



SAN MATEO COUNTY, CA

CLIMATE ACTION PLAN

GOVERNMENT OPERATIONS CLIMATE ACTION PLAN:
SUPPLEMENTAL FINDINGS & GREENHOUSE GAS EMISSIONS INVENTORY



OFFICE OF
SUSTAINABILITY
COUNTY OF SAN MATEO

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INTRODUCTION

Why a Climate Action Plan

Making up almost the entirety of the San Francisco Bay Peninsula, San Mateo County is a unique region containing beautiful coastlines, bayside communities, the foothills of the sprawling Santa Cruz Mountains, and over 720,000 residents. San Mateo County sits squarely between two major water bodies—the Pacific Ocean to the west and the San Francisco Bay to the east.

The County of San Mateo has prioritized updating its Government Operations Climate Action Plan (GOCAP) to align with the State of California’s emissions reduction targets and to accelerate mitigation efforts to tackle the global climate crisis. This plan puts forth a comprehensive and strategic framework for measuring, planning, and reducing GHG emissions and related climatic impacts within County operations. It is a strategic roadmap for making informed choices and understanding where and how to accomplish the largest and most cost-effective emissions reductions in alignment with other County goals.

The County of San Mateo provides several critical services for the region, including the operation of the County hospital and regional medical clinics; the County Jail; emergency services and 911 Dispatch Center, and a robust parks system. The County of San Mateo also provides direct services for unincorporated areas within the county, such as roads and utility system maintenance, police services, and the County library system. Unmitigated impacts from climate change could disrupt essential community services and increase costs for municipal operations. As such, the County of San Mateo has an obligation to prepare for and help lessen the impacts of climate change on County operations.

Local governments can make a meaningful difference in the quality of life of present and future residents by considering the impacts of climate change when examining how services are provided, how programs are administered, and how infrastructure is planned and constructed. This was a key reason, for example, that the County of San Mateo launched Peninsula Clean Energy (PCE), a community-controlled, not-for-profit, joint powers agency that gives cities and towns in the county more control over their power supplies. Through numerous other programs, policies, and projects, the County has shown its dedication to environmental and community health by reducing GHG emissions and adapting to climate change risks.

BENEFITS OF TAKING CLIMATE ACTION

- Creation of local, green jobs and sustainable economic development
- Reduced utility and equipment maintenance costs
- Improved risk management and resilience to climate change
- Improved access and quality of parks and other natural resources
- Increased access to transit, bikeways, sidewalks, and other transportation options
- Improved air quality, public health, and quality of life
- Prevention of community inequities driven by climate impacts

Progress on Climate Action

The County's 2025 Shared Vision provides a framework to work towards the vision of healthy, environmentally conscious, livable, collaborative, and prosperous community. The County has taken several actions to reach this vision:

TIMELINE OF THE COUNTY'S SUSTAINABILITY INITIATIVES

- 1995:** Procurement policy for recycled content products adopted
- 2000:** Environmental Purchasing Policy adopted
- 2008:** Fuel-efficient vehicles purchased for motor pool, Styrofoam ban for food vendors enacted
- 2012:** First climate action plans for government operations and unincorporated community developed
- 2016:** Creation of Peninsula Clean Energy, Commuter Shuttle Program launched
- 2017:** Electronic waste recycling, County commitment to Paris Agreement, Municipal Green Building Policy implemented
- 2018:** Diesel Free by 2033 Resolution adopted, Sea Level Rise Vulnerability Assessment completed, electric vehicles added to motor pool
- 2019:** Climate Emergency Resolution adopted; Sea Level Rise Policy for County-Owned Assets adopted

In September 2012, the County of San Mateo adopted its first GOCAP. Some of the key strategies within the first GOCAP included upgrading streetlights and traffic signals to more energy-efficient LED lightbulbs, installing solar systems at County facilities, updating alternative and flexible working policies, and diverting 75% of waste generated at County buildings. Since then, the County has made substantial progress towards achieving its climate goals outlined in the first GOCAP.

PROGRESS ON CLIMATE GOALS SINCE 2012 GOCAP



Renewable Electricity

Purchased 100% renewable electricity for all County buildings.



Lighting Efficiency

Upgraded streetlights, traffic signals, and pedestrian signals to LED which use significantly less energy.



Electric Vehicle Chargers

Installed 13 electric vehicle charging stations totaling 26 charging stalls at County facilities.



Solar Photovoltaic

Commissioned four solar systems at County Center Parking Structure 1, East Palo Alto Government Center, San Mateo Medical Center, and the Crime Lab.



Energy Efficiency

Energy efficiency increased per square foot increased by 20% in County facilities



Waste Diversion Rates

Achieved 76% waste diversion for waste generated at County facilities.



Fuel Economy and Zero-Emissions Vehicles

4 electric vehicles and 4 plug-in hybrids added to the fleet.



Alternate Commute Participation

17% of employees (1,247) participated in Commute Alternative Program.



New Commute Incentives

Piloted a commuter shuttle and initiated an Emergency ride home program.
Launched a bicycle fleet for employees to use throughout their workday.

2020 GOCAP OVERVIEW

Document Roadmap



CLIMATE CHANGE

Learn about County of San Mateo's GHG contribution from government operations, projected climate impacts in the county, and how the GOCAP relates to global and local policies and actions.



GOALS & TARGETS

Get information on County of San Mateo's overarching goals and targets related to curbing GHG emissions from government operations and preparing the County for the impacts of climate change.



STRATEGIES & ACTIONS

Read about County of San Mateo's four topical focus areas for the GOCAP. Each focus area includes information on relevant impacts, progress to-date, goals, and mitigation and adaptation actions to achieve those goals.

Goal & Action Focus Areas



ENERGY & WATER

Focus on energy consumption by County facilities and water treatment. The goal is to reduce energy use, expand renewable energy generation, and prepare government buildings for a changing climate.



TRANSPORTATION

Focus on public transit, employee commuting, and how the County uses its land and open spaces. The goal is to shift County vehicles and employee commuting to lower-carbon alternatives.



SOLID WASTE & MATERIALS MANAGEMENT

Focus on emissions from County solid waste generation and disposal. The goal is to encourage waste reduction and diversion within government operations.

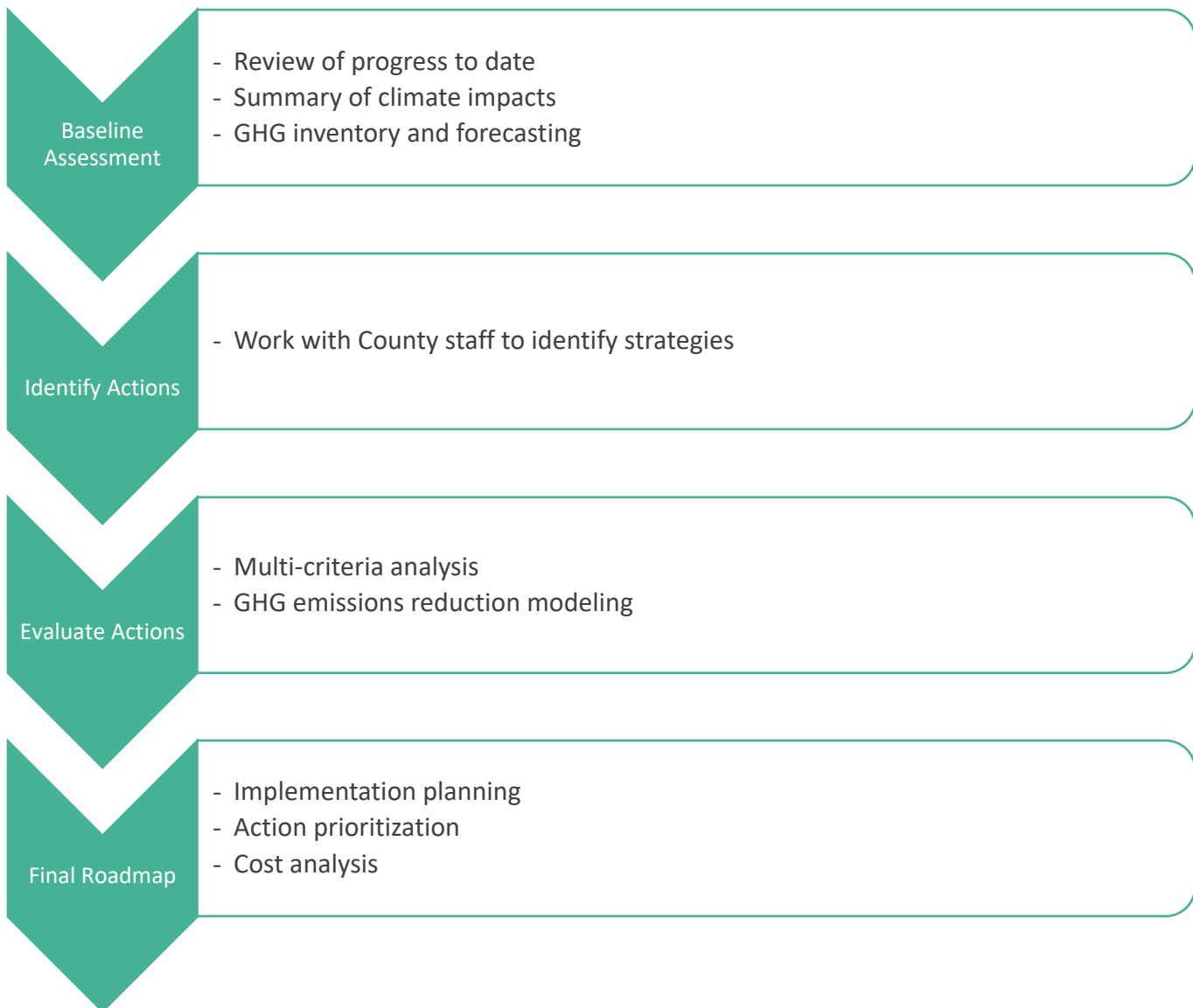


CARBON SEQUESTRATION

Focus on the management of land to maximize absorption of GHGs from the air into plants, trees, and soils. The goal is to reduce synthetic fertilizer use and expand tree canopy cover.

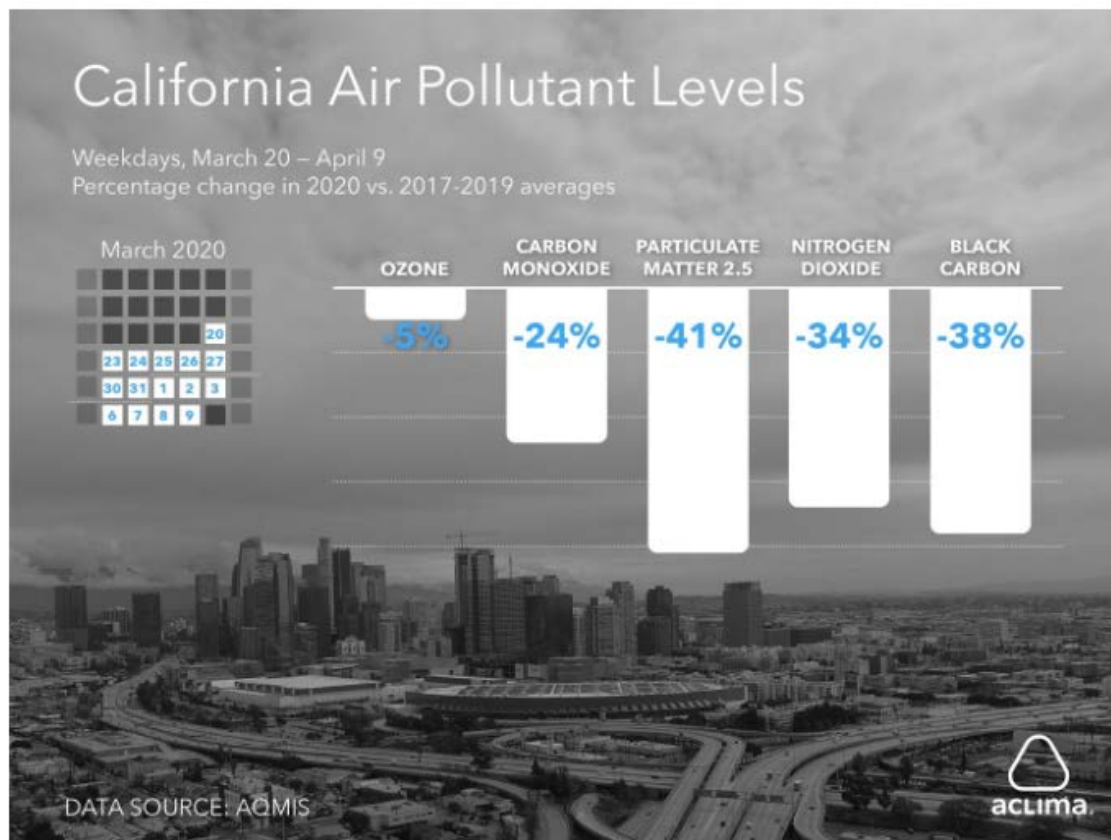
How the GOCAP Came Together

The Office of Sustainability examined the government operations greenhouse gas (GHG) inventory to determine the largest emissions sources and opportunities for improvement. and engaged staff across County departments in identifying opportunities to reduce emissions from day-to-day operations. This process resulted in a comprehensive list of strategies and actions which were prioritized based on multiple criteria, including GHG reduction potential, cost, technical feasibility, equity advancement, and other co-benefits. With a refined list of strategies and actions in hand, feedback from County staff and key stakeholders was solicited, and recommendations were integrated into the final GOCAP.



Creating a Better Normal after COVID-19

Prior to the GOCAP being finalized, the County activated emergency operations to stop the spread of COVID-19. On March 19, 2020, the County of San Mateo entered into shelter in place, impacting residents, businesses, and County operations. In finalizing this GOCAP report, there was an opportunity to identify measures that build resiliency to support COVID-19 recovery and sustainability. Three months into the pandemic, air quality improved dramatically, including a 41% reduction in particulate matter due to a dramatic increase in teleworking, biking, and walking with “slow streets.” Energy use also decreased across the county as occupancy of county buildings decreased therefore less heating and cooling was needed. In creating a “new normal,” the County can learn from these successes and shape County operations in a way addresses the climate crisis and enhances sustainability. Therefore, this GOCAP reflects the challenges presented by the pandemic as well as exploring potential opportunities.



Air pollutant levels drop across California during shelter-in-place compared to prior years.

Benefits of Climate Action

Beyond the direct benefits of a more stable climate, acting to reduce greenhouse gas (GHG) emissions creates additional benefits for the county. For example, the transition to an electric fleet not only addresses climate goals but decreases air pollution and improves public health. Other climate action benefits include:

Health &
Wellbeing

Community
Resilience

Equity & Social
Justice

Improved
Environmental
Conditions

Green
Economy

Employment

Environmental
Protection

Public Safety

Hazard
Mitigation



Family biking on a trail at Coyote Point

GOALS AND TARGETS

California has some of the boldest climate action goals in the country. Senate Bill 32, signed in 2016, requires that the state cut emissions to 40% below 1990 levels by 2030—at the time, the most ambitious carbon goal in North America.¹ To achieve this, California created the following strategies:

- Increase renewable electricity production to 50%
- Reduce petroleum use by 50% in vehicles
- Double energy efficiency savings in existing buildings
- Reduce GHG emissions from natural and working lands
- Reduce short-lived climate pollutants

In September 2018, Governor Jerry Brown issued Executive Order B-55-18, establishing a statewide goal to “achieve carbon neutrality as soon as possible, and no later than 2045, and maintain and achieve negative emissions thereafter.” To ensure the County of San Mateo achieves the State’s carbon neutrality goals, the County of San Mateo’s Board of Supervisors declared a climate emergency on September 17, 2019, committing the County to reach carbon neutrality before 2045. This GOCAP calls on our organization to take even more aggressive action to reduce greenhouse gas (GHG) emissions by accelerating the carbon neutrality goal for government operations to 2035. In doing this, the County of San Mateo will establish itself as a leader in climate action, set precedent for other jurisdictions, and reflect the rate of action needed to mitigate the harmful impacts of a warmer planet.

To reach the target of carbon neutrality by 2035, the County will need to:

Electrify 100% of
County Buildings

Reduce Employee
Commute
Emissions by 95%

Electrify 100% of
County Fleet
Vehicles

Sequester 14% of
Emissions

¹ Climate pollutants fall below 1990 levels for first time. (2018, July 11). California Air Resources Board. Retrieved from <https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levels-first-time>.

CLIMATE CHANGE & SAN MATEO COUNTY

The impacts of climate change—heat waves, wildfires and harmful air quality, changing precipitation patterns, and ocean acidification, to name just a few—are occurring now. In order to reduce the potential impacts, substantial reductions in greenhouse gas (GHG) emissions are needed. This section summarizes the anticipated impacts of climate change on San Mateo County and the sources of GHG emissions from County operations.

Climate Impacts

Climate change has already affected and will continue to affect San Mateo County. Climate change is expected to increase the frequency and severity of heat stress, respiratory disease, and vector-borne diseases. County disaster and relief costs will likely increase as climate-related natural disasters become more frequent and intense, such as flooding, storms, droughts, wildfires, and heat. Flood insurance and flood prevention costs will grow due to the increasing risk of sea level rise and extreme storm events. Climate change is anticipated to impact every area of County operation, including buildings, stormwater infrastructure, transportation infrastructure, community services, and land-use planning and development.

TYPES OF CLIMATE IMPACTS

Primary impacts capture biophysical, physiological, and physical effects, including:

- Rising temperatures and fire risk
- Changes to the water cycle (i.e., leading to more rain, storms, flooding, etc.)
- More frequent and intense storms
- Rising sea level

Secondary impacts include the effects climate change has on humans, infrastructure, and systems, including:

- Impacts to health
- Impacts to equity
- Impacts to the economy
- Impacts to energy systems and use



San Mateo County firefighters respond to wildfire.

Aug. 18, 2020. Cal Fire CZU

Primary Climate Impacts Overview

This section provides an overview of key impacts that the San Mateo County region has already seen and will likely see in the future.

WHAT'S ALREADY BEING EXPERIENCED



The region's **annual maximum temperature** increased 1.7°F from 1950-2005.



Coastal fog, which is critical to the region's climate and ecosystems, is less frequent than ever before.



Sea level has risen more than 8 inches in the last century.



The forceful 2015-2016 El Niño, which was one of the three largest in history, resulted in winter wave energy that was more than 50% greater than a typical winter, resulting in unprecedented outer coast **beach erosion**.



The 2012-2016 state-wide **drought** led to the most drastic moisture shortages in the last 1,200 years, which led to a 1-in-500 year low in Sierra snowpack. This historically low **snowpack** resulted in \$2.1 billion in economic losses and led to 21,000 jobs lost in agricultural and recreational sectors across the State, as well as a continuing exhaustion of groundwater sources.

Source: Source: California's Fourth Climate Change Assessment. (2018). Retrieved from <https://www.climateassessment.ca.gov/state/overview/>.

WHAT TO EXPECT IN THE FUTURE



Even if considerable efforts to reduce GHG emissions are conducted, San Mateo County will likely see substantial temperature increases. **By 2050, annual temperature is projected to increase by 4.4°F and by an additional 1.2°F by 2100.**



Precipitation in San Mateo County will continue to display annual variability. Wetter years can become even wetter while drier years can become even drier, creating a whiplash of extremes. This can result in both short- and long-term impacts to facilities, homes, and people. If GHG emissions continue at the current rate, **Sierra snowpack** is expected to decline nearly 20% in the next 20-30 years, decrease 30-60% by 2050, and 80% by 2100.



The county is currently on a path to see up to 2 feet of sea level rise by 2050 and more than 6 feet by 2100 unless there are deep reductions in global emissions. Studies suggests that even with significant emissions reductions, it is inevitable that over the next several centuries that there will be at least 6 feet of **sea level rise** due to the delayed effects of climate change.



As temperature continues to increase in the future, it is anticipated to cause longer and more intense California **droughts**, posing major problems for government operations, water supplies, ecosystems, agriculture, and recreation.

Source: Source: California's Fourth Climate Change Assessment. (2018). Retrieved from <https://www.climateassessment.ca.gov/state/overview/>.

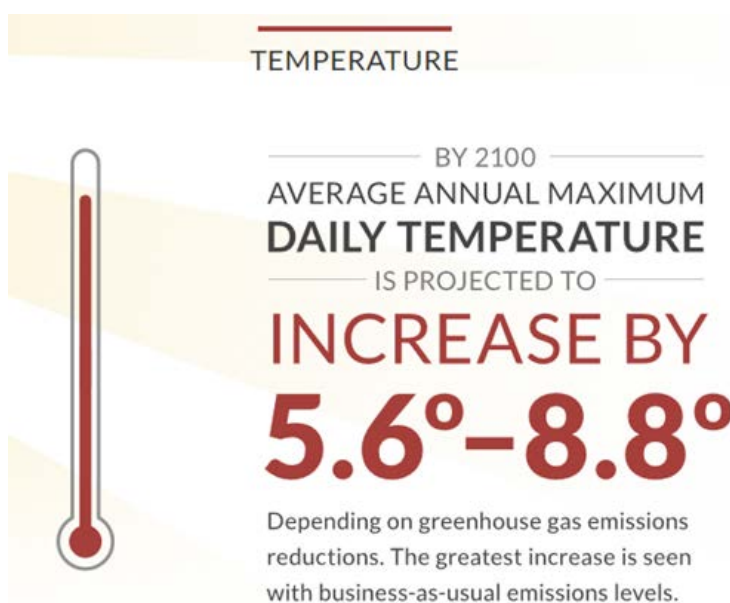
RISING TEMPERATURES

Overall, the Bay Area's average annual maximum temperature increased by 1.7°F from 1950-2005. Rising temperatures increase the risk of fires across California. While all parts of the Bay Area are projected to get warmer, inland areas are anticipated to have larger temperature increases than the coast. It is projected that average annual temperature will increase by 1.6°F by 2030 and 2.8°F by 2050 across San Mateo County² and 5.6-8.8°F by the end of the century.³

Extreme heat days and nights occur when temperatures exceed 100°F; five or more consecutive extreme heat days or nights are known as a "heat wave." In the county, days over 100°F are expected to increase most in Redwood City, East Palo Alto, Foster City, Menlo Park, and Atherton, with an average of a week over 100°F every year by 2070.

Urban areas with limited vegetation (e.g., tree canopy) and surfaces that absorb and retain heat (e.g., parking lots) tend to experience extreme heat events more acutely as they get hotter and stay warmer longer than adjacent, greener communities—these areas are known as urban heat islands (UHIs). Due to coastal winds, in many areas of the county, heat from urban areas moves into open space, which may impact ecosystems and fire risk.

California's average daily temperature is projected to increase.



Source: California's Fourth Climate Change Assessment. (2018).

² Sea Level Rise Vulnerability Assessment Report. (2018). The County of San Mateo. Retrieved from <https://seachangesmc.org/vulnerability-assessment/>.

³ California's Fourth Climate Change Assessment. (2018). Retrieved from <https://www.climateassessment.ca.gov/state/overview/>.

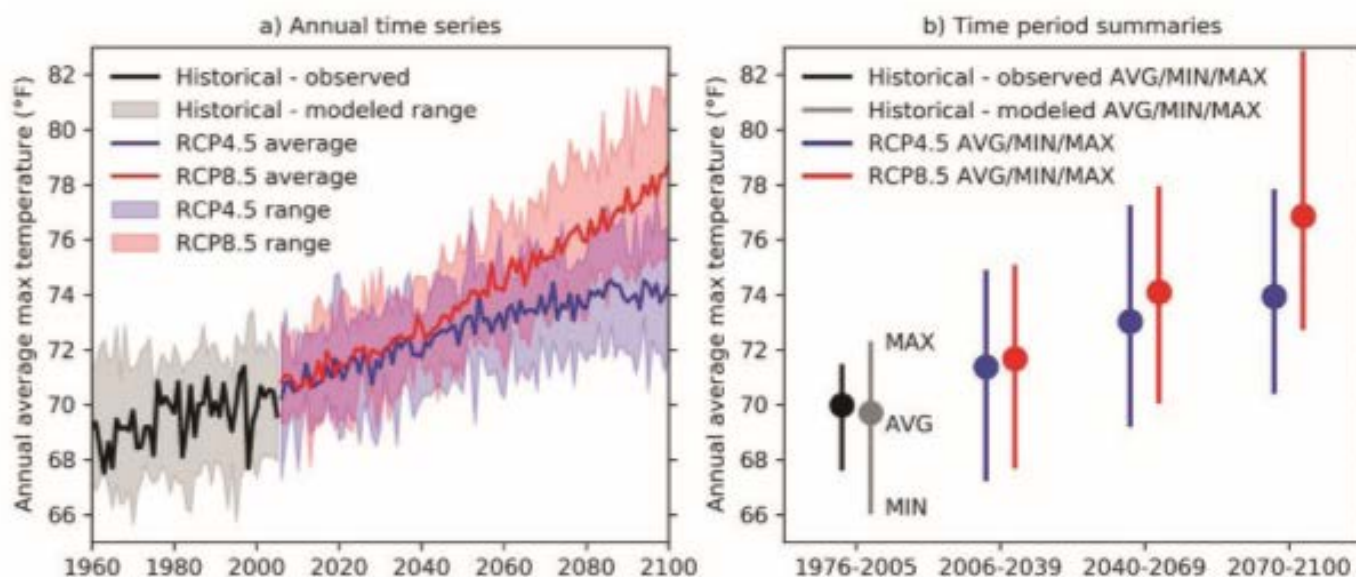
Heat waves pose increased health risks due to urban heat islands and the lack of cooling infrastructure (air conditioning) in bayside cities:

At the beginning of September 2019, the National Weather Service for the Bay Area reported that a series of **all-time high temperature records** were set in San Francisco and Oakland. These events overwhelmed the protective and social infrastructure in San Francisco, resulting in six deaths and 38 hospitalizations.

- In addition to direct effects of heat, rising temperatures lead to declining **air quality**.

These risks are even greater for low-income communities, in which individuals are unable to invest in air conditioning, have greater exposure to toxins and pollution, have a higher rate of health concerns including asthma. In addition, community-based cooling centers are likely to be very limited.

Figure 1. Historic and projected changes in maximum annual temperature for California



Source: California's Fourth Climate Change Assessment. (2018).

FACILITY IMPACTS

County facilities could be impacted by extreme heat in the future. Community infrastructure such as Pescadero Fire Station, Loma Mar Fire Station, Pescadero Corporation Yard, and Portola Valley Library, Our Common Ground Treatment Center, 911 Communications Center, South County Mental Health Administration, Cordilleras Mental Health Center, Edmonds Fire Station #18, Canyon Oaks Youth Center, and Fair Oaks Community Center will experience more than a week of high heat. Improving resilience of these facilities could include operating them as cooling centers; retrofitting them with microgrids and battery backup systems; reducing heat impacts through trees, green infrastructure, and green or cool roofs; and using them as awareness-building and education centers for climate change. They could also serve as Resilience Hubs that support reducing both emissions and climate change impacts while also supporting community activities.

FIRE RISK

Higher temperatures from climate change will increase the risks of heat stress and heat-related deaths. Heat events also trap air pollution and humidity, impacting daily health and generally decreasing city labor productivity. Rising temperatures and increased fire risk threaten employee public health and safety as well as county infrastructure. During extreme heat days, heat-related mortality and emergency room visits rise due to dehydration, stroke, and poor air quality among other reasons.⁴ Between 2005-2010, an average of 29 persons per year visited the emergency room for heat-related illnesses.⁵

Wildfire presents an increasing risk for San Mateo County:

- In 2020, the state experienced the largest wildfire season recorded in California's modern history with over 9,069 fires burning over 4,193,364 acres.⁶
- The 2020 CZU Lightning Complex fire burned more than 86,000 acres across Santa Cruz County and San Mateo County. Nearly 20,000 acres and more than a dozen homes were destroyed by the fires in San Mateo County.⁷
- In response to increased fire risk, PG&E initiated the Public Safety Power Shut Off (PSPS) program to be able to turn off the grid when there are high temperatures, extreme dryness, and high winds during fire season. PSPS events will be ongoing until grid infrastructure improvements are made. This disruption of power has implications for County facilities that are in PSPS areas, like our rural coast.

Wildfires can claim lives, destroy property, force evacuations, and disrupt daily life, and expose large populations to unhealthy levels of air pollution for days to weeks at a time. It is expected that average area burned in San Mateo County will increase by 77% by 2100, if emissions continue to rise. Along with that,

⁴ California's Fourth Climate Change Assessment. (2018). <https://www.climateassessment.ca.gov/state/overview/>.

⁵ County of San Mateo. (2018). Sea Level Rise Vulnerability Assessment. <https://seachangesmc.org/vulnerability-assessment/>

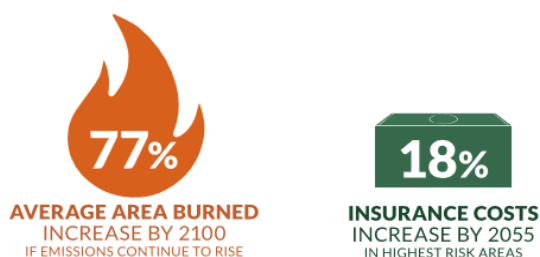
⁶ State of California. (2020). Cal Fire Stats and Events. <https://www.fire.ca.gov/stats-events/>

⁷ County of San Mateo. (2020). SMC Wildfire Recovery. <https://www.smcgov.org/smc-wildfire-recovery>

insurance rates may increase by 18% in high fire risk areas as seen in **Figure 4**. Wildfire risk is exacerbated by the accumulation of wood or fuels in a forest combined with changes in the length and frequency of the fire season due to warmer climate, changing precipitation, and droughts drying soil. Fire suppression in the area has increased fuel reserves (e.g., dead branches) in unmanaged forests and woodlands. In the absence of fire, Douglas Firs establish and grow rapidly under the canopy of other trees, increasing the risk of high-severity fires under hot, dry, and windy conditions. Fire risk is greatest at the Wildland Urban Interface (WUI), where buildings are closest to tracts of forest.

Figure 4.

The impact of increased wildfire risk on insurance cost.



Source: California's Fourth Climate Change Assessment. (2018).

California precipitation is one of the most variable in the nation, frequently moving between two extremes: drought and storms. Future increases in temperature are likely to **intensify droughts and lead to increased moisture deficits**. As climate change intensifies, precipitation variability will continue to increase, causing **more frequent extremes between dry and wet periods**.

While the total amount of precipitation in the Bay Area is not projected to change significantly (models project an additional 2 to 5 inches), the amount and timing of water suitable for drinking may change.

- Under a high emissions scenario, average Sierra Nevada snowpack is projected to decline by nearly 20% in the next two to three decades, 30% to 60% in mid-century, and by more than 80% in the late century. **Error! Bookmark not defined.**
- Rising bay water and groundwater levels will increase salinity intrusion and subsurface flooding inland.⁸

As snowpack continues to decline, there will be lower water levels in lakes and rivers. This will strain surface water resources as well as cause economic impacts to the agricultural and recreation industry. The changes in Sierra Nevada snowpack will require investments, potential alternative water storage, improvements to water-use efficiency, and updated water reservoir infrastructure. Importantly, the decline in spring snowpack occurs even if the total amount of precipitation remains relatively stable over the central and northern California region; the loss of snowpack is the result of an increasingly warmer climate.

⁸ California's Fourth Climate Change Assessment. (2018). <https://www.climateassessment.ca.gov/state/overview/>.

Fog, which is so critical to the Bay Area climate and to the plants and animals, is occurring less frequently than before:

- Over the past 60 years, California's coastal fog declined by 33%⁹
- Across the state of California, fog is expected to decline by 12-20% by 2070¹⁰

This trend is especially concerning for the San Mateo County redwood forests, which absorb as much as a third of their water from fog.¹⁰ Although fog is dependent on local and global atmospheric patterns, fog is also declining in urban areas due to urban land use and pollution. Warmer nighttime temperatures, as a result of impervious surfaces and the Urban Heat Island effect, can reduce fog. This highlights the importance of land use policies and urban forest canopies in maintaining fog cover and lowering temperatures.

MORE FREQUENT AND INTENSE STORMS

The Bay Area's largest winter storms will likely become more intense—and more damaging—in the coming decades. What is currently considered a 20-year storm event for the Bay Area would now be a once-every-seven-year storm event, with the potential of being even more frequent. Additionally, a once-every-200-year sequence of storms, comparable to that which caused the great California flood of 1862, could occur every 40-50 years by 2100. The amount of rain falling during a 1% storm could increase 18-30% between 2030 and 2070 in the county's watersheds and creeks. Also, extreme dry to extreme wet conditions in California could become the new normal due to an increased frequency and intensity of large individual storms.

El Niño events can and have significantly impacted San Mateo County:

- The powerful El Niño of 2015-16, one of the three largest in history, resulted in elevated water levels of 0.3 to 0.6 feet and winter wave energy that was over 50% stronger than the typical winter in the Bay Area¹⁰
- El Niño drove unprecedented outer coast beach erosion (i.e., landward shoreline retreat), which was **98% higher than normal**¹¹
- El Niño can increase water levels by as much as 1 foot above normal, and, on average, **create 30% stronger winter wave energy**¹²

Current science on future El Niño patterns is inconclusive, although a study from the California Ocean Protection Council suggests a potential doubling in the frequency of extreme El Niño events, such as those that occurred in 1982-83, 1997-98, and 2015-16.¹²

¹⁰ Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment. Publication number: CCCA4-SUM-2018-005.

¹⁹ Johnstone, J. and Dawson, T. (2010, March 9). Climatic context and ecological implications of summer fog decline in the coast redwood region. *PNAS*. 107 (10) 4533-4538; <https://doi.org/10.1073/pnas.0915062107>.

¹¹ Griggs, G. et al. (2017). Rising Seas in California: An Update on Sea Level Rise Science. California Ocean Protection Council. Retrieved from <https://cawaterlibrary.net/document/rising-seas-in-california-an-update-on-sea-level-rise-science/>.

¹² Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment. Publication number: CCCA4-SUM-2018-005.

RISING SEA LEVELS

Sea level rise impacts include flooding, increased wave action, rising groundwater tables and saltwater intrusion, increased erosion, and changes in sediment supply.

- The San Francisco Bay Area is one of the **hotspots for sea level rise** in the nation.¹²
- When population projections are considered, the county is one of six counties in the nation (and the only one on the West Coast) with over **100,000 people living in an area affected by 3 feet of sea level rise**.¹²
- Flooding could affect the built and natural infrastructure around the county and impact more than **7,000 acres of wetlands** and as much as **24 miles of floodwalls and levees**.¹²
- The **economic value of property located in San Mateo County** that is at risk from sea level rise is larger than any other county in the Bay Area. The assessed value of parcels in the area exposed to near-term (present-day) flooding exceeds \$1 billion. The assessed value of parcels exposed to erosion and flooding in the long term (50-100 years) totals roughly \$39.1 billion. More than 30,000 residential parcels and 3,000 commercial parcels may also be vulnerable in the long term.¹²

Sea level rise and flooding. Sea level rise will have consequences for public health, the economy, and neighborhoods. The health facilities may be impacted by flooding, and access to emergency medical services could be impaired. Flood events also can lead to physical injury, illness, or disease (e.g., vector-borne diseases such as West Nile virus) exacerbating a facility that may already be inundated. Floods can also cause income loss, disruption of employment, and damage to property that may not be insured. Hazardous waste sites across the region are at risk of flooding with future sea levels. Release of contaminants, particularly in low-income and high-density communities, creates a serious and direct health risk.

Subsidence and groundwater. Land subsidence due to land settling and groundwater pumping has occurred along the bay. Subsidence of up to 10 millimeters per year occurred along mud-dominated shoreline areas, such as the San Francisco waterfront, San Francisco International Airport, and Foster City, although most subsidence rates in the Bay Area are less than 2 millimeters per year. The County completed a study of the San Mateo Plain Groundwater Basin, which found higher shallow groundwater levels inland and lower inflows with sea level rise, estimated conservatively at 8.5 inches.¹³

¹³ San Mateo Plain Groundwater Basin Assessment. (2018, July). The County of San Mateo. Retrieved from http://www.smcsustainability.org/download/energy-water/groundwater/SMP-Groundwater-Basin-Assessment_July-2018.pdf.

EMISSIONS SCENARIOS

The amount of greenhouse gas that people emit into the atmosphere directly influences the rate and severity of climate change impacts. Emissions scenarios are hypotheses backed by climate modeling to help describe what the future could look like based on the greenhouse gas emissions rates. For example, **Table 1** provides an assessment of how sea level rise will impact San Mateo County over various timescales for the high emissions scenario or continuing to operate under business as usual and not making any reductions in GHGs emitted.

Table 1. OPC 2018 Probabilistic sea level rise projections (probabilities).¹⁴

	Low risk (ft.) (66% probability)	Medium-high risk (ft.) (0.5% probability)	Extreme risk (ft.)
2030	0.5	0.8	1.0
2040	0.8	1.3	1.8
2050	1.1	1.9	2.7
2060	1.5	2.6	3.9
2070	1.9	3.5	5.2
2080	2.4	4.5	6.6
2090	2.9	5.6	8.3
2100	3.4	6.9	10.2

Before 2050, differences in sea level rise projections under different emissions scenarios are minor. Because most places in the world today are on track to experience effects of a high emissions scenario, the projections in are for a high GHG emissions scenario. The percents given in **Table 1** are the probability of sea level rising to the projected height. However, the probability for the extreme risk scenario is not possible due to the uncertainty of future emissions. As seen in **Table 1**, sea level rise is projected to increase significantly each decade and substantial increases can be seen between emissions scenarios. The numbers do not include impacts of El Niño, storms or other drivers of sea level rise.¹⁵

The County also supports the Flood and Sea Level Rise Resilience District, aimed at developing collaborative and regional solutions to sea level rise and flooding impacts throughout the county. Please visit <https://resilientsanmateo.org/> for more information on the Flood and Sea Level Rise Resilience District.

¹⁴ State of CA Sea Level Rise Guidance. (2018). California Ocean Protection Council. Retrieved from https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf . [is this the correct document?]

¹⁵ California Ocean Protection Council. (2018). *State of CA Sea Level Rise Guidance*. https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf .

IMPACTS TO COUNTY-OWNED FACILITIES

San Mateo County is unique in that it has extensive oceanfront shoreline and bayside shoreline. On the bayside, many of the wetlands that historically provided flood protection along San Mateo County's shoreline have been developed or lost to erosion. At the same time, on the coast, historic erosion is threatening properties and infrastructure. Many of the county's most socially vulnerable communities are located along these low-lying areas, making planning and preparing for climate change even more critical.

In 2015, the County of San Mateo embarked on a collaborative initiative, Sea Change SMC, to develop a Sea Level Rise Vulnerability Assessment and increase coordination on sea level rise countywide. The assessment led to the development of tools and other programs, including a climate communications toolkit, Youth Exploring Sea Level Rise Science program for high school students, funding to support an analysis of other climate impacts, a detailed audit of County and City-owned assets, the formation of a climate collaborative, and funding of a grants program to implement the outcomes of the assessment.

Since 2015, the County has engaged more than 6,000 people and nearly 1,000 students in more than 90 events to raise awareness of sea level rise risks. The assessment revealed that San Mateo County is the most vulnerable county in California to sea level rise in terms of property value. The assessed value of parcels exposed to erosion and flooding in the long term (50–100 years) totals roughly \$39.1 billion. Through the assessment, the County identified key interdependencies between the transportation, water, and energy infrastructure. Additionally, 85% of the county's wetlands and natural infrastructure, which is needed to protect against flooding, could be lost in the mid-level scenario, shown in Table 1. The built levees, meant to protect communities, could be overtopped along 21 miles of shoreline. Because of this, nearly 30,000 homes, more than 2,000 businesses, and 22 health care facilities could be impacted. El Niño and atmospheric river-based winter storms have in the past and will continue to have the ability to accelerate and exacerbate these flooding impacts on the oceanside and bayfront of San Mateo County.

To address future flooding, the County adopted a sea level rise policy for county-owned assets in 2019. This policy requires a baseline assessment of sea level rise risks for all County-owned assets. Based on the level of risk and timing of the risk, county-owned facilities are required to develop an adaptation and monitoring strategy. If adaptation strategies are needed, they are to be implemented during the capital improvement planning process. A key component of implementation includes coordination with neighboring cities and property owners.

Figures 2-5 show maps of county-owned facilities vulnerable to future sea level rise.

Figure 2. County-owned facilities in north county

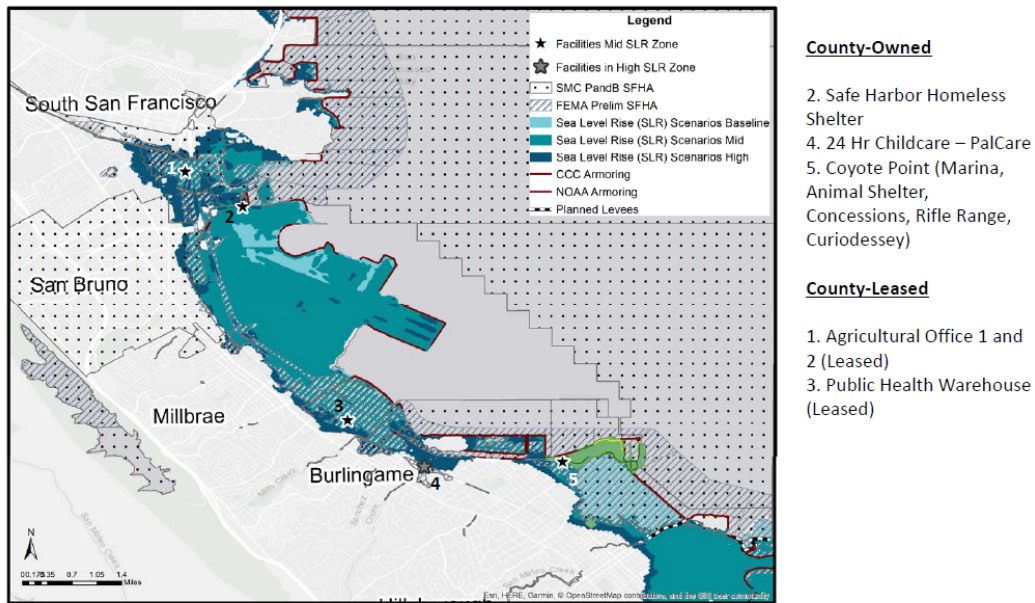


Figure 3. County-owned facilities south county

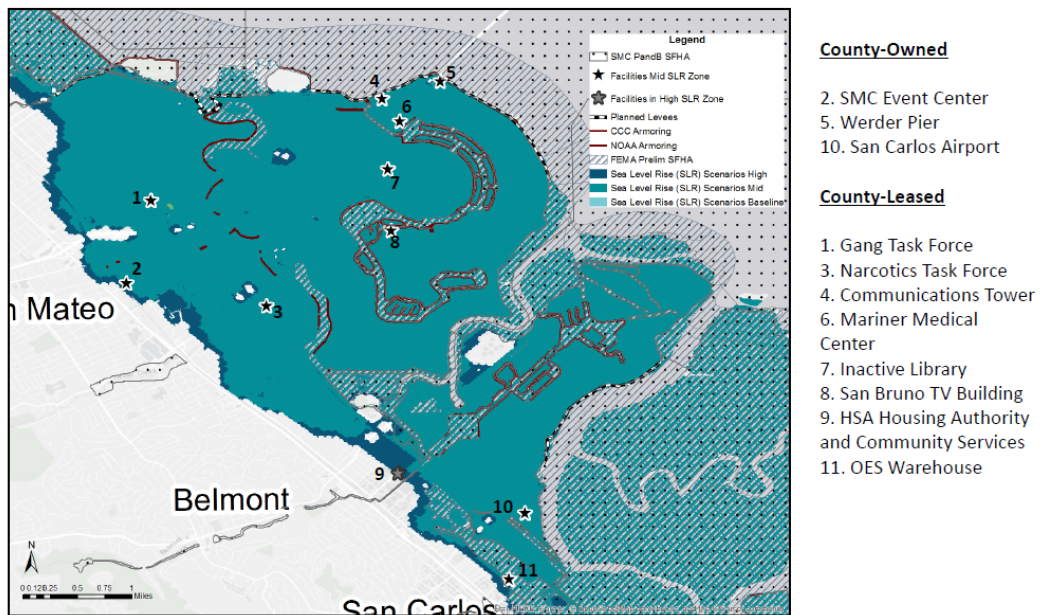
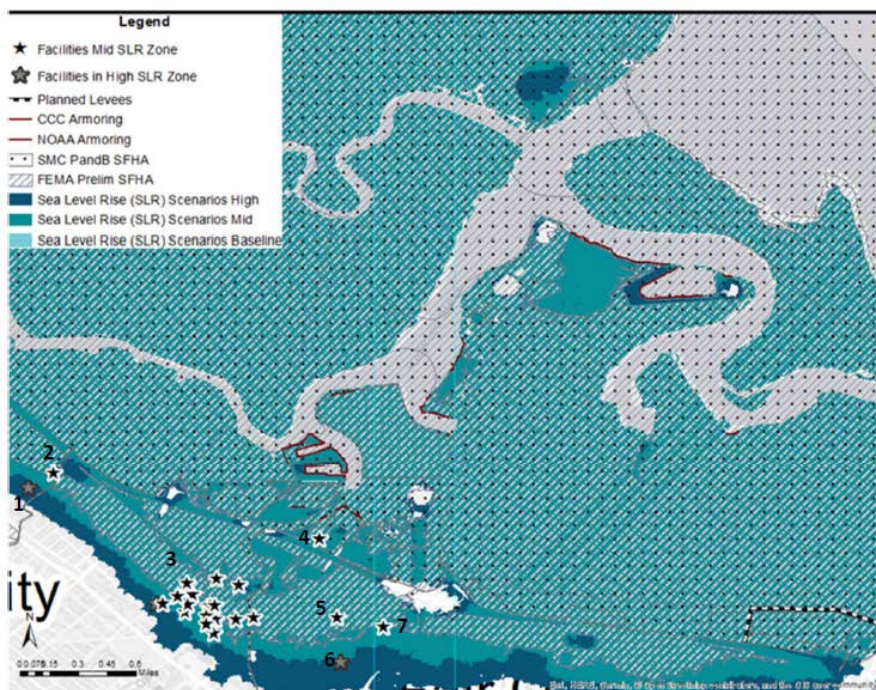


Figure 4. County-owned facilities in south county

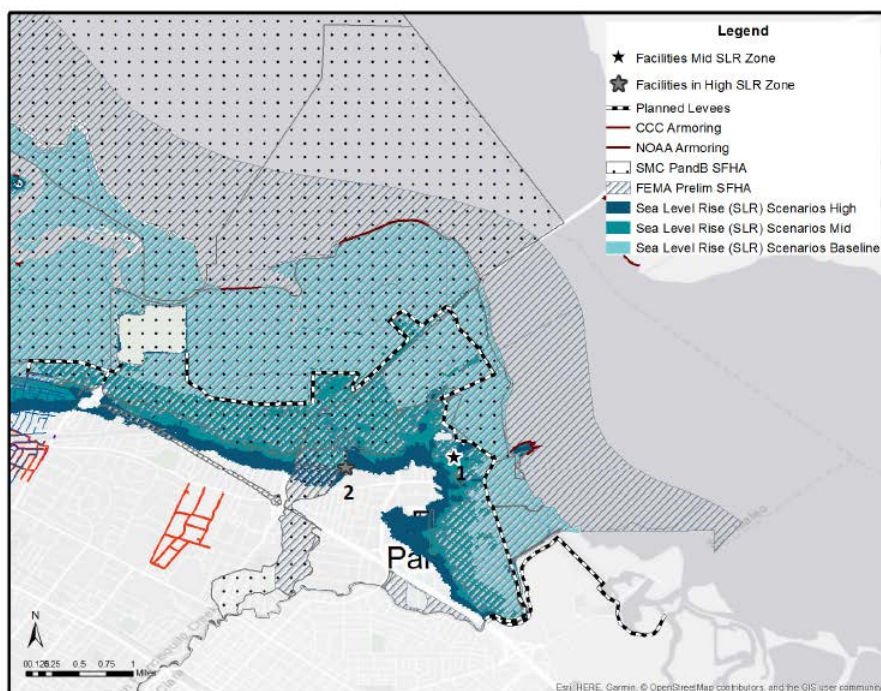
**County-Owned**

3. County Center Cluster
4. Maple St Shelter, Women's Correctional Facility, Work Furlough Building
6. Weights and Measures, Grant Corporation Yard

County-Leased

1. Surplus Property Warehouse
2. Sherriff's Warehouse
5. Data Center
7. South County Mental Health Admin

Figure 5. County-owned facilities in south county

**County-Owned**

1. Our Common Ground Treatment Center

County-Leased

2. HSA Green Oaks Academy

CASE STUDY

COYOTE POINT RECREATION AREA SEA LEVEL RISE ASSESSMENT AND ADAPTATION PLAN

The County of San Mateo is taking steps to reduce climate change vulnerability for County-owned and operated assets. The Office of Sustainability and Parks Department collaborated on the development of a Sea Level Rise Vulnerability Assessment and Adaptation Plan for Coyote Point Recreation Area, which is a popular destination visited by more than 500,000 people each year.

The Coyote Point Recreation Area is managed by the County of San Mateo Parks Department. The Sea Level Rise Vulnerability Assessment and Adaptation Plan for Coyote Point Recreation Area, required by California Assembly Bill (AB) 691, includes an assessment of financial impacts to the facilities and services, future flooding risks, existing plans to protect the facility from flooding and potential adaptation solutions, and opportunities for regional partnerships. The plan found that planned pump and levee upgrades by the City of San Mateo and the County's Eastern Promenade project would protect the Recreation Area, the Peninsula Humane Society & SPCA, the Board sports Kite and Windsurfing Center and School, and the Siebel Firearms Range from rising water levels up to the year 2060. Also, it would protect from the 1% storm and rising water levels alone up to 2100. Additional projects identified included upgrades to the Marina and creation of a tidal marsh to protect the eastern portion of the area. The analysis serves as a model for use at other facilities in the county. See the plan at <https://seachangesmc.org/current-efforts/coyote-point-sea-level-rise-vulnerability-assessment>.

View looking east out on the bay from Coyote Point Recreation Area



County Operations Greenhouse Gas Emissions

The County of San Mateo has been reporting its government greenhouse gas (GHG) emissions since 2005. Activities that result in the release of GHG emissions include burning fossil fuels for transportation and energy, disposing of waste in landfills, and treating wastewater. GHG inventories serve as an important foundation for climate action planning and can assist in tracking progress against GHG emissions reduction goals. The County's GHG inventory includes sources from the County's **direct operations** (e.g., electricity and fuel use in facilities and vehicles, disposing of waste generated at facilities in landfills) and selected **indirect emissions sources** associated with those operations (e.g., employee commuting). These emissions are categorized into distinct sectors and fall into separate emissions scopes (see **Figure 6**):

- **Scope 1** emissions result directly from County facility operations, such as stationary combustion of natural gas to heat buildings.
- **Scope 2** are indirect GHG emissions associated with the consumption and/or purchasing of electricity, heating, and cooling.
- **Scope 3** are GHG emissions related to government operations, specifically those that governments don't have financial or operational control over, such as employee commutes.

This report represents reduction goals in metric tons of carbon dioxide equivalent (MTCO₂e). This is a unit of measurement that captures emissions from different GHGs and relates them to carbon dioxide by their global warming potential. The global warming potential of a GHG refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the carbon dioxide. The carbon dioxide equivalent is derived by multiplying the tons of the gas by its associated global warming potential.¹⁶ Using this metric, the aggregated climate impact of GHGs emitted including carbon dioxide, methane, and nitrous oxide is represented with one unit.

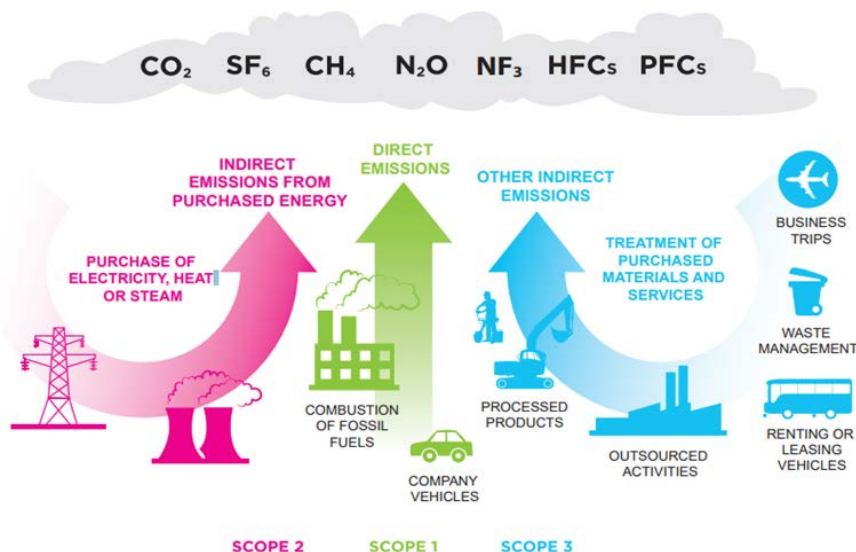


Figure 6. Scopes of emissions sources

Source: Kubová, P., Hájek, M., and Třebický, V. (2018). Carbon footprint measurement and management: Case study of the school forest enterprise. *BioRes.* 13(2), 4521-4535.

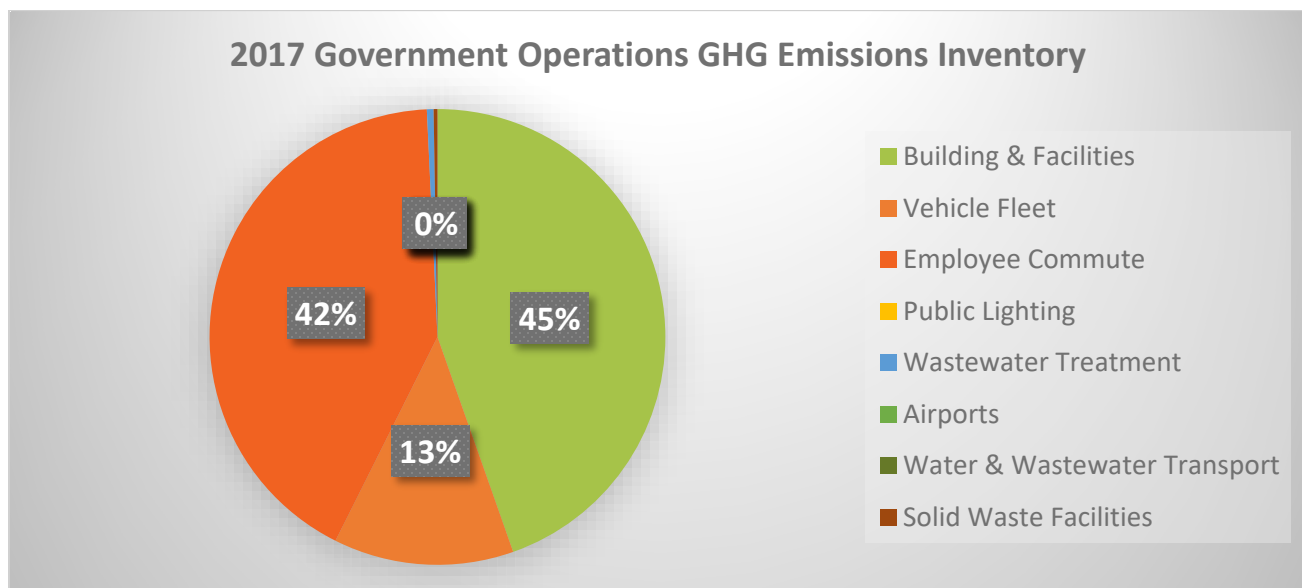
¹⁶ Understanding Global Warming Potentials. (n.d.). U.S. Environmental Protection Agency. Retrieved from <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>.

Current County Emissions

In 2017, the County of San Mateo emitted an estimated 35,848 MTCO₂e from operational activities. As shown in **Figure 7** and

Table 2, transportation emissions associated with employee commute and County vehicle fleet contributed most emissions (19,502 MTCO₂e, or 55% of total emissions). Electricity and natural gas consumption from buildings and facilities accounted for the second-largest portion of emissions, totaling 15,921 MTCO₂e (45% of total emissions). Solid waste is one of the smallest contributors of emissions, with only 97 MTCO₂e.

Figure 7. 2017 Government Operations GHG Emissions Inventory



GHG contribution by sector for government operations, 2017. Emissions from public lighting, airports, water and wastewater treatment, solid waste facilities, and government-generated solid waste make up less than 1% of total emissions.

Table 2. GHG emissions from the County of San Mateo government operations, 2017

Sector	Emissions (MT CO ₂ e)
Buildings and Facilities	15,921
Vehicle Fleet	4,560
Public Lighting	0.0
Wastewater Treatment	169
Airports	62.8
Water and Wastewater Transport	0.1
Solid Waste Facilities	97
Employee Commute	14,942
Government-Generated Solid Waste	97
Total	35,848

The data in **Table 3** shows that County GHG emissions has decreased by 14% since 2005. Table 3 shows a 95% reduction in solid waste generation due to waste diversion and improved landfill practices, along with a 100% reduction in emissions from public lighting due to energy efficient bulbs and renewable energy procurement through Peninsula Clean Energy.

Figure 8: Greenhouse gas emissions trend, 2005-2017

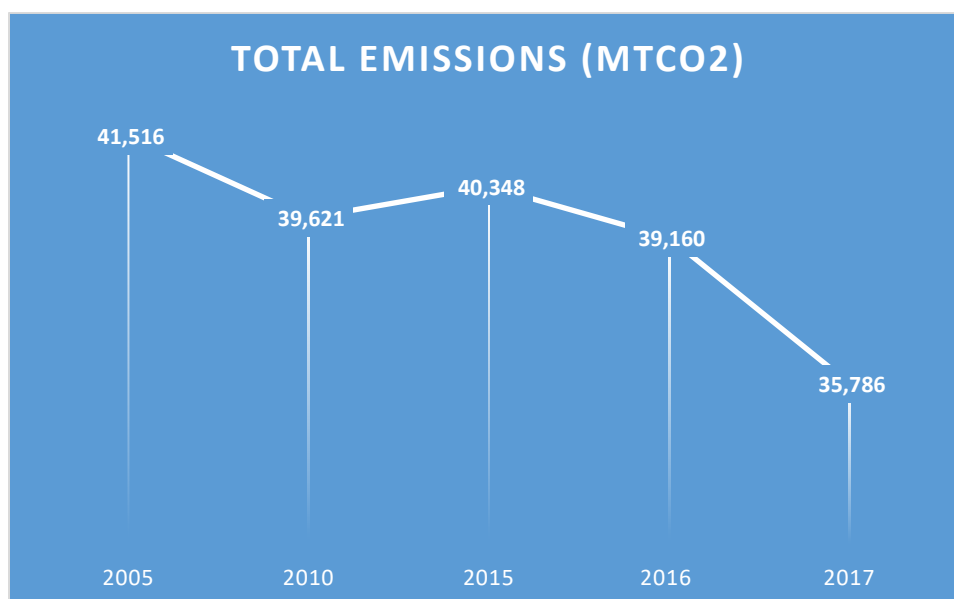


Table 3. Greenhouse gas emissions by source, 2005-2017

Sector	Greenhouse Gas Emissions (MTCO2e)				
	2005	2010	2015	2016	2017
Buildings and Facilities	18,558	20,222	19,099	18,817	15,921
Vehicle Fleet	5,066	4,444	4,705	4,626	4,560
Public Lighting	340	327	171	158	0.0
Wastewater Treatment	26	134	246	164	169
Airports	N/A	N/A	100	64	0.0
Water and Wastewater Transport	47	43	29	28	0.1
Solid Waste Facilities	1,011	987	633	99	97
Employee Commute	15,341	13,075	15,229	15,648	14,942
Government-Generated Solid Waste	1,002	389	136	261	97
Total	41,516	39,621	40,348	39,866	35,848

FUTURE EMISSIONS PROJECTIONS

Emissions projections offer a prediction of what total emissions could look like over time. We analyzed four emissions projections scenarios, described below and charted out in **Figure 9**:

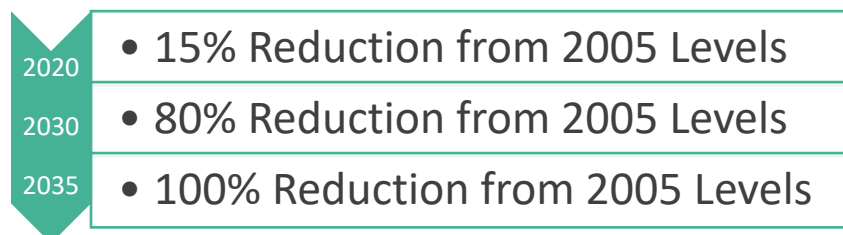
- Business as usual (BAU) projections
- BAU projections with State measures
- BAU projections with State measures + Peninsula Clean Energy (PCE)
- Target reduction path

Business as Usual or BAU projections represent the emissions expected if the 2016 patterns of travel, energy and water consumption, and waste generation/disposal were continued throughout time. This projection factors in the expected rate of county population and job growth (0.88% per year). The 0.88% growth rate is used as a baseline in all BAU projections between 2016 and 2050, stemming from the Association of Bay Area Governments (ABAG) Plan Bay Area 2040 Final Preferred Scenario and Investment Strategy. This growth rate is an average of the projected population growth (0.7% per year) and the expected job growth (1.07% per year) to occur across San Mateo County. This projection is considered in the absence of any mitigation measures, policies, or actions that would reduce emissions over time, including State legislation and/or any other policies or procedures accepted after 2020 *Under the BAU scenario, County emissions are projected to increase by 12% in 2030 (45,094 MTCO₂e) and 26% in 2050 (53,774 MTCO₂e) relative to 2016.*

BAU projections with State measures incorporates the same factors as the BAU, but also includes key State policies such as clean car standards, a renewable portfolio standard, zero net energy buildings, and organics recycling. *The integration of State measures is projected to decrease emissions by 12% (35,155 MTCO₂e) in 2030 and by 20% in 2050 (31,780 MTCO₂e) from 2016 levels.*

BAU projections with State measures and PCE includes actions by the State, as well as the effects of Peninsula Clean Energy (PCE), the local community choice aggregator (CCA). The switch to PCE in 2017 gave the County an initial 4,478 MTCO₂e reduction in energy emissions by providing a cleaner fuel mix for energy generation than the State provided. By 2035, the Renewable Portfolio Standard will have closed that gap by forcing all electricity providers to offer a similarly clean mix of energy. *Emissions are projected to decrease 22% (31,272 MTCO₂e) by 2030 and remain relatively constant through 2050.*

Figure 9. GHG emissions reduction goals for the County of San Mateo government operations



The Target Reduction Path represents the track that emissions would need to take for the County to reach its goals of reducing total GHG emissions by 15% of the 2005 baseline by 2020, 50% by 2030, and 100% by 2035. Progress along that track includes reductions gained from State and local activity, as well as measures taken by the County.

These reduction goals are based on a fixed estimate of GHGs generated by the County, and do not account for the number of employees. Essentially, this means that the County does not plan to adjust its targets of emissions reduction even if there are a higher number of employees in the future. As the County's employee total number expands, additional employees will add emissions to the County's existing footprint, making more people responsible for creating fewer GHG emissions.

Figure 10. The County of San Mateo Government Operations Emissions Forecast

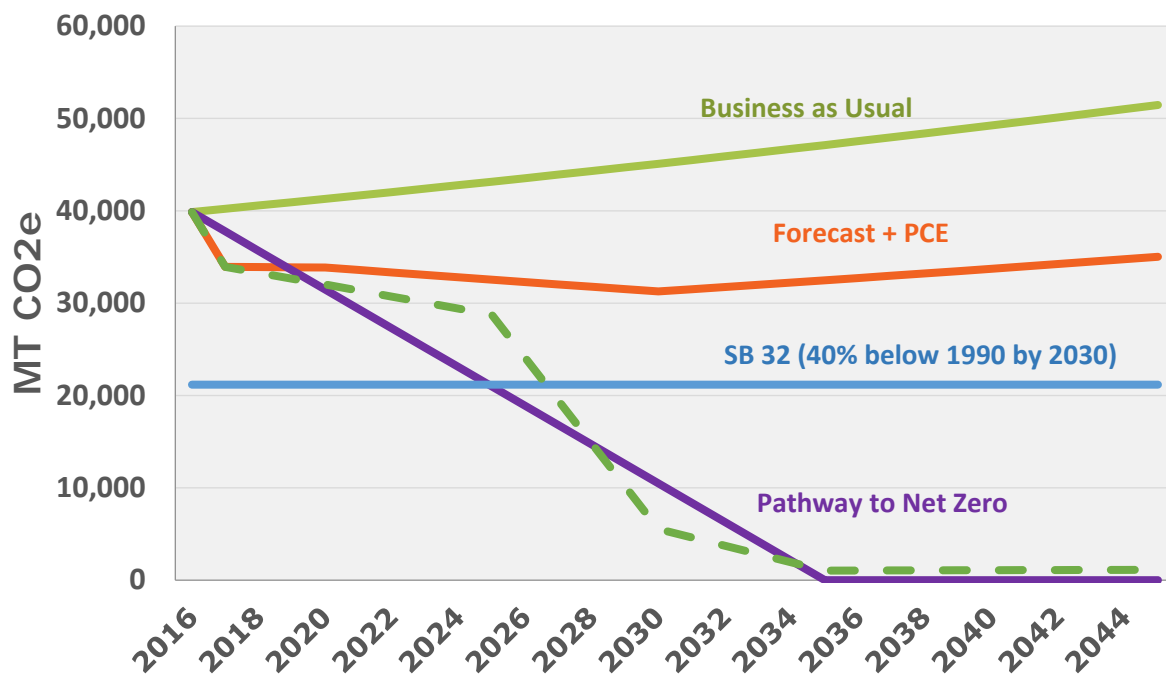


Table 4 provides in more detail the emissions reductions anticipated from State measures and Peninsula Clean Energy (PCE). Additional measures are needed to achieve County goals, and the largest areas for potential reductions will be from facility energy use, County vehicle fleet, and employee commuting.

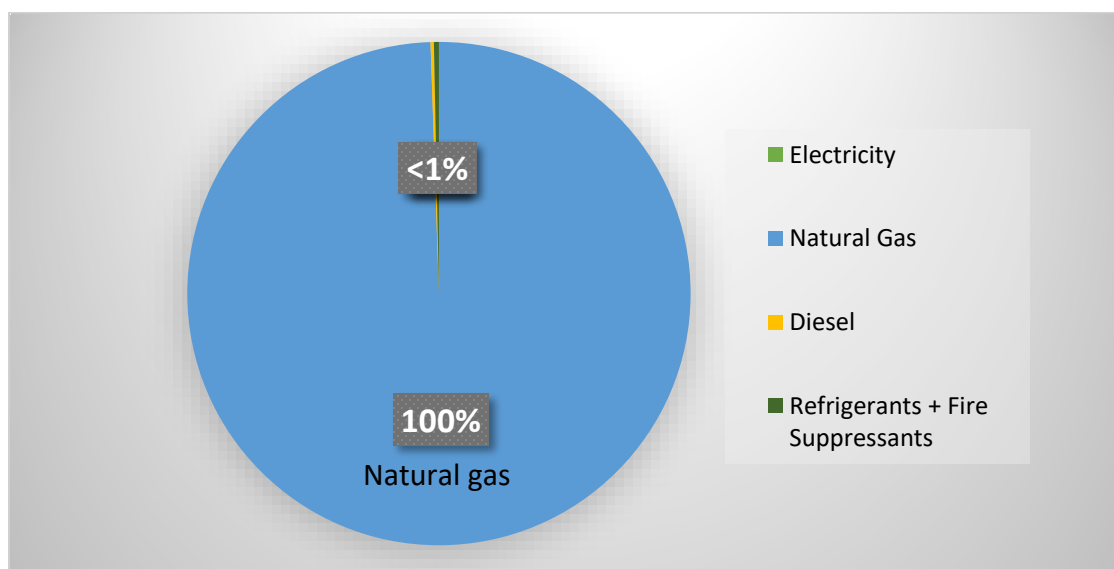
Table 4. Percent emissions reduction impact of state measures

State Policy	Applicable Sector	Resulting Percent Reduction from BAU		
		2020	2030	2050
Transportation Policies (Pavley, LCFS)	On-Road Transportation	10.6%	30.2%	37.6%
Renewable Portfolio Standard (RPS)	All Electricity	24.6%	41.7%	100.0%
Zero Net Energy (ZNE) for New Commercial Construction (100% by 2030)	Commercial/Industrial Energy	0.0%	0.0%	15.0%
ZNE for Existing Commercial Construction (50% by 2030)	Commercial/Industrial Energy	0.0%	26.1%	20.3%
Organic Recycling Ordinance	Disposed Waste	0.0%	77.9%	81.5%

Buildings and Facilities

The largest single source of emissions for the County of San Mateo is from natural gas consumption in County facilities (**Figure 11**). The contribution from natural gas is so large that the 15,836 MTCO₂e of natural gas emissions from buildings and facilities alone accounts for 44% of total emissions. Refrigerants, fire suppressants, and diesel make up the remainder of emissions generated through building and facilities. Emissions from electricity decreased by 100% due to Peninsula Clean Energy's renewable energy mix which was adopted in 2017. As illustrated in **Table 5**, facilities contributing the largest share of natural gas and electricity emissions include the San Mateo County Medical Center, Tower Road, and County Center.

Figure 11. Buildings & Facilities: Emissions by source



Refrigerants + fire suppressants generated less than 1% of emissions.

Table 5. Top five locations contributing to electricity and natural gas emissions for the County of San Mateo, 2016

	Natural Gas (MTCO ₂ e)	Electricity (MTCO ₂ e)
SMC Medical Center	4,691	1,804
Tower Road	3,142	101
County Center	431	1,606
Maple Jail	535	465
Maguire Jail	669	533

TRANSPORTATION

The second and third largest emissions sources for the County of San Mateo government operations are from employee commuting (42%) and the County vehicle fleet and mobile equipment (12%). Collectively, these vehicle-generated emissions make up 54% of emissions.

- **County vehicle fleet and mobile equipment** emissions are Scope 1 emissions and are produced directly by government operations. These emissions come from fuel purchased by the County for vehicles owned, funded, and operated primarily by the County (see **Table 6** for a breakout of fuel types).
- **Employee commute** emissions are indirect and beyond the control of government financial and operational control and represent Scope 3 emissions. They include emissions associated with employee travel from home to the workplace.

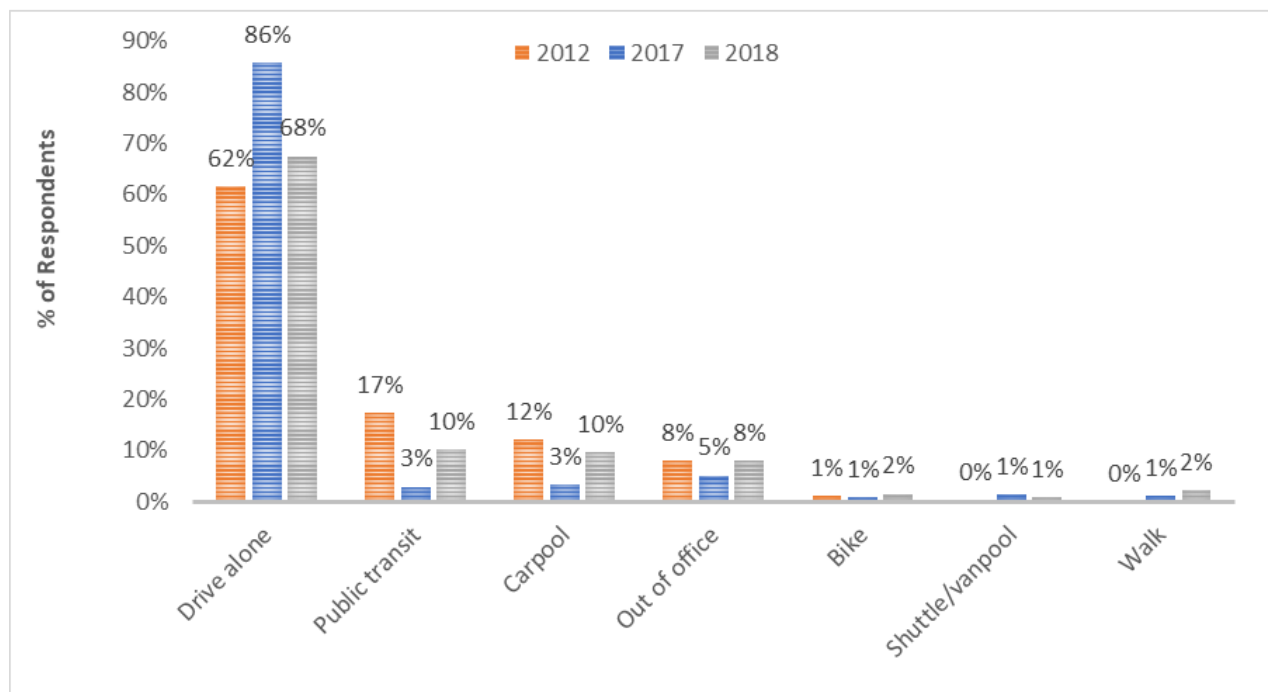
Table 6. County vehicle fleet emissions in 2017, by fuel type

Fuel Type	Fuel Consumption (gallons)	Emissions (MT CO ₂ e)
Gasoline	347,738	3,129
Diesel	103,014	1,058
Hybrid Gasoline	33,420	297
Ethanol: E-85	5,187	7
Propane	1,286	7
Natural Gas	0	0

Electric vehicle (EV) adoption is a strategy for both the County fleet and employee personal vehicles. Electric vehicles are cheaper to fuel, maintain, and operate while achieving emissions reductions. The County fleet is already piloting EVs, and the County will have a total of 194 EV chargers installed at County Center in 2021 to provide access to charging for fleet and employees. Emissions reductions and financial savings from swapping a gas vehicle to an EV is significant. It is understood that investing in the upfront cost of an EV can be hard to budget for the County fleet and financially challenging for County employees who are also faced with the cost of housing, childcare, medical services, and more. This makes it important to connect lifecycle cost savings and incentive programs to the purchase of EVs.

County employee commuting patterns are captured by an annual commute survey. **Figure 12** illustrates employee commute mode trends for 2012, 2017, and 2018. Single-occupancy travel is consistently the predominant choice for employee commuting, although it decreased from 86% in 2017 to 68% in 2018. However, this percentage is still slightly above the 2012 value. Low-carbon alternatives including public transit, carpooling, biking, and walking all increased from 2017. Public transit and carpooling both increased from 3% in 2017, to 10% in 2018. Biking and walking both saw an increase from 1% to 2% between 2017 and 2018.

Figure 12. Employee commute by mode



Employee commutes, traffic, and public transportation were all significantly altered in response to the global pandemic. While the county was under a shelter-in-place order from March to June, many County employees did not commute to work and transitioned to teleworking. Once the shelter-in-place order was lifted, employees continued to work remotely. With shelter-in-place, about 40% of County employees were teleworking. This rapid shift established widespread teleworking infrastructure for County employees which can help the County achieve its employee commute emissions reduction targets. Conversely, fewer people are using public transit and using their single occupancy vehicle to reduce risk of exposure to COVID-19. If most County employees do return to reporting at County sites, this behavioral shift could create new challenges to increasing usage of public transportation. The shift to teleworking that occurred across County departments during shelter-in-place is a step in the right direction to achieve the carbon neutrality goal.

It is important to identify where employees are commuting from to see how many miles are travelled and to identify commuting solutions that make sense based on where employees live. In order to continue to drive down emissions, the County should continue to promote employee transportation through public transit and first/last mile connections to public transit including walking, biking, and other new mobility options.

Supporting local housing options for employees through programs like HIP Housing and Home for All SMC may also continue to increase biking, walking, transit, and overall shorter commuting trips. Continuing to promote and prioritize low-carbon travel for employees will be a key driver to reducing one of the largest contributors of emissions.

Wastewater

Emissions related to water and wastewater transport decreased almost 100% since 2005, while wastewater treatment emissions increased, due to an increase in population. Wastewater transportation emissions are calculated for County facilities that utilize septic systems (see Table 7 for a list of facilities).

Figure 13. Emissions trends for wastewater treatment, and water and wastewater transport

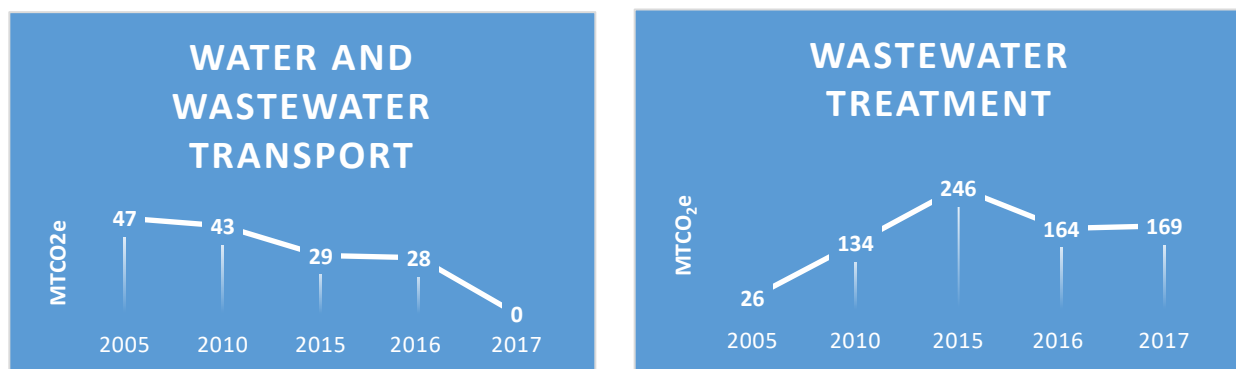


Table 7. Wastewater emissions in 2017

Facility	Methane Emissions (MT CH ₄)	GHG Emissions (MT CO ₂ e)
Half Moon Bay Airport	0.11	2.3
Park Septic Systems	7.76	162.9
Fire Station	0.16	3.3
Corporation Yards	0.02	0.4
TOTAL	8.04	168.9

Solid Waste

As **Figure 14** illustrates, emissions from solid waste decreased 74% compared to the 2005 baseline, driven largely by widespread implementation of compost and recycling collection systems in County facilities. When waste in landfills decomposes it releases methane, a powerful greenhouse gas (GHG). Avoiding emissions from waste requires source reduction or using less, reusing, recycling, and composting. Although solid waste only represents a small portion (less than 1%, see **Table 8**) of the County's emissions, it represents an emissions source that can be reduced through low-cost behavior change and signage. In general, waste disposal to the landfill and the amount of Alternative Daily Cover is provided for each jurisdiction in the CalRecycle Disposal Reporting System database. Waste characterization data from the California Waste Characterization Study of 2008 are used to determine what percentages of materials are in the disposed waste stream.

Table 8. Solid waste emissions, 2017

Annual Weight of Waste Sent to Landfill (US tons)	Annual Emissions from Waste Sent to Landfill (MT CO ₂ e)
633	97

Sorting recyclable materials at the materials recovery facility operated in San Carlos

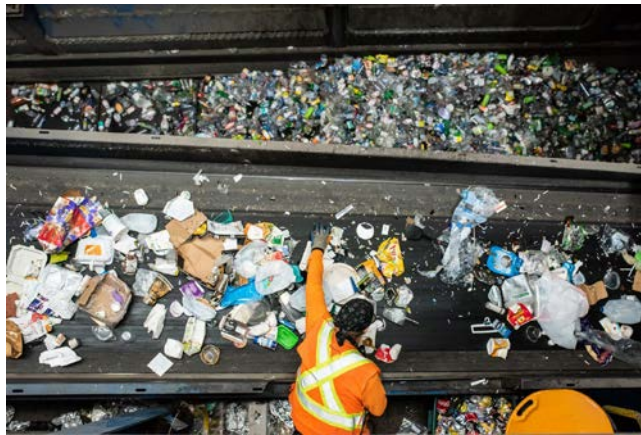


Figure 14. Emissions trends for solid waste



Ox Mountain Landfill in Half Moon Bay



Introduction

The climate mitigation actions included in this GOCAP are a diverse mix of policy and incentive-based programs. The actions intentionally cover a wide range of sectors and strategy types to avoid overreliance on any one department or approach. In order to achieve the County's target of reaching carbon neutrality by 2035, the County will need to implement the suite of policies, programs, and activities identified in this section such as subject to availability of funding. The County's actions are structured around the following four focus areas:

- Energy and Water
- Transportation
- Solid Waste and Materials Management
- Carbon Sequestration

County staff evaluated and selected GOCAP actions based on GHG emissions reduction potential, return on investment, and feasibility. The actions included in this report are critical to reducing the County's carbon footprint and are intended to guide future planning across County operations. Each focus area has goals, objectives, and supporting actions. The goals state the quantitative targets for emissions reductions, the objectives provide measurable steps for achieving goals, and the actions include concrete tasks needed to achieve the objectives. The actions in the tables below are listed in order of priority to implement. Furthermore, GOCAP actions will be implemented in a phased approach, depending on feasibility, funding, and available technology, over the next 15 years. It is the efforts of all County employees and County departments to achieve this climate action goal.

Assessing Impact

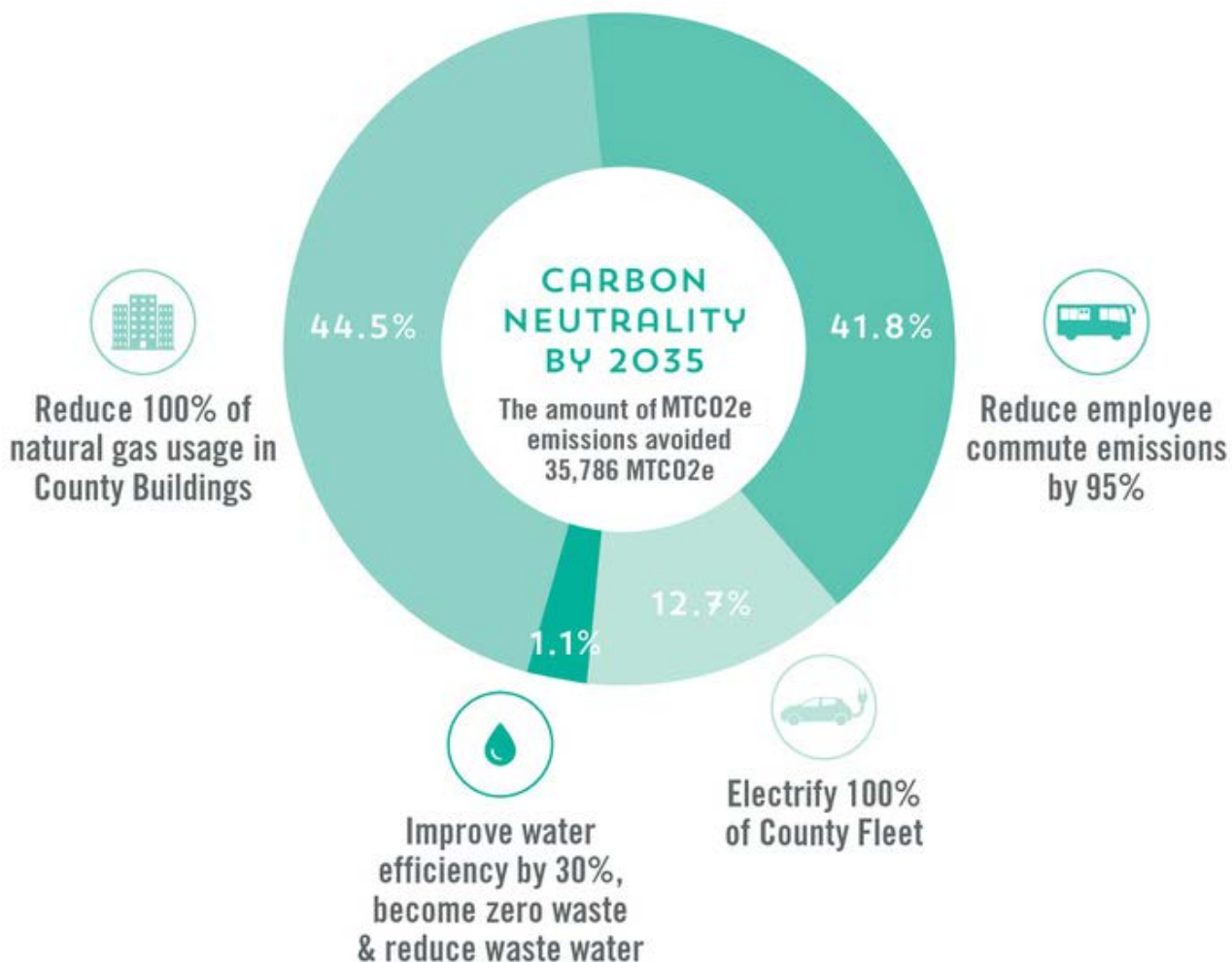
Actions within each GOCAP focus area was assessed using following criteria: 1) greenhouse gas (GHG) emissions reduction potential, 2) cost, and 3) feasibility of implementation. Each action was evaluated through a detailed scoring system based on the criteria above to guide prioritization of actions. Actions that scored high in all three criteria were identified as high priority. Action prioritization is represented in the order in which actions are listed. In other words, actions towards the top of the list are highest priority, and actions towards the bottom of the list are lower priority.

While the actions in this report are not legally mandated, they are critical to reducing the County's carbon footprint and are intended to guide future planning across government operations. Furthermore, GOCAP actions will be implemented in a phased approach, depending on feasibility, funding, and available technology, over the next 15 years. GOCAP actions will be updated in five years to assess progress to date and adjust strategies where needed.

Pathway to Carbon Neutrality

The County's government operations greenhouse gas emissions inventory is conducted using the RICAPS tool following the ICLEI – Local Governments for Sustainability (formerly known as the International Council for Local Environmental Initiatives) methodology. In modeling the County's target to carbon neutrality by 2035, the County calculated the potential of GHG emissions reductions from each focus area using historical emissions data. The outcome was the development of priority actions including electrification of County buildings, reduction of employee commute emissions, adoption of zero-emissions County fleet vehicles and carbon sequestration. **Figure 17** shows a pie chart representing the potential percent decrease in emissions produced by each key objective. After implementation of each strategy, 14% of emissions will remain and will need to be mitigated through carbon sequestration in order to reach carbon neutrality.

Figure 15: Summary of County of San Mateo government operations GHG emissions sources and key objectives to reach carbon neutrality by 2035.





Focus Area 1: Energy & Water

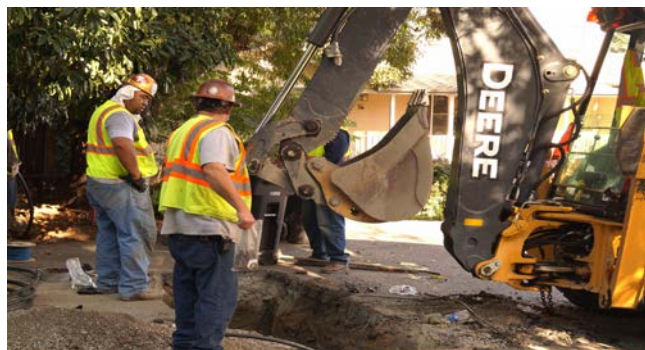
Overview

Buildings are the largest contributor to GHG emissions from the County of San Mateo government operations, accounting for almost half (44.5%) of all sector-based emissions. The bulk of these emissions stem from natural gas used in buildings. Transitioning away from natural gas in buildings requires all-electric new construction and electric replacements for existing equipment at the end of its useful life. Energy and water use are also linked: water must be collected, transported, treated, distributed to end users, and often heated—all of which requires energy. Conversely, water is also required to produce energy. Hydropower generation, thermoelectric power plants, and oil and gas extraction all require water. The link between water and energy means that reducing water consumption in County buildings through efficiency and conservation programs can reduce energy consumption. Presented below are the climate objectives and actions in Focus Area 1 that are designed to reduce emissions from new and existing buildings.

HOW DO ENERGY AND WATER USE RELATE TO...

Greenhouse gas emissions?	The production of energy often relies on the burning of fossil fuels, which releases GHGs.
Climate impacts, vulnerability, and risk?	As we experience extreme temperatures from climate change, we will use more electricity to keep us cool. Similarly, all energy that needs water for its production will be heavily impacted by any precipitation variability caused by climate change. The use of local renewable energy sources and energy storage also make us more climate resilient. This is especially important as electric utilities continue to use planned power outages as a tactic to prevent wildfires.

Construction workers at the site of County Office Building 3 – the County's first zero net energy office building



Energy & Water Focus Area Goals

	OBJECTIVES	2030 GOAL	2035 GOAL
1	Electrify County-owned building stock.	80% of existing building electrified	100% of existing buildings electrified
2	Increase energy efficiency and maintain use of renewable energy.	50% reduction in energy emissions compared to 2005	100% reduction compared to 2005
3	Reduce water consumption.	15% reduction compared to 2005	30% reduction compared to 2005

SPOTLIGHT PENINSULA CLEAN ENERGY (PCE)

Peninsula Clean Energy is San Mateo County's locally controlled electricity provider. The County launched PCE in 2016 to help reach local climate action goals by providing cleaner energy at lower rates. During its launch, PCE provided 50% renewable electricity to customers, which was 27% higher than PG&E. PCE is a community choice aggregation program that purchases from a variety of suppliers and works directly with developers to sign Power Purchase Agreements (PPAs) for renewable energy from facilities in California. All customers receive the standard product, ECOplus, consisting of 100% carbon-free energy as of 2021. PCE also offers a 100% renewable electricity option, ECO100, which the County has opted into for all government facilities. PCE has had a tremendous impact to help us make progress on climate action:

- Estimated 841,668 MTCO₂e avoided, or saved from being emitted into the atmosphere, across all PCE accounts between 2016 and 2019. The emissions savings are equivalent to taking 181,837 cars off the road for one year.
- Approximately 6,350 MTCO₂e avoided as a result of purchasing electricity from PCE, or saved from being emitted into the atmosphere, annually at the County operations

PCE seeks to build on their accomplishments and has ambitious and exciting goals to help the County meet its climate action goals, including:

ACCOMPLISHMENT HIGHLIGHT: GREEN BUILDING POLICY UPDATE

In December 2017, the County of San Mateo updated its Green Building Policy prior to the construction of several new facilities, including the County Office Building 3, the Government Center Parking Structure, the South San Francisco Health Campus, and the Cordilleras Mental Health Facility. The policy applies to the new construction of County buildings over 10,000 square feet, and requires three components:

- 1. LEED® Certification:** The Municipal Green Building Policy continues to uphold LEED® certification. The LEED® rating system is an industry-recognized green building standard that addresses six main categories:
 - Location and Transport
 - Sustainable Sites
 - Water Efficiency
 - Energy and Atmosphere
 - Materials and Resources
 - Indoor Environmental Quality
- 2. Energy Efficiency:** The policy establishes energy efficiency goals that require reduced energy use and energy-efficient design strategies. The policy led to notable emissions savings from LED lighting retrofits where the County retrofitted 100% of pedestrian signals, 95% of streetlights, and 90% of traffic signals. This resulted in nearly a 50% reduction in emissions from public lighting.
- 3. Zero Net Energy:** The policy mandates County buildings achieve zero net energy (ZNE). This means that any energy used by the buildings must be offset by an equal amount of renewable energy produced on site or elsewhere. Producing local renewable energy helps reduce the demand for fossil fuels. Additionally, short-term investments in on-site renewable energy infrastructure will help the County save money over the long term while providing for resiliency with on-site electricity generation.
- 4. Sea Level Rise Policy:** In December 2019, the County of San Mateo passed a Sea Level Rise Policy for County-Owned Assets that requires all County facilities to be assessed for their level of risk from future sea level rise impacts. Those that are at risk in the near term will go through a more thorough evaluation and may require adaptation strategies.

Actions to Achieve the County's Goals

To reduce GHG emissions from building energy and water consumption, the County will focus on the following priority actions:

- Improving building energy efficiency and management
- Electrifying building systems to take advantage of Peninsula Clean Energy's GHG free electricity mix
- Participating in Demand Response and other utility programs to reduce the amount of energy used during peak times
- Conserving water and the associated energy used to collect, transport, treat, and heat water
- Engaging and empowering employees to make behavioral changes

While implementing the GOCAP, actions that require equipment replacement or transition will be done as the current equipment reaches end of life. This ensures that the County spends only cost difference between natural gas, petroleum gas, or diesel gas equipment rather than paying to early-retire, which accrues costs around pulling out equipment and paying for equipment sooner than a replacement was budgeted for.

OBJECTIVE 1: ELECTRIFY COUNTY-OWNED BUILDING STOCK

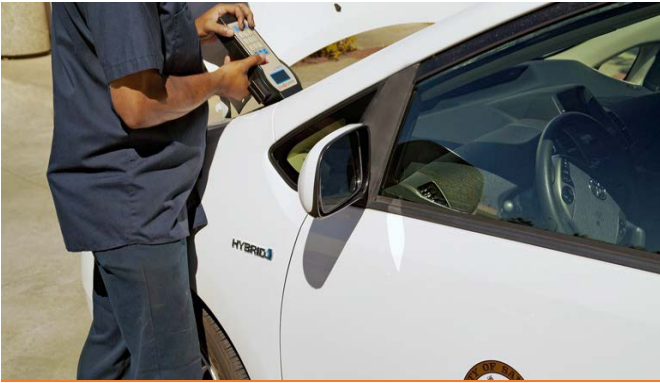
ACTIONS	DESCRIPTION
1.1 Convene a Facilities Electrification Workgroup.	Form a facilities electrification workgroup with key County departments to collaborate on and inform building electrification strategies.
1.2 Plan for the Electrification of Existing Buildings.	Conduct a review on all County buildings to identify, prioritize, and plan for energy efficiency and electrification projects. Conduct an inventory of current natural gas consuming equipment and develop an electrification plan to phase out gas equipment. Exemptions allowed under certain circumstances such as safety, lack of electric alternatives, and cost.
1.3 Prohibit New Natural Gas Infrastructure.	Identify alternatives to natural gas equipment to ensure that no new natural gas infrastructure will be installed in County facilities. Exemptions allowed under certain circumstances such as safety, lack of electric alternatives, and cost.
1.4 Update the Municipal Green Building Policy for New Buildings.	Update current policy to require all new municipal buildings to be built as all electric. Ensure that new development includes battery storage and solar. If not feasible to add during construction, design buildings to support the addition of solar and battery storage in the future, where practical.
1.5 Phase-out Natural Gas Cogeneration.	Create a plan to replace existing natural gas heat and power cogeneration facilities with electric equipment. Existing facilities with cogeneration include the Youth Services Center, Maguire Jail, and the San Mateo Medical Center.

OBJECTIVE 2: INCREASE ENERGY EFFICIENCY AND MAINTAIN USE OF RENEWABLE ENERGY

ACTION	DESCRIPTION
2.1 Maintain Renewable Energy Procurement.	Continue to purchase 100% renewable electricity for all County facilities.
2.2 Standardize Energy Management Software.	Standardize energy management software across existing facilities. Ensure that when new equipment is installed it is compatible with existing energy software.
2.3 Install Solar and Battery Storage.	Assess all new and existing buildings for solar and battery storage potential, install where feasible.
2.4 Plan for a Microgrid.	Assess the County's emergency center and medical facilities for microgrid feasibility to ensure continuity of operations while using all-electric technologies, on-site solar and battery storage.
2.5 Explore Green Lease Agreements.	Reduce energy usage at County-leased properties through green lease agreements, which seek to reduce emissions and increase energy and water efficiency.
2.6 Empower Employee Sustainability Champions.	Solicit representation from each County department to serve as ambassadors in leading climate action campaigns such as reducing energy use through behavior changes.
2.7 Evaluate Back Up Power Options.	Assess feasibility for solar and storage when backup power is needed for a building. Test renewable diesel in existing generators, where possible.

OBJECTIVE 3: REDUCE WATER CONSUMPTION

ACTIONS	DESCRIPTION
3.1 Reduce Water Use in Landscaping.	Reduce outdoor water use through green infrastructure, drought-resistant plants, and xeriscaping.
3.2 Install Smart Water Meters.	Install smart water meters in County buildings to track indoor usage in real time and detect leaks.
3.3 Upgrade to High Efficiency Water Fixtures.	Retrofit existing water fixtures with high efficiency fixtures.



Focus Area 2: Transportation

Overview

Transportation accounts for over half of the GHG emissions from the County of San Mateo's operations. The emissions stem from the use of gasoline in employee commuting (41.8 percent) and the County's vehicle fleet (12.7 percent). Transitioning away from gasoline in transportation will require the adoption of zero-emissions vehicles across the County's fleet of vehicles and forward-thinking initiatives to envision the future of work for County employees. Most travel is from government employees going to and from work and between County facilities. Reducing emissions from the transportation sector requires reducing the carbon intensity of fuels, increasing vehicle efficiency, and reducing vehicle miles traveled (VMT).

Reducing the carbon intensity of fuels involves switching to alternative fuels that produce fewer emissions, such as electricity. Efforts to address VMT must consider land use patterns, transportation options, and behavior-change methods to see significant reductions. The County tracks fuel consumption through an electronic cardlock system, which records all fueling of County vehicles. The transportation-related actions outlined in this section aim to reduce GHG emissions by reducing VMT through planning, increasing the use of alternative modes of transportation, and encouraging a shift to electric and alternatively fueled vehicles. Presented below are the climate objectives and actions in Focus Area 2 that are designed to reduce emissions from employee commute and the County's vehicle fleet.

HOW DOES TRANSPORTATION AND LAND USE INFLUENCE...

Greenhouse gas emissions?	Transportation requires energy. Currently, much of this energy comes from the burning of fossil fuels, which emit GHGs.
Climate impacts, vulnerability, and risk?	Transportation plays a critical role in the economy, the County's emergency response abilities, and the health of the San Mateo County community. Disruptions to transportation systems during extreme weather events, or from sea level rise, can disproportionately affect vulnerable populations that have fewer mobility options, reduced access to healthcare, and fewer financial resources available to prepare for, and recover from events. Extreme heat can impact rail systems, and ultimately put more people into cars on the roads instead of transit.

Transportation Focus Area Goals

	OBJECTIVES	2030 GOAL	2035 GOAL
1	Reduce emissions associated with County employee commutes.	80% reduction in employee commute emissions	95% reduction in employee commute emissions
2	Purchase zero-emissions vehicles for all County light- and mid-duty vehicles and reduce the use of petroleum in mid and heavy-duty vehicles.	100% of County motor pool are zero-emissions and 80% of all County, light- to mid-sized vehicles are electric	100% of all County light- to mid-duty vehicles are electric

ACTIONS TO ACHIEVE OUR GOALS

OBJECTIVE 1: REDUCE EMISSIONS ASSOCIATED WITH COUNTY EMPLOYEE COMMUTES

	ACTIONS	DESCRIPTION
1.1	Redesign Employee Commute Program known as "Shift".	Continue commute alternatives program to promote and incentivize sustainable transportation options. Develop a robust teleworking program, informed by learnings from COVID-19, for all County departments. Provide incentives for employees who do commute to use transit, carpool, bike, walk or drive an electric vehicle.
1.2	Provide Flexible Workspaces.	Provide open workspaces and hoteling options in County facilities for County employees who telework and do not need a designated desk. Allow employees to work out of offices closest to their home when they do need to work from a County office to further support flexible telework and shorter commutes.
1.3	Create an Incentive and/or Fee Structure for Parking.	Automate the process for providing County employees a daily incentive for teleworking, biking, walking, carpooling, and driving an electric vehicle to work. Explore establishing a parking fee structure for employee parking at County facilities.
1.4	Increase Non-motorized Transportation.	Purchase electric bicycles for County motor pool fleet for County employees to use for work-related business, provide instructions for reaching County facilities on bike, foot, or public transportation and increase bicycle racks and storage at County facilities.

OBJECTIVE 2: PURCHASE ZERO-EMISSIONS VEHICLES FOR ALL COUNTY LIGHT- AND MID-DUTY VEHICLES AND REDUCE THE USE OF PETROLEUM IN MID- AND HEAVY-DUTY VEHICLES.

ACTIONS	DESCRIPTION
2.1 Conduct a Zero-Emissions Vehicle Adoption Analysis.	Take inventory and conduct an analysis of current vehicle fleet to determine zero-emissions vehicle feasibility. Analysis to include EV charging infrastructure and equipment necessary for emergency events. Develop an approach to transition to zero-emissions vehicles over time, and purchase hybrids where zero-emissions vehicles are not possible.
2.2 Establish a County Department Fleet Working Group.	Convene all departments that manage a vehicle fleet to discuss electric options for their departmental fleet.
2.3 Phase-in Electric Vehicles into County Motor Pool and Departmental Fleets.	Start replacing expiring County motor pool light-duty vehicles with EV models where possible.
2.4 Install Electric Vehicle Charging Infrastructure.	Install EV charging infrastructure across County owned and County occupied facilities for motor pool vehicles and personal vehicle charging.
2.5 Phase-in Hybrid Vehicles for Mid- to Heavy-duty Vehicles.	Start replacing expiring mid- to heavy-duty vehicles and trucks with hybrid models. Consider plug-in hybrids or EVs when possible.
1.6 Adopt a Zero-Emissions Vehicle First Policy.	Adopt a policy that would require all new light- to mid-duty vehicles purchased for the County motor pool and departmental fleets to be zero-emissions vehicles (including electric and hydrogen fuel cell) unless technological or lifecycle cost issues are demonstrated.
2.7 Fuel with Alternate Fuels.	Assess feasibility of switching to renewable diesel or hydrogen in diesel fleet vehicles and generators as a transition fuel.
2.8 Plan for Diesel Free by 2033.	Switch all medium-and heavy-duty diesel vehicles to a diesel-free fuel source by 2033 in accordance with the County's 2018 Diesel Free Resolution.
2.9 Reduce Vehicle Idling.	Expand and enforce anti-idling policies on all County fleet and departmental vehicles. Allow exemption for public safety.



Focus Area 3: Solid Waste & Materials Management

Overview

Waste produced by County operations is sent to a landfill that decomposes and produces methane—a greenhouse gas (GHG) that is 28 times more potent than carbon dioxide. Some landfills capture this methane and combust it to generate power, but for many others, methane leaks into the atmosphere. This leakage is the primary source of emissions from solid waste disposal. Many of the strategies and actions within this section focus on preventing materials from entering the landfill through source reduction and waste diversion measures.

Source reduction is the most impactful way that the County can cut the emissions associated with solid waste. Not only does source reduction decrease direct landfill emissions, it also reduces the demand to purchase products. Producing goods can take a great deal of raw materials, energy for manufacturing, and fuel for transportation. Discouraging the creation of unneeded goods can have a big impact. Source reduction and waste diversion—recycling or composting rather than landfilling—has already been a priority for the County of San Mateo. State-level goals have been instrumental in achieving higher diversion rates by mandating the implementation of compost and recycling collection programs. Building on this foundation, the County aims to generate zero waste at County-owned buildings and facilities, meaning no waste will be sent to the landfill. Presented below are the climate objectives and actions in Focus Area 3 that are designed to prevent materials from entering the landfill through source reduction and waste diversion actions such as reducing, reusing, composting, and recycling.

HOW DOES SOLID WASTE INFLUENCE...

Greenhouse gas emissions?

When organic waste is sent to a landfill, it decomposes and emits methane, a potent GHG. The collection, transportation, and processing of waste also requires energy, which is often derived from fossil fuels.

Climate impacts, vulnerability, and risk?

Climate change may disrupt supply chains for materials we buy. Sea level rise and flooding may impact solid waste facilities and access roads to these facilities.

Solid Waste & Materials Management Focus Area Goals

	OBJECTIVES	2030 GOAL	2035 GOAL
1	Achieve zero waste at all facilities operated by the County.	Reduce emissions from waste by 80% compared to 2005 levels	Reduce emissions from waste by 100% compared to 2005 levels

Actions to Achieve Our Goals

OBJECTIVE 1: ACHIEVE ZERO WASTE AT ALL FACILITIES THAT ARE OWNED OR OPERATED BY THE COUNTY

	ACTIONS	DESCRIPTION
1.1	Certify County Departments as Green Businesses.	Support all County Departments in getting certified under the Green Business Program, where feasible.
1.2	Adopt a Sustainable Purchasing Policy.	Develop and implement a sustainable purchasing policy that mandates procurement of goods and services that minimizes waste, reduces greenhouse gas emissions, and supports local businesses.
1.3	Reduce Paper Use.	Adopt a policy and train employees to reduce the use of printer paper.
1.4	Divert Surplus Property from Waste.	Develop a policy to ensure surplus property is reused or donated at the percentages below, based on the number of items collected annually in each category: furniture: 15%; electronics: 15%; vehicles: 15%; medical equipment: 5%. Properly recycle surplus property that can not be reused.
1.5	Remove Disposable Food Serviceware.	Adopt an internal County policy to eliminate the use or sale of single use disposable food serviceware, that is not compostable or recyclable, at any County-owned or operated facility.
1.6	Analyze the County's Waste Stream and Improve Collection and Services.	Conduct a waste audit to determine what waste from County facilities is going to the landfill and how it can be diverted. Implement compost and recycling collection services in all County-owned and leased facilities.
1.7	Reduce Waste from Public Spaces.	Reduce amount of waste that goes to a landfill generated at County-owned and operated public space, including roads and parks. This includes strategies to divert waste into compost and recycling and analyze source reduction strategies.
1.8	Incorporate More Local Food Options.	Contract with local food providers to increase percentage of local food served at on-site food service locations.
1.9	Conduct Employee Training and Outreach.	Run online and in-person outreach and behavior change campaigns to encourage waste diversion among County employees and contractors.

CASE STUDY HIGHLIGHT

MAPLE STREET JAIL WASTE DIVERSION

In November 2017, The Maple Street Jail in Redwood City updated its compost and recycling systems. Inmate housing areas had compost bins installed and over 500 county employees participated in education and outreach events. As a result, the facility composted and recycled an additional 25 tons of material over the following year; a 6.5% increase in diversion.

Following this diversion project, a source reduction campaign, based on switching inmate meal trays from disposable to reusable trays, began. This campaign will help to reduce the amount of waste generated at the Maple Street facility even further.

Maple Street Jail garden project with Bay Area organization Planting Justice





Focus Area 4: Carbon Sequestration

Overview

Carbon sequestration refers to the ability of plants and other organic material to capture, or sequester, and store carbon from the atmosphere. By spreading soil amendments such as compost to soil in parks, and creating natural drainage systems with wetland plant species, the County can remove carbon from the atmosphere and store it in plant matter. Adding organic matter to soil supports soil structure and microbiology, retains water in soil, reduces erosion and stormwater run-off, filters out pollutants. Carbon sequestration actions can help us achieve more vibrant urban ecosystems, greater resilience to drought and heat waves, water conservation goals, and result in cleaner communities and happier residents. Presented below are the climate objectives and actions in Focus Area 4 that are designed to sequester carbon and remove it from the atmosphere.

HOW DOES CARBON SEQUESTRATION INFLUENCE...

Greenhouse gas emissions?	Carbon sequestration removes GHGs from the atmosphere helping the County mitigate climate change as it works to reduce emissions. Annually, a tree sapling can sequester 1.0 to 1.3 pounds of carbon from the atmosphere, while a 50-year-old tree can sequester over 100 pounds.
Climate impacts, vulnerability, and risk?	Park lands, wetlands, and open space reduce climate impacts and store carbon. Specifically, land- and water-based management strategies that sequester carbon can improve resilience to heat waves and drought, conserve water by storing it in soil, promote diverse ecosystems, mitigate stormwater run-off, filter pollutants from water and soil, and mitigate urban heat island effects.

Carbon Sequestration Focus Area Goals

The percent of carbon sequestration needed to offset emissions will vary based on the County's progress towards reducing emissions. If the County achieves the emission reduction strategies in this plan, 14% of emissions from the County's operations will like remain and can be sequestered to reach carbon neutrality. However, if the County does not successfully implement all emissions reduction strategies, the percentage needed for carbon sequestration will be higher.

OBJECTIVES		2030 GOAL
1	Offset emissions through carbon sequestration.	Carbon sequestration plan completed Offset 14% of emissions

Actions to Achieve Our Goals

OBJECTIVE 1. OFFSET EMISSIONS THROUGH CARBON SEQUESTRATION

ACTIONS	DESCRIPTION
1.1 Analyze Carbon Sequestration Strategies for County Parks and Land.	Undertake a carbon sequestration plan to understand how much carbon can be stored in Parks' land. Implement actions outlined in carbon sequestration plan.
1.2 Replace Synthetic Fertilizers with Compost.	Eliminate the use of synthetic fertilizers in County landscaping and maintenance activities. Replace with compost to sequester carbon and reduce GHG emissions associated with the creation of synthetic fertilizers.

CASE STUDY: DALY CITY

After four years, more than 750 citizen volunteers have grown Daly City's urban forest by 10% with over 800 trees planted, 11 rain gardens installed, and a mini park constructed on a vacant parcel with 100% native California species. The City partnered with more than 20 community organizations and schools on greening projects and participated in the California Initiative to Reduce Carbon and Limit Emissions (CIRCLE 3.0). Daly City residents are building resilience to climate change from within their community and are setting the example that communities can actively adapt to the new climate reality by working together. These new plantings are maintained by community stewards and provide a myriad of benefits like boosting pollinator species, filtering air pollution, absorbing and cleaning stormwater, reducing erosion, recharging groundwater, and capturing and storing carbon dioxide. To learn more about Daly City's Project Green Space, visit www.dalycity.org/projectgreenspace

Photos of Daly City residents planting trees



Source: Stephen Stolte, Assistant City Manager of Daly City



Looking Ahead

Implementation

The GOCAP provides an overarching, strategic framework for the County to achieve the goal of carbon neutrality by 2035. While developing and publishing this plan is an important step, it's even more critical that this report remains a living document, to be updated and adapted as technology become available and policies progress and to reassess the carbon neutrality goal for opportunities to accelerate progress. Actions within this report will be implemented in a phased approach and will start by developing an implementation strategy for key GOCAP actions for 2021 to 2023. The implementation strategy will include further analysis of critical projects, establish project timelines, and estimate associated cost. The County will take the following critical next steps once this plan is formally adopted by the County of San Mateo Board of Supervisors:

- 1) **Initiate a municipal building portfolio review.** Conduct a study to understand the timeline and cost for replacing and/or early retirement of natural gas equipment and develop an electrification plan for the County-owned building portfolio.
- 2) **Redesign Shift program to support low carbon employee commutes.** Develop a robust teleworking program for all County departments. Provide incentives for employees who do commute to use transit, carpool, bike, walk or drive an electric vehicle. Evaluate parking fee programs.
- 3) **County fleet inventory and analysis.** Transition procurement of light- to mid-duty vehicles for the County fleet to be zero-emissions vehicles.
- 4) **Work with departments to identify costs.** Determine the cost of implementing the GOCAP with key departments over the two years. Identify funding sources for priority actions where there are increased costs.

Funding the Actions in the GOCAP

For implementation of the GOCAP, the County must evaluate strategies for financing energy efficiency projects and identify adequate, reliable, and consistent long-term program funding. At the start of 2021, the County will work closely with key departments to build a GOCAP implementation team. Through this

effort, departments will identify priority actions over the next two years and budget GOCAP-related costs for FY 2021-22 and FY 2022-23. Funding requests to cover the cost of priority actions identified by the implementation team may be presented to the Board for consideration in the upcoming budget cycle. While some of the funding for these actions has been identified, ongoing work and coordination will be needed across County departments to identify adequate and consistent long-term program funding to realize many of the actions. Furthermore, partnerships and collaboration opportunities identified in this report may serve as sources for funding certain actions. The County has also identified potential external funding sources (**Table 9**) and creative funding mechanisms (**Table 10**) to fund GOCAP projects where outside program funding is not available. Other funding sources may be available that are not listed here.

Table 9. Potential external funding sources for GOCAP implementation

Grant or Program	Grant Details	Award Amount
PG&E EV Charge Network	Provides turn-key installation of EV charging ports. Now fully subscribed.	\$900,000 awarded in 2020 for 60 EV charging ports at County Center.
Bay Area Air Quality Management District (BAAQMD): High Mileage Fleet Program	Provides public agencies funds for the purchase or lease of zero-emissions light-duty vehicles in very high-mileage fleets.	Up to \$5,000 of 90% of the cost to purchase or lease a new zero-emissions vehicle, whichever is lower.
BAAQMD: Charge Program	Funding to purchase and install new publicly accessible EV chargers.	A total \$6 million in grant funding is available for governments, businesses, and nonprofits.
BayREN Zero Net Energy Technical Assistance	Energy audit with upgrade recommendations including cost of equipment.	No-cost engineering analysis done by consultant.
CALeVIP Peninsula-Silicon Valley Incentive Project	Provides rebates for installation of Level 2 and DC Fast Charging in San Mateo County.	Provides up to \$720,000 to fund up to 75% of the total costs of installing EV chargers. Rebates range \$4,500-\$12,000 per port for L2 charging stations.
Peninsula Clean Energy Local Government Support	Electrification technical assistance for project design assistance and training.	No-cost engineering analysis.
Peninsula Clean Energy: EV Ready	Incentives and technical assistance for the installation of EV charging.	Received \$248,000 and technical assistance for Parking Structure 2.
PG&E On-Bill Financing	0% interest loans for replacing equipment with more energy-efficient models.	Loans range between \$5,000 and \$4,000,000 per site, with periods of up to 120 months.

Table 3. Creative funding mechanisms for GOCAP Implementation

Funding Mechanism	Example Projects
Revolving loan fund to capture monies from energy bill, fuel and/or maintenance savings to fund future projects.	Capital improvement projects – electric vehicle charging infrastructure, efficiency, solar, and electrification.
Third party-owned equipment	Electric vehicle charging stations, solar power purchase agreement .
Public/Private Partnerships	Piloting emerging technology or collaborating on a project where a private entity has expertise

Equitable Decision Making

Integrating equity into climate action and mitigation measures is critical when planning and preparing for climate change. Following Board adoption, the implementation team will collaborate to develop a cross-departmental framework to ensure equity is integrated into decision making, goal setting, and implementation. Items within the framework could include:

- Exploring equitable procurement options such as promoting local workforce development through the Sustainable Purchasing Policy and RFP processes.
- Recognizing that County employees will have varying transportation needs and financial situations and provide diverse transportation options that are convenient, safe, and affordable.
- Looking at facility locations and usage when planning for energy efficiency upgrades (ex. medical center).
- Looking for opportunities to invest in, support, partner with, and promote businesses that fall under the following categories:
 - Disadvantaged Business Enterprise (DBE)
 - Disabled Veteran Business Enterprise (DVBE) or Veteran-owned Enterprise (VE)
 - Minority Business Enterprise (MBE)
 - Woman-owned Business Enterprise (WBE)
 - Businesses in Historically Underutilized Business (HUB) Zones
 - Worker-Owned Cooperative
 - Nonprofit Organization (per IRS 501(c)3)
 - Green Businesses (certified by the California Green Business Network)
 - Certified B Corp.

Monitoring and Evaluation

The County envisions that the core strategies outlined in the GOCAP will remain constant into the future. The County also acknowledges that innovation in technologies, policies, and programs, as well as access to more advanced technologies may arise while implementing GOCAP measures. Where feasible, strategies may be altered and updated to align with new technology, data, or other innovations in the climate action planning space.

To ensure that the emissions targets described in this GOCAP are met, ongoing monitoring is necessary. If it's determined that GOCAP efforts are falling short of the goals, the County will add additional voluntary and mandatory measures to the GOCAP.

The County's monitoring and evaluation efforts include:

- Establishing key performance indicators (KPIs) for each goal area and associated strategies. Examples of common KPIs include number of solar installations, number of EV charging stations installed, number of EVs purchased, number of employees teleworking, etc.
- Collecting data annually of key greenhouse gases (GHG) emissions sources (e.g., employee commute, energy use, natural gas generation, waste diversion, etc.).
- Publishing an annual progress report to track implementation efforts and assess effectiveness.
- Providing an annual update to the County Board of Supervisors on GOCAP progress.
- Update the GOCAP every 5 years, or as needed.

Conclusion

The challenge of preparing for and mitigating the effects of climate change is unprecedented in its scale and potential to significantly disrupt the well-being of all residents and functions in San Mateo County. Climate disasters that have already happened in San Mateo County have given us a preview of what could become the “new abnormal.” While the County may face daunting deadlines, there are solutions within reach to reduce emissions, increase efficiency, promote economic vitality, and improve quality of life.

This GOCAP provides an overarching, strategic framework for the County to achieve its goal of carbon neutrality by 2035. While developing and publishing this GOCAP is an important step, it's even more critical that this GOCAP remain a living document, to be updated as technology and policies progress. This GOCAP not only supports the County's efforts to manage its own GHG emissions, it positions the County to model actions for residents, community institutions, and businesses to take an active part in the transition to a low-carbon future and clean economy. In this process, the County will foster a vibrant economy, increase its resiliency, and support a collective vision for a livable and sustainable community for generations to come.

For more information on the County of San Mateo's climate work please visit the County of San Mateo Office of Sustainability website (www.smcsustainability.org/climate-ready) and read the 2020 Government Operations Climate Action Plan: A Pathway to Carbon Neutrality.