



Climate Action



Purpose

Climate change is caused by an increase in the concentration of atmospheric greenhouse gases. Potential climate change impacts in Northern California include declining water supplies, spread of disease, diminished agricultural productivity, sea level rise, and increased incidence of wildfire, flooding, and landslides. Like many communities, Mill Valley is addressing these potential impacts by thinking differently about its resources, taking actions to reduce the community’s contribution to greenhouse gas production, and identifying strategies to allow the community to adapt to potential foreseen changes.

While the Climate Action Element is not a mandatory element of the General Plan, the City of Mill Valley has designed the MV2040 General Plan so that it also serves as the City’s Climate Action Plan, identifying the ways in which the City will comply with state mandates for reducing greenhouse gas emissions. Greenhouse gas (GHG) emission reduction policies and programs are identified throughout this element and the rest of the General Plan with a leaf symbol (🌿). In addition, an assessment of potential reduction in GHG emissions, based on the emission reduction measures in the MV2040 General Plan, is included in Appendix C of this General Plan.

Existing Conditions

Overview of Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC), the authoritative global scientific consortium on climate change, has provided overwhelming scientific evidence that human-induced greenhouse gas (GHG) emissions are now producing climate impacts with dangerous consequences. According to research by Lawrence Berkeley Laboratory and James Hansen, NASA’s Chief Climate Scientist, recent global emissions trend lines – if unchanged – are likely to produce the following:

- **Temperature:** Average temperatures could increase as much as 10 degrees Fahrenheit (°F) by the end of the century, with 3.6 °F considered the “tipping point” beyond which runaway climate impacts – including full melting of the polar ice – are inevitable.



Rainbow over Mill Valley
Source: Mill Valley Fire Department

SEA LEVEL RISE

Projected will expand the areas subject to **flooding** to include low-lying areas of Mill Valley from Bothin Marsh to Sycamore Park.



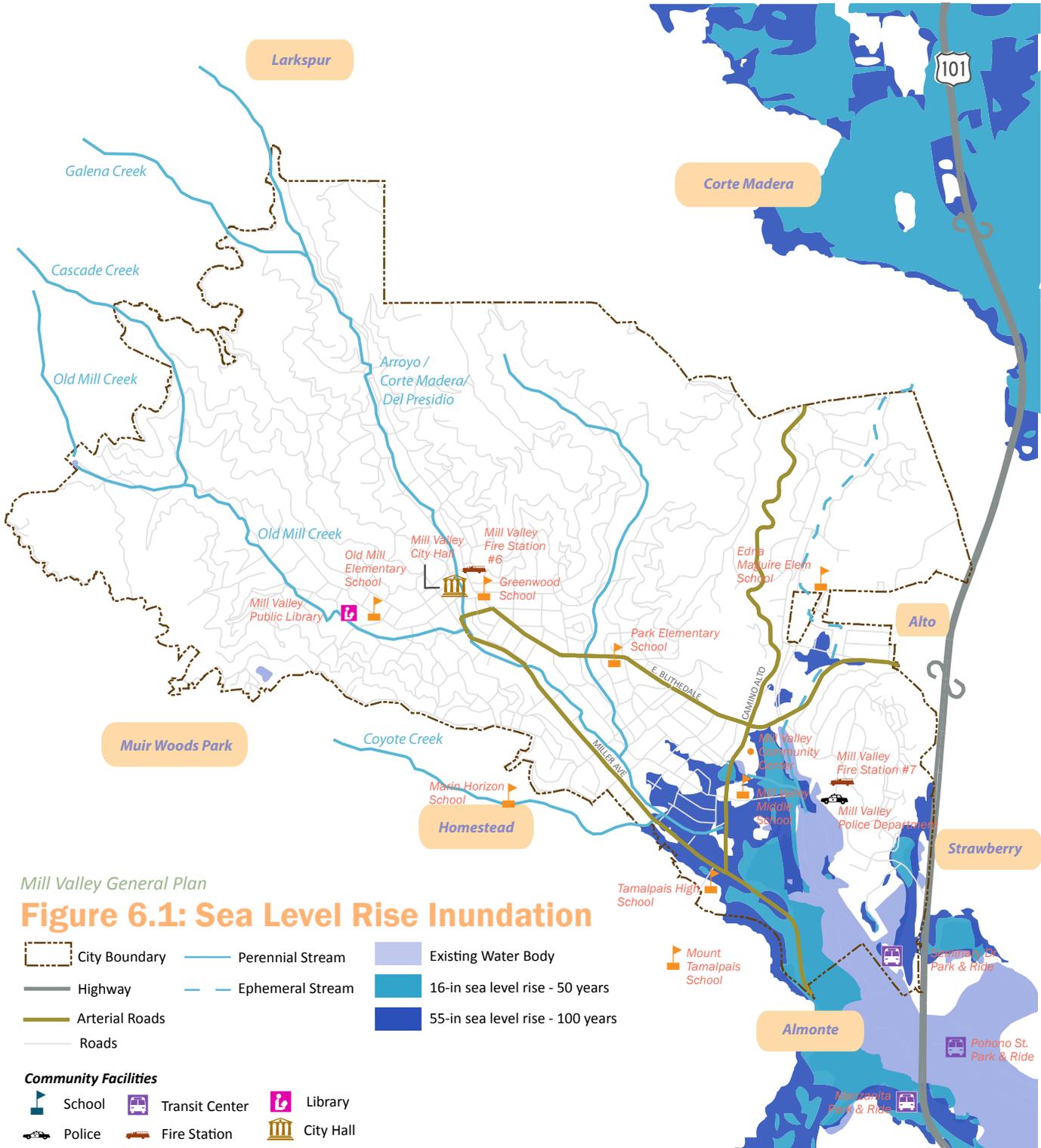
- **Fire Risk:** The occurrence of large wildfires could increase by as much as 35 to 55 percent.
- **Water Availability:** By 2050, the average April measurement of the Sierra snowpack will drop by 13 feet, resulting in a loss of 36 percent of California’s water supply. These impacts will dramatically increase competition for scarce water resources, severely reduce the state’s agricultural production, and further intensify the frequency and duration of droughts.
- **Public Health:** The frequency and intensity of conditions conducive to air pollution, harsh heat, and vector borne disease will increase.
- **Sea Level Rise:** Sea levels could rise from as little as 2 to 3 feet if emissions trend downward to as much as 8.5 to 35 feet by the end of the century if emissions continue to rise in a “business as usual” scenario.

Between 1900 and 2000, sea level rise on San Francisco Bay (underneath the Golden Gate) was seven inches, primarily due to thermal expansion from global warming, and this rate of increase is accelerating. According to the Bay Conservation and Development Commission (BCDC) September 2008 report “A Sea Level Rise Strategy for the San Francisco Bay Region”:

Recent analyses indicate that sea level rise from warming oceans may be 1.4 meters (about 55 inches) over the next 100 years, or even higher depending upon the rate at which glaciers and other ice sheets on land melt. BCDC’s illustrative maps show that a one-meter rise in the level of the Bay could flood over 200 square miles of land and development around the Bay. Initial estimates indicate that over \$100 billion worth of public and private development could be at risk.¹

In the face of large-scale damage estimates from even the most conservative sea level rise estimates, in addition to many other negative environmental and economic impacts of global warming, leading scientists are urging policy-makers to take early and strong action both to mitigate emissions and to begin adapting to likely climate impacts. See Figure 6.1 for expected sea level rise inundation areas.

¹ San Francisco Bay Conservation and Development Commission, “A Sea Level Rise Strategy for the San Francisco Bay Region,” September 2008, http://www.bcdc.ca.gov/meetings/commission/2008/2008-09-18_slr_strategy.pdf. accessed June 28, 2013.



Mill Valley General Plan

Figure 6.1: Sea Level Rise Inundation

City Boundary	Perennial Stream	Existing Water Body
Highway	Ephemeral Stream	16-in sea level rise - 50 years
Arterial Roads	Roads	55-in sea level rise - 100 years

Community Facilities

School	Transit Center	Library
Police	Fire Station	City Hall

0 0.25 0.5 Miles

Source: City of Mill Valley, 2012; Marin Map, 2012; BCDC, UCGS, 2009; WRT 2013



Flooding in Downtown Mill Valley after a rain storm, February 2014

Trends in Sustainability

#1

Climate change is going to continue to affect the way we live.

- Climate change will increase the frequency and intensity of conditions conducive to air pollution, harsh heat, and vector-borne disease.
- Between 1900 and 2000, sea level rise in San Francisco Bay was seven inches, primarily due to thermal expansion from global warming, but this rate of increase is accelerating.¹
- Estimates of future sea level rise range from as little as 2 to 3 feet if current emission rates trend downward to as much as 8.5 to 35 feet by the end of the century if emissions continue to rise.²
- Based on current trends, by 2050 the average April measurement of the Sierra snowpack will drop by 13 feet, resulting in a loss of 36 percent of California's water supply.³
- Treating and delivering water accounts for approximately 20 percent of all electricity used in California and is the largest single-purpose use of electricity in Marin County.⁴
- Sea level is projected to rise 16 inches by 2050 and 55 inches by the end of the century due to the effects of climate change.⁵
- Projected sea level rise will expand the areas subject to flooding to include low-lying areas of Mill Valley from Bothin Marsh to Sycamore Park.
- By 2050, daily high tides will inundate the same area currently subject to flooding by a 100-year flood event.⁶
- Marin County obtains 80 percent of its water supply from local reservoirs and imports about 20 percent from the Russian River watershed. Impacts on water supply are likely to be a major result of a changing climate, due to higher temperatures and more erratic, less predictable supply patterns.

Early action on GHG reduction can produce substantial benefits from the transition to a “low-carbon community.” These benefits include new jobs in building energy retrofits and renewable energy projects, public health benefits from reduced air pollution, and enhanced local energy security and economic sustainability from reduced dependence on fossil fuels.

State of California Initiatives

The State of California has led the country in addressing climate change by enacting the following legislative initiatives:

Emissions Reduction Goals

- **Assembly Bill (AB) 32 – 2006:** AB 32, The Global Warming Solutions Act of 2006, remains the nation’s leading legislation to address GHG emissions. AB 32 institutes a mandatory limit on greenhouse gas pollution and requires a reduction in emissions to 1990 levels by the year 2020, which is about a 24-percent reduction statewide from current levels. The bill also directs the California Air Resources Board (CARB) to establish a mandatory reporting system to monitor emission levels and adopt regulations to achieve the targeted GHG reductions by 2012. In December 2008, CARB adopted a Scoping Plan to achieve the state’s 2020 climate goal.
- **Executive Order S-3-05 – 2005:** In 2005, as a companion measure to AB 32, Governor Schwarzenegger signed Executive Order S-3-05 to commit California to a statewide emissions reduction of 80 percent below 1990 levels by the year 2050.
- **Senate Bill (SB) 1771 – 2000:** This bill requires the California Energy Commission (CEC) to prepare an inventory of the state’s greenhouse gas emissions, study data on climate change, and provide government agencies and businesses with information on the costs and methods for reducing GHGs. It also established the California Climate Action Registry to serve as a certifying agency for companies and local governments to quantify and register their emissions for possible future trading systems.

Support for Renewable Energy

- **California Solar Initiative Program – 2006:** This \$2.8-billion program provides incentives for residential and commercial solar development over 11 years.



Ground mounted solar panels behind Mill Valley’s Public Safety Building

- **Assembly Bill (AB) 811 – 2008:** This 2008 bill allows California municipalities to help citizens finance renewable and energy efficiency projects by issuing a bond to pay for initial installation costs. Repayment is stretched out over the life of the project and is made through a voluntary assessment on the building’s property tax, which transfers to the new owner at time of sale.
- **Senate Bill (SB) X1-2 – 2011:** This bill applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new goal of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

Low-Carbon Transportation and “Smart” Growth

- **Assembly Bill (AB) 118 – 2008:** This bill establishes the California Alternative and Renewable Fuel and Vehicle Technology Program, which provides grants and rebates to support the development, manufacture, and purchase of electric vehicles (EVs), natural gas vehicles (NGVs), hydrogen fuel cell vehicles (FCVs), biofuel vehicles, and other low-emissions vehicle technologies.
- **Senate Bill (SB) 375 – 2007:** This law requires climate impacts to be addressed by local General Plans and directs CARB to work with metropolitan planning organizations (MPOs) to set and achieve regional targets for GHG reductions based on changes in land use and transportation. In the Bay Area, the Association of Bay Area Governments is the lead agency for SB 375 planning.
- **Assembly Bill (AB) 1493 – 2002:** This bill requires CARB to adopt regulations that achieve the maximum feasible reduction of greenhouse gases from vehicles.

Marin County Initiatives

Cities for Climate Protection Campaign

In 2002, the Marin County Board of Supervisors adopted a resolution joining the Cities for Climate Protection Campaign (CCP) sponsored by ICLEI – Local Governments for Sustainability. By 2007, all 11 Marin municipalities had joined the CCP, which calls on local jurisdictions to achieve the following five milestones:



Electric Vehicle in Downtown Mill Valley

1. Emissions Inventory. Conduct an inventory of current greenhouse gas (GHG) emissions and forecast the growth in emissions that will occur without preventative action. Mill Valley has conducted three inventories to date (2000, 2005, and 2010).

2. Emissions Reduction Targets. Set a GHG reduction target The County of Marin set a target to reduce GHG emissions communitywide to 15 percent below 2000 levels by the year 2020 and an internal goal of 15 to 20 percent below 2000 levels by the year 2020 for County operations. The City of Mill Valley has established similar targets: 15 percent below 2005 levels communitywide and 20 percent below 2005 levels for municipal activities by the year 2020.

3. Climate Action Plan. Develop a local Climate Action Plan that describes the policies, programs, and measures that will be implemented to meet local and state targets. This General Plan serves as Mill Valley’s Climate Action Plan. Policies and programs identified with a leaf (🌿) serve as emission reduction measures for the Climate Action Plan. Appendix C contains an analysis of anticipated emission reductions based on General Plan goals, policies, and programs. Climate Action policies include:

- Green building, energy efficiency, and renewable energy to address the energy use and consumption of natural resources to construct, renovate, operate and maintain buildings
- Land use and transportation to identify more efficient ways to utilize land and move about
- Natural systems, sequestration, and offsets to absorb or sequester greenhouse gases
- Waste reduction, recycling, and Zero Waste to divert and/or eliminate all materials from landfill
- Water conservation
- Climate change/adaptation to prepare for future scenarios such as sea level rise

4. Implementation. Implement the local action plan. Appendix A of this General Plan contains the Implementation Plan. Emission reduction programs are identified using the 🌿 icon, and implementation progress will be monitored as part of the annual review process for the General Plan.

5. Monitoring. Monitor progress and report results. The City of



New lighting at Mill Valley Middle School



Electric vehicle owned by the City of Mill Valley



Electric vehicle charging station near Hauke Park

Mill Valley continues to document and update its emissions inventory to mark its progress toward meeting the City's emission reduction targets. Annual reporting to benchmark potential emission reductions in association with the implementation of emission reduction measures can be incorporated into the annual General Plan review process as well.

Marin Climate and Energy Partnership

Recognizing the need for a collaborative approach to GHG reductions, city and county leaders launched the Marin Climate and Energy Partnership (MCEP) in 2007. The City of Mill Valley is a member of MCEP and works with representatives from the County of Marin and all of the other Marin cities and towns to address and streamline the implementation of a variety of GHG reduction measures, including development of enhanced green building ordinances, countywide Zero Waste efforts, and countywide efforts to transition to a localized, climate-friendly food system. MCEP is also coordinating efforts to document and monitor progress in meeting emission reduction targets for the year 2020.

Marin County's Greenhouse Gas Emissions

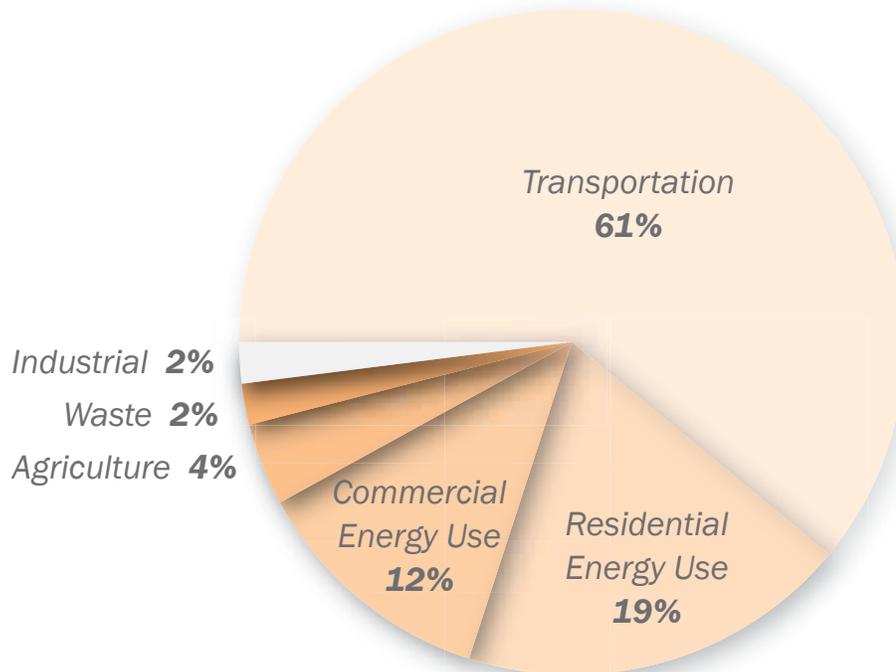
In 1990, Marin County GHG emissions were calculated at about 2.6 million tons. By 2000, emissions were estimated at about 3.1 million tons – a 15-percent increase since 1990. Between 2000 and 2005, emissions began decreasing, so the net increase in emissions between 1990 and 2005 is estimated at 6 percent. Figure 6.2 shows the distribution of countywide emissions by sector in 2005, and Figure 6.3 illustrates emission trends over the past 15 years.

In 2006, the County of Marin developed a strategic plan to reduce annual GHG emissions to 15 percent below 1990 levels by 2020. The keystone of this plan is the initiation of Marin Clean Energy, a community choice aggregation program that procures renewable sources of electricity and partners with PG&E to deliver electricity. Participation in MCE is projected to reduce GHGs by 302,320 tons equivalent carbon dioxide (CO₂e) to 534,369 tons annually by 2020. Other high-impact measures in the 2006 plan include expanded recycling and solid waste reduction.



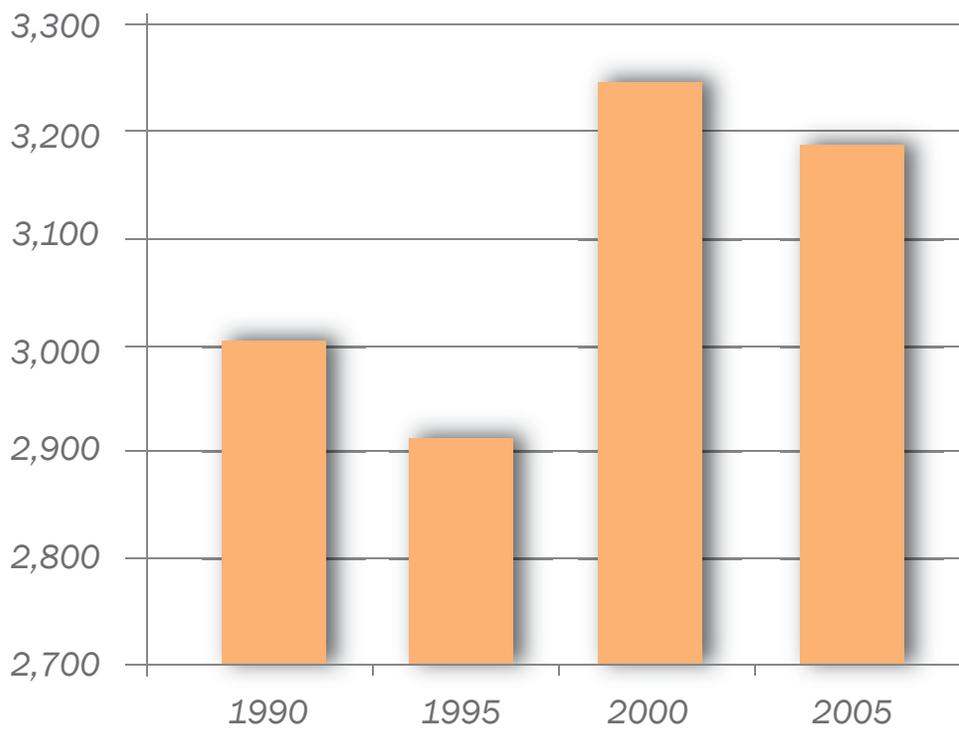
Bicyclist on flooded Bay Trail
Source: Tim Porter, *Marin Magazine*

Figure 6.2 | Marin County Greenhouse Gas Emissions by Sector, 2005



Source: Mill Valley, February 18, 2010 "Draft Framework: Addressing Climate Change" Presentation

Figure 6.3 | Marin County Greenhouse Gas Emission Trends, 1990-2005



Source: Mill Valley, February 18, 2010 "Draft Framework: Addressing Climate Change" Presentation

Transportation
generates
1/2
of Mill Valley's
greenhouse
gas emissions



Click Off 2008
Source: Mill Valley Arts Commission

Mill Valley's Greenhouse Gas Emissions

2005 Baseline Emissions Inventory

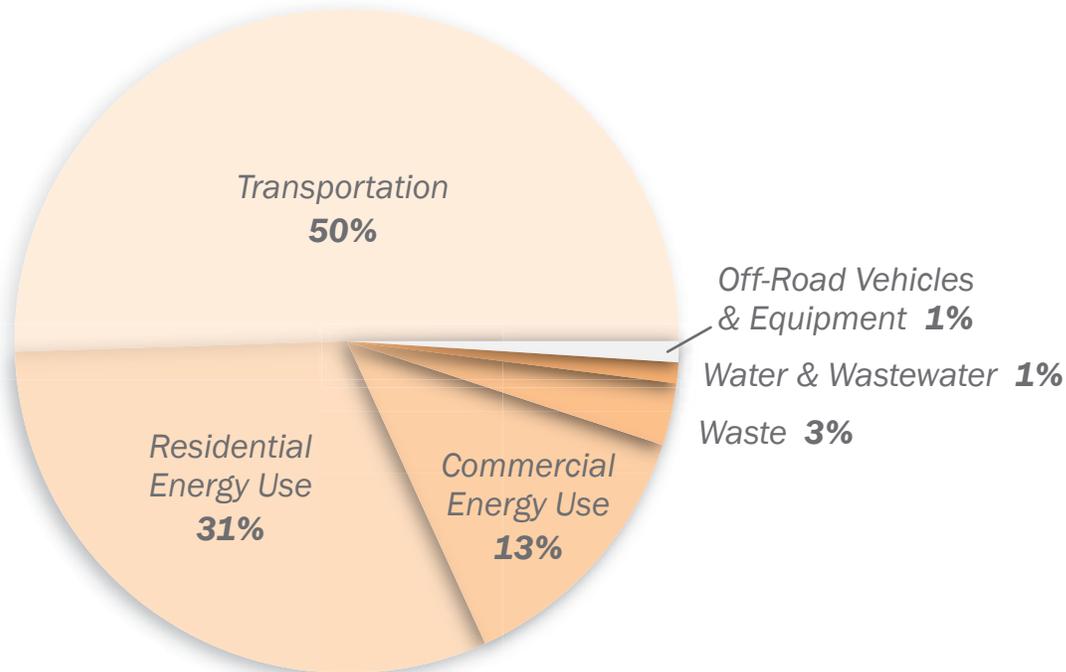
Mill Valley's greenhouse gas emissions inventory sets a baseline emissions level for the year 2005 and projects future emissions levels for the year 2020. The baseline and projection are used to

Trends in Sustainability

#2 The Air We Breathe

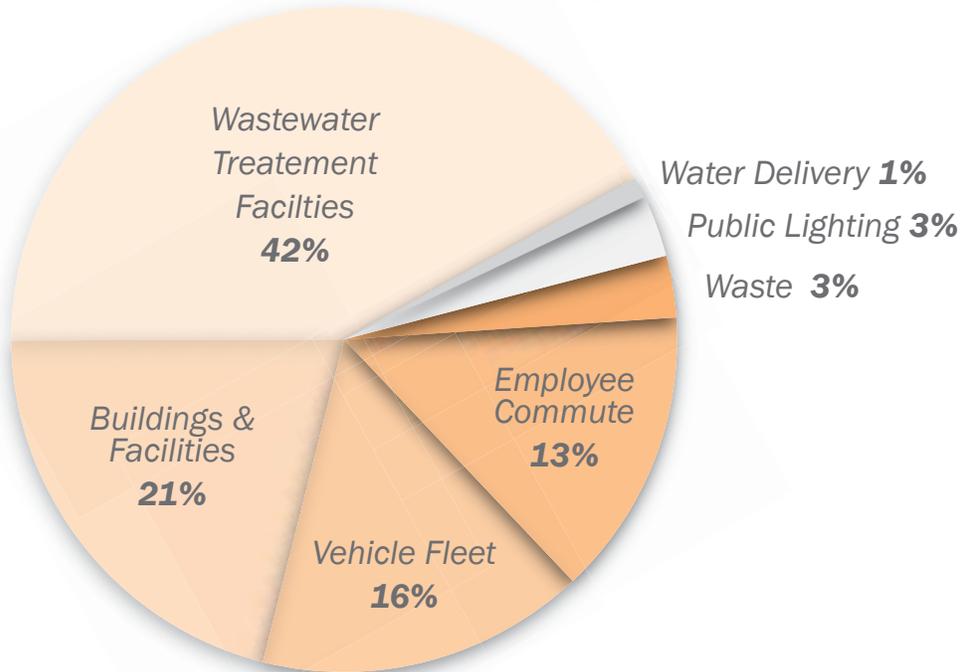
- Mill Valley generates approximately 87,258 metric tons equivalent carbon dioxide (CO₂e) per year.⁷
- Transportation (e.g., cars, buses, trucks, etc.) generates half of Mill Valley's greenhouse gas emissions, compared to 50 percent for the Bay Area, 41 percent for California, and 14 percent for the world.⁸
- The Environmental Protection Agency (EPA) Air Quality Index (AQI) level for Mill Valley is 30.4, which means air quality is satisfactory and air pollution poses little or no risk. This level compares favorably to the U.S. average AQI of 32 (as a lower AQI is better).⁹
- For six out of seven monitored air pollutants, Mill Valley's levels are consistent with national averages or significantly better.¹⁰
- In 2010, levels of nitrogen dioxide (which is produced by motor vehicles and power plants and results in a brownish haze) were 12.4 parts per billion (ppb), which is greater than the national average (9.4 ppb) but within EPA's adopted standards.¹¹
- The Bay Area Air Quality Management District (BAAQMD) declared 11 "Spare the Air" days for the Bay Area in 1991, 25 in 1996, and 8 in 2011. According to the EPA's AirNow website, however, Marin County had zero unhealthy air days between 2000 and 2010.¹²

Figure 6.4 | Mill Valley 2005 Baseline: Community Greenhouse Emissions by Sector



Source: Mill Valley GHG Emissions Inventory Report, 2010

Figure 6.5 | Mill Valley 2005 Baseline: Government Greenhouse Emissions by Sector



Source: Mill Valley GHG Emissions Inventory Report, 2010

determine the amount of emissions reduction necessary to achieve the City's adopted reduction targets for both the community and internal government operations.

In 2005, Mill Valley as a community emitted over 90,000 metric tons equivalent carbon dioxide (CO₂e) of greenhouse gases. Half of these emissions were related to transportation. Residential energy use was the second largest source of emissions (31 percent), followed by commercial/industrial energy use (13 percent) and waste (3 percent).

In 2005, internal government operations were estimated to have contributed 3,000 metric tons CO₂e of greenhouse gas emissions – just over 3 percent of total citywide emissions. The largest emission sources were wastewater treatment and water management, building and facility energy use, vehicle fleet, and employee commute. Waste and streetlight energy use contributed the remainder.

Comparison of 2005 and 2010 Emissions

In June 2013, Mill Valley updated its greenhouse gas inventory report comparing the 2005 baseline year with 2010 data. The inventory quantifies greenhouse gas emissions from a wide variety of sources, from the energy used to power, heat, and cool buildings to the fuel used to move vehicles and power off-road equipment to the decomposition of solid waste and treatment of wastewater.

The distribution of 2010 emissions by sector and operation remains similar to 2005 data, with the transportation sector still making up the greatest percentage of the community's greenhouse gas emissions (50 percent), followed by the residential (32 percent) and commercial (14 percent) sector. The encouraging news is that Mill Valley reduced community greenhouse gas emissions nearly 4 percent between 2005 and 2010, from 90,806 metric tons in 2005 to 87,258 metric tons in 2010 – a reduction of 3,548 metric tons CO₂e. Reductions occurred in all sectors except the wastewater sector. See Table 6.1 for details.

In summary, the comparison of Mill Valley's GHG reductions between 2005 and 2010 shows the following:

- Great strides were made in the waste sector, with 31 percent less waste going to the landfill. Some of this diversion in waste is related to the City's new curbside composting program.



Mill Valley is home to the first Leadership in Energy and Environmental Design (LEED) for Homes residence in Marin County.

Photo: Mariko Reed

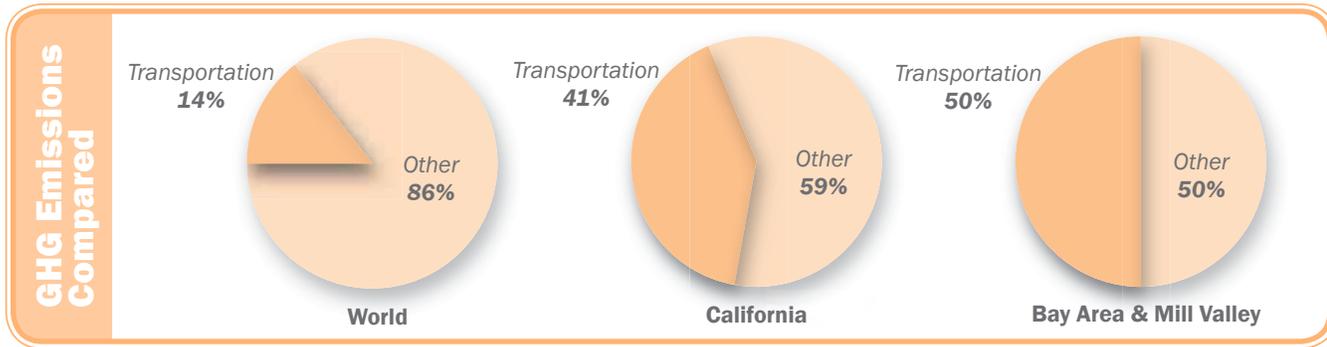


Table 6.1 | Mill Valley Community Greenhouse Gas Emissions by Sector, 2005 & 2010

Sector	2005 Greenhouse Gas Emissions		2010 Greenhouse Gas Emissions		Change in Metric Tons CO2e	% Change in Metric Tons
	Metric Tons CO2e	% of Total	Metric Tons CO2e	% of Total		
Residential	28,040	31%	27,578	32%	-462	-1.6%
Commercial	12,242	13%	11,897	14%	-345	-2.8%
Transportation	45,522	50%	44,048	50%	-1,474	-3.2%
Off-Road	1,129	1%	987	1%	-143	-12.6%
Water	359	<1%	251	<1%	-109	-30.2%
Wastewater	410	<1%	426	<1%	16	+3.8%
Waste	3,104	3%	2,072	2%	-1,032	-33.2%
Total	90,806	100%	87,258	100%	-3,548	-3.9%

Source: Mill Valley 2010 Emissions Inventory

Note: Emissions are arranged by sector to facilitate detailed analysis of emissions sources and comparison of increases and decreases between 2005 and 2010. The inventory provides a snapshot of the years 2005 and 2010 and does not intend to imply there is necessarily a trend line between those years. Total emissions may have gone up or down during the years between 2005 and 2010.

Table 6.2 | Mill Valley Government Greenhouse Gas Emissions by Sector, 2005 & 2010

Sector	2005 Greenhouse Gas Emissions		2010 Greenhouse Gas Emissions		Change in Metric Tons CO2e	% Change in Metric Tons
	Metric Tons CO2e	% of Total	Metric Tons CO2e	% of Total		
Buildings & Facilities	649.6	21%	663.5	21%	13.9	+2%
Wastewater Treatment Facilities*	1,306.1	42%	1,262.9	41%	-43.2	-3%
Vehicle Fleet	482.4	16%	476.7	15%	-5.7	-1%
Public Lighting	90.2	3%	81.0	3%	-9.1	-10%
Water Delivery*	41.7	1%	31.2	1%	-10.5	-25%
Waste	93.2	3%	61.2	2%	-32.0	-34%
Employee Commute	434.7	14%	524.2	17%	89.5	+21%
Total	3,097.9	100%	3,100.8	100%	2.9	0.1%

Source: Mill Valley 2010 Emissions Inventory

*Note: Wastewater treatment and water delivery are not operated by the City of Mill Valley

- In the transportation sector, emissions dropped by 3.2 percent due, in part, to improvements in fuel efficiency.
- Reductions in the off-road sector were due to a 30-percent decrease in emissions from construction equipment.
- Reductions in electricity usage, a decline in the carbon intensity of electricity provided by PG&E, and the introduction of greener electricity provided by the Marin Clean Energy program (MCE) were largely responsible for the decrease in emissions in the residential and commercial sectors. An integral part of the formation of the MCE was the establishment of the Community Choice Aggregation (CCA) Marin Clean Energy (MCE) program, whereby electrical energy is provided to customers from a wide range of renewable energy sources that generate fewer GHG emissions. Currently, the program offers two options for energy purchases: (1) a “Light Green” option that generates a minimum of 25 percent from renewable energy sources and provides a 53-percent decrease in GHG emissions, and (2) a “Dark Green” option that generates 100 percent renewable energy content and is 100 percent GHG-free.
- A decrease in water usage led to declines in emissions in the water sector.

Within government operations, emissions were flat, increasing by just 2.9 metric tons, or 0.1 percent. Decreases occurred in all sectors except the buildings and facilities sector (+13.9 metric tons CO₂e) and the employee commute sector (+89.5 metric tons CO₂e), which experienced a 21-percent increase in emissions. The increase in emissions from buildings and facilities was due to an increase in natural gas consumption. The increase in employee commute emissions was apparently due to an increase in the number of miles employees drove to work, but may also be due to differences in sampling (as commute emissions are derived from employee surveys). Excluding the employee commute sector, emissions from government operations dropped by 3.3 percent. Emissions generated by the City’s wastewater treatment plant were responsible for the greatest share of government operations emissions (41 percent), followed by the buildings and facilities sector (22 percent). See Table 6.2 for details.



Home with solar hot water panels in Mill Valley

2020 Emissions Reduction Targets

The City of Mill Valley has adopted a greenhouse gas emissions reduction target of 15 percent below 2005 levels for community emissions and 20 percent below 2005 levels for municipal operations by the year 2020.

Emission reduction programs are identified in this General Plan with a leaf symbol (). These policies and programs serve as the City's Climate Action Plan and are intended to reduce GHG emissions to meet the targets.

The comparison of 2005 and 2010 emissions data illustrates that Mill Valley is making progress toward accomplishing its greenhouse gas reduction goal for community emissions. However, with the projected increase of population, jobs, and traffic volumes, Mill Valley is expected to emit 8 percent more greenhouse gases in 2020 than in 2005 under a “business as usual” scenario (see Table 6.3). Implementing the policies and programs identified in this General Plan, and monitoring and capturing data to account for emission reductions associated with the General Plan programs, will therefore be important for meeting Mill Valley's GHG emission reduction targets.

Table 6.3 | Projected Growth in Mill Valley Community Greenhouse Gas Emissions by Sector (Business as Usual)

Sector	2005 Emissions (Metric Tons CO ₂ e)	2010 Emissions (Metric Tons CO ₂ e)	2020 Projected Emissions (Metric Tons CO ₂ e)	Growth (2010-2020)
Transportation	45,522	44,048	48,233	9.5%
Residential	28,040	27,578	28,255	2.5%
Commercial / Industrial	12,242	11,897	12,428	4.5%
Waste	3,104	2,072	2,079	3.3%
Off-Road Vehicles & Equipment	1,129	987	990	3.3%
Wastewater	410	426	427	3.3%
Water	359	251	251	3.3%
Total	90,806	87,258	92,663	6.2%

Source: Climate Action Plan Analysis, See Appendix C.

Climate Action Goals, Policies & Programs

As stated earlier, the Climate Action Element is not a mandatory General Plan element, but the City of Mill Valley is using the MV2040 General Plan as a mechanism for creating goals and policies that address climate change. Goals and policies addressing greenhouse gas (GHG) emission reduction are identified throughout this element and the rest of the General Plan with a leaf symbol ().

CLIMATE-1 | Climate Change and Greenhouse Gas Emissions Reduction

Reduce the community's carbon footprint.

CL.1 Clean Energy and Energy Efficiency

Support and provide incentives for using and investing in clean energy and energy efficiency solutions.

CL1-1 Work with the State of California, County of Marin, local agencies, and energy providers to increase the proportion of renewable power used by residents and business and provide financial and technical assistance for clean energy installation and energy-efficiency upgrades throughout Mill Valley. 

CL1-2 Continue to work with Marin Clean Energy (MCE), PG&E, or other clean energy providers to encourage greater resident participation and use of greener energy supplies. 

CL1-3 Monitor and continue efforts to reduce energy consumption and waste throughout all City facilities.

CL1-4 Continue to encourage efforts at the Sewerage Agency of Southern Marin (SASM) to pursue sustainability efforts such as exploring the use of solar applications, capturing and reusing methane, and generating electricity through waste to energy technology. 

CL1-5 Update the City's green building ordinance to support best practices and other available green building standards to conserve energy and resources, including:

- Design guidelines, development standards, and permitting procedures to encourage emerging green building technologies;
- Outdoor lighting standards that prevent light levels in all new development, parking lots, and street lighting from exceeding state standards;
- Guidelines for residential solar and wind energy systems such as optimal roof orientation, clear access without obstructions, roof framing and design, installation of electrical conduit to accept electric system wiring, installation of plumbing to support a solar hot water system, and provision of space for a solar hot water storage tank in locations

where a solar electric or hot water system will be cost-effective; and

- Guidelines to encourage new development to include wiring and staging to allow for solar- and/or electric-ready technologies and to achieve net zero building efficiency.

CL.1-6 Consider requiring that energy audits for residential and commercial building be performed prior to completion of sale, and that audit results and information about opportunities for energy improvement be presented to potential buyers. 🌿

CL.1-7 Replace street and public parking lot lights with more energy-efficient lamps as technology creates more efficient and better quality lighting. 🌿

CL.1-8 Participate in opportunities such as those provided by Assembly Bill 811 and other public financing programs that support the installation of renewable energy systems and other energy-efficient upgrades for public agencies and private property owners. 🌿

CL.1-9 Improve air quality by discouraging wood burning and providing incentives to replace existing inefficient wood-burning devices. 🌿

CL.2 Carbon Offsets

Offset carbon emissions through carbon credits or allowances, and through natural sequestration methods.

CL.2-1 Provide educational opportunities and creative incentives for City-sponsored events, community organizations, residents, and businesses to reduce their carbon footprint using validated offset or carbon reduction programs, such as “Resilient Neighborhoods.” 🌿

CL.2-2 Create a process to apply on- or off-site carbon offsets to new development, increased intensity of use, and/or other activities that increase greenhouse gas emissions. 🌿

CL.3 Monitoring

Establish a baseline and monitor the City and community contribution to greenhouse gas emissions.

CL.3-1 Monitor and update, as necessary, the City Council-adopted greenhouse gas emission reduction targets of 20 percent below 2005 levels by 2020 for internal government operations and 15 percent below 2005 levels communitywide by 2020. 🌿

CL.3-2 Collaborate with the community to identify emission reduction measures that will meet adopted emission reduction targets.

CLIMATE-2 | Climate Change Adaptation

Develop strategies for adapting to climate change.

CL.4 Adapting to Climate Change

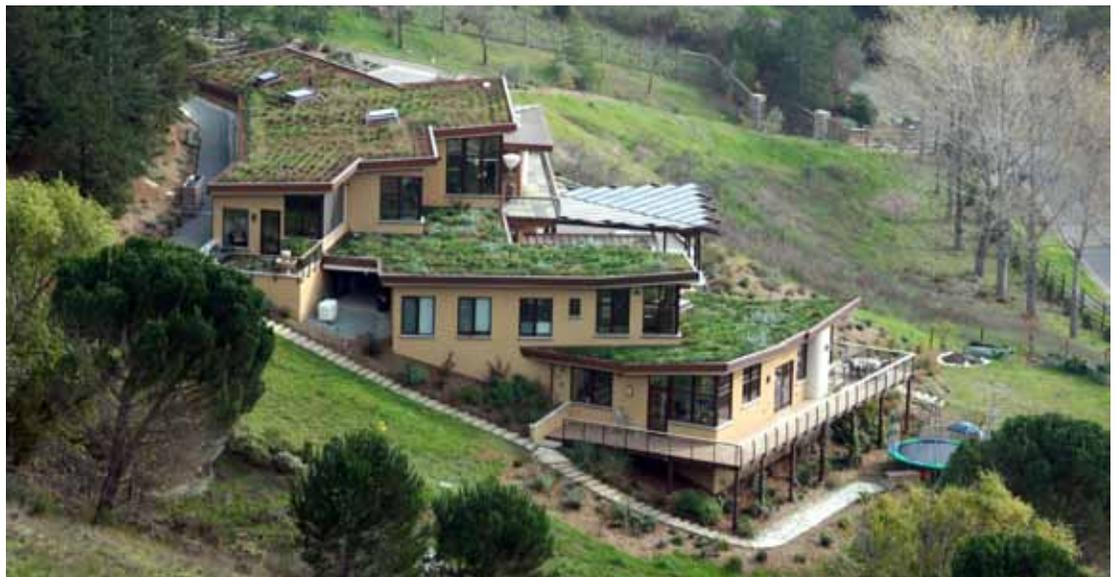
Ground climate change adaptation strategies in the best-available scientific understanding of hazards, risks, impacts, and vulnerabilities, and make adaptation planning and implementation a City budgeted item and operational priority.

CL.4-1 Immediately begin to develop plans and policies that will guide the City's ability to recognize, understand, and respond to the effects of climate change on the community (rather than waiting for more complete understanding of climate change and/or data). Adjust plans and actions according to new data and information and establish a permanent adaptation funding mechanism through the City's budget.

CL.4-2 Plan and fund long-term adaptation strategies to help the people, places, natural systems, and infrastructure that are vulnerable to the effects of climate change, including but not limited to sea level rise and more extreme heat and storm conditions.

CL.4-3 Encourage adaptation across multiple sectors, geographical scales, and levels of government. Build on the existing efforts and knowledge of a wide range of stakeholders who understand local or regional risks and needs.

CL.4-4 Update community hazard mitigation plans to recognize that the effects of climate change will also affect the type and intensity of potential community hazards and to anticipate impacts and responses. Include planning for extreme heat and storm events, identifying populations and neighborhoods most vulnerable to these events.



Mill Valley home with green roof

CLIMATE-3 | Zero Waste

Implement Zero Waste strategies for solid waste management.

CL.5 Recycling and Waste Management

Reduce the volume of the waste stream by encouraging recycling and composting and moving toward Zero Waste objectives that minimize or eliminate waste sent to landfills.

CL.5-1 Develop a Zero Waste Strategic Plan for Mill Valley that addresses: 

- Establishing a Zero Waste goal and timeframe;
- Supporting and promoting ongoing green waste recycling and composting opportunities for Mill Valley residents and businesses;
- Requiring all events needing a special events permit from the City to provide adequate recycling facilities and compostable materials;
- Scheduling periodic workshops on composting and providing starter kits to interested residents;
- Revising and updating the City's solid waste ordinance and construction and demolition ordinance to stay current with best practices and waste reduction policies; and
- Encouraging school-, business-, and neighborhood-based litter contests with prizes of local goods and services provided by local merchants.

CL.5-2 Adopt new City waste reduction policies and strengthen existing policies in association with the Zero Waste Strategic Plan, as follows: 

- Revise and update Mill Valley's existing solid waste ordinance to keep pace with changes in the solid waste industry.
- Modify the construction and demolition ordinance to comply with the Marin Hazardous and Solid Waste Joint Powers Authority (JPA) model ordinance to ensure consistency among member agencies and help haulers comply.
- Continue to revise the ordinance that addresses construction/salvage/resale of construction and demolition materials.

CL.5-3 Work with the Marin Hazardous and Solid Waste Joint Powers Authority (JPA) and Mill Valley's hauler to increase take back, reuse, and diversion, as follows: 

- Join the JPA in endorsing an Extended Producer Responsibility resolution that will support product design and packaging that integrates reuse and recycling.
- Negotiate franchise agreement language with Mill Valley Refuse to encourage "greener" operations, including food waste pick-up, and to maximize diversion.
- Work with JPA member agencies to promote regional bans on problem materials (Styrofoam, plastic bags) that are difficult to reuse or recycle.

- Work with Mill Valley Refuse to develop commercial and maintain residential food waste collection routes and to create centrally located facilities to process all green and food waste. Process this waste in anaerobic digesters for soil amendments and the production of biogas.
- Encourage the JPA to establish a landfill “tipping fee” to fund substantially enhanced Zero Waste and related sustainability efforts.
- Establish an Environmentally Preferable Procurement policy that emphasizes waste reduction.
- Adopt and enforce a multi-family dwelling and business recycling ordinance.

CL.5-4 Educate residents and businesses on waste reduction strategies, as follows: 🌿

- Encourage reduced consumption by increasing customer awareness of on-line and local resources that encourage material exchange, repair, and reuse.
- Partner with Master Gardeners and others to promote backyard composting.
- Expand education for City employees and the public about the benefits of waste reduction through informational materials and organized events.



Eco-stations set up at local event to reduce waste



Composting demonstration at Mill Valley's Health and Wellness Fair, January 2014



#3 New technologies and practices will promote a more sustainable future.

- Solar energy is projected to grow exponentially as its cost continues to decline. Projections indicate that by 2030 solar electricity is likely to cost half what coal electricity does today.
- Cellulosic biofuels offer the promise of creating a viable energy source from waste products, such as wood waste, grasses, corn stalks, and other non-food products.
- Green information and communications technologies such as the following hold promise for increasing the energy and resource efficiency of most aspects of urban development:
 - Traffic congestion monitoring and pricing systems
 - Water monitoring (leakage detection, purification)
 - Building applications (temperature, light, humidity)
 - Intelligent public transportation and logistics
 - Public shared offices with teleconferencing
 - Home and office smart appliances
 - Smart grids
 - Carbon inventories and carbon accounting
- Implementation of carbon taxes will help create disincentives for using fossil fuels and account for the impact their use has on the earth's climate.
- Responding to the effects of climate change will require implementation of adaptation strategies, including major investments in infrastructure to prevent coastal flooding and to store dwindling seasonal water supplies.
- The combination of high oil prices, fuel shortages, and supply disruptions is expected to continue the trend toward more compact, transit-supported development patterns.
- There is expected to be increased focus on local and regional food production in and around cities as higher fuel prices and unexpected energy shortages drive up food prices.
- Water conservation, efficiency, and reuse technologies such as the following hold substantial promise for providing greater water supply security:
 - Greywater systems
 - Low-flow fixtures
 - Xeriscape landscaping