

SAN MATEO COUNTY

GENERAL PLAN

CHAPTER 17

**ENERGY AND CLIMATE CHANGE
ELEMENT**

FINAL DRAFT

JUNE 2013

**PREPARED BY PMC
PREPARED FOR PLANNING AND BUILDING DEPARTMENT**

TABLE OF CONTENTS

Purpose	1
Regulatory Context	1
Overview of the Element and Relationship to the Energy Efficiency Climate Action Plan	1
Guidance from the Bay Area Air Quality Management District and the California Environmental Quality Act.....	2
Potential Impacts of Climate Change	3
Climate Change Forecasts for San Mateo County	3
Vulnerabilities in San Mateo County	4
GHG Emissions Inventory and Forecast for the Unincorporated County	6
Baseline GHG Inventory	6
GHG Emissions Forecast	7
Greenhouse Gas Reduction Goals, Policies, and Programs	12
Definitions.....	13
Greenhouse Gas Reduction Goals	14
General Greenhouse Gas Reduction Policies and Programs	14
Adaptation Goals, Policies, and Programs.....	23
Definitions.....	23
Adaptation Goals.....	24
General Adaptation Policies and Programs.....	24

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

PURPOSE

This Energy and Climate Change Element demonstrates San Mateo County's commitment to achieve energy efficiency and mitigate its impact on climate change by reducing greenhouse gas (GHG) emissions consistent with state legislation. This element is an optional element of the General Plan and is not mandated by the State of California. Authorized by Section 65303 of the Government Code, the inclusion of this element in the General Plan demonstrates the County's commitment to the long-term sustainability and resilience of the unincorporated county. San Mateo County is working to sustain the long-term health of the natural and built environments, achieve effective and meaningful reductions in GHGs, and increase resiliency to the impacts of climate change in the unincorporated county.

REGULATORY CONTEXT

OVERVIEW OF THE ELEMENT AND RELATIONSHIP TO THE ENERGY EFFICIENCY CLIMATE ACTION PLAN

Greenhouse gas emissions are unique in their cross-sector link across General Plan topics and issues. Similarly, the Energy and Climate Change Element takes an interdisciplinary approach to address the key opportunities related to GHG emissions. This element identifies the County's key opportunities to achieve consistency with statewide guidance related to GHG emissions. Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, provides a statewide directive to achieve 1990 GHG emissions levels by 2020, equivalent to a 15% reduction below baseline 2005–2008 emissions levels.

The Energy Efficiency Climate Action Plan (EECAP) provides a path for achieving local energy efficiency and reductions in GHGs by 2020. The EECAP will function as an implementation tool of the General Plan, working as a shorter-term plan that will be updated on a more regular basis. The EECAP also provides technical analysis to demonstrate the impact of the County's policies and programs on GHG emissions. Maintaining the EECAP separately from the General Plan provides flexibility to the County to assess and revisit the effectiveness of EECAP measures and actions toward this element's overall goals and policies. As a stand-alone plan, the EECAP also has the flexibility to integrate near-term opportunities, new technologies, and research.

Together, the General Plan and EECAP function as part of the County's toolkit to achieve resilience to climate change and long-term GHG reductions.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

GUIDANCE FROM THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AND THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Energy and Climate Change Element and the EECAP are part of the framework for developing a GHG emissions reduction strategy in compliance with regional and statewide requirements. This includes Section 15183.5(b) of the California Environmental Quality Act (CEQA) Guidelines and the Bay Area Air Quality Management District's (BAAQMD) criteria for a Qualified GHG Reduction Strategy as defined in the BAAQMD's CEQA Air Quality Guidelines. The purpose of the BAAQMD CEQA Air Quality Guidelines is to assist lead agencies in evaluating the significance of impacts related to air quality and CEQA in the San Francisco Bay Area Air Basin. The guidelines were updated in 2010 to establish thresholds of significance for impacts related to GHG emissions to be consistent with the requirements of CEQA in response to the State of California's amendment to the State CEQA Guidelines Section 15183.5(b) through Senate Bill (SB) 97, which requires all projects subject to CEQA to analyze and mitigate the GHG emissions that will occur.

The County's EECAP follows both the State CEQA Guidelines (Section 15183.5(b)) and the BAAQMD's guidelines by incorporating the standard elements of a Qualified GHG Reduction Strategy into the EECAP. The standard elements of a Qualified GHG Reduction Strategy include the following steps:

- 1) Prepare a greenhouse gas inventory that includes projected emissions
- 2) Develop an emissions reduction target
- 3) Include emissions associated with specific actions in the county
- 4) Identify emissions reduction measures and quantify their benefits
- 5) Establish a procedure to monitor and update the climate action plan
- 6) Go through a public process and appropriate level of environmental review

The approach taken by the County to develop the EECAP and this element satisfies all of the criteria outlined in the existing Section 15183.5(b) of the CEQA Guidelines. This element further equips the County to achieve EECAP targets and respond to climate change with meaningful and measurable actions.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

POTENTIAL IMPACTS OF CLIMATE CHANGE

GHG reduction efforts and climate change adaptation are the two complementary tasks for mitigating and responding to climate change. In addition to reducing the County's contribution to global climate change, the County is also acting as a leader to proactively prepare for local impacts that will result from global climate change. By taking steps to adapt or manage potential changes to the local environment and socioeconomic systems, the County will equip county residents and businesses to reduce risks and increase resilience. Climate change adaptation is the term that summarizes this process of preparing for climate change, referring to the process of adjusting both natural and human systems to anticipated climate change impacts, moderating risks and maximizing potential benefits.

CLIMATE CHANGE FORECASTS FOR SAN MATEO COUNTY

The County prepared the San Mateo County Climate Change Vulnerability Assessment (Vulnerability Assessment), an analysis of the impacts of climate change on the unincorporated county's built environment and natural resource systems. The adaptation assessment was conducted in partnership with ICLEI-Local Governments for Sustainability, PMC, San Mateo County's Planning and Building Department, and a Vulnerability Assessment Working Group.¹

According to the County's Vulnerability Assessment, three primary climate conditions are projected to change in the San Mateo County region:

- **Temperature.** Temperatures in San Mateo County are expected to increase between 1.6 degrees Fahrenheit by 2030 and 2.8 degrees Fahrenheit by 2050.
- **Precipitation.** Climate model projections for San Mateo County anticipate moderate changes in annual precipitation. A statewide assessment found that California will probably retain its current basic precipitation pattern and will continue to have a high likelihood of extreme dry weather events. The statewide assessment indicates that precipitation patterns in San Mateo County will also experience increasing variability, resulting in more extreme events that could be complemented by prolonged dry weather periods.

¹ San Mateo County, December 2011. San Mateo County Climate Action Plan: Climate Change Vulnerability Assessment, Final.
<http://www.co.sanmateo.ca.us/planning/rechargesmc/vulnerability.html>.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

- **Sea Level Rise.** Over the last century, California has observed a nearly 8-inch rise in sea levels along the coast. In the county, models predict an average of 7 inches above 2000 baseline levels by 2030 and an average of 14 inches above year 2000 baseline levels by 2050. By 2100, the scenarios range from an average of 40 inches above year 2000 baseline levels to an average of 55 inches above baseline. Areas in unincorporated San Mateo County most at risk for sea level rise include inland bay shoreline areas, but are primarily coastal shoreline areas. This is because all of the bay shoreline areas are within incorporated cities, rather than the unincorporated county, with the exception of the San Francisco International Airport, which is conducting a separate climate action planning process. Specific areas of vulnerability include areas that will be subject to increased inundation (for example, Surfers Beach at Highway 1) and erosion (for example, Seal Cove). Sea level rise will also result in more extreme events that will inflict more damage, which are anticipated to coincide with winter storm events and El Niño occurrences.

VULNERABILITIES IN SAN MATEO COUNTY

In addition to specific changes in climatic conditions, San Mateo County also expects to experience increasing vulnerability in natural and man-made systems. Changes in weather and climatic conditions affect wider biological systems, ecosystems, and infrastructure. Anticipated vulnerabilities include an increased rate of fires, loss of natural resources, increased forestry and agricultural vulnerability, and deteriorating public health. Climatic changes are also expected to affect water supply and systems. Variable temperatures and weather patterns are expected to result in decreased groundwater and reservoir supplies, while also triggering greater severity in flooding events. Areas in San Mateo County have been determined by the Federal Emergency Management Agency (FEMA) to fall within 500- and 100-year floodplains, which will be more vulnerable to the heightened flooding threats that are anticipated to result from climate change. Localized flooding of low-lying areas will continue to be a concern as rainfall events become more severe. A summary of climate change vulnerabilities in the unincorporated county is presented in **Table 1** below.

SAN MATEO COUNTY CLIMATE CHANGE ELEMENT

Table 1. Climate Change Vulnerabilities in San Mateo County

Potential Changes	Vulnerability Assessment for San Mateo County		
<p>Rising Sea Levels</p> <p>Sea levels are projected to rise approximately 40 to 55 inches by 2100.</p>	<p>Built Environment</p> <p>As much as \$24 billion in property throughout the county is at risk from an extreme flood by the end of century. Coastal infrastructure will be increasingly vulnerable. Other key vulnerability areas include Seal Cove and homes and businesses in North Fair Oaks, Pescadero, Princeton, and Moss Beach.</p>		<p>Natural Resources</p> <p>Erosion and inundation that result from sea level rise may permanently damage wetlands, beaches, tide pools, and other natural resources. Surfers Beach at Highway 1 is vulnerable to inundation and even complete loss, while Pescadero Marsh and Pillar Point Marsh are also resources of concern.</p>
<p>Temperature Variability</p> <p>Increased average temperature and extreme weather will lead to longer heat waves, reduced air quality, changes in vegetation patterns, and reduced snowpack in the Sierras.</p>	<p>Public Health</p> <p>County residents may experience more heat-related and respiratory illnesses. Elderly, very young, low-income residents, and outdoor workers are especially vulnerable.</p>		<p>Fire</p> <p>It is estimated that the county will face a 1% increase in wildfire risk as a result of shifting vegetation patterns and increased evapotranspiration rates. Increasingly severe drought events also contribute to increased vulnerability.</p>
<p>Precipitation Variability</p> <p>Climate change will likely lead to more intense precipitation events followed by extended drought events, which will be exacerbated by loss of snowpack in the Sierras.</p>	<p>Agriculture and Forestry</p> <p>Agricultural productivity is vulnerable to changes in water availability, especially for water-intensive crops. Forest health is also vulnerable to lower rainfall levels and higher temperatures.</p>		<p>Water</p> <p>Water supply may decrease, resulting from the impacts of drought, due to reductions in surface water and groundwater, and the impact of flooding on water infrastructure.</p>

SAN MATEO COUNTY CLIMATE CHANGE ELEMENT

GHG EMISSIONS INVENTORY AND FORECAST FOR THE UNINCORPORATED COUNTY

BASELINE GHG INVENTORY

The County conducted a comprehensive greenhouse gas emissions inventory and forecast for the baseline year of 2005. The inventory presents carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄) emissions generated from activities by San Mateo County community members in unincorporated areas of the county.

The emissions sources calculated in the baseline GHG inventory include commercial, residential, and industrial electricity and natural gas use, transportation, solid waste disposal, energy use related to water and wastewater, agricultural off-road equipment and emissions associated with fertilizer application, and off-road equipment used for construction and lawn and garden activities. GHG emissions from these activities were calculated from activity data such as kilowatt-hours (kWh) of electricity, therms of natural gas, tons of waste disposed, and vehicle miles traveled from trips with an origin or destination in unincorporated San Mateo County. In 2005, the County of San Mateo emitted approximately 782,080 metric tons of carbon dioxide equivalents (MTCO_{2e}) (see **Table 2** and **Figure 1**).

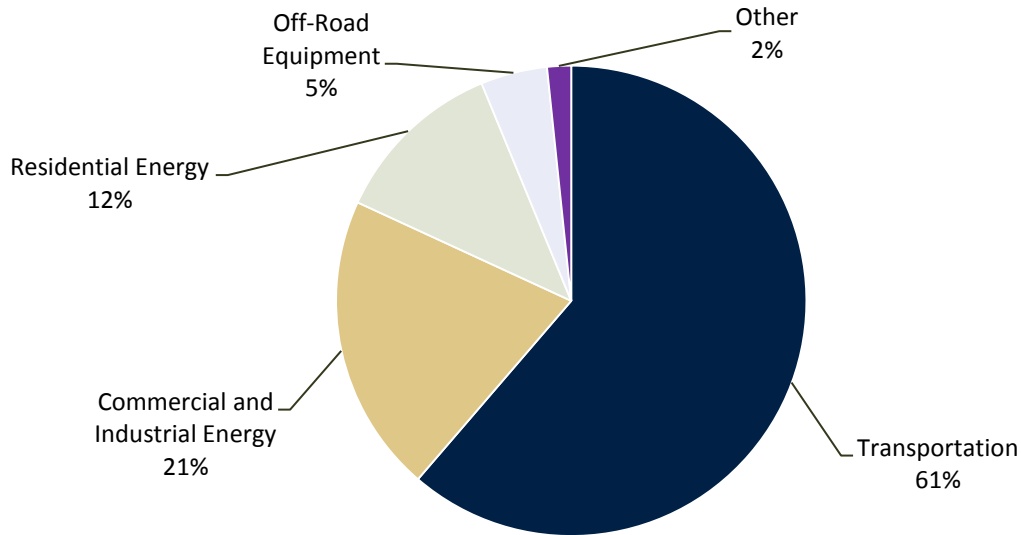
Table 2. 2005 Community-Wide Baseline Emissions by Sector

Sector	Metric Tons CO _{2e} /year	Percentage of Total
Transportation	479,400	61%
Commercial and Industrial Energy	160,900	21%
Residential Energy	93,100	12%
Off-Road Equipment	35,800	5%
Solid Waste	8,380	1%
Agriculture	3,000	<1%
Water and Wastewater	1,500	<1%
TOTAL	782,080	100%

Due to rounding, the total may not equal the sum of component parts.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Figure 1. 2005 Community-Wide Baseline Emissions by Sector



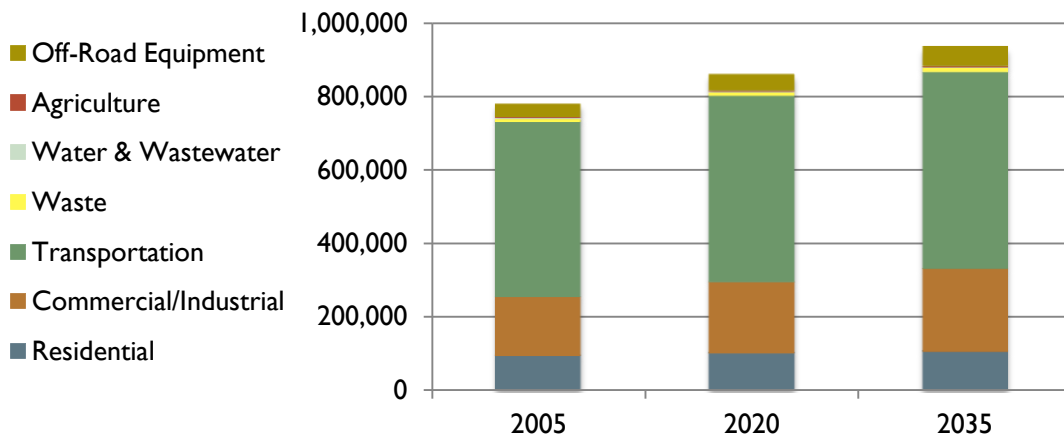
Due to rounding, the total may not equal the sum of component parts. Percentages

GHG EMISSIONS FORECAST

The basis for all growth scenarios is a business-as-usual (BAU) projection. The BAU projection forecasts emissions to reflect the County's growth projections without regulatory or technical intervention to reduce GHG emissions, consistent with regional forecasts. These indicators are then applied to the 2005 GHG emissions inventory to determine a BAU growth scenario. Under the BAU scenario, community-wide emissions will grow by approximately 10% by the year 2020 to 860,800 MTCO₂e and by 19% by 2035 to 934,300 MTCO₂e, as shown in **Figure 2** and **Table 3**.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Figure 2. San Mateo Community GHG Emissions Forecast, 2005–2035



The emissions contribution of agriculture and water & wastewater are too nominal to be adequately represented on the scale of this chart.

Table 3. San Mateo Community GHG Emissions BAU Forecast, 2005–2035

Sector	2005 Baseline	2020	2035
Transportation	479,400	506,800	534,200
Commercial and Industrial Energy	160,900	194,600	226,300
Residential Energy	93,100	100,500	104,200
Off-Road Equipment	35,800	44,600	53,900
Solid Waste	8,380	9,500	10,400
Agriculture	3,000	3,100	3,400
Water and Wastewater	1,500	1,700	1,900
TOTAL	782,080	860,800	934,300
Percentage Change from 2005		10%	19%

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

In addition to AB 32, California has adopted and initiated several state-level programs that will impact local GHG emissions. In order to effectively determine the emissions reductions that will need to be implemented at the local level to meet the County's emissions reduction target, the impact of state-level programs has been incorporated into an adjusted BAU forecast. The state-level programs included in this adjusted forecast include the Renewables Portfolio Standard (RPS), updates to Title 24 Energy Efficiency Standards, California Solar Initiative rebates, and the implementation of the Clean Car Fuel Standard, commonly referred to as the Pavley standards. The impact of these state programs (shown in **Table 4**) will play a critical role in helping San Mateo County achieve the emissions reduction target.

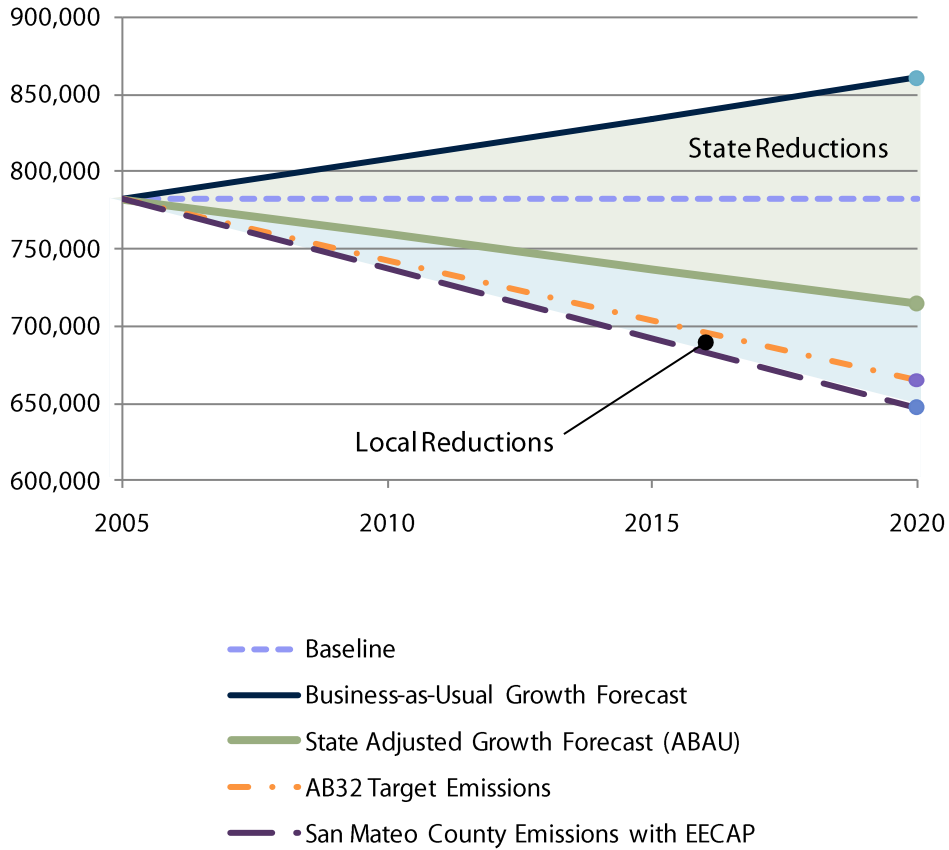
Table 4. State Reductions Summary

	2005	2020	2035
Business-as-Usual Emissions	782,080	860,800	934,300
Renewables Portfolio Standard (RPS)	–	-4,500	-13,300
AB 1493 (Pavley) Vehicle Standards	–	-130,700	-194,700
California Solar Initiative (CSI)	–	-300	-200
CALGreen Building Standards	–	-10,900	-17,000
Subtotal State Reduction Efforts	–	-146,400	-225,200
Net Emissions	–	714,400	709,100
Percentage Change from 2005 Levels	–	-9%	-9%

Through the EECAP, the County of San Mateo is seeking to achieve a GHG emissions reduction target of 17% below 2005 baseline levels by 2020. To achieve this goal, the County identified actions in the EECAP that will reduce remaining emissions through local activities and programs. The strategies in the EECAP demonstrate a path for the County to achieve a 17% reduction below baseline 2005 emissions by 2020 and exceed the state-recommended target of 15% below baseline 2005 emissions by 2020. Refer to **Figure 3**, which provides the basis for the goals and policies in this element.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Figure 3. GHG Reductions in San Mateo County (MTCO₂e)



ENERGY USE IN SAN MATEO COUNTY

INTRODUCTION TO ENERGY USE

Energy used in the homes and businesses of San Mateo County is currently provided primarily by Pacific Gas and Electric (PG&E). PG&E generates energy from a mix of nonrenewable, fossil fuel-based sources, such as coal and natural gas, and renewable sources, such as biomass, geothermal, hydroelectric, and wind.

The amount of energy used to power homes and businesses determines how much power PG&E needs to generate and the quantity of GHGs emitted. If the energy needed for daily activities is decreased, reductions can be achieved in the amount of electricity or natural gas PG&E needs to generate, obtain, and/or transmit. In addition, the GHGs associated with electricity generation and natural gas combustion would decrease. The most common uses of electricity are for lighting and heating/cooling buildings, for powering appliances such as refrigerators, computers, and washing machines, and for conveying water around the county and into homes or to treatment plants. Natural gas is most

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

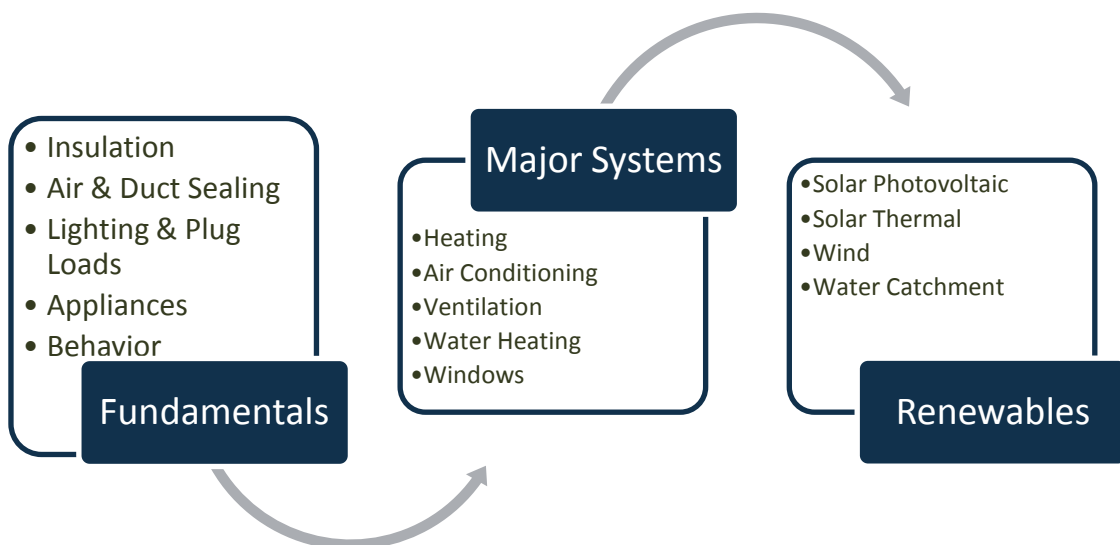
typically used for heating buildings and water, in addition to powering industrial and manufacturing processes.

THE ENERGY REDUCTION LOADING ORDER

GHGs from energy use can be reduced, primarily through increasing conservation (i.e., avoiding using electricity) and improving efficiency (i.e., using less electricity for the same activity) when conservation cannot be realized. Common conservation practices include unplugging appliances and electronics when not in use, turning off lights during the day or when the room is empty, and changing heating and cooling settings on thermostats. Increasing energy efficiency means replacing incandescent light bulbs with compact fluorescent lights and inefficient or older models of appliances and electronics with new, preferably Energy Star (or other efficiency label) models in order to use less energy when it is necessary. Using small renewable solar panels can also reduce demand from PG&E for daily electricity use. Reductions in electricity used for water pumping in the community can be achieved by using less water for irrigation and other household uses. The use of solar water heaters can also reduce demand from PG&E for natural gas use. These are just some examples of energy efficiency and conservation.

When completing energy efficiency retrofits to buildings, there is a loading order that should be followed to maximize energy savings while minimizing added costs. **Figure 4** depicts the recommended loading order for undertaking energy efficiency projects and retrofits.

Figure 4: Retrofitting Loading Order



SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

COMMUNITY ENERGY DEMAND

Unincorporated San Mateo County has over 20,000 homes in diverse residential communities. Over 60% of homes in the unincorporated county were constructed before 1970, the date of adoption of the state's first mandatory energy efficiency standards for new construction. Older homes generally have a greater opportunity to improve levels of comfort and reduce energy use through energy efficiency improvements. In general, the county's inland communities have older housing stock than the newer coastal communities, providing more significant retrofit opportunities. For example, the five inland communities of Broadmoor, North Fair Oaks, Emerald Lake Hills, West Menlo Park, and the Sequoia Tract have homes with a median age of construction ranging from 1940 to 1967, with a sizable number of homes constructed before 1940.² On average, households in the unincorporated county that are served by PG&E used approximately 6,000 kWh of electricity and nearly 500 therms of natural gas in the baseline year of 2005. Assuming average energy rates, in 2005 these households paid on average of \$1,100 per year for electricity and almost \$600 per year for natural gas.

Nonresidential uses also contribute to the unincorporated county's energy use. In 2005, just three sectors used approximately 80% of total nonresidential energy in the unincorporated county: manufacturing and transportation, retail, and hospitality. On average, each nonresidential PG&E customer used approximately 37,000 kWh and 24,000 therms per year, paying a total of about \$29,000 in energy bills. This higher level of energy use reflects the presence of advanced biotech and manufacturing firms, which contribute significantly to the county's overall economy. These types of firms also stand to benefit from energy efficiency and conservation. Retrofits and improvements can help businesses reduce operating costs and maintenance, in addition to enhancing profitability.

GREENHOUSE GAS REDUCTION GOALS, POLICIES, AND PROGRAMS

This section provides the County's policy framework to minimize its contribution to climate change by reducing GHG emissions. The County will accomplish this reduction by decreasing GHG emissions through the built environment, transportation, and water and waste practices. While reducing GHG emissions, the goals, policies, and programs presented here also improve the quality of life in San Mateo County for residents, strengthen business, reduce costs, and conserve natural resources.

²² US Census Bureau 2012.

SAN MATEO COUNTY

ENERGY AND CLIMATE CHANGE ELEMENT

DEFINITIONS

The following definitions are provided for terms contained in this plan:

- **Climate change** is a term to imply a significant change from one climatic condition to another, including natural changes in climate.
- **Complete Streets** is an approach to transportation that describes an integrated, multimodal transportation system which equally supports all types of transportation, including pedestrian, bicycle, and vehicular traffic.
- **Distributed energy resources** are small, modular energy generation and storage technologies that provide electric capacity or energy located on-site or close to where it is needed, whether connected to the local electric power grid or isolated in stand-alone applications. These systems generally produce less than 10 megawatts of power and include wind turbines, photovoltaics, fuel cells, microturbines, and energy storage systems.
- **Greenhouse gas emissions** are gases that cause heat to be trapped in the atmosphere, warming the earth. Greenhouse gases include all of the following: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The majority of greenhouse gases come from natural sources, although human activity is also a major contributor.
- **Renewable energy** is energy from sources that regenerate and are less damaging to the environment than nonrenewable energy sources, such as solar, wind, biomass, and small-scale hydroelectric power.
- **Traffic-calming features** are features designed to increase non-vehicular traffic and reduce the conflict of vehicles with pedestrians and cyclists. Traffic-calming features may include, but are not limited to, marked crosswalks, countdown signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, and chicanes/chokers.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

GREENHOUSE GAS REDUCTION GOALS

The County will achieve the following goals for greenhouse gas emissions:

Goal 1: Promote and implement policies and programs to reduce community-wide greenhouse gas emissions.

Goal 2: Maximize energy efficiency in new and existing development.

Goal 3: Promote the expansion of the use of renewable energy supplies.

Goal 4: Promote and implement policies and programs to reduce vehicle miles traveled by all vehicles traveling in the unincorporated county.

Goal 5: Encourage the use of clean, low-emissions vehicles and equipment.

Goal 6: Promote and implement policies and programs with the goal of achieving zero waste.

Goal 7: Support sustainable agricultural practices.

Goal 8: Promote and implement policies and programs to reduce water use.

GENERAL GREENHOUSE GAS REDUCTION POLICIES AND PROGRAMS

Goal 1: Promote and implement policies and programs to reduce county-wide greenhouse gas emissions.

Policy 1.1: Create a strategic planning framework to identify and reduce greenhouse gas emissions countywide.

Implementing Strategy 1.1A: Inventory greenhouse gas emissions from community-wide activities on a regular basis.

Implementing Strategy 1.1B: Identify a community-wide greenhouse gas emissions reduction target that will be consistent with current state objectives, statewide guidance, and regulations.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 1.1C: Adopt and implement the County of San Mateo's Energy Efficiency Climate Action Plan that will identify goals, measures, and actions to achieve the County's greenhouse gas reduction target.

Implementing Strategy 1.1D: Regularly monitor and track progress toward the County's greenhouse gas reduction goals.

Implementing Strategy 1.1E: Regularly report to the Board of Supervisors or its designee on the implementation status of the Energy Efficiency Climate Action Plan.

Implementing Strategy 1.1F: Update the Energy Efficiency Climate Action Plan should the County find that specific strategies are not achieving the intended GHG reductions or to incorporate new technology, programs, and opportunities to reduce greenhouse gas emissions.

Policy 1.2: Evaluate the greenhouse gas emissions impacts of development projects as part of plan review.

Implementing Strategy 1.2A: Update development forms and permits to help County staff collect and assess project-related information on greenhouse gas emissions impacts.

Implementing Strategy 1.2B: Create a checklist or other tool that allows project applicants to identify all project measures that reduce greenhouse gas emissions.

Goal 2: Maximize energy efficiency in new and existing development.

Policy 2.1: Support energy conservation and efficiency in the existing building stock.

Implementing Strategy 2.1A: Identify and foster innovative financing opportunities for energy efficiency retrofits, including utility rebates or programs such as on-bill financing, statewide energy efficiency rebates or loans, "green" mortgages, and bulk procurement programs.

Implementing Strategy 2.1B: Educate homeowners, renters, building owners, and tenants about the benefits of energy efficiency.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 2.1C: Continue to participate in regional programs that provide education or funding resources for building owners to undertake energy efficiency improvements, such as property-assessed clean energy financing.

Implementing Strategy 2.1D: Implement policy HE 47 in the Housing Element to expand energy efficiency in existing housing through educational outreach, promotion of audits, and encouragement of weatherization and audits in low-income housing.

Implementing Strategy 2.1E: Consider options to implement a green business program for businesses in the unincorporated county, which would encourage business “greening” and energy efficiency practices.

Policy 2.2: Provide incentives for voluntary energy efficiency improvements in the existing building stock.

Implementing Strategy 2.2A: Streamline the review process for energy efficiency improvements, considering options such as reduced permit fees, expedited or administrative review, or other mechanisms.

Implementing Strategy 2.2B: Incentivize the transition to more energy-efficient home heating and cooling strategies through the plan review process.

Implementing Strategy 2.2C: Collaborate with utility providers, such as PG&E, and regional partners to encourage development of large-scale cooperative efforts that reduce costs and simplify the purchase of energy efficiency equipment or the completion of voluntary retrofits.

Policy 2.3: Develop a program for unincorporated communities to reduce heat gain in buildings and sequester greenhouse gases through tree planting and other “cooling” strategies.

Implementing Strategy 2.3A: Revise design guidelines and other regulations to incorporate requirements for tree planting, shading design, and the use of high albedo, pervious, or open-grid materials to reduce heat absorption in development.

Implementing Strategy 2.3B: Collaborate with nonprofits or local environmental or community groups to increase tree planting and the forest canopy countywide.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Policy 2.4: Collaborate with stakeholders to encourage energy efficiency by the county's largest energy users in the commercial sector in concert with economic growth and development objectives.

Implementing Strategy 2.4A: Through the regular greenhouse gas monitoring process, use reports from utility providers such as PG&E to identify the largest users of energy and understand the highest opportunities for energy efficiency.

Implementing Strategy 2.4B: In partnership with utility providers such as PG&E, encourage energy benchmarking practices that help businesses monitor and reduce energy use, consistent with state regulations.

Implementing Strategy 2.4C: Collaborate with business stakeholders to provide education on programs, financing, and other resources for nonresidential energy efficiency.

Policy 2.5: Continue implementation of green building standards that exceed state energy efficiency standards.

Implementing Strategy 2.5A: Continue to require the participation of new development and significant remodels in green certification programs or standards that reduce energy use, such as the Leadership in Energy and Environmental Design (LEED) program, GreenPoint Rated, or CALGreen Tier 1 and Tier 2.

Implementing Strategy 2.5B: Consider options to expand the requirements or applicability of the Green Building Ordinance to achieve higher levels of energy efficiency.

Goal 3: Promote the expansion of the use of renewable energy supplies.

Policy 3.1: Identify opportunities for new and existing development to incorporate on-site distributed energy resources into project design and construction.

Implementing Strategy 3.1A: Incorporate standards for new development to provide pre-wiring for renewable energy systems, such as solar photovoltaic systems or solar water heaters.

Implementing Strategy 3.1B: Streamline the process for installing on-site distributed energy resources through strategies such as simplified review procedures, permit fee reductions, or expedited permitting, consistent with state law.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 3.1C: Promote financing opportunities and rebates for installation of on-site renewable energy systems.

Implementing Strategy 3.1D: Encourage developers of new large projects to provide solar photovoltaic or other on-site renewable energy systems.

Implementing Strategy 3.1E: Consider creating incentives to encourage development of distributed energy systems in existing developed areas, with minimum biological and aesthetic impact.

Implementing Strategy 3.1F: Support a pilot solar photovoltaic program that provides additional incentives to participating developers for on-site solar photovoltaic facilities, with minimal biological and aesthetic impact.

Policy 3.2: Promote the production of appropriate off-site renewable energy for use in the unincorporated county.

Implementing Strategy 3.2A: Consider identifying areas with the highest feasibility for large-scale, commercial production of energy from renewable resources, including locations near existing power facilities and transmission lines to minimize biological and aesthetic impacts, and other environmental impacts.

Implementing Strategy 3.2B: Require commercial wind farms or large-scale wind projects to use technologies deemed bird-safe and that would minimize impacts to wildlife.

Implementing Strategy 3.2C: Investigate feasible opportunities to promote the use of off-site renewable energy in new and existing development, including power purchase agreements and renewable energy credits.

Implementing Strategy 3.2D: Assess the feasibility and benefits of creation of a Community Choice Aggregation Program.

Goal 4: Promote and implement policies and programs to reduce vehicle miles traveled by all vehicles traveling in the unincorporated county.

Policy 4.1: Expand transit-oriented and mixed-use development that reduces reliance on vehicular travel.

Implementing Strategy 4.1A: As new development occurs, encourage new development to locate in proximity to transit corridors.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 4.1B: Assess existing standards to expand the provision of mixed uses by right in appropriate areas.

Implementing Strategy 4.1C: Evaluate options to reduce minimum parking requirements and promote a variety of transportation choices in new development.

Implementing Strategy 4.1D: Encourage neighborhood-serving retail and co-location of daily service uses at key locations throughout the unincorporated county.

Implementing Strategy 4.1E: Work with local community advisory councils, environmental groups, and community groups to assess appropriate strategies and locations to test innovative parking, land use, or other design solutions to reduce single-occupant vehicle use.

Policy 4.2: Promote non-motorized and alternative travel.

Implementing Strategy 4.2A: Require project applicants to evaluate and identify appropriate measures to achieve Complete Streets and promote alternative travel, such as pedestrian paths/sidewalks or traffic calming improvements.

Implementing Strategy 4.2B: Develop standards for and require new projects to provide appropriate levels of short- and long-term bicycling facilities such as bicycle parking, lockers, and shower facilities.

Implementing Strategy 4.2C: Identify options for collection of alternative revenue to support transit and Complete Streets projects, such as an impact fee.

Implementing Strategy 4.2D: Establish design criteria for the assessment of Complete Streets and pedestrian-oriented design in new development, recognizing the unique considerations of urban, suburban and rural communities.

Implementing Strategy 4.2E: Create a local commute trip reduction program, which would establish mandatory standards for employers to promote commuter programs and support a reduction in single-occupant vehicle trips.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 4.2F: Continue to partner with the Peninsula Traffic Congestion Relief Alliance, Shuttle Business Task Force, SamTrans, school districts, and private partners to fund and support transit and commuter programs.

Goal 5: Encourage the use of clean, low-emissions vehicles and equipment.

Policy 5.1: Facilitate the expansion of infrastructure for alternative fuel vehicles.

Implementing Strategy 5.1A: Encourage the installation of electric vehicle charging stations in new development.

Implementing Strategy 5.1B: Consider strategic opportunities to plan for electric vehicle networks or alternative fueling stations, such as development of a neighborhood electric vehicle plan for urban areas or integration with regional planning efforts.

Implementing Strategy 5.1C: Explore pursuing funding with partners for the conversion of government and private fleets in the unincorporated county to alternative and low-emissions fuels.

Policy 5.2: Promote the voluntary transition to clean and low-emissions outdoor equipment through programs and plan review.

Implementing Strategy 5.2A: Require new development to provide accessible exterior electrical outlets to support the use of electric-powered lawn and garden equipment.

Implementing Strategy 5.2B: Support both the use of low-emissions construction equipment and reduced equipment idling in construction activities through the plan review process, such as through permit requirements or conditions of approval.

Implementing Strategy 5.2C: Work with agricultural stakeholders to encourage the use of low-emitting, energy-efficient agricultural equipment.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Goal 6: Promote and implement policies and programs with the goal of achieving zero waste.

Policy 6.1: Continue to expand recycling and reduce landfilled waste.

Implementing Strategy 6.1A: Collaborate with solid waste providers to increase diversion of landfilled waste using new technologies or other methods.

Implementing Strategy 6.1B: Ensure the provision of food waste services, such as composting, for commercial restaurants.

Implementing Strategy 6.1C: Provide curbside composting and green waste for residential customers. In rural locations that are infeasible for curbside services, provide centralized drop-off locations for residential customers.

Implementing Strategy 6.1D: Require new development to provide appropriate trash and recycling enclosures.

Implementing Strategy 6.1E: Create standards for new development that will support the use of recycled goods and reduce the consumption of raw materials.

Implementing Strategy 6.1F: Promote statewide recycling and waste reduction programs to the private sector.

Implementing Strategy 6.1G: Consider opportunities to increase mandatory diversion of construction and demolition waste.

Goal 7: Support sustainable agricultural practices.

Policy 7.1: Collaborate with partners to encourage voluntary sustainable agricultural practices that reduce greenhouse gas emissions.

Implementing Strategy 7.1A: Support compliance with statewide restricted materials requirements for pesticides and fumigants, and encourage the voluntary use of low global warming potential (GWP) pesticides and fumigants.

Implementing Strategy 7.1B: Consider allowing sustainable farming practices that protect resources in appropriate non-farmed areas where agriculture may not otherwise be allowed.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 7.1C: Work with agricultural stakeholders to encourage the preparation and dissemination of tools for sustainable agricultural practices, including new technologies.

Implementing Strategy 7.1D: Consider updating zoning standards and land use designations for small-scale farming and temporary ancillary agricultural uses, such as farmers markets, to create clear and uniform definitions that encourage appropriate farming practices..

Goal 8: Promote and implement policies and programs to reduce water use.

Policy 8.1: Expand infrastructure for monitoring and reusing water.

Implementing Strategy 8.1A: Work with water providers to promote the installation of water meters or other technologies that allow for the accurate monitoring and billing of water use.

Implementing Strategy 8.1B: Investigate opportunities to expand the provision of recycled water to the more built-out communities.

Implementing Strategy 8.1C: Consider requiring new development to provide dual plumbing in anticipation of recycled water provisions.

Implementing Strategy 8.1D: Streamline and incentivize the provision of greywater systems for unincorporated areas that follow the County's Environmental Health best management practices.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

ADAPTATION GOALS, POLICIES, AND PROGRAMS

This section provides the County's policy framework to adapt to the impact of climate change and sustain ongoing resilience in the natural and built environments. The County will attain these objectives through proactive anticipation of climate change impacts, working closely with stakeholders and partners to protect resources. The County will also use the opportunities afforded by climate change to sustain resilience and sustainability of San Mateo County's resources.

DEFINITIONS

The following definitions are provided for terms contained in this element:

- **Buffer zones** are areas adjacent to sensitive habitats which are necessary to allow for periodic, seasonal, or ecological changes, including the impacts of climate change.
- **Critical infrastructure or facilities** provide necessary services to the community, including but not limited to roadways, hospitals, airports, utility lines, and water and sewage infrastructure.
- **Climate change** is significant change from one climatic condition to another, including natural changes in climate.
- **Climate change adaptation** seeks to address the impacts of climate change on natural or human systems to minimize harm or take advantage of beneficial opportunities.
- **Climate change mitigation** is a technical or behavioral intervention to reduce the sources of greenhouse gas emissions in order to reduce the potential effects of climate change.
- **Climate change risks** are vulnerabilities caused or exacerbated by changes in climatic conditions, such as flood zone areas, wildfire, drought, and extreme weather events such as heat waves.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Adaptation Goals

The County will achieve the following goals for climate change adaptation:

Goal 9: Identify and prepare for climate change impacts.

Goal 10: Enhance the adaptive capacity of natural and man-made systems.

GENERAL ADAPTATION POLICIES AND PROGRAMS

Goal 9: Identify and prepare for climate change impacts.

Policy 9.1: Develop an approach to track and fund the assessment of climate change impacts and risks.

Implementing Strategy 9.1A: Identify funding programs and grant opportunities for assessing climate risks and planning adaptation strategies.

Implementing Strategy 9.1B: Work with governmental and non-governmental partners, including educational institutions, landowners, and regional or state agencies, to leverage resources and assess climate change vulnerabilities.

Implementing Strategy 9.1C: Partner with neighboring jurisdictions and regional entities to create an ongoing monitoring program that tracks local and regional climate change impacts.

Implementing Strategy 9.1D: Regularly evaluate existing plans and programs (federal, state, and regional) to identify updates in response to emerging information on climate change impacts or best practices.

Policy 9.2: Integrate ongoing assessment of climate change vulnerabilities into the planning process.

Implementing Strategy 9.2A: Establish the State of California Sea-Level Rise Interim Guidance Document, or its successor, as the standard for designing, evaluating, and implementing plans, projects, and programs.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 9.2B: Develop guidelines that require the consideration of potential climate change impacts when preparing environmental documents in accordance with the California Environmental Quality Act.

Implementing Strategy 9.2C: Create mechanisms to assess risk and liability for projects and activities that may occur in areas that are vulnerable to climate change.

Implementing Strategy 9.2D: Incorporate potential climate change impacts into the decision-making process when siting new facilities and prioritizing repairs and improvements to critical infrastructure.

Implementing Strategy 9.2E: Encourage the San Mateo County Local Agency Formation Commission to integrate analysis of climate change risks into municipal service reviews, public service or infrastructure improvements, and management plans.

Policy 9.3: Develop a county-wide adaptation strategy for responding to sea level rise.

Implementing Strategy 9.3A: Partner with local jurisdictions as well as regional and statewide agencies and coordinate the development of a comprehensive San Mateo County sea level rise adaptation plan for all areas within the County – both incorporated and unincorporated.

Goal 10: Enhance the adaptive capacity of natural and man-made systems.

Policy 10.1: Encourage the location and design of new development, remodels, or expansions to anticipate and mitigate climate change risks.

Implementing Strategy 10.1A: Consider expanding minimum standards for setbacks or buffer zones in areas with high vulnerability to climate change impacts.

Implementing Strategy 10.1B: Promote the site selection and design of critical facilities that consider site-specific vulnerabilities to climate change.

Implementing Strategy 10.1C: Promote the location of new critical infrastructure facilities in areas not subject to severe climate change impacts, such as storm surge, flooding, or inundation.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 10.1D: Evaluate on-site disposal system regulations to ensure they are adequate to address surface water and groundwater issues anticipated with changes in the water table and precipitation.

Implementing Strategy 10.1E: Consistent with statewide standards and guidance from the California Coastal Commission, require all new projects in the coastal zone to account for sea level rise and the potential for increasing rates of erosion.

Implementing Strategy 10.1F: Encourage the use of biological and natural solutions for shoreline protection, rather than “armoring” infrastructure such as sea walls or breakwaters.

Policy 10.2: Improve public health and social equity through climate change adaptation strategies.

Implementing Strategy 10.2A: Prepare a regular inventory of essential infrastructure that supports public health and meets emergency response needs, such as emergency facilities, response routes, water supplies, and wastewater disposal.

Implementing Strategy 10.2B: Regularly assess health, socioeconomic, and equity vulnerabilities and adaptive strategies related to climate change using performance metrics and data.

Implementing Strategy 10.2C: Work with public health organizations, nonprofits, and other groups to conduct public outreach and education efforts that inform vulnerable groups about climate change risks.

Implementing Strategy 10.2D: Prioritize adaptation planning efforts for vulnerable populations and communities, including low-income groups, such as potentially affected trailer parks and farmworker housing.

Implementing Strategy 10.2E: Ensure that emergency response and educational information regarding climate change is provided in the key languages commonly spoken throughout the unincorporated county.

Policy 10.3: Protect the built environment from climate change risks through programs and strategic planning.

Implementing Strategy 10.3A: Establish a strategy for addressing existing development and critical infrastructure that is vulnerable to increased impacts of climate change, identifying decision-making criteria for upgrades and managed retreats from risks.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 10.3B: Consider the transfer of development rights for reconstruction of development that has been damaged or destroyed due to fire or flooding, as feasible.

Implementing Strategy 10.3C: Coordinate with agency partners to prepare for the increased need for emergency response services that is expected due to climate change impacts.

Implementing Strategy 10.3D: Collaborate with utility providers to ensure that infrastructure management plans account for anticipated climate change impacts.

Implementing Strategy 10.3E: Promote improved emergency vehicle access and roadside vegetative management.

Implementing Strategy 10.3F: Continue collaboration with the Federal Emergency Management Agency to review and identify flood zones and risks.

Implementing Strategy 10.3G: Coordinate with neighboring jurisdictions and regional entities to plan and mitigate wildfire impacts in wildland-urban interface areas.

Implementing Strategy 10.3H: Maintain public access to recreation facilities, open space, and other natural resources wherever possible despite climate change impacts.

Policy 10.4: Monitor and support the adaptive capacity of natural and agricultural resources to climate change.

Implementing Strategy 10.4A: Consider diversifying the allowable activities on agricultural land to support the diversification of sources for potential income, such as agricultural tourism, roadside stands, and farmers markets.

Implementing Strategy 10.4B: Create a monitoring and assessment program to track forest health and support ecological, social, and economic sustainability of public forestlands.

Implementing Strategy 10.4C: Partner with local organizations to investigate the use of conservation easements for protection of habitats vulnerable to climate change that could also serve as buffers for the built environment.

SAN MATEO COUNTY ENERGY AND CLIMATE CHANGE ELEMENT

Implementing Strategy 10.4D: Collaborate with partners to prepare adaptive management plans for sea level rise in coastal and bay(side) areas.

Implementing Strategy 10.4E: Evaluate the role of wetlands in carbon sequestration and as buffer to the impacts of sea level rise and increased flooding.

Implementing Strategy 10.4F: Coordinate with stakeholders, agencies, and other groups to monitor new opportunities to strengthen the resilience of natural and agricultural resources to climate change.