology, the Town should favor companies that are addressing the externalities of their production processes (i.e., willing to use green processes and materials, and recycle their own product components, as their usable life comes to an end and/or upgrades are purchased).

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.3.3 Reduce Waste at Point-of-Purchase	Encourage ways to reduce waste at Point-of-Purchase	0	0	0.0

3.4 Water

The Town of Woodside, being a predominantly residential community, uses the vast majority of its water resources for indoor and outdoor residential purposes. In 2010, the California Homebuilding Foundation estimated that a three-bedroom, single-family home with four occupants uses 174,000 gallons of water per year. Over 50% of this water is used for landscaping. In the Bear Gulch District, 70% of water use is for landscaping; and the largest indoor water use is showers.

On January 17, 2014, Governor Edmund G. Brown, Jr., proclaimed a State of Emergency throughout the State of California in response to the drought. On April 25, 2014, Governor Brown proclaimed a Continued State of Emergency to exist thoughout the State of California due to the ongoing drought; and on April 1, 2015, the Governor executed Executive Order B-29-15 addressing the continuing California drought.

In compliance with the Governor's Executive Order, the State Water Resources Control Board imposed requirements on local water suppliers. The California Public Utilities Commission adopted regulations mirroring the State Water Resources Control Board, and imposed requirements on investor-owned water utilities.

The California Water Service Company, the water service provider for the Town of Woodside, adopted regulations in compliance with that directive and had its *Schedule 14.1 Water Shortage Contingency Plan* approved by the Californa Public Utilties Commission. The California Water Service asked the Town to endorse and support the efforts of the Water Service Company to obtain compliance. On June 9, 2015, in its Resolution No. 2015-7048, the Town Council endorsed the efforts of the California Water Service Company to obtain local compliance with State Water Resources Control Board and California Public Utilities Commission mandates.

Water and energy are highly connected; any water reductions also lead to energy reductions.

3.4.1 Goal: Water Conservation Incentives and Requirements

Promote existing and/or new rebates for water efficient appliances and fixtures. Continue to promote drought tolerant and native landscaping, efficient irrigation systems, and gray water/ rain water collection systems; during planning entitlement as described in the Woodside Residential Design Guidelines, Landscape Elements, Sustainability section. Implement Resolution No. 2015-7048 the Town's endorsement of the California Water Service Company's regulations, and continue to implement the State WELO program.

The Town of Woodside will continue to implement its Residential Design Guidelines that promote use of native plants for all landscaping, and maintaining natural habitat areas to the

greatest extent feasible. The Town will also continue to implement the State's model Water Efficient Landscape Ordinance (WELO), which regulates all projects with new landscaping of 5,000 square feet or more. The Town also encourages the replacement of lawns with drought-tolerant, native plants, installation of water-efficient irrigation systems; and hydrozone planting areas to conserve water. In addition, the Town will promote use of graywater, which can be recycled on-site for uses such as landscape irrigation. Single graywater sources such as a clothes washer or a dishwasher, no long need to be permitted.[27]

The State Civil Code now requires that all plumbing fixtures be upgraded when permits are issued for any type of remodel.

The Town endorses and supports the efforts of the California Water Service Company in implementings its Schedule 14.1 Water Shortage Contingency Plan, consitent with Town Resolution No.2015-7048. The Town will also announce the availability of rebates and programs on the Town website. The Town could also announce talks and seminars on efficient irrigation systems, and gray water/rain water collection systems.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.4.1 Water Conservation Incentives and Requirements	Promote existing and/or new rebates for water efficient appliances and fixtures. Continue to promote drought tolerant and native landscaping, efficient irrigation systems, and gray water/ rain water collection systems; during planning entitlement as described in the Woodside Residential Design Guidelines, Landscape Elements, Sustainability section. Endorse and support the California Water Service Company's adopted regulations and its Schedule 14.1 Water Shortage Contingency Plan, approved by the California Public Utility Commission, consistent with Resolution No. 2015-7048, and continue to implement the State WELO program.	15,824	7,908	44.0

[27] Town of Woodside General Plan 2012, Sustainability Element, pp. 206-207.

3.5 All Sectors

The following measures do not fit into a single category, but rather address greenhouse gas emissions reductions across all secors.

3.5.1 Goal: Green Business Program

Establish a voluntary program that allows businesses to brand themselves as green by following sustainable practices.

The San Mateo County Green Business Program is a partnership of environmental agencies, the County, and utilities, working together to promote businesses that operate in an environmentally friendly manner. The incentive and assistance programs help local businesses save money by teaching them how to conserve energy and water, minimize waste, prevent pollution, and shrink their carbon footprints. The program is currently funded by San Mateo County's participating cities, PG&E, and Recycle Works of the County of San Mateo; and is part of a larger California Green Business Program.[28]

The Town of Woodside has two small commercial districts, the Town Center Area at the center of town along Highway 84/Woodside Road, and the Skylonda Center at the junction of Skyline Boulevard and Highway 84.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e/yr$)
3.5.1 Green Business Program	Establish a voluntary program that allows businesses to brand themselves as green by following sustainable practices.	18,401	351	4.0

[28] SMC Green Business Program/Recycle Works website, accessed May 15, 2015 (http://www.recycleworks.org/green_business/index.html)

3.5.2 Goal: Future Opportunities

Town staff and members of the Sustainability Committee keep apprised of additional ways to incentivize Green behaviors.

San Mateo County Green Building/Recycle Works maintains updated information about opportunities for miminizing energy use and adopting practices that are more sustainable. Town staff and Sustainability Members will continue to coordinate with organizations in the County such as San Mateo County Energy Watch and Sustainable San Mateo County to remain aware of new programs and opportunities to further the Town's sustainability and success in reducing its greenhouse gas emissions.

Measure Name and No.	Description	Electricity Savings by 2020 (kWh/yr)	Natural Gas Savings (therms/yr)	GHG Emission Reduction by 2020 ($MTCO_2e$/yr)
3.5.2 Future Opportunites	Town staff and members of the Sustainability Committee keep apprised of additional ways to incentivize Green behaviors	0	0	0.0

3.6 Adaptation

The climate is changing rapidly. According to the World Meteorological Organization, in their news release "2000-2009, The Warmest Decade,"[29]

> *The decade of the 2000s (2000–2009) was warmer than the decade spanning the 1990s (1990–1999), which in turn was warmer than the 1980s (1980–1989)… The 2000–2009 decade will be the warmest on record, with its average global surface temperature about 0.96 degree F above the 20th century average.* ***This will easily surpass the 1990s value of 0.65 degree F.***

Even if we stopped emitting GHGs tomorrow, the climate would still continue to change due to the length of the carbon cycle — the ability of the earth to absorb the excess carbon in the ocean and plants; therefore, our communities must plan for adaptation to climate change.

[29] WMO 2010. 2000–2009, *THE WARMEST DECADE* http://www.wmo.int/pages/mediacentre/press_releases/pr_869_en.html

Adaptation planning may be most effective at the State and regional levels, due to the scale of resources needed to develop and implement a coordinated plan. The 2009 California Climate Adaptation Strategy[30] was developed to guide California's efforts in adapting to climate change impacts. For more information on adaptation planning, see Appendix D.

4. Implementation

The preceding chapters describe the principal sources of the Town of Woodside's GHG emissions, and outline related goals and measures for achieving the community's target of reducing emissions to 15% below 2005 levels by 2020. This chapter outlines the main components of the process for putting this plan into action. It also identifies specific actions from earlier chapters that are recommended for implementation.

As described in Chapter 3, the Town identified 20 local measures that would be implemented during the planning period (2015-2020) to reduce GHG emissions. Cumulatively, implementation of these measures would result in the reduction of 2,179 MTC02e (1.8% below the 2020 BAU projected emissions). A prioritization methodology is presented below to assist the Town in developing a phased implementation plan for these measures.

4.1 Prioritizing Measures for Action

The Town worked with its Sustainability and Conservation Committee and other Town departments and committees to evaluate measures based on their urgency for implementation, and their effectiveness in reducing GHGs (Table 8). Measures were evaluated first by DNV GL, the RICAPS Project Consultant, on the basis of: (1) benefits; (2) costs; and, (3) implementation and feasibility. A score (0-5) was given to each measure, based on these criteria.

These results were then evaluated by the Town Building Department and the Sustainablity and Conservation Committee. The Building Department provided general comments and, in some cases, identified existing programs that addressed the measure(s) (i.e., adoption of State Commercial Building Codes (Measure 3.1.1) and State Residential Building Codes (Measure 3.1.2)). The Sustainability and Conservation Committee then reviewed the measures on the basis of: (1) ability to implement; (2) effectiveness; (3) cost/benefit; and, (4) suitability to Woodside. Based on this evaluation, the Committee provided recommendations for each of the measures and introduced additional measures.

[30] http://www.climatechange.ca.gov/adaptation/

4.2 Results of Measure Prioritization

As described above, the Town identified 20 measures that would enable the Town to reduce GHGs by a total of 2,179 (MTCO2e) by 2020. Implementation of these measures (1.84% MTC02e reduction from baseline conditions), together with State programs (22.07% MTC02e reduction from baseline conditions), would reduce GHG emissions by a total of nearly 24% (23.92% total MTC02e reduction), exceeding the 15% reduction goal. Of the 20 measures, implementation of three measures (Measures 3.1.3, 3.1.10, and 3.3.1) would achieve 78.9 percent of the local Town reductions in GHG identified. For purposes of this Plan, these measures are referred to as 'High Priority Measures'. In addition, with the current drought, implementation of water conservation (Measure 3.4.1) is urgent. Measure 3.4.1 has therefore been added to the list of High Priority Measures, for a total of four measures in this category (Table 8).

Implementation of these four measures, which together achieve 81% of the total local (Town) reductions identified, are given highest priority during both the near term (0-2 years), and the mid-term (3-5 years). This allows the Town liaison, Climate Action Task Force, and the Sustainability and Conservation Committee to focus on measures that will be most effective in reducing GHG emissions.

The focus of the Town Liaison and Climate Action Task Force will be on the implementation of the High Priority Measures. All other measures (Medium and Low Priority Measures) will be implemented, or continue to be implemented, in general support of the climate action strategies, but should not divert attention from the most critical measures. The Town Liaison and Climate Action Task Force may enlist the support of other staff and departments on an as-needed basis, to implement some of the Medium and Low Priority Measures. The Town Liaison and Climate Action Task Force would convene periodic meetings for all involved staff and committees, and would prepare an annual report on CAP implementation for the Town Council and the public.

4.3 Summary of Measures

Table 8: Summary of Measures						
Measure	**Description**	**Electricity Reduction (kWh/year)**	**Natural Gas Reduction (therms/year)**	**Emission Reductions (MTCO2e)**	**Additional Environmental Impacts**	**Priority**
ENERGY						
3.1.1	Commercial Green Building Ordinance	1,216	64	1		MEDIUM
3.1.2	Residential Green Building Ordinance	2,031	2,689	15		MEDIUM/HIGH
3.1.3	Incentivize Solar Energy Installation and Other Renewable Energy	3,615,326	44,092	704	Some visual resource impacts from adjacent or nearby properties	**HIGH**
3.1.4	Participate in Energy Upgrade Programs	93,882	8,315	56		MEDIUM/HIGH
3.1.5	Promote PG&E Commercial and Industrial Energy Efficiency/Demand Response Programs	27,260	520	6		MEDIUM
3.1.6	Shade Trees; and Preservation of Significant Trees and Forest Land	148,991	8,018	62		MEDIUM/HIGH
3.1.7	Energy Efficient Street Lighting	6,132	0	1		LOW
3.1.8	Renewable Energy Installation on Municipal Property	24,966	0	3		MEDIUM/HIGH
3.1.9	Energy Efficiency in Municipal Buildings	14,400	275	3		MEDIUM/HIGH
3.1.10	Voluntary Real Estate Conservation Disclosure	197,402	16,250	112		**HIGH**
3.1.11	Electric Vehicle (EV) Chargers	N/A	N/A	458		MEDIUM

Table 8: Summary of Measures						
Measure	**Description**	**Electricity Reduction (kWh/year)**	**Natural Gas Reduction (therms/year)**	**Emission Reductions (MTCO2e)**	**Additional Environmental Impacts**	**Priority**
TRANSPORTATION AND LAND USE						
3.2.1	Walkable/bikeable Street Landscape	0	0	47	93,500 VMT/year reduction & 3,740 gallons of gasoline per year reduction	MEDIUM/HIGH
3.2.2	Low Emission Gevernment Vehicles	0	0	21	2,374 gallons of gasoline per year reduction	MEDIUM
3.2.3	Local Food	0	0	91	182,208 VMT/year reduction	LOW
SOLID WASTE						
3.3.1	Set Higher Waste Diversion Rate Goal	0	0	551	3,166 tons of waster per year reduction	**HIGH**
3.3.2	Environmentally Preferred Purchasing Policy - Waste Reduction	0	0	0	Beneficial impacts to air quality and water	MEDIUM/HIGH
3.3.3	Reduce Waste at Point-of-Purchase	0	0	0	Beneficial impacts to air quality and water	MEDIUM
WATER						
3.4.1	Water Conservation Incentives	15,824	7,908	44		**HIGH**
ALL SECTORS						
3.5.1	Green Business Program	18,401	351	4		MEDIUM
3.5.2	Future Programs					
	TOTAL:	**4,165,831**	**88,482**	**2,179**		

4.4 Meeting the Emission Targets

As shown in Table 9, the Town would meet the emission reduction target of 15% through the Total Statewide Initiative Emissions Reductions (22.07% reductions from the 2020 anticipated business as usual emission levels); implementation of the Town's local measures would result in additional reductions of 1.84%, for total estimated reductions of nearly 24% (23.92%) from 2020 business as usual emission levels.

Table 9: Meeting the Town's 2020 Target

Estimated 2020 Business-as-usual Town Emissions: 118,298 MTCO2e	
Reduction Measure	**Expected Reduction in Town's 2020 Business-as-usual Emissions in MTCO2e (Percent of Total Emissions)**
State Initiative – Transportation Sector: Assembly Bill AB1493 (Pavley) (does not apply to off-road vehicles)	17,880 (15.11%)
State Initiative – Transportation Sector: Low Carbon Fuel Standard Program (applies to both on-road and off-road vehicles) [31]	6,535 (5.52%)
State Initiative – Energy Sector: 33 percent Renewable Portfolio Standard (33% RPS)	1,706 (1.44%)
Town Climate Action Plan: Reduction Measures	2,179 (1.84%)
Total Emissions Reductions:	**28,300 (23.92%)**
Exceeds 15% State Emissions Reductions Requirement by:	10,555 (8.92%)

[31] Telephone Communication with DNV GL Consulting Firm, June 9, 2015.

4.5 Management of GHG Reduction Strategy

Support will be needed to direct the implementation of the Plan measures. This section details how the Town will organize itself to put this plan into action.

- **Continue to Work with the Sustainability and Conservation Committee** – The Town's Sustainability and Conservation Committee was extremely active in developing the policies and programs set forth in the Town's Sustainability Element of the General Plan. These policies and priorities, in turn, helped the Town identify its capabilities and priorities for reducing GHGs in the CAP. The Town Liasion and other staff will continue to work with the Sustainability and Conservation Committee through the CAP implementation process.

- **Establish a Climate Action Task Force (CATF)** – The Town has benefited greatly from the expertise and efforts of the Sustainability and Conservation Committee. The Town proposes that a subcommittee be formed from the Sustainability and Conservation Committee, along with any other key climate action stakeholders. This subcommittee would function as the Town's Climate Action Task Force. The Climate Action Task Force would be the primary entity implementing the CAP, but would continue to draw on the expertise of the wider Sustainability and Conservation Committee.

  The Climate Action Task Force will develop ways to reach out to the community for assistance in implementing measures, and will conduct periodic gatherings and information seminars to involve the community in meeting the Town's sustainability goals and emission reduction targets. The Climate Action Task Force will engage the public and encourage conservation and sustainability on the part of all of the Town's residents. By making informed choices, residents can reduce GHG emissions and lower their individual and collective carbon footprint(s).

- **Appoint a Town Liaison to the Climate Action Task Force and Sustainability and Conservation Committee** – The Town will utilize members and expertise of the Climate Action Task Force and Sustainability Committee to implement the CAP. The Town Liaison will work with the Climate Action Task Force and Sustainability and Conservation Committee to implement the High Priority Measures in the Plan. The Town Liaison will also coordinate with other Town Departments and entities in implementing the Medium and Low Priority Measures. The Town Liaison will track progress in implementing all of the Plan's Measures. The Liaison, the Climate Action Task Force, and the Sustainability and Conservation Committee will also have responsibility for preparing yearly updates, and conducting public review on the updates. Further, the Town Liaison and Climate Action Task Force will ensure GHG inventories are conducted

every five years. These inventories will be used to track emission reductions and allow for periodic updates to the Climate Action Plan, to achieve the Town's GHG emission reduction targets.

- **Yearly Plan Implementation Updates** – The Town Liaison and the Climate Action Task Force will provide the Town Council and Community with yearly updates on CAP implementation and the Town's progress in reducing GHGs (See Section 4.7 below).

4.6 Public Participation and Community Engagement

The Town, together with the Climate Action Task Force, can play a substantial role in generating awareness and educating residents about ways to reduce GHG emissions. These actions should include outreach to local students (all grades K-12, but especially middle school and high scool students) to inform them of the adverse climate changes taking place and the measures that individuals and families can undertake to reduce their contribution to these changes. While the Town Climate Action Task Force can help initiate programs that help the Town to shift towards sustainable practices, it is crucial that other members of the community are engaged in the process to achieve the reduction targets identified in this plan, while minimizing costs. As mentioned previously, there are significant opportunities for the Town 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.

The Town of Woodside seeks to distribute information more widely on funding opportunities for residents and local businesses. Actions may include posting more information on the Town's website and at other key locations, including Town Hall and the Library. Additional actions may include partnering with PG&E and local water districts to further develop community presentations and workshops focused on topics that may include but are not limited to water-wise gardening, composting, community gardens, transportation solutions, renewable energy technologies, and other topics related to sustainability.

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 timeline shown in Table 10, lists the major milestones in the Climate Action Plan (CAP) implementation process. Progress and updates to this schedule should be submitted to the Town Council and the public as part of an annual Plan Implementation Report.

Table 10. Climate Action Plan Implementation

Milestone	Target Date
GHG Inventory Completed	11/2009
GHG Reduction Target Established	01/2012
Draft CAP Completed	06/30/2015
Draft CAP Published	07/20/2015
Sustainability Committee Revew	09/2015
Council Review/CAP Adoption	9/2015
Climate Action Task Force and Sustainability and Conservation Committee Begin Implementation	01/2016
1st Annual CAP Implementation Report	01/2017
Community Comment Period	02/2017 - 03/2017
2nd GHG Inventory Completed	01/2018
1st CAP Update	01/2020

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 consider additional voluntary and mandatory measures to the Plan in order to meet the Plan's GHG reduction target. Ongoing monitoring is critical to demonstrate that the Plan is achieving its goals, thereby maintaining its function as an effective GHG Reduction Strategy over time.

The following describes the monitoring and improvement program.

- ***Yearly Updates*** − Every year, the Town Liaison and Climate Action Task Force will issue an Annual Climate Action Plan Implementation Report (ACAPIR), to update the Town Council, residents, and other interested stakeholders on the Town's progress in implementing the Plan measures. The ACAPIR will describe lessons learned and make recommendations for changes to the implementation strategy or the Plan itself. Following the release of the ACAPIR, a 30-day public comment period will be conducted to allow for community input on implementation of the Plan.

- ***5-year GHG Inventory Updates*** − A full GHG inventory will be conducted every 5 years, on a schedule that coincides with that required by the Bay Area Air Quality Management District (BAAQMD) according to the ICLEI community emissions protocol. The inventory will allow the Town to understand the trends in emissions levels at both the local and regional level. PG&E can provide annual updates on electricity and natural gas usage to track associated GHG emissions.

- ***Tracking Results*** − The Town Liaison and Climate Action Task Force will track the emissions, resource savings, and any other effects of each implemented measure as well as estimated costs to government, residents, and businesses. Each measure will be summarized in the ACAPIR and made available for public review.

CAP Updates - This Plan may need to be updated based on the results of the most recent GHG inventory. The Town may modify and/or add new measures to ensure that the Town is on track in meeting what are likely to be increasingly stringent GHG reduction goals over time.

As described earlier in this Plan, AB 32 endeavors to reduce GHG emissions by approximately 50 percent below 1990 levels by 2050; achieving the 450 ppm maximum level of $C0_2$ in the atmosphere requires global GHG emissions be reduced by at least 50 percent below their 1990 levels by the year 2050. With its nearly 24 percent (23.92%) reductions in GHG emissions (below 2020 business as usual projected emissions) as a result of this Plan, and including State Initiatives, the Town of Woodside, is well on its way to reaching these targets.

6. 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.

Conserving scarce resources will save money, increase the resilience of our economy, and create new markets that prioritize green technologies. The Town of Woodside has taken a significant step towards 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 State-wide efforts, can achieve its environmental goals. The Town of Woodside is poised to reap the benefits of a clean energy economy, with policies that can increase the demand for local green jobs.

The proposed efforts of Woodside are small when compared to the collective action of our wider community, but even individual efforts are cumulative. Appendix B provides 10 ways that individuals can reduce their GHG footprint and help safeguard the environment for future generations.

While an important first step, this Climate Action 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.

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_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
EIR	environmental impact report
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

Appendix B. 10 Steps to Reduce Your Carbon Footprint

Modified from CoolClimate.org and World Preservation Foundation

1. Change your commute

Did you know that one third of the CO2 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.

For residents within San Mateo County, buy produce and fish labeled “As Fresh As It Gets,” signifying that it was grown or harvested locally within our local 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: www.asfreshasitgets.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_2 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. Stop unwanted catalogs at www.catalogchoice.org.

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

Appendix C. Summary of Funding Sources

For implementation of the Climate Action Plan, the Town of Woodside 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.

C.1 Federal Funding

Energy Commission Assistance
http://www.energy.ca.gov/efficiency/financing/index.html

Low interest loans (with an interest rate of 1% for Public Sector Projects (Towns, Cities, Counties, Schools, Public Hospitals) are available from the Energy Commission for the following types of projects:

- Lighting system upgrades
- Pumps and motors
- Streetlights and LED traffic signals
- Energy management systems and equipment controls
- Building insulation
- Energy generation including renewable and combined heat and power projects
- Heating, ventilation and air conditioning equipment
- Water and waste water treatment equipment
- Load shifting projects, such as thermal energy storage

Energy efficiency projects must be technically and economically feasible.

Federal Transportation Investment Generating Economic Recovery (TIGER) Grant
http://www.dot.gov/recovery/ost/.

The Federal Transportation Investment Generating Economic Recovery (TIGER) grant program was created by the American Investment and Recovery Act (ARRA) of 2009. Cities and Towns can apply for a TIGER grant to fund parking garages, and infrastructure to support electric battery-swap station and parking for electric vehicles. Information about the TIGER program is available at: http://www.transportation.gov/tiger#sthash.yPd54K8a.dpuf

"TIGER 2015 discretionary grants will fund capital investments in surface transportation infrastructure and will be awarded on a competitive basis to projects that will have a significant impact on the nation, a region, or metropolitan area."

"The TIGER 2015 grant program will continue to make transformative surface transportation investments by providing significant and measurable improvements over existing conditions. The grant program will focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for disconnected both urban and rural, while emphasizing improved connection to employment, education, services and other opportunities, workforce development, or community revitalization.":

C.2 State Funding

Energy Conservation Assistance Account Program (ECAA)
http://www.energy.ca.gov/efficiency/financing/index.html

Projects that are not eligible for funding under the ARRA Loan Program may be eligible for funding through the ECAA, which offers loans with three percent interest to finance energy-efficiency improvements.

Energy Upgrade California
https://energyupgradeca.org/overview

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. The program is a partnership among California counties, cities, non-profit organizations and the state's investor-owned utilities (Pacific Gas & Electric, Southern California Edison, Southern California Gas Company and San Diego Gas & Electric Company), and publicly owned utilities. Funding for this effort comes from the American Recovery and Reinvestment Act (ARRA, also known as federal stimulus funds).

C.3 Utility Rebate Programs

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

- Rebates for households: http://www.pge.com/myhome/saveenergymoney/
- Rebates for businesses: http://www.pge.com/mybusiness/energysavingsrebates/

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 dishwashers, hot-water heaters, and room air conditioners. Rebates range from $30 to $75 for qualifying appliances. PG&E and American Water are also currently offering a combined rebate of up to $250 for installing high-efficiency clothes washers.

PG&E LED Streetlight Replacement Program
http://www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/ref/lighting/lightemittingdiodes/incentives/index.shtml

The Town of Woodside 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).

PG&E Commercial Appliance Rebates
http://www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/ref/index.shtml

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 the website indicated above.

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.

C.4 Local Energy Programs

Acterra's High Energy Homes Project
http://www.acterra.org/programs/highenergy/index.html

Acterra's High Energy Homes project helps residents in homes with high PG&E bills to analyze and identify costly energy "leaks" that provide little or no value. Through a free on-line analysis of your PG&E bill data, the program creates an energy profile for your home and highlights low-cost energy-saving opportunities that can significantly reduce your bills and conserve energy. The audit starts online via a secure website. A home visit may be scheduled if the data from your home's energy profile presents an unusual pattern.

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 HouseCalls
http://www.acterra.org/programs/greenathome/index.html

Green@Home HouseCalls 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 conservations plans. Volunteers demonstrate environmentally friendly choices and foster a deeper awareness of the need for change. HouseCalls are available to all residents of participating cities whether you rent or own.

RightLights Program

The RightLights Program provides subsidized energy efficiency upgrades of lighting and refrigeration systems, with free professional assistance to help businesses lower energy bills and boost cash flow. Generally, any commercial PG&E customer who receives electric service on the A1, A6, A10, or E19-v rate schedules is eligible for the program. Property owners as well

as businesses who lease their space are encouraged to apply. Multi-family residential properties are eligible for RightLights in their common-use areas only.

Sustainable San Mateo County's Energy Ambassador Program
http://sustainabilityhub.net/contest/ea-parties/

Sustainable San Mateo County's *Energy Ambassador* Program educates homeowners on home energy efficiency as it relates to behaviors, electricity usage, and the building envelope. In order to do this, Sustainable San Mateo County (SSMC) takes a "top-down" approach to make sure homeowners recognize all aspects of home energy efficiency. The program has three components to engage homeowners; a Personal Energy Review, invitation to attend an Energy Ambassador Party, and hosting an Energy Ambassador Party. The ultimate goal of the program is for homeowners to take steps in each area of energy efficiency while helping to educate their friends and neighbors through the Energy Ambassador party.

At *Energy Ambassador Parties*, Sustainable San Mateo County uses the host's home as a case study. Guests have a chance to enjoy some refreshments, mingle with some like-minded people, and learn about the value of getting a home energy assessment and making energy efficiency improvements.

Sustainable San Mateo County's Personal Energy Review Program
http://sustainabilityhub.net/contest/per

With a *Personal Energy Review*, or PER, Sustainable San Mateo County (SSMC) customizes a free one-on-one evaluation for each homeowner. It is a chance to learn about the three aspects of home performance (behavior, electricity usage, and the building envelope). A SSMC staff member or volunteer will visit your home. During the visit, SSMC will analyze how your home is performing and what it is costing you. In other words, SSMC helps identify the issues in your home and the associated utility costs. Once SSMC understands your home, it can help you create a plan for addressing energy waste related issues.

C.5 Other Funding Opportunities

American Forests Global ReLeaf Grant Program
http://www.americanforests.org/global_releaf/

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

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 bawsca@bawsca.org. You can also check with your local water company; some offer water audits for no charge.

Waste Audits by Recology

Recology invests in infrastructure for material recovery operations so that communities can achieve their long-term sustainability objectives. They provide waste reduction consultation, recycling and reuse opportunities that expand local waste services beyond materials recovery, collection and disposal. They can help communities recover energy through anaerobic digestion and harness landfill gas as a renewable energy source.

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.

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. Woodside plans to initiate an inclusive planning process that ensures the resulting actions are feasible and widely accepted. Adaptation will likely be an ongoing process of planning, prioritization and specific project implementation.

Five important steps to effective adaptation planning are summarized below:

1. **Increase Public Awareness; Engage and Educate the Community**

   It is critical that the public understand the magnitude of the challenge and why action is needed. The planning process should be inclusive of all stakeholders. Local outreach campaigns are needed to promote awareness of the dangers of heat exposure and recommend low-cost and low-GHG adaptation strategies. These efforts should leverage similar efforts undertaken at the regional, state, and federal levels.

2. **Assess Vulnerability**

   Understanding vulnerability to sea level rise and other climate change impacts is critical to developing adaptation effective strategies (While the Town of Woodside would not be directly affected by sea level rise, some of its utility providers such as the South Bayside System Authority wastewater treatment plant in Redwood City would be affected by these changing conditions). A detailed vulnerability analysis should be performed to assess potential climate change impacts to infrastructure and natural systems. Future vulnerability of assets and infrastructure can then be assessed using conceptual models of shoreline (shore) response to sea level rise. Shore response models can be applied for one or more climate change scenarios and planning horizons, and a strategy for adapting can be developed with due consideration to priorities and time frames. Both short-term and long-term adaptation strategies should be identified. Level of risk can be categorized in terms of likelihood of damage within the forecasting period and the severity of the damages. This allows planners to prioritize their response to sea level rise. The vulnerability assessment can also provide a framework for agency and community education and participation, feed into other planning documents, and identify funding needs. Woodside's vulnerability assessment would focus on reducing risk of wildfires through fuels reduction in the urban-wild land interface.

3. **Establish Goals, Criteria and Planning Principles**

   Engage with stakeholders to establish planning priorities, determine decision criteria, and build community support for taking action. Rank physical and natural assets for

preservation efforts. Where possible, look for situations where a mitigation action has adaptation co-benefits (e.g., planting trees to reduce urban heat islands while sequestering carbon and providing habitat).

4. Develop Adaptation Plan

Identify specific strategies, develop actions and cost estimates, and prioritize actions to increase local resilience of Town infrastructure and critical assets, including natural systems like wetlands and urban forests. Look for synergies between natural processes and engineering solutions. There is a continuum of strategies available to manage sea level rise, ranging from coastal armoring (levees, seawalls, etc.) to elevated development to a managed retreat or abandonment of low-lying development. An adaptation plan should include a prioritized list of actions (e.g. projects) with a timeline, capital expenditure plan, and framework for monitoring and adaptive management.

5. Ongoing Monitoring and Adaptive Management

Reassess climate change vulnerabilities on a regular basis and modify actions accordingly. This includes monitoring the effectiveness of current policies, strategies and actions, and keeping up with changing science, funding opportunities, and regulatory actions.

Table D1 provides a menu of potential adaptation strategies and measures is provided in the table below.

Table D1. Adaptation Strategies and Measures

Climate Change Impacts	Sample Adaptation Measures
Sea Level Rise Risks to existing facilities, natural systems, private property and public infrastructure	• Educate and engage the community on the need for long-range planning • Partner or collaborate with other jurisdictions and agencies to increase awareness and build community support for action • Identify funding mechanisms and seek public-private partnerships where interests converge • Use natural backshore wave-buffering processes to reduce wave erosion and run-up on levees • Increase or maintain the buffering capacity of tidal wetlands to protect against storm surges and keep pace with sea-level rise • Move levees further inland to allow marshes and mudflats to naturally transgress landward • Protect and restore wetlands that provide vital habitat and

	carbon storage, and allow for landward migration of habitat over time • Make modifications to low-lying wastewater treatment facilities. Consider opportunities for integrating wastewater treatments and wetlands • Avoid new development in areas at risk based on sea level projections • Do coastal armoring with levees and seawalls to protect vital infrastructure from erosion, inundation, and flooding
Extreme Heat Events Risks to public health and infrastructure	• Identify vulnerable communities and develop emergency preparedness plan • Establish cooling centers, especially for vulnerable populations • Reduce urban heat islands through use of cool roofs and other reflective surfaces • Do targeted tree planting and enact new requirements for shading in new parking lots and other large paved areas • Reduce risk of wildfires through fuels reduction in the urban-wild land interface
Regional Drought Risks to reliable water supply, and potential conflicts between urban and agriculture users	• Increase capacity for community water storage • Promote local water conservation • Make water conservation a top priority for agriculture in the region • Do water reclamation and reuse projects
Increased Flooding and Severe Weather Events Risks to public health, private property, public infrastructure, and ecosystems	• Integrate local flood management plans with adaptation planning • Identify vulnerable communities and develop emergency preparedness plans • Establish local land use policies that decrease flood risk; avoid building in high-risk areas • Make modifications to storm water system routing and storage. Develop storage areas for peak flows • Maximize use of bioswales and permeable surfaces in both greenscape and hardscape areas to improve aquifer recharge and mitigate flooding from stormwater

Air Quality and Other Public Health Concerns	• Restrict use of fireplaces and open fires on high-risk days • Monitor potential threats to public health, including new diseases, and develop public awareness
Threats to Species, Ecosystems, and Ecosystem Services	• Design urban forest program to improve biodiversity, provide heat relief, and sequester carbon • Preserve wetlands, salt marshes, and other critical coastal habitats
Risks to Local Agriculture and Food Supply	• Promote conservation of local agricultural land • Promote the use of public and private land and rooftops for producing food • Promote the planting of fruit and nut trees • Support local farmers markets by providing incentives such as reduced costs for permits and support in attaining electronic benefit transfer (EBT) point-of-sale terminals • Provide incentives and remove regulatory obstacles to encourage animal husbandry and local food production and distribution • Provide and promote educational opportunities for residents at all levels of the educational system (preschool through college) to gain skills in organic gardening; fruit production; animal husbandry; food preservation and cooking; and affordable, healthy eating • Develop a town-supported food gleaning program that organizes volunteers or compensates workers to collect food from trees and shrubs on land owned by cities or within cities to distribute through food banks and other local distribution channels • Reduce food waste by implementing a local composting where all food scraps, food-soiled paper, waxed cardboard, wood crates and landscape trimmings from markets, restaurants, homes, hotels, and schools, would be collected and made available for distribution to rural or urban gardeners

Appendix E. Future Opportunities for Emissions Reductions

1. **Groundwater Protection**: Monitor groundwater use so that this critical resource is not over used in a manner that results in changes to the health of the Town's forestlands.

2. **Fire Hazard Reduction**: Coordinate efforts between the Woodside Fire Protection District, Town, Private Residents, the County, and the Mid-Peninsula Open Space District to reduce risk of wildfires through fuels reduction in the urban-wild land interface.

3. **Forest Protection:** Woodside would continue to protect its public and private forestlands, so that they continue to have regionally beneficial impacts in preserving biodiversity, providing heat relief, and sequestering carbon.

Appendix F. 2005 Baseline GHG Inventory and Forecast

The 2005 Townwide Green House Gass Inventory and 2005 Municipal Green House Gas Inventory are available on the Town website (URL to be determined) and by request from the Town.

Appendix G. Emission Reduction Measures: Calculations

Measure Number	Measure Name	Emissions Avoided Assumptions
ENERGY		
3.1.1	Commercial Green Building Ordinance	The ordinance will apply to an estimated 35% of new commercial construction by 2020 and results in 15% energy savings.
3.1.2	Residential Green Building Ordinance	The CALGreen Tier 1 ordinance will apply to an estimated 65,000 square feet of residential construction by 2020 and result in 15% energy savings.
3.1.3	Incentivize Solar Energy Installation and Other Renewable Energy	An estimated 430 homes will install a solar PV system, 220 homes will install a solar hot water system and 50 homes will install a ground-source heat pump by 2020.
3.1.4	Participate in Energy Upgrade Programs	An estimated 28 homes will receive an energy audit and home retrofit by 2020 that results in 30% energy savings.
3.1.5	Promote PG&E Commercial and Industrial Energy Efficiency/Demand Response Programs	An estimated total of 20,000 square feet of commercial space will participate in an energy efficiency or demand response program by 2020 that results in 10% energy savings.
3.1.6	Shade Trees; and Preservation of Significant Trees and Forest Land	An estimated 110 homes and 3 commercial buildings will plant a shade tree/s by 2020 that results in 5% energy savings for residential buildings and 10% energy savings for commercial buildings.

3.1.7	Energy Efficient Street Lighting	An estimated 4 400-watt street lights will be replaced with 50-watt street lights by 2020.
3.1.8	Renewable Energy Installation on Municipal Property	An estimated 15 kW of PV solar capacity will be installed on Town facilities by 2020.
3.1.9	Energy Efficiency in Municipal Buildings	The Woodside Library, Town Hall and either the Independence Hall or Community Museum will undergo energy efficiency retrofits by 2020 that result in 10% energy savings.
3.1.10	Voluntary Real Estate Conservation Disclosure	An estimated 25% of homes sold by 2020 will participate in the program, resulting in 10% energy savings.
TRANSPORTATION AND LAND USE		
3.2.1	Walkable/bikeable Street Landscape	The Town will build an additional 13 miles of bicycle lanes by 2020 and increase bicycle parking.
3.2.2	Low Emission Government Vehicles	The Town will replace four existing vehicles in the Town fleet with alternative fuel vehicles by 2020.
3.2.3	Local Food	An estimated 20% of homes will purchase food at the farmers' market and, as a result, avoid associated vehicle trips to purchase groceries.

SOLID WASTE		
3.3.1	Set Higher Waste Diversion Rate Goal	The community-wide waste diversion rate will increase from a 2005 baseline of 67% to 80% by 2020.
3.3.2	Environmentally Preferred Purchasing Policy - Waste Reduction	This measure does not assume any avoided greenhouse gas emissions.
3.3.3	Reduce Waste at Point-of-Purchase	This measure does not assume any avoided greenhouse gas emissions.
WATER		
3.4.1	Water Conservation Incentives	An estimated 20% of homes will install water efficient appliances and fixtures by 2020 that result in a 10% water-related energy savings per household.
ALL SECTORS		
3.5.1	Green Business Program	An estimated 27,000 square feet of commercial space will participate in the program by 2020, resulting in a 5% decrease in energy use.
3.5.2	Future Programs	This measure does not assume any avoided greenhouse gas emissions.