SAN MATEO COUNTY, CA

CLIMATE ACTION PLAN

COMMUNITY CLIMATE ACTION PLAN

SAN MATEO COUNTY | 2022

OFFICE OF SUSTAINABILITY
COUNTY OF SAN MATEO

CASCADIA CONSULTING GROUP

SOLVING FOR TOMORROW, TOGETHER

San Mateo County has been a leader in promoting sustainability and tackling climate change. In 2017, the County met our climate action goals three years early by achieving a 33% reduction in greenhouse gas emissions below 1990 levels by successfully launching Peninsula Clean Energy, a local clean energy provider. In 2017, the County also established the Office of Sustainability, and the County Board of Supervisors adopted a resolution affirming the Paris Climate Accord. In 2019, the Board declared a climate emergency, and in 2021, the County adopted an updated Government Operations Climate Action Plan. With this Community Climate Action Plan (CCAP), the County builds on this work and sets a bold vision for climate action in our unincorporated communities.

Since San Mateo County adopted our first Energy Efficiency Climate Action Plan in 2013, California has experienced historic drought, higher average temperatures, heat waves, and devastating wildfires and mudslides. Climate change impacts are no longer a threat in a distant future. They are here now and will continue to threaten the quality of life in San Mateo County.

This 2022 CCAP was developed in collaboration with community stakeholders and is a call to action for our government, businesses, and residents to engage and support our collective journey in reaching our 2030 goal. This CCAP lays the groundwork for the regional partnerships and strategic investments needed in the San Mateo County communities, to facilitate emissions reductions as well as improvements in the quality of life for all residents. By achieving the objectives of this Plan, we will reduce emissions by 45% percent by 2030. This level of reduction is a critical steppingstone towards reaching carbon neutrality by 2040. It is imperative that we focus on equity as we address climate change. Effects of climate change are experienced disproportionally by vulnerable populations. Historically underserved neighborhoods are far more likely to experience the negative effects of extreme heat events. The County has established racial equity as a priority and the CCAP represents one aspect of the County's effort to reduce disparities that persist in our communities.

In addition to reducing emissions, we must advance our efforts to adjust to our changing climate and prepare for more frequent and intense climate change impacts. Since 2019, the County has established several adaptation planning efforts including the Climate Ready SMC Initiative, among others. We have begun the collaborative nature of this work, and more is to come.

Great challenges offer great opportunities. Together we must be ambitious and courageous. A carbon-free future improves our quality of life, our community prosperity, and our collective well-being. We will only be successful if we all work together. We invite you to join us and participate in this communitywide effort.

-Carolyn Bloede, Director of the San Mateo County Office of Sustainability

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RECOGNIZING THE LAND'S ORIGINAL STEWARDS

Due to an ongoing conversation between indigenous leaders about territorial claims to what is now San Mateo County, this climate action plan does not include a formal land acknowledgment. However, in compliance with the requirements of the California Environmental Quality Act, the County engaged with several tribal representatives to shape the plan. These individuals include Jonathan Cordero, Ramaytush Ohlone/Chumash, Chairwoman Quirina Geary of the Tamien Nation, and Kanyon Sayers-Roods, Costanoan Mutsun-Ohlone and Chumash. County staff are grateful for the opportunity to speak with and learn from these individuals, and it looks forward to pursuing opportunities to collaborate with indigenous leaders in reaching climate goals and creating a more sustainable and equitable society for all County community members in the months and years to come.

ACKNOWLEDGMENTS

The goals, strategies, and indicators presented in this plan were developed through collaboration with San Mateo County staff, Board of Supervisors, and external stakeholders.

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Acterra
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Grassroots Ecology
Heirs to Our Oceans
Menlo Spark
Midcoast Community Council
Midpeninsula Regional Open Space District
Natural Resource Conservation Service
North Fair Oaks Community Council
Peninsula Open Space Trust
Pescadero Municipal Advisory Council
Point Blue Conservation Science
San Mateo County Farm Bureau
Senior Coastsiders
Sustainable Pescadero
Youth Climate Ambassadors
500+ community members

Consultant Team

Cascadia Consulting Group, Inc.
Rincon Consultants, Inc.

Grant Funding

California Department of Conservation

* County staff consulted these organizations in the development of the plan, however, this list does not necessarily connote the organization's support of the plan.

EXECUTIVE SUMMARY

Preface

The Community Climate Action Plan (CCAP) outlines priority actions to achieve a 45% reduction of greenhouse gas emissions over 1990 levels by 2030 and carbon neutrality[1] by 2040. By reaching this goal, San Mateo County will demonstrate leadership in climate action and keep pace with the rate of action needed to mitigate the harmful impacts of climate change that the County is already experiencing. San Mateo County residents and communities are already facing a new reality of coastal flooding, reduced water supply, severe fires, and heat waves occurring more frequently and severely than before. These are no longer hypothetical scenarios. These changes threaten our safety and health, and the natural ecosystems and resources we rely on, and exacerbate existing social and economic inequities. The wellbeing, viability, and sustainability of our communities are at stake if the County and its partners do not successfully confront the multiple and deeply complex challenges that we currently face.

The County will need to significantly reduce energy consumption of our buildings and vehicles and shift from fossil fuels like gasoline, diesel, and natural gas to clean energy. And yet, the challenge ahead is not just about the fuel that powers our homes and cars, it is about the quality of our communities and our built and natural environments. It is about people living dignified lives, it is about all of us. The challenge ahead also requires thinking seven generations ahead and considering the long-term costs and consequences of prioritizing near-term financial savings. Inherent in this challenge is also an opportunity to reduce energy and transportation costs, improve access to livable wage career opportunities, improve public health, improve neighborhood connectivity and resilience to power shutoffs and natural disasters, increase access to shared communal spaces, parks, and essential services, and support a vibrant and economically sustainable agricultural community. Taking steps to reduce climate pollution strategically and systematically in the County is one important aspect of protecting and investing in the health and wellbeing of our community for current and future generations. It also presents opportunities to improve access to healthy living environments and livable wage careers, among other equity-related social outcomes.

PLAN HISTORY

The County's first plan, the Energy Efficiency Climate Action Plan (EECAP), was drafted in 2013 and set the path for meeting 2020 state goals early and laid important groundwork for further action on climate change. Much has changed since County staff completed the EECAP. State law, technology, and new policy pathways and programmatic partnerships have all evolved since 2013. While the County accomplished some of what the EECAP laid out (launching what became Peninsula Clean Energy, for example), other aspects of the EECAP were retired due to rapidly evolving science, or the changing social context within San Mateo County. This Community Climate Action Plan (CCAP or "plan") builds on the initial EECAP document and presents an updated pathway for addressing climate change in ways tailored to unincorporated San Mateo County.

[1] Carbon neutrality is where a jurisdiction sequesters or removes from the atmosphere the same amount of greenhouse gases it produces, creating a net carbon neutral state.

HOW IT CAME TOGETHER

The CCAP is the outcome of a two-year collaborative and communitywide development process. The process included the following elements:

1) Greenhouse gas (GHG) emissions inventorying and forecasting

2) Stakeholder engagement with County staff, technical experts, and community representatives including over 30 one-on-one interviews and over 20 different group meetings

3) Engagement with over 500 unincorporated residents through:
   - Over 70 one-on-one interviews and conversations
   - Five in person public events
   - 15 online workshops
   - Over 100 survey responses

4) Iterative qualitative and quantitative evaluation and prioritization of proposed actions.

Equity

San Mateo County recognizes the inextricable link between racial equity and climate change. Globally and locally, climate change threatens many of the populations who are least responsible for causing climate change, as well as those who are already experiencing disproportionate environmental, economic, and social hardships. The COVID-19 pandemic has further exacerbated these inequities. The County's strategy to reduce greenhouse gas (GHG) emissions must put historically underserved communities at the center of its action and decision making. The County aimed to prioritize racial equity throughout the planning process and embed it in all measures through:

- **Inclusive community engagement.** The County prioritized outreach and engagement with minority and non-English speaking communities across the County and partnered with local community-based organizations to design events for accessibility and co-learning.
- **Targeted stakeholder consultation**. The County solicited community stakeholder feedback on all proposed measures in the CCAP and modified or added measures to bolster equity considerations, and minimize potential harmful impacts
- **Equity evaluation of proposed measures.** All proposed measures underwent an iterative and robust evaluation and prioritization process that included consideration of negative or positive equity impacts.

Implementation considerations: While equity must be considered in the measure development and prioritization process, it must also be an explicit consideration during measure implementation. The CCAP's implementation plan will include a checklist of questions and considerations for County staff to consult when putting the proposed measure into practice.

Climate action requires meeting the needs of the entire San Mateo County community. For more detail on the engagement process including how the County solicited feedback from constituents countywide and how this has influenced the plan's development, please see the section "How it Came Together" in the full plan below.

Greenhouse Gas Emission Reduction Goals

San Mateo County's 2013 Energy Efficiency Climate Action Plan (EECAP) set a goal to achieve a 17% reduction below 2005 baseline emissions by 2020—a goal that exceeds those set forth by California Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. The County met that goal early, achieving a 33% reduction in emissions over 1990 levels by 2017. This historic reduction is largely due to the establishment of Peninsula Clean Energy, San Mateo County's locally controlled public electricity provider.

State policy has evolved since the EECAP was adopted in 2013. Senate Bill 32, the Global Warming Solutions Act of 2016, expands upon AB 32 and requires the state to reduce emissions to 40% below 1990 levels by 2030. Governor Jerry Brown issued Executive Order B-55-18, which established a statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045. More recently, in September 2021, Governor Gavin Newsom issued Executive Order N-79-20, which requires the elimination of new gas-powered passenger vehicles by 2035, and Executive Order N-82-20, which enlists the state's natural and working lands in storing and removing carbon from the atmosphere to slow climate change and calls for the preservation of 30 percent of the state's land and coastal water. Given this new context, the County has updated its communitywide goals. The CCAP lays a clear path to reduce GHG emissions by 45% by 2030, the most critical (and imminent) goal, and to reach carbon neutrality by 2040, as seen in Figure 1.

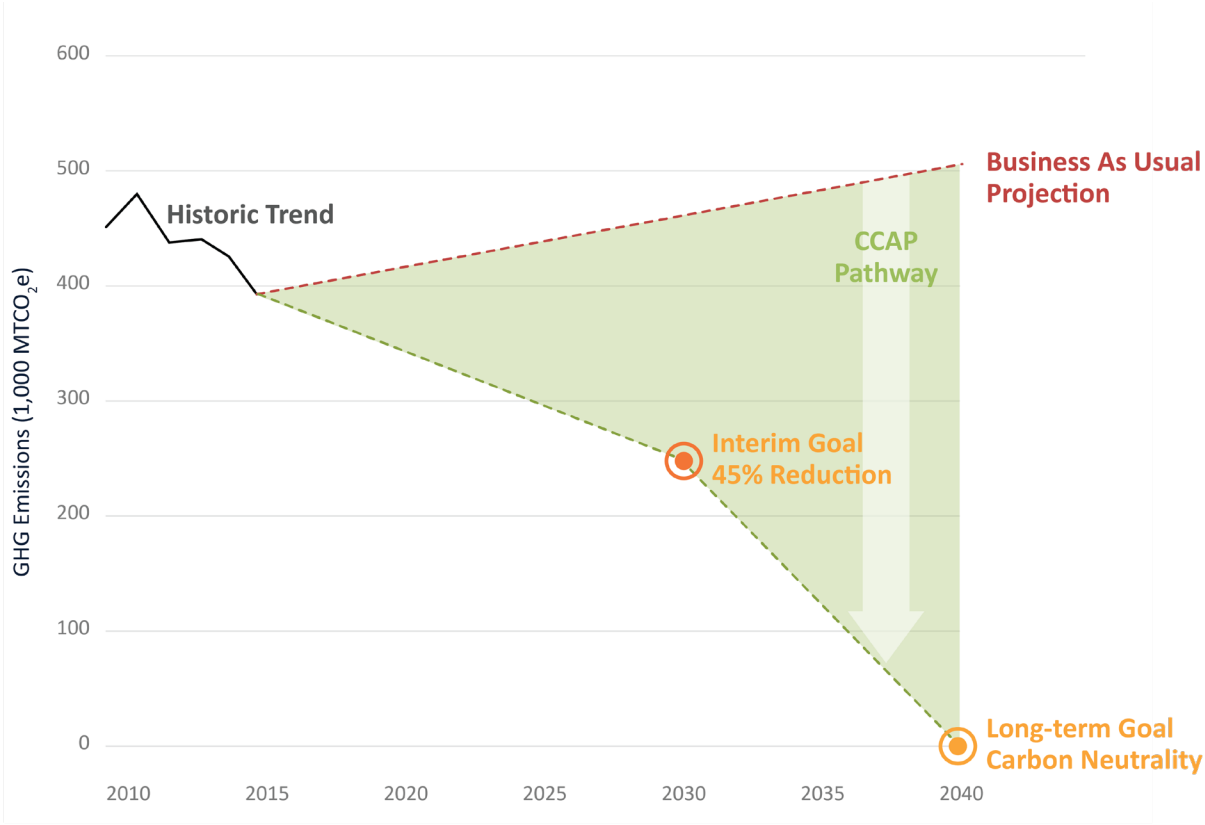


Figure 1. CCAP pathway compared with Business as Usual (BAU) scenario.

How We'll Get There

To achieve the County's goal of 45% emissions reduction by 2030 and carbon neutrality by 2040, San Mateo County will need to implement a suite of policies, programs, and activities. Figure 2 shows the main pathways to emissions reductions by 2030. Partnership and collaboration across institutional boundaries will be critical to meet climate goals. Partners will include state, regional, and federal agencies, energy providers, businesses, and community members and organizations. The County's strategies and actions are structured around four focus areas:

BUILDING ENERGY

Strategies to reduce energy use and transition to renewable energy sources.

TRANSPORTATION

Strategies to shift from fossil fuels to electricity and use transportation modes such as transit, walking, and biking.

WASTE

Strategies to reduce waste generation, divert waste from the landfill, and purchase more sustainable goods and services.

WORKING LANDS

Strategies to sequester carbon, enable climate beneficial agricultural practices, and support the local food system.

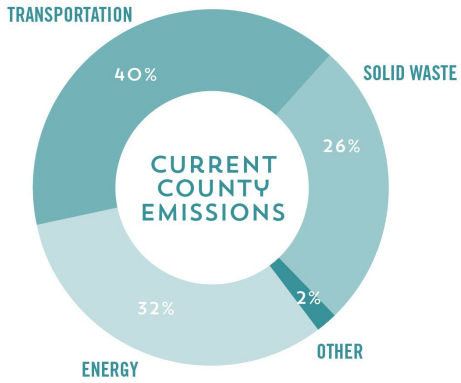


Figure 2. Emissions reduction goals by 2030.

Strategies and Actions

BUILDING ENERGY

Buildings are the second largest contributor to GHG emissions in unincorporated areas of the County, accounting for 32% of all emissions. These emissions stem primarily from the use of natural gas in residential and commercial buildings. Transitioning away from natural gas in existing buildings will require electric replacements for existing equipment when it reaches the end of its useful life. The County has a unique degree of influence on buildings through building code and zoning. For example, in February 2020, the Board of Supervisors adopted an energy reach code that effectively banned the use of natural gas in all new construction. Therefore, in this sector, the County has more leverage to rapidly meet climate goals and simultaneously improve the quality of life for county residents. Presented in Figure 3 and Tables 1 to 4 are the measures that are designed to reduce emissions from new and existing buildings.

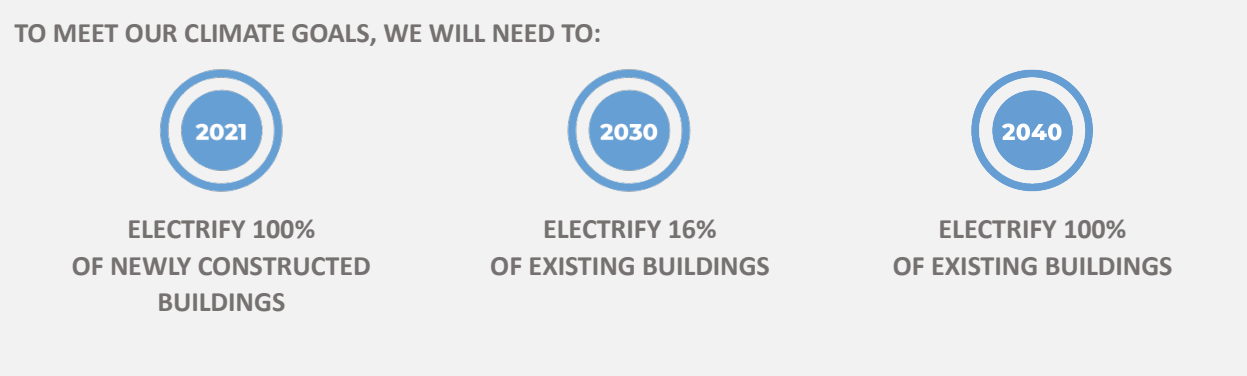


Figure 3. Buildings & energy requirements for meeting overarching climate goal.

SUMMARY OF BUILDING ENERGY POLICY STRATEGIES[2]

- **Policy B-1:** Transition to all-electric new construction
- **Policy B-2:** Convert existing buildings to all-electric
- **Policy B-3:** Use microgrids[3] to generate local renewable energy and improve resiliency
- **Policy B-4:** Pursue integrated opportunities to address climate adaptation and mitigation

[2] **Note on the measure order:** the following tables of measures have been arranged by strategy. While the strategies are not listed in order of importance, the measures within them are arranged by importance in achieving emissions reduction goals, with the most important measures being at the top.

[3] "Microgrids are localized grids that can disconnect from the traditional grid to operate autonomously. Because they can operate while the main grid is down, microgrids can strengthen grid resilience and help mitigate grid disturbances… Microgrids support a flexible and efficient electric grid by enabling the integration of growing deployments of distributed energy resources such as renewables like solar." Office of Electricity, US Department of Energy, https://www.energy.gov/oe/activities/technology-development/grid-modernization-and-smart-grid/role-microgrids-helping.

Table 1. Summary of Policy B-1 actions to transition to all-electric new construction.

Actions		Description
B-1.1	Reach code implementation	Support Planning and Building Department to implement existing reach code and ensure that the cost of permitting for all-electric projects does not exceed natural gas alternatives.
B-1.2	Heat pump water heater installation in new homes	Partner with Bay Area Regional Energy Network (BayREN) and Peninsula Clean Energy (PCE) to develop a pilot for deploying heat pump water heaters in new single-family and multi-family construction or major remodel or addition projects.
B-1.3	Heat pump water heater incentives	Initiate a public-private partnership to create mid-stream incentives and/or bulk purchasing of heat pump appliance technology. Prioritize partnerships with small and underrepresented businesses.
B-1.4	Renewable energy and storage technologies	Partner with PCE and Pacific Gas and Electric (PG&E) to identify locations for installing storage technology in tandem with renewable energy infrastructure. Prioritize community centers and libraries as backup power centers and resiliency hubs.[4]
B-1.5	Electricity rate increase minimization	Work with PCE, BayREN, and other stakeholders to ensure that future ratemaking and rate-cases do not result in disproportionately high residential electricity rates for lower income residents.
B-1.6	Energy efficiency in new construction	Improve energy efficiency in new construction through enhancements in the building envelope (aspects such as insulation, windows, door seals, airflow, façade materials) by adopting a more aggressive climate zone in the building code.
B-1.7	Industry and workforce development	Provide and promote accessible local workforce development opportunities related to building electrification. Create new partnerships and economic opportunities to provide maximum benefit in the form of employment opportunities for the local workforce, residents with barriers to employment, and communities most affected by climate change.

Table 2. Summary of Policy B-2 actions to electrify existing construction.

Actions		Description
B-2.1	Natural gas phase out	Coordinate with PG&E and PCE to eliminate natural gas as an energy source in residential and commercial buildings throughout unincorporated areas by 2040.

[4] A resiliency hub would be located at a critical facility and/or community center and, during an emergency event, would serve to support residents, coordinate communication, distribute resources, and, outside of emergency events, would reduce carbon pollution overall.

B-2.2	Existing building electrification	Investigate regulatory pathways for converting existing buildings to all-electric. Conduct a feasibility analysis for options including but not limited to a point-of-sale or listing requirement, replacement on burnout requirement for gas powered appliances, and a ban of sale of gas fired equipment among others.
B-2.3	Electrification retrofit pilot	Partner with BayREN and PCE to develop a pilot for deploying heat pump appliance technology along with electric panel upgrades in large-scale retrofit opportunities in existing multi-family buildings, and other buildings such as homeless shelters and farmworker housing.
B-2.4	Electrification opportunities assessment	Perform a County-wide electrification opportunities assessment in partnership with PG&E and PCE to identify priority buildings and neighborhoods for targeted electrification incentives.
B-2.5	Pilot improvements for existing homes	Accelerate uptake of energy efficiency programs by landlords and renters of both multi- and single-family households. Utilize findings from county-wide electrification opportunities assessment and partner with BayREN, PCE, the Department of Housing, and community-based organizations to deploy an electrification, energy efficiency, and environmental health pilot.
B-2.6	Electrification and renewable energy on-bill financing	Partner with PG&E or PCE to set up on-bill or accessible financing solutions for electrifying buildings and/or local renewable installations, including offering low-interest loans.
B-2.7	Utility user fee evaluation	Evaluate feasibility and equity-related concerns of a utility user fee increase that could fund electrification projects. If feasible, and if it will not accrue disproportionately to minority groups and historically underserved communities, partner with PG&E and PCE to implement.
B-2.8	Electrification outreach	Facilitate electrification of appliances (water heaters, space heaters, stoves and dryers) by expanding and improving targeted outreach for existing electrification programs and incentives.
B-2.9	Rental property owner incentives	Partner with the Department of Housing and local realtors to educate, engage, and incentivize building owners, and real estate and property management representatives to address split-incentive issues[5], with a focus on rental protection and minimizing cost increases for low-income renters.
B-2.10	Energy efficiency in existing buildings	Improve energy efficiency in large additions (400 square feet or larger) by adopting a higher climate zone in the building code that more accurately reflects anticipated climatic shifts. By responding to changes in climatic conditions, new energy efficiency building standards become cost-effective and can be adopted.

[5] "Split incentive" refers to a condition where the benefits and costs of capital improvements are unequally distributed. An appliance upgrade, for example, might produce savings or benefits for one party (the renter) while the costs are born by the other party (the property owner).

B-2.11	Green business program expansion	Expand the reach of the Green Business Program to support 10% more small and medium businesses and establish a GHG reduction goal specifically for unincorporated businesses.

Table 3. Summary of Policy B-3 actions to use microgrids to generate local renewable energy and improve resiliency.

Actions		Description
B-3.1	Capacity mapping	Use utility distribution system capacity maps to investigate the feasibility of siting and maintaining microgrid, solar or wind combined with storage, and other distributed energy resource project opportunities.
B-3.2	Microgrid pilots	Establish microgrid pilot projects and distributed energy resources at critical facilities across San Mateo County (e.g., schools, hospitals, fire, police).
B-3.3	Battery storage	Support and enhance PCE's existing battery storage incentive program

Table 4. Summary of Policy B-4 actions to pursue integrated opportunities to address climate adaptation and mitigation.

Actions		Description
B-4.1	Cool roof technology	Develop and adopt regulations or modify existing adopted regulations to require reroofing projects to meet or exceed the most current cool roof efficiency standards as determined by the California Energy Commission for Building Climate Zone 11 (or whichever zone more accurately reflects anticipated changes in climatic conditions).
B-4.2	At-risk housing and community facility electrification	Explore electrification opportunities when developing adaptation strategies for housing and community facilities. Provide technical assistance and support to public schools and communities to plan for electrification of housing and community facilities vulnerable to climate risks.

TRANSPORTATION

Emissions in the transportation sector come from people driving vehicles (vehicle miles traveled or VMT) on roads within the county. In 2017, this represented 40% of the County's emissions inventory and remains the largest contributor when compared to the other sectors. Reducing this emission source will require reducing VMT as well as increasing the community adoption of electric vehicles (EVs). While making this change will require multijurisdictional action beyond the County's purview, and will rely upon individual behavior change, the County can still play a critical role. San Mateo County can facilitate EV adoption, build the necessary charging infrastructure to enable widespread EV use, increase access to jobs, goods and services in neighborhoods, help its communities shift to active transportation (human-powered forms of transportation including walking, rolling, and biking), and work in partnership to enhance and improve public transit access and ridership. Presented below in Figure 4 and Tables 5 to 7 are the measures that are designed to reduce emissions from transportation.

Figure 4. Transportation requirements for meeting overarching climate goal.

SUMMARY OF TRANSPORTATION POLICY STRATEGIES[6]

- **Policy T-1:** Increase electric vehicle adoption
- **Policy T-2:** Encourage urban density and the revision of parking standards, and support bicycle and pedestrian-friendly planning
- **Policy T-3:** Implement programs for shared transit that reduce VMT

[6] **Note on the measure order:** the following tables of measures have been arranged by strategy. While the strategies are not listed in order of importance, the measures within them are arranged by importance in achieving emissions reduction goals, with the most important measures being at the top.

Table 5. Summary of Policy T-1 actions to increase electric vehicle adoption.

ACTIONS		DESCRIPTION
T-1.1	EV charging requirements	Evaluate the energy and green building standards at each California Building Standards code cycle to ensure that building electrification and EV charging station requirements are sufficient to meet community needs and climate goals. Adopt local ordinances when the State's code does not keep pace with climate action in San Mateo County.
T-1.2	Public charging stations	Install public EV charging stations, with an emphasis on daytime charging. Investigate options for shared EV charging, paired with solar and storage capacity.
T-1.3	EV readiness plan	Prepare an EV readiness plan to identify suitable, equitable, and cost-feasible opportunities for installation and maintenance of EV charging station locations throughout the County.
T-1.4	Alternative fuel outreach	Collaborate with key partners such as PCE to conduct alternative fuel outreach, focusing on electric vehicles and lawn equipment.
T-1.5	End-of-life vehicle conversion	Partner with PCE and regional partners to develop a program to help transition private-use vehicles to zero emission vehicles at end of life, with a focus on supporting new EV purchases for low-income demographics.
T-1.6	Electric leaf blowers	Assess opportunities for a program to support the transition to electric leaf blowers.

Table 6. Summary of Policy T-2 actions to encourage urban density and the revision of parking standards, and support bicycle and pedestrian-friendly planning.

ACTIONS		DESCRIPTION
T-2.1	Mixed-use development requirements	Update the General Plan and Local Coastal Plan with neighborhood mixed use, commercial mixed use, industrial mixed use, and multi-family residential designations to enable mixed-used development where feasible.
T-2.2	Affordable housing near transportation	Continue interdepartmental coordination and collaboration to update policies according to Housing Element updates to enable and promote affordable housing near transportation.
T-2.3	Traffic calming and complete streets	Pursue bicycle and pedestrian-friendly design by maximizing opportunities to implement traffic calming and complete streets measures into infrastructure projects. Identify opportunities to incorporate green infrastructure and pavement-to-parks concepts.[7]

[7] Pavement-to-parks refers to the creative utilization of unpaved areas or underutilized paved areas in neighborhoods with less access to green space to create new pedestrian and pocket-park spaces. This facilitates traffic calming as well as pedestrian-friendly street environments.

T-2.4	Transportation Demand Management Ordinance	Update the County's Transportation Systems Management Ordinance to reflect updated regional policies, including but not limited to the San Mateo County Congestion Management Plan Transportation Demand Management Policy.
T-2.5	Transit improvements to reduce VMT	Conduct interdepartmental coordination to develop and adopt local guidelines, policies, and tools to implement changes to the California Environmental Quality Act's transportation significance metric and criteria (SB 743).
T-2.6	Active Transportation Plan implementation	Support the implementation of the Active Transportation Plan by implementing priority pedestrian and bikeway projects, with a focus on those in historically underserved neighborhoods.
T-2.7	Regional coordination to increase multimodal travel	Collaborate with local and regional partners to study existing parking policies, practices, programs, and demand, and opportunities to support increased multimodal travel.
T-2.8	Bicycle parking and amenities	Review and revise existing bike parking requirements if they are inadequate for current and future demand. In districts without current bike parking requirements, evaluate opportunities for developing them.

Table 7. Summary of Policy T-3 actions to implement programs for shared transit that reduce VMT.

ACTIONS		DESCRIPTION
T-3.1	Access to transportation	Work with partners to implement policies, programs, and pilot projects that support access to transit; for example, a first mile-last mile shuttle program or a school district-oriented transportation pilot. Prioritize efforts that provide access for households without access to a car, low-income disabled, senior, and racial or ethnic minority populations.
T-3.2	Zero emissions buses	Support the transition of public and private buses and shuttles to zero emission vehicles.
T-3.3	Micro-mobility and shared transportation model policies	Develop model policies for micro-mobility and shared transportation options (bike, scooter, and car share) that facilitate equitable access to mobility services and region-wide transit (first mile-last mile).
T-3.4	Programs to facilitate transportation equity	Facilitate transportation equity through targeted provision of programs and infrastructure that support low-income, disabled, senior, and racial or ethnic minority populations to take transit, walk, bike, and use ride- or car-share.
T-3.5	Tax transit network company trips	Explore opportunities for applying a tax on all transit network company trips (rides provided by commercial ride-hail companies and private transit services) that originate in San Mateo County to support transit and complete streets and safety improvements.

WASTE AND CONSUMPTION

Waste produced in unincorporated communities is sent to Ox Mountain Landfill where the organic materials decompose and produce methane which is a GHG that is 28-36 times more potent than carbon dioxide in its 100-year atmospheric lifespan.[8] Waste represents a smaller share of overall county emissions at 26%. Presented below are measures designed to prevent materials from entering the landfill through source reduction and waste diversion actions such as reducing waste generated, reusing materials, composting organics, and recycling. Presented below in Figure 5. Waste and consumption requirements for meeting overarching climate goal and in Tables 8 to 10, are the measures that are designed to reduce emissions from waste and consumption.

Figure 5. Waste and consumption requirements for meeting overarching climate goal.

SUMMARY OF WASTE & CONSUMPTION POLICY STRATEGIES[9]

- **Policy W-1:** Reduce construction materials and waste
- **Policy W-2:** Reduce organics in the waste stream
- **Policy W-3:** Reduce inorganic waste sent to landfills

Table 8. Summary of Policy W-1 actions to reduce construction materials and waste.

ACTIONS		DESCRIPTION
W-1.1	Building regulations for deconstruction and waste management	Update the building regulations to require deconstruction surveys for single family home demolitions that allow 10 days for salvage and require waste management plans for renovations over $50,000 in total job value.

Table 9. Summary of Policy W-2 actions to reduce organics in the waste stream.

ACTIONS	DESCRIPTION

[8] "Methane and Climate Change." IEA. (2021). https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change.

[9] **Note on the measure order:** the following tables of measures have been arranged by strategy. While the strategies are not listed in order of importance, the measures within them are arranged by importance in achieving emissions reduction goals, with the most important measures being at the top.

W-2.1	Organics diversion	Work with franchised haulers and waste authorities to ensure the goals of SB 1383, the Short-lived Climate Pollutant Reduction law, are met by 2025.
W-2.2	Edible Food Recovery Program	Implement an Edible Food Recovery Program for unincorporated areas as required under SB 1383. Increase the coverage of the Edible Food Recovery Program for densely populated, unincorporated areas, such as North Fair Oaks, and further assist food recovery organizations to increase pickup and redistribution.
W-2.3	Recycling and composting outreach and technical assistance	Enhance recycling and composting outreach and technical assistance and investigate offering incentives to commercial and agricultural entities in unincorporated areas of San Mateo County.
W-2.4	Improvement projects for organic waste	Reduce the amount of organics in the landfill by pursuing additional opportunities to repurpose organic materials, which may include creating additional sites to the Countywide community compost collaborative, exploring development of a composting facility on the coast, and exploring feasible capital improvement projects for reducing organics in the waste stream, such as organics extraction presses and anerobic digesters.
W-2.5	Community carbon sequestration training	Partner with agriculture-related organizations, public school and community college districts, local community-based organizations, and other stakeholders, to develop a home carbon sequestration and soil health education campaign for residents and training opportunities for landscape professionals and local government parks and recreation staff.
W-2.6	Local garden program	Develop a local garden program to facilitate the creation of compost and promote the use of compost at community and school gardens. Prioritize schools serving low-income communities.
W-2.7	Agricultural waste diversion	Partner with agriculture-related organizations, producers, and businesses to reduce and divert waste generated in the agriculture sector, including farms, ranches, and equestrian facilities through composting and biodigestion.

Table 10. Summary of Policy W-3 actions to reduce inorganic waste sent to landfills.

ACTIONS		DESCRIPTION
W-3.1	Business outreach promoting reusables	Conduct outreach and engagement to inform businesses of applicable laws for reducing/regulating single-use product and shipping packaging and/or promoting reuse, such as food service ware, home meal delivery services, and other packaging.
W-3.2	Funding for local waste-related outreach	Expand opportunities to provide funding and technical assistance to non-profit organizations, schools, and other entities to implement projects relating to reuse, source reduction, recycling, and composting.

W-3.3	County contract and event permit updates	Ensure that all County contracts and event permits require all third-party vendors provide and utilize compostable and/or reusable food service items to serve 50 or more people and provide recycling and composting infrastructure.
W-3.4	Waste reduction and reuse programs	Partner with public institutions, private businesses, and nonprofits (like thrift stores) to develop and implement programs that encourage waste reduction and reuse.
W-3.5	Extended producer responsibility requirements for County contracts	Require extended producer responsibility[10] (EPR) when an option to advance greater EPR exists. Scale these efforts by partnering with public school and community college districts to determine if a similar effort or policy would be feasible.
W-3.6	Public Outreach and marketing	Continue to collaborate with other local governments (for example, through the Bay Area Recycling Outreach Coalition) to implement a regional outreach and marketing campaign.
W-3.7	Public education and civic engagement	Expand educational offerings and resources for improving community resource conservation (addressing the "4Rs," reduce, reuse, recycle, rot) through existing and new offerings. Explore development of a Youth Conservation Corps program that would provide local mentorship, volunteer, internship, and/or employment opportunities for youth and young adults in the solid waste reduction field.
W-3.8	Workforce development in solid waste reduction	Provide and promote accessible local workforce development opportunities related to solid waste programs. Create new partnerships and economic opportunities to provide maximum benefit in the form of employment opportunities for the local workforce, residents with barriers to employment, and communities most affected by climate change.

[10] Extended producer responsibility is a "strategy to place a shared responsibility for end-of-life product management on producers, and other entities involved in the product chain, instead of the general public." (CalRecycle, 2020)

WORKING LANDS

Carbon sequestration is the natural process of plants taking in CO_2 from the atmosphere and, through a biochemical interaction between the roots, the soil, and microorganisms, storing that CO_2 in the soil profile. Rangeland and cropland, including publicly and privately managed lands, comprise a large portion of the land base in California and in San Mateo County. These working lands have significant potential for sequestering carbon from the atmosphere, thus serving as a climate mitigation strategy. Active management of working lands can enhance the rate of carbon sequestration in soils and vegetation, therefore carbon farming (i.e., the suite of practices that brings about more sequestration) has a critical role to play in helping San Mateo County develop resilience to climate change while simultaneously reducing atmospheric greenhouse gases driving climate change. Carbon farming and other related agricultural activities may be referred to as "climate beneficial" because of the capacity to draw carbon from the atmosphere and for the numerous co-benefits of carbon farming, including increased soil organic matter and soil water-holding capacity. Such activities include, but aren't limited to compost application, cover cropping, hedgerow planting, and prescribed grazing. The following strategies and measures are designed to support local agricultural producers and enable carbon farming on the County's working lands. Presented below in Figure 6 and Tables 11 to 16 are measures designed to reduce emissions and sequester carbon in working lands.

Figure 6. Working lands requirements for meeting overarching climate goal.

SUMMARY OF WORKING LANDS POLICY STRATEGIES

- **Policy L-1:** Identify new financing to scale carbon farming
- **Policy L-2:** Support technical assistance, education, and data collection efforts to scale climate beneficial agriculture
- **Policy L-3:** Secure access to key implementation infrastructure to advance climate beneficial agriculture
- **Policy L-4:** Address permitting barriers to implementing climate beneficial agricultural practices
- **Policy L-5**: Ensure agricultural lands are preserved for agricultural production
- **Policy L-6**: Support carbon sequestration and ecological restoration on natural lands

[11] $MTCO_2E$: metric tons of carbon dioxide equivalent.

Table 11. Summary of Policy L-1 actions to identify new financing to scale carbon farming.

ACTIONS		DESCRIPTION
L-1.1	Carbon farming investments	Implement a County funding program, such as Santa Clara County's Agricultural Resilience Incentive, for farmers and ranchers to implement and maintain climate beneficial practices.
L-1.2	External funding programs for carbon farming	• Support the San Mateo Resource Conservation District (SMRCD) and other land partners to leverage private, regional, state, and federal funding for producers' implementation of climate beneficial agricultural practices. • Develop a program or mechanism for San Mateo County businesses, philanthropic institutions, and supportive community members to support local carbon farming projects.
L-1.3	Compost procurement	Where feasible, County-procured compost through SB 1383 compliance should be made available to producers at a reduced cost or for free.
L-1.4	Cost saving methods	Explore opportunities for establishing a bulk purchasing program for cost savings, such as for cover crop seed.
L-1.5	Climate-beneficial communications	Assess potential of a communication or labeling program to raise awareness of climate beneficial agricultural practices of San Mateo County producers, potentially as part of *As Fresh As It Gets*.[12] Assess potential of such program to increase revenue for producers.
L-1.6	Public benefit communications	Assess and report the estimated public benefits and cost savings provided by climate beneficial agricultural practices to the agricultural and larger San Mateo County communities.

[12] https://www.smccvb.com/fresh-as-it-gets/

Table 12. Summary of Policy L-2 actions to support technical assistance, education, and data collection efforts to scale climate-beneficial agriculture.

ACTIONS		DESCRIPTION
L-2.1	Technical assistance provider support	Support the SMRCD and other land partners in providing technical assistance to agricultural producers to scale carbon farming and GHG reducing practices. Support adequate staffing for technical assistance providers to undertake outreach, planning, implementation, monitoring, and maintenance.
L-2.2	On-farm research and demonstration	Support trials, research, and monitoring by the SMRCD and other land partners to refine local data on carbon sequestration and GHG reduction occurring from existing and new climate beneficial practices.
L-2.3	Educational opportunities for land managers	Support the SMRCD and other land partners in providing educational opportunities to assist producers in evaluating and adopting climate beneficial agricultural practices.

Table 13. Summary of Policy L-3 actions to secure access to key implementation infrastructure to advance climate beneficial agriculture.

ACTIONS		DESCRIPTION
L-3.1	Carbon farming implementation infrastructure access	• Support development of key infrastructure, such as a bulk purchasing program for cost savings for carbon farming. • Investigate feasibility of equipment share or low-cost rental program to increase access to essential equipment to facilitate carbon farming practices, such as a compost spreader or no-till drill, and, if feasible, support and finance equipment purchasing, coordination and maintenance of such a program. • Improve and increase the availability of high quality and affordable local agricultural compost.
L-3.2	Climate beneficial practices that reduce GHG emissions	• Support work to improve irrigation efficiency and increase use of on-farm GHG reducing equipment and alternative energy, such as solar. • Fund chipping program to reduce annual burning of pruning waste. • Assist in the development of infrastructure that supports the local agricultural economy while reducing travel, such as development of agricultural services or markets in San Mateo County. • Support efforts that assist producers with agricultural waste reduction, reuse, and recycling. • Ensure that woody material removed for fuel load reduction projects be recycled into a beneficial use, such as compost or biochar. Investigate feasibility of procuring a mobile pyrolysis facility and establish shared funding mechanism for ongoing costs of repair and maintenance. • Partner with Pacific Gas and Electric (PG&E) and Peninsula Clean Energy (PCE) to assess the feasibility of establishing an incentive program that would help producers plan for and install solar panels and battery storage for on-farm operations. • Partner with PG&E and PCE to provide producers with on-farm energy audits to identify energy efficiency opportunities and connect them to existing county and statewide energy upgrade programs, including incentives, rebates, and financing.
L-3.3	Progress tracking	Develop a platform for tracking and reporting on climate goals and on-farm benefits of climate beneficial agricultural projects.

Table 14. Summary of Policy L-4 actions to address permitting barriers to implementing climate beneficial agricultural practices.

ACTIONS		DESCRIPTION
L-4.1	Permit barrier identification and minimization	• Assess local permitting and ordinances to identify barriers to efficient and effective planning and implementation of climate beneficial agricultural practices. • Participate in statewide Cutting Green Tape initiative. • Engage in efforts to reduce regulatory barriers to efficient and effective climate beneficial agricultural practices. • Align local regulations to statewide streamlining permitting efforts for on-farm composting and climate beneficial agricultural practices.

Table 15. Summary of Policy L-5 actions to ensure agricultural lands are preserved for agricultural production.

ACTIONS		DESCRIPTION
L-5.1	Agricultural land preservation	Support efforts to improve access, tenure, and ownership for next generation and new and beginning farmers and ranchers.

Table 16. Summary of Policy L-6 actions to support carbon sequestration on natural lands and urban green spaces.

ACTIONS		DESCRIPTION
L-6.1	Stewardship and Ecological Restoration on Natural Lands	• Explore opportunities to encourage and support ecological restoration efforts where feasible. • Explore opportunities to provide tribal access to land for indigenous agriculture and other cultural activities and events that are dedicated to tribal citizens as well as shared opportunities for members of the broader public to visit the land and learn about and tend native plants. Support development of accompanying place-based public education opportunities focused on local microclimates, indigenous plant communities, and land stewardship.
L-6.2	Carbon sequestration on natural lands and urban green space	Develop strategies through diverse stakeholder participation for carbon sequestration and climate adaptation on natural lands and urban green spaces.

Looking Forward

Achieving our climate goals will require dedication, time, and resources from County government and the broader San Mateo County community. Successful plan implementation will require ongoing creativity and adaptivity in response to changes in technologies, state and federal policies, budgets, grants and other funding opportunities, and community priorities. Effective implementation will also require creating meaningful and ongoing opportunities for community input as County staff and partners develop programs and projects and enforce policies that emerge from the plan. Soliciting and incorporating diverse perspectives and making a concerted effort to involve tribal leaders will be a key aspect of meeting emissions reductions goals in an equitable and culturally relevant manner. The County must be strategic in sequencing, executing, and funding climate action to meet our goals in a manner that brings the whole community along and maintains our vision for a sustainable, prosperous future.

PHASING

Implementation of the plan will be divided into three phases:

NEAR-TERM (1-2 YEARS)

Near-term implementation will focus on establishing a foundation for meeting the 2030 goal. This phase will involve establishing funding strategies and partnerships, establishing key policies to facilitate electrification and carbon sequestration, conducting education and outreach campaigns, establishing pilot projects that can be scaled up, and voluntary incentive measures that address top emissions sources.

MID-TERM (2-5 YEARS)

Mid-term solutions address measures needed to "close the gap" for meeting interim goals and to position the County for meeting long-term goals. Actions include broader regulatory requirements, if necessary, expanded infrastructure investments to support rapid and long-term energy transitions, and actions focused on lower priority emissions sources.

LONG-TERM (5-10 YEARS)

Long-term strategies are more comprehensive solutions that require long-term investment, careful planning, and broad coordination. They include actions that are dependent upon crucial foundational actions in the near- and mid-term phases.

FUNDING

The County will utilize existing County resources, grant, and other external funding sources to the extent possible in implementing this plan. Over the long term, it will be important to identify funds that are ensured rather than dependent on uncertain potential funding sources. Potential sources include the following:

- Private grants/investment and public-private partnerships
- Federal and state grants
- County general fund
- Revolving loan funds
- Bonds
- Taxes, fees, and utility revenues
- Local carbon offset funds

Many climate expenditures will not only reduce greenhouse gas emissions, but will also bring valuable environmental, social, public health, and economic benefits that will contribute to a positive net return on investment.

ACCOUNTABILITY & COLLABORATION

Key accountability and collaboration approaches for implementation of the CCAP are summarized below:

PROGRESS REPORTING

Plan progress reports will be developed by County staff and reviewed annually by the Board of Supervisors. GHG inventories will be updated every year.

IMPLEMENTATION TEAM

Office of Sustainability staff will work in collaboration with key partners across County departments including the Departments of Public Works and of Planning and Building, as well as external entities and organizations such as the San Mateo Community College District, the San Mateo Resource Conservation District, and others.

PARTNERSHIPS

Much of the work needed to implement this Plan will necessarily be done in partnership with local, regional, and State entities like the San Francisco International Airport, California Air Resources Board, Metropolitan Transportation Commission, SamTrans, BART, CalTrain, the San Mateo Community College District, nonprofit organizations, the business community, and others.

PUBLIC PARTICIPATION

The County engaged the public through the spring of 2022 to solicit feedback on the final draft of the Plan. Once adopted by the Board of Supervisors, the County will engage the public on climate action as specific measures and policies are developed and implemented. Everyone will have a role to play as projects and policies from this plan take shape.

LEAD BY EXAMPLE

The County will lead by leveraging its resources in partnership with others and pursuing ways to meet its own climate goals that also bring co-benefits for the cities and towns within the County. The County has established a precedence in this strategy, which brought about the establishment of Peninsula Clean Energy and the Regionally Integrated Climate Action Planning Suite (RICAPS), among others.

PLAN UPDATES

The plan will be updated every 5 years. However, given the pace of climate change and the rapidity of change needed to meet climate goals, progress on meeting the plan will be assessed every year and implementation efforts will be adjusted accordingly.

INTRODUCTION

Earth's climate is changing, and many recent changes are unprecedented. Human activity is driving this change primarily by burning fossil fuels, which releases greenhouse gases (GHGs) into the atmosphere. The longer we delay action to reduce these emissions and prepare for the unavoidable impacts of climate change, the greater the risk of severe harm to our communities and the ecosystems we depend upon for our livelihoods.

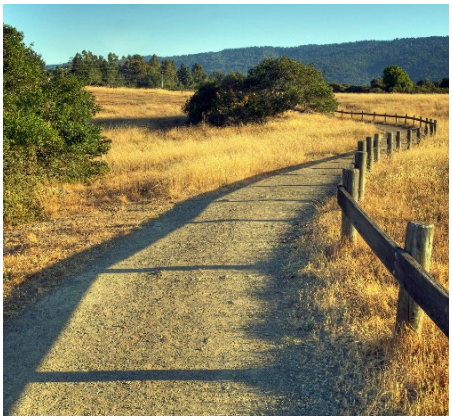
> *"It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred." IPCC AR6*[13]

Should we fail to significantly reduce emissions, the scientific community expects diminishing water supply, increasing risk and frequency of wildfires, and erosion and flooding of our coasts. These changes will put our economy, safety, health, and natural ecosystems and resources at risk and exacerbate existing social and economic inequities.

This San Mateo County **Community Climate Action Plan (CCAP or "plan")** presents an updated pathway for the County to address these climate challenges and make informed choices for the region. Successful implementation of this plan's measures will significantly reduce greenhouse gas emissions, improve quality of life, and enhance social and economic prosperity for all unincorporated areas within the County.

[13] "Ar6 Climate Change 2021: The Physical Science Basis." Sixth Assessment Report. Accessed January 14, 2022. https://www.ipcc.ch/report/ar6/wg1/.

Why a Climate Action Plan?



San Mateo County is home to beautiful and diverse landscapes and communities. Nestled between the San Francisco Bay and the Pacific Ocean, its 455 square miles of land are home to charming coastal communities, vibrant bayside communities, and diverse neighborhoods of almost 767,000 residents. The County's unincorporated areas (see Figure 7 below) contain regal redwood forests and oak woodlands, abundant farmlands and ranches, rolling hills, historic sites, thriving marshes and beaches. Stewarding and protecting this ecosystem and the communities that rely upon it is critical. The unincorporated areas on both the coastside and bayside also contain tight-knit and culturally diverse neighborhoods that stand to lose the most from inaction on climate change.

San Mateo County residents and communities are already facing a new reality: coastal flooding, reduced water supply, severe fires, and heat waves are occurring more frequently and severely than before. These changes have real costs and can lead to major disruptions to our daily lives. In the last five years, the U.S. has experienced more than $500 billion in direct losses from climate-fueled weather disasters.[14] Wildfire smoke and rising temperatures endanger our health, jobs, and ecosystems, and winds and floods have damaged buildings and caused power outages. Many historically underserved communities have borne the brunt of these losses and will continue to be disproportionately affected unless the County takes decisive action. The ongoing COVID-19 pandemic deepens societal vulnerability, raises the cost of inaction, and complicates the path ahead.

[14] Hersher, Rebecca, and Nathan Rott. "What Are the Costs of Climate Change?" NPR. NPR, September 16, 2020. https://www.npr.org/2020/09/16/913693655/what-are-the-costs-of-climate-change.

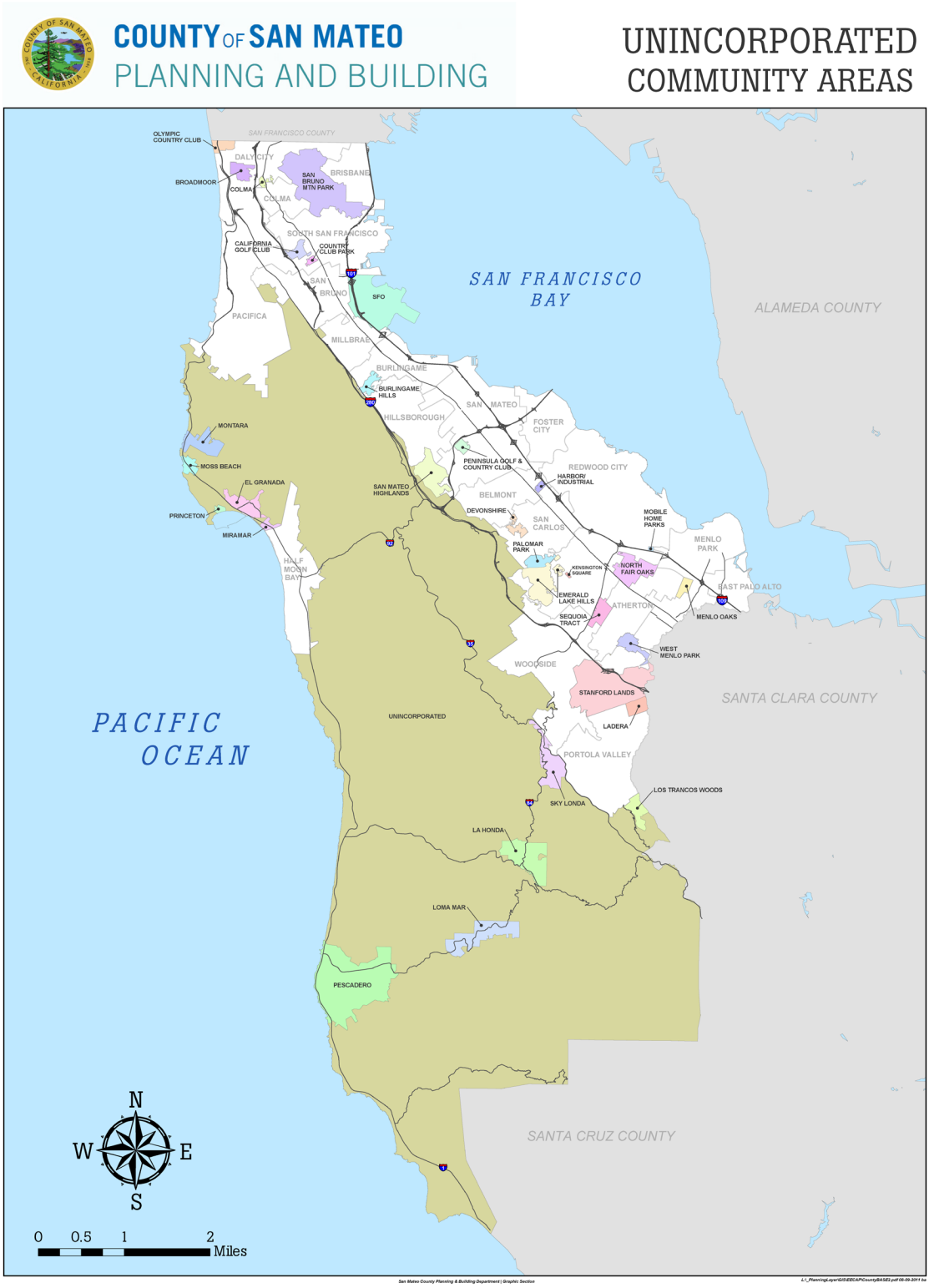
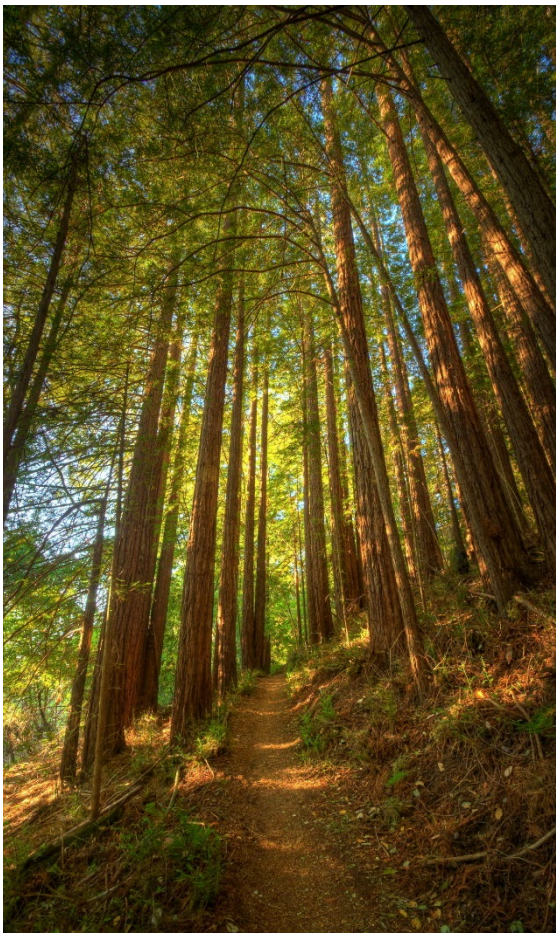


Figure 7. Unincorporated San Mateo County

With the effects of climate change now being felt sooner and more severely than expected, there is a need to update and accelerate the County's plan of action. The world has changed since adoption of the last Energy Efficiency Climate Action Plan in 2013: The County has reduced GHG emissions by over 30% since 2005, new technologies have developed, lessons and best practices have been learned, climate science has advanced, and new policies and regulations have been enacted. This plan focuses on the unincorporated communities and land in San Mateo County, whereas incorporated jurisdictions (i.e., towns and cities) create independent climate action plans that reduce emissions within its boundaries. Countywide coordination through working groups like the Regionally Integrated Climate Action Planning Suite (RICAPS) facilitates coordination across these plans (in addition to providing technical assistance). This plan is consistent with and advances these Countywide efforts.

In its Sixth Assessment Report (2021), the Intergovernmental Panel on Climate Change (IPCC) shows that under no emissions scenarios can we keep global warming levels below the critical 1.5°C level. Even under a very low emissions scenario, global warming would not decline below 1.5°C by the end of the 21st century. Furthermore, even if global emissions reached net negative and surface temperatures were gradually reduced, other climate changes like sea level rise would continue to worsen for decades or *millennia*. Despite this sobering reality, every ton of carbon dioxide and equivalent GHGs contribute to a climatic condition that is increasingly inhospitable for life on Earth. Rapid and sustained emissions reductions are still necessary to minimize CO_2 concentrations, reduce global warming, improve air quality, and potentially forestall the most extreme effects of climate change.



This updated Community Climate Action Plan builds on these developments to carve a clear and improved pathway for communities in unincorporated San Mateo County to reduce emissions by 45% over 1990 levels and achieve carbon neutrality by 2040.

This updated target aligns San Mateo County with the latest international scientific consensus, California's statewide emission reduction goals, and is the minimum emission reduction needed to help prevent the worst climate impacts. Achieving carbon neutrality—the point at which the amount of carbon released into the atmosphere is balanced by an equal amount of carbon removed—will not be easy and will require significant changes in the way County government, businesses, and residents operate. We will need to significantly reduce energy consumption of our buildings and vehicles and shift our fuels from fossil fuels like gasoline, diesel, and natural gas to renewable sources like solar and wind. Making these changes can bring important benefits to our community too, including reduced energy and transportation costs, green job creation, improved public health, and increased access to parks and essential services.

And yet, the challenge ahead is not just about the fuel that powers our homes and cars, it is about the quality of our communities and of our built and natural environments. It is about people living dignified lives, it is about all of us. Inherent in this challenge are also opportunities to reduce energy and transportation costs, improve access to livable wage career opportunities, improve public health, improve neighborhood resilience to power shutoffs and natural disasters, increase access to parks and essential services, and support a vibrant and economically sustainable agricultural community. Taking these steps to reduce sources of climate pollution strategically and systematically in the County is an important component of ensuring the health and wellbeing of our community for current and future generations.

Benefits of Climate Action - A Preview

Taking action on climate change can provide multiple benefits for our community. Greater detail about each of these benefits is provided in the Benefits of Climate Action section.

Local green job creation and sustainable economic development. Climate actions can create more jobs in renewable energy, energy efficiency, construction, and transportation. Expanding opportunities in these sectors diversifies the county's workforce and recirculates money back into our local economy.

Reduced utility and maintenance costs for residents and businesses. Energy bill savings from energy efficiency improvements can result in more money for basic needs, lowers the cost of living, and can trickle into the local economy.

Increased access to public health services, food, and emergency services. As communities become centered around transit and active transportation routes, parks, local businesses, and amenities become more accessible to all.

Improved resilience of buildings, infrastructure, and communities. Measures to shift towards clean electricity, active transportation, and waste management will improve the design and reliability of our roadways, utilities, neighborhoods, and public spaces.

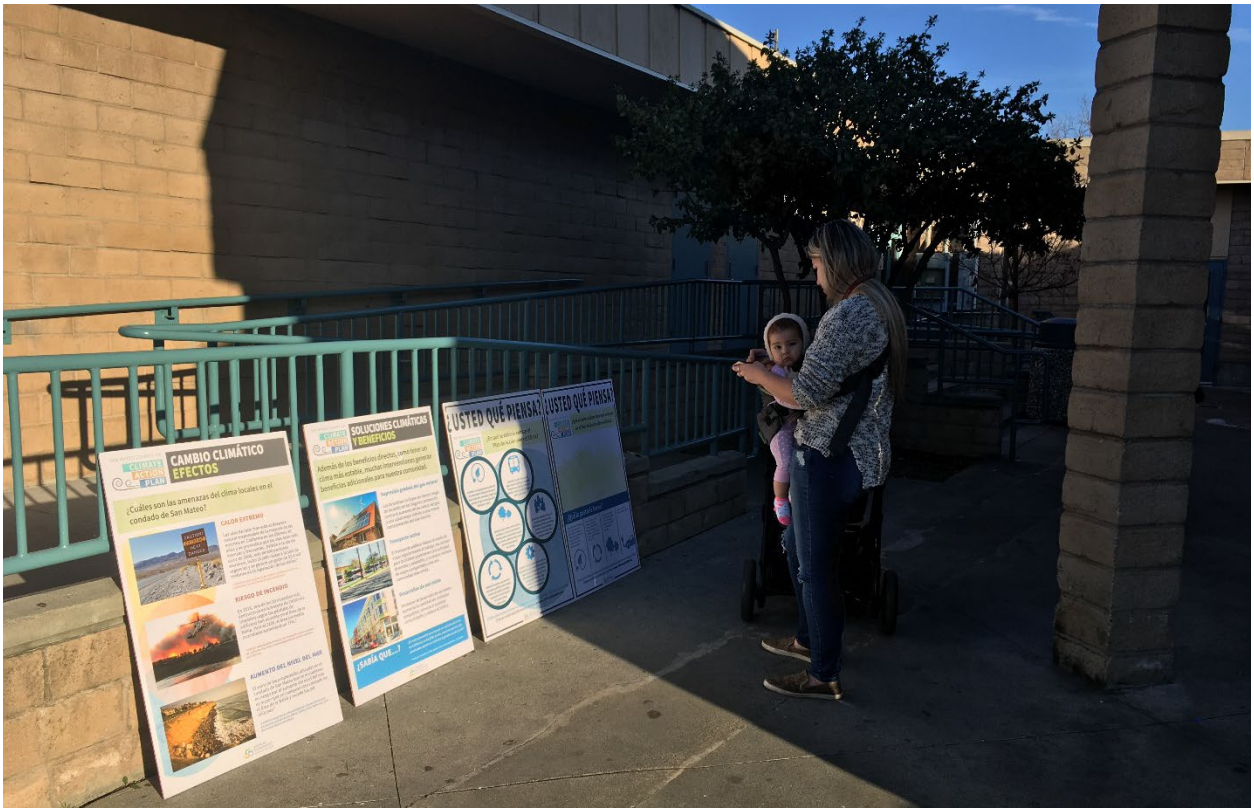
Improve resilience of working lands and local agricultural producers. Protecting and enhancing local ecosystems by supporting carbon sequestration and other climate beneficial agricultural practices can help improve soil health, wildlife habitat, biodiversity and protect local food sources.

Increased access to transit, sidewalks, bike lanes, and other transportation options. Shifting to sustainable and active travel will bring improved safety, design, and access to transportation infrastructure.

Improved air quality, public health, and quality of life. More active forms of transportation, reduced fossil fuel combustion, and access to neighborhoods with healthy urban tree canopy can significantly reduce rates of hospitalization, illness, and improve mental health.

Climate Change: One Crisis, Two Solutions

Adaptation and Mitigation



Even with considerable efforts to reduce greenhouse gas emissions, the county will continue to experience the increasing effects of climate in the coming years. Therefore, responding to the cause and effects of climate change involves both **climate adaptation** and **climate mitigation**.

Climate mitigation involves slowing the process of global climate change, usually by reducing GHG emissions. Mitigation strategies aim to transition communities away from fossil fuels. They tend to focus on transportation and building energy, the major sources of community emissions. Climate mitigation can also involve carbon sequestration: absorbing carbon dioxide from the atmosphere into plants and soils. Landscapes such as wetlands, forests, and rangelands can take large amounts of carbon out of the atmosphere.

As we mitigate climate change, we also need to adapt to its effects. To use a driving analogy, if mitigating climate change is taking our foot off the gas pedal to avoid a crash, adaptation is making sure our airbags and seatbelts keep us safe. Combining local adaptation and mitigation projects can lead to fully integrated climate solutions.

This plan is designed to chart a course towards GHG emissions reduction to meet or exceed State goals. This is not a plan for how the County will adapt to the effects of climate change. A comprehensive adaptation planning effort is underway through the Local Hazard Mitigation Plan update, a separate policy process at the County, co-led by the Office of Emergency Services and the Office of Sustainability.

Climate adaptation refers to how a community adjusts over time to become less vulnerable to climate changes. Even with considerable efforts to reduce GHG emissions, the County will continue to experience the increasing effects of climate in the coming years. By 2050, average temperatures will increase by 4.4°F and, by 2100, by an additional 1.2°F. The County is currently on the path to see up to 2 feet of sea level rise by 2050 and more than 6 feet by 2100 unless global emissions are reduced dramatically and quickly.[15] Precipitation in San Mateo County will continue to display annual variability as wetter years can become even wetter while drier years become even drier, creating more extreme conditions. This can result in both short and long-term impacts to facilities, homes, and people.

Communities with pre-existing social vulnerabilities have limited ability to absorb and adapt to major stresses like climate change. Social vulnerabilities include poverty, unemployment, lack of education, among others, which can lead to disparities in health outcomes and inequities in living conditions. Communities that may be disproportionately affected by climate change include people of color, elderly and youth, the LGBTQ+ community, people with disabilities, people experiencing homelessness, people with limited English proficiency, migrants and outdoor workers exposed to extreme heat and wildfire smoke, households without reliable access to a vehicle, and renters without flood and fire insurance or with limited capacity to retrofit or rebuild their homes. Climate change already is and will continue to exacerbate these social vulnerabilities. Figure 8 below depicts some examples of adaptation and mitigation.

Current Adaptation Projects in the County

The Climate Ready San Mateo County Initiative, established in 2019, focuses on preparing San Mateo County for the variety of climate change impacts the County will continue to experience. In 2019, the Board adopted a Sea Level Rise Policy for County-owned facilities, and staff have been collaborating across County departments to implement the policy. The County has nearly completed a South Coast Sea Level Rise Vulnerability Assessment and Adaptation Plan, which assesses what is at risk from sea level rise for the area south of Half Moon Bay to the County border, including Pescadero. This study builds on the results of the County's 2018 Sea Level Rise Vulnerability Assessment, which included the entire county Bayshore and Half Moon Bay north on the Coast. Climate Ready SMC also includes a Climate Collaborative, which brings together diverse stakeholders to work together to act on these issues, and which has a focus on ensuring inclusion of historically underserved populations. The Climate Collaborative held a series of convenings, launched an Extreme Heat Task Force and Housing and Climate Readiness Task Force, and completed a study on evaluating risks from climate change to transportation systems. Additional projects are underway and expected to be complete by 2023, including a Climate Resilience Strategy, Safety Element Update Template, Climate and Housing Toolkit and Adaptation Library, and an online Climate Impacts Viewer.

In addition, the County completed a Community Resilience Grant Program, which provided grants to cities and non-profit organizations to plan for protecting against sea level rise. The County also collaborates with the new Flood and Sea Level Rise Resiliency District known as OneShoreline which is currently supporting outreach and engagement efforts for the District.

[15] State of California. "California's Fourth Climate Change Assessment: San Francisco Bay Area Region Report." California Climate Assessment, 2019. https://climateassessment.ca.gov/regions/.

Moving Forward

Over the past five years San Mateo County has been working with stakeholders across cities, non-profits, and businesses to take stock of the climate risks to people, infrastructure, and ecosystems. Several state requirements related to climate and hazard planning, including SB 379, Land use: general plan: safety element: climate adaptation, which requires local jurisdictions to update their Safety Element to address climate risks as part of the Local Hazard Mitigation Plan Update. The next step in meeting these requirements, and in preparing the County's communities, infrastructure, and ecosystems for climate change is to develop a strategic plan that establishes coordinated adaptation goals, measures, and implementation actions. Inclusive community engagement is a key part of the County's adaptation planning efforts moving forward.

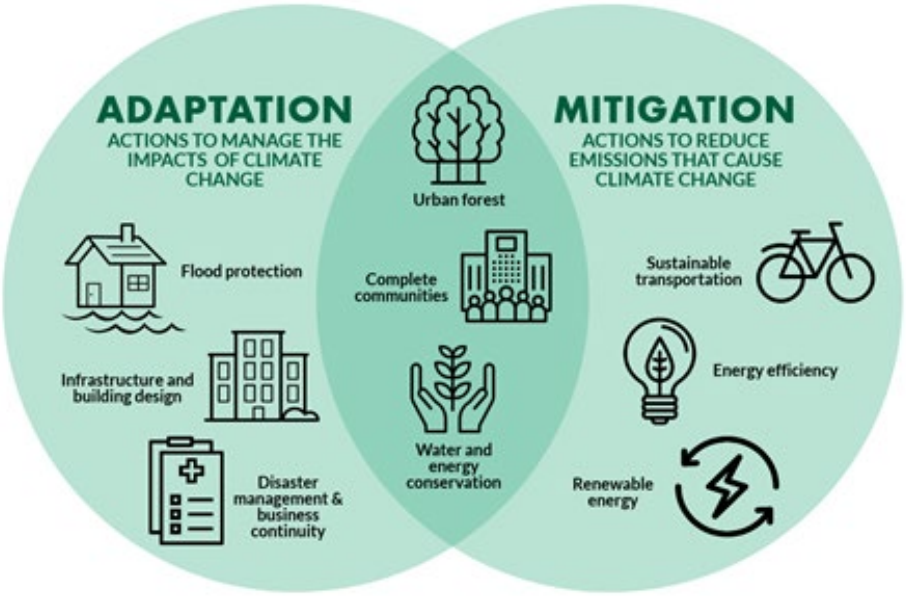
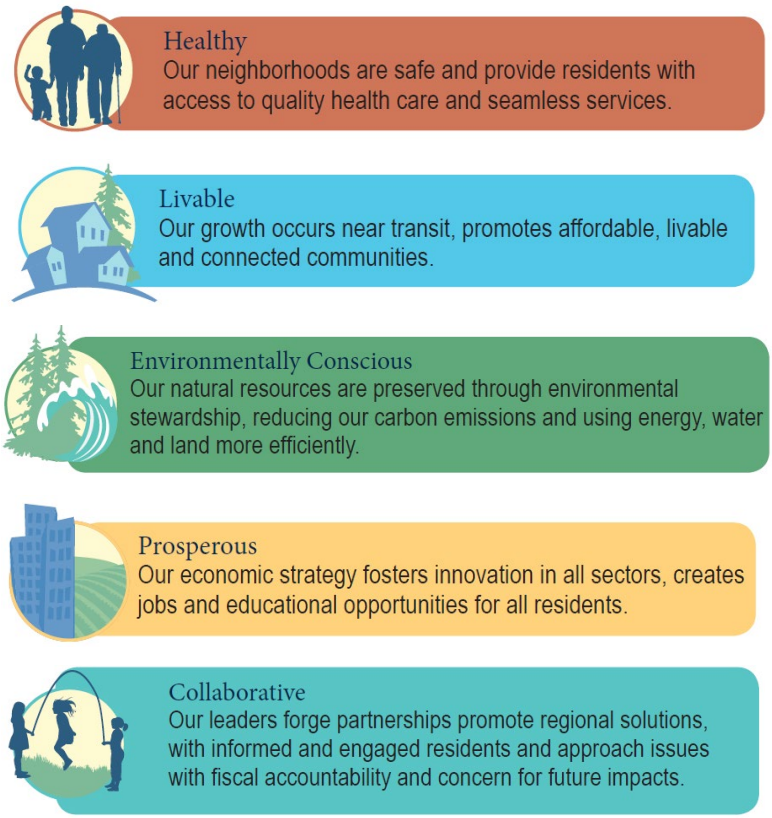


Figure 8. Examples of adaptation and mitigation.

Vision for a Better Future

San Mateo County aims to be a place that minimizes harmful climate pollution while strengthening and investing in healthy, environmentally conscious, livable, collaborative, and prosperous communities.



We have an obligation to act today to realize that vision for current and future generations of San Mateo County residents. This CCAP supports this vision by working with regional partners to establish equity-driven strategies, actions, and goals that inspire climate action, protect our community from the effects of climate change, expand health and emergency services, and foster sustainable growth.

Health, environmental, and social justice crises have shown how both societal issues and climate dangers exacerbate existing disparities—especially for low-income people, frontline workers, communities of color, elderly populations, and youth. For example, we know that marginalized communities are disproportionately exposed to air pollution, and that this exposure has contributed to higher mortality rates from COVID-19. This plan recognizes the challenges ahead in realizing our climate action vision during economic, social, and public health crises. Amid the global pandemic and social movements striving for racial justice, there are lessons we can apply in our response to climate change:

- **We are only as safe and healthy as our neighbors.** We have seen inspiring grassroots examples of mutual aid, neighbor-to-neighbor cooperation, and motivating displays of solidarity amid the pandemic. These networks will serve to build resilience to climate-related disasters.
- **Structural change and government planning are needed. Policy** decisions and actions must be based on science and evidence to respond properly and effectively to threats.
- **Public health infrastructure is critical.** Investing resources up front to prevent harm saves lives, prevents suffering, and saves significant amounts of money and resources in the long term.

We must make social equity our top priority as we consider where to invest resources in reducing GHGs along with other benefits and outcomes. Communities that have faced injustices and burdens from COVID-19, racism, climate change, and more must come first. We can build this future together if we choose “people-friendly” solutions that minimize pollution and prepare for climate risks.

The County's Role in Climate Action

Since every aspect of modern society currently depends on carbon-based fuel, climate change crosses geographic, economic, and institutional boundaries. Therefore, actions taken to reduce greenhouse gas (GHG) emissions will have to span local, state, federal, and international entities. Although climate change is a global problem, action can and must be taken locally. The County, its partners, and its communities collectively have the knowledge, tools, and means to do our part in reducing our emissions to avoid catastrophic climate impacts. These actions will not only reduce emissions, but also create a more connected, affordable, accessible, and vibrant future for county businesses, visitors, and residents.

The County is leading by example with a recently updated Government Operations Climate Action Plan (GOCAP). This new plan provides a roadmap to guide County government operations in preparing for climate risks and significantly reducing greenhouse gas emissions. The GOCAP aims to make government operations more efficient and improve the level of service it provides to residents and businesses by building on current progress and using the latest science.

However, the County cannot act alone. The County also works closely with an extensive set of organizations that are transforming climate action and governance. These organizations include Peninsula Clean Energy (PCE), Pacific Gas and Electric (PG&E), San Mateo City/County Association of Governments (C/CAG), Association of Bay Area Governments (ABAG), San Mateo County Energy Watch (SMCEW), and Bay Area Regional Energy Network (BayREN). See the *Stakeholders and Partnerships* section for a more detailed look at County collaborations.

All 20 incorporated cities within San Mateo County also collaborate on climate mitigation. Together, these cities and the County developed the Regionally Integrated Climate Action Planning Suite (RICAPS), a set of tools to support San Mateo County local governments with climate action planning and implementation. The tools include a climate action plan template, menu of measures, and a greenhouse gas forecasting calculator. These tools and a monthly working group with agency staff enable cities and the County to collaborate and align their work on climate planning.

The residents and businesses of San Mateo County are also critical in helping to meet the County's climate goals of reducing emissions 45% from 1990 levels by 2030 and of achieving carbon neutrality by 2040. Community members help shape County actions and make individual actions that collectively have a cumulative effect. Reducing emissions will require changes in the way we do business and live our lives—reducing single occupancy vehicle trips, transitioning our homes and vehicles to lower-emission fuel sources, and being aware of how the goods and services we consume affect the environment. All members of the San Mateo County community will play a part in making these changes.

PLAN OVERVIEW

Document Roadmap

CLIMATE CHANGE & SAN MATEO COUNTY

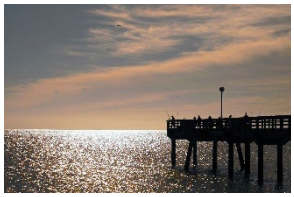
pg. **50**

San Mateo County's communitywide GHG emissions sources, projected climate impacts in the county, and how the CCAP relates to global and local policies and actions.

GOALS

pg. **60**

San Mateo County's overarching goals related to curbing community GHG emissions.



POLICIES & ACTIONS

pg. **63**

Key opportunities, goals, overarching policies, and actions that will move the policies forward.

BENEFITS OF CLIMATE ACTION

pg. **112**

Taking action on climate change can improve public health, support more resilient communities, reduce traffic congestion, provide economic opportunity, and bolster local food systems.

IMPLEMENTATION

pg. **123**

How we will put the CCAP into action, including the timeframe of priority actions, who is responsible for accomplishing them, and how progress will be tracked.

POLICY FOCUS AREAS

BUILDING ENERGY
pg. **69**

Energy that is used in commercial and residential buildings.

Strategies to reduce energy use and transition to renewable energy sources.

TRANSPORTATION
pg. **80**

How people get around.

Strategies to shift to electric fuels and use lower-carbon transportation modes such as transit, walking, and biking.

WASTE & CONSUMPTION
pg. 90

The management and reduction of solid waste.

Strategies to reduce waste generation, divert waste from the landfill, and purchase more sustainable goods and services.

WORKING LANDS
pg. 99

Supporting the stewardship of range and crop land.

Strategies to sequester carbon, improve agricultural resilience, enable climate beneficial agricultural practices, and support the local food system.

Plan Elements

Below are key terms and definitions used to structure and categorize elements of this plan:

FOCUS AREAS are the broad topic areas of the climate action plan. They include Building Energy, Transportation, Waste & Consumption, and Land Management.

GOALS are the desired outcomes that San Mateo County government intends to achieve for each focus area. Goals include quantitative and qualitative targets and timeframes for reaching them.

POLICIES summarize San Mateo County's plan for accomplishing stated goals and are used to organize the numerous actions.

ACTIONS are the specific activities that will be implemented to achieve overarching goals. Projected costs and benefits were evaluated to effectively scale and prioritize the list of actions.

How it Came Together

PROCESS OVERVIEW

This updated CCAP is the outcome of a four-year collaborative and communitywide development process, as shown below in Figure 9:

1. The County began by **collecting data** about where community GHG emissions are coming from and developed a preliminary list of actions to address those sources.

2. Next, a team of technical experts and County stakeholders collaborated to understand the whole picture of each **proposed action**. They considered the actions' emissions impacts, costs, equity considerations, and feasibility to prioritize the actions into a shorter list.

3. Throughout the process, the County listened to local experts and community leaders, gathered diverse perspectives from both **Bayside and the Coastside communities**, integrated other projects and plans underway at the County and regional level, and altered the proposed policies and actions according to the local context. County staff adapted the outreach phase to reach residents and other stakeholders during challenging circumstances, including unprecedented wildfires and the COVID-19 pandemic. Gathering hundreds of community perspectives through an extended engagement and outreach strategy informed a plan that reflects people's experiences, needs, and hopes for the future.

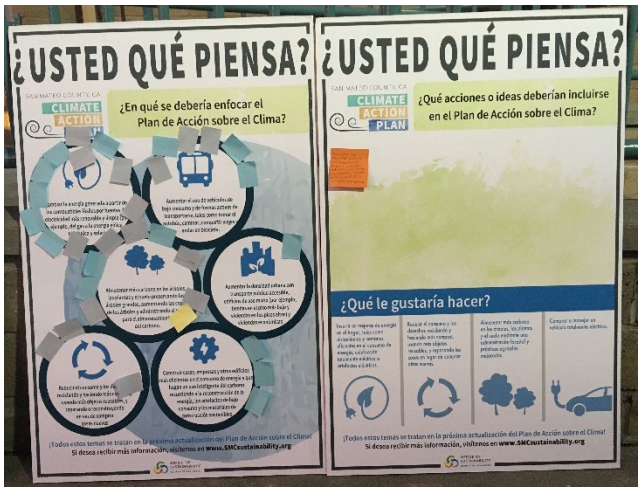
4. County staff carefully reviewed community feedback to create an inclusive and context-oriented set of climate policies and a **plan for implementation**. The goal was to craft a forward-thinking plan that reflects and supports a shared community vision. This stage required close collaboration with other County departments to ensure that the measures can be successfully implemented to achieve their intended goal.

Figure 9. CCAP development process.

COMMUNITY ENGAGEMENT SPOTLIGHT

Community input was instrumental in shaping this plan.

The County intended to complete most community engagement and outreach in person but pivoted to a largely online approach after the onset of the COVID-19 pandemic in March 2020. Staff used an online survey, virtual public workshops, and email communications, as well as radio advertisements and virtual focus groups to engage as many community members as possible given the circumstances throughout the summer and fall of 2020. This diversity of engagement methods helped the County to compile a coherent story of community experiences and a collective vision for the future.



Community feedback received at a tabling event in North Fair Oaks, February 2020.

Engagement Activities

ENGAGEMENT BY THE NUMBERS

60	130+	500+	500+
People engaged at pop-up events	Survey responses	Public workshop attendees	People reached with interviews and briefings

Local resident helps with CCAP outreach at North Fair Oaks Community Center, February 2020.

Community vision board from virtual "World Café" style workshop with Senior Coastsiders, October 2020

Highlights from breakout groups during bayside-focused virtual workshop, April 2020.

Highlights from breakout groups during bayside-focused virtual workshop, April 2020.

Siena Youth Center raffled bicycles to community members during fitness night, when County staff and community liaison hosted a tabling event and administered surveys, February 2020.

Community members waving goodbye after World Café style climate workshop in partnership with Senior Coastsiders, October 2020.

Climate themed Jeopardy game during youth-focused workshop, in partnership with ALAS, October 2020.

Coastside focused community workshop in partnership with Sustainable Pescadero.

Examples of CCAP outreach materials and social media posts utilized throughout the public engagement phase.

Pop-up events

Before March 2020, County staff conducted tabling events at the Fair Oaks Community Center and the Siena Youth Center. Residents talked about priorities and solutions on poster boards and through paper surveys available in English and Spanish.

The County engaged 60 people via poster boards and surveys at the Fair Oaks event.

Online surveys

The County created and solicited responses to two surveys:

- One general survey to understand community priorities, concerns, and ideas (58 responses)
- One survey specifically for people living on the coastside to understand their unique experiences and priorities (69 responses received).

Interviews and briefings

A significant aspect of outreach involved over 70 one-on-one interviews and briefings with County stakeholders (departmental staff and managers, legislative aides and Supervisors), technical experts, community leaders, staff from other cities, counties, and State agencies, ranchers, farmers, and other agricultural stakeholders.

General outreach and communication channels

Throughout the plan's community engagement process, the County website held a general contact email and comment box. The County also reached residents via printed flyers at events, radio and online advertisements, Facebook, and an email listserv of more than 700 people.

Online public workshops

The County hosted 15 interactive workshops via Zoom to educate community members and convene small-group discussions to hear their ideas about climate topic areas: building energy, renewable energy, transportation, waste, land management, and marine debris. Altogether, the County hosted:

- Four independent workshops for bayside residents between April and July 2020.
- Three more workshops in June and July 2020 through the County's free Sustainability Academy.
- Six workshops for coastside residents between October and November 2020 in partnership with the City of Half Moon Bay and community-based organizations. These workshops specifically reached seniors, youth, Spanish-speakers, as well as other community members. Two workshops were held in Spanish.
- One focus group dedicated to Spanish speakers of the agricultural community in the Pescadero area.
- One webinar for agricultural stakeholders, including producers.

Partners: Sustainability Academy, Senior Coastsiders, Youth Climate Ambassadors, Heirs to Our Oceans, Ayudando Latinos A Soñar, Puente de la Coast Sur, Sustainable Pescadero, San Mateo Resource Conservation District, Carbon Cycle Institute

What We Heard

Through all the outreach activities listed above, we engaged over 1,000 community members. Themes we heard from community members are summarized below and in Table 17.

We are concerned about climate change.
We heard that residents are concerned about the impacts of climate change, including:

- Rising sea level
- Wildfire risk
- Drought and water shortage
- Flooding
- Unequal climate impacts on different areas and neighborhoods in the County
- Changing weather patterns effecting ability to grow crops and raise livestock

We want multiple community benefits.
Community members hope that actions to mitigate climate change will also bring their communities:

- Improved health
- More vibrant public spaces and engaged civic life
- Local green jobs
- Cleaner air
- Education about climate issues, ecosystems, and nature
- Financial, educational, and technical support for implementing climate beneficial agricultural practices

Table 17. Themes heard through CCAP outreach and engagement.

Theme		How It's Being Addressed
Cost	Residents are concerned about the costs of renewable energy and energy efficiency upgrades, electric vehicles, and batteries for energy storage.	The Plan includes ways to lower the upfront costs of these items for residents, expanding affordable housing, and exploring financing options. Actions that help reduce costs to community members are marked with an icon: 
Equity	Residents want to ensure that historically underserved populations, low-income communities, and renters are afforded the same opportunities to access public transit, job training, and home energy improvements.	The Plan includes policies to ensure that these communities specifically receive energy upgrade incentives, access to workforce development, and pilots to explore new flexible and convenient transportation options. Actions evaluated to have positive equity impacts are marked with an icon: 
Grid reliability	Residents, especially on the coastside, are concerned that any electrification efforts will exacerbate existing energy grid vulnerabilities, especially during wildfire season when the threat of a public safety power shutoff is high.	The Plan prioritizes electrification in locations that will maximize emissions reductions (e.g., in dense urban areas) and pair electrification with storage or microgrid technology that provides resilience and backup power in the case of emergencies. Actions that build grid reliability are marked with an icon: 

Theme		How It's Being Addressed
Communication	Residents are interested in more frequent and accessible communication and education from the County, especially in multiple languages.	The Plan specifies multilingual outreach on several topics, including waste, alternative transportation fuels, and electrification. The County will work with community-based organizations to make sure messaging is thoughtful and accessible. Actions that include community communications are denoted with an icon:

At online public workshops, the County asked participants for their feedback about building energy, renewable and resilient energy sources, transportation, solid waste reduction, and land management.

Comments revealed a vision for a San Mateo County where…

Building Energy …both renters and building owners can transition away from fossil fuel-powered infrastructure and appliances, toward upgrades that run on clean electricity *and* are resilient throughout climate impacts.	- "Electricity and microgrids can be a dependable alternative to natural gas." - "Renters would like electric appliances in our buildings."
Transportation …there are safe and connected sets of biking and walking paths throughout the County and public transportation options that provide a viable, convenient, affordable alternative to driving.	- "Would like to make it possible for kids to ride bikes more around town and in nature." - "Hope there can be great connectivity between different transportation options."
Waste & Consumption …all residents have access to recycling and composting, businesses and residents use reusable items instead of single-use, and more food is donated to hunger relief organizations.	- "Support young entrepreneurs to start own businesses to create local jobs." - "Create high-quality compost for agriculture and home gardening."
Working Lands …agricultural producers are supported in implementing climate beneficial practices that absorb carbon, enhance soil health, conserve water, and protect the long-term resilience of the local food system. …additional public green spaces drive traffic to local business and make communities more social and livable.	- "Financial incentives and support are essential to scaling [climate beneficial] practices and protecting local food systems." - "Preserve open space and working lands." - "Community gardens help the climate and bring people together."

CLIMATE MITIGATION IN CONTEXT: COAST AND BAYSIDE

Another prominent theme that emerged during the research phase and public engagement was the differentiated needs and interests between urban and rural communities in San Mateo County. Neighborhoods on the coast, in the Santa Cruz Mountains, and on the San Francisco Bay face different challenges and barriers for mitigation strategies such as solar panels, electric vehicle charging stations, parking, and active transportation infrastructure. The CCAP attends to this need in a few ways. Many of the proposed actions in the plan cite the need to serve communities that are most vulnerable to the effects of climate change, historically underserved communities, and clarifies the importance of partnering with local organizations and community leaders to make climate mitigation projects more attuned to specific and local needs. The policies and actions the CCAP calls for are not "one-size-fits-all" and most will require tailoring and additional community input during the implementation to meet diverse and unique contexts.

Equity and the Plan

San Mateo County recognizes the inextricable link between racial equity and climate change. Climate change threatens many of the populations who are least responsible for causing climate change, as well as those who are already experiencing disproportionate environmental, economic, and social hardships.

The COVID-19 pandemic has further exacerbated these inequities. The County's strategy to reduce GHG emissions must put these frontline communities at the center of its action and decision making. The County prioritized racial equity throughout the planning process and took the following steps:

- **Inclusive community engagement.** The County conducted outreach and engagement with non-English speaking communities across the County. Examples include staffing tabling events at community and youth centers, offering surveys in non-English languages (Chinese and Spanish), and partnering with community organizations such as Puente de la Costa Sur and Ayudando Latinos a Soñar to host online workshops that provided opportunities for community members to learn about the topic and participate in small-group discussions.
- **Targeted stakeholder consultation.** The County solicited feedback on all proposed measures in the CCAP, including consultation with community leaders and organizations as well as residents throughout the County. The County reviewed each stakeholder comment and adjusted the plan to bolster equity considerations, avoid potential harmful impacts, and maximize benefits from each measure.
- **Equity evaluation of proposed measures.** All proposed measures in the CCAP underwent an iterative evaluation and prioritization process that included consideration of negative or positive equity impacts. Each measure was given an equity score that informed whether the measure would be ultimately included in the CCAP.
- **Implementation considerations.** While equity must be considered in the measure development and prioritization process, it must also be an explicit consideration during measure implementation. The CCAP's implementation plan includes a checklist of questions and considerations that all County staff must consult when putting the proposed measure into practice. The section also includes a plan for monitoring and evaluating measure outcomes to ensure that any issues or unintentional harms are quickly identified and addressed. In addition to systemizing equity in the plan's implementation, it will also be important for County staff to use trauma-informed language and culturally competent methods of outreach and implementation.

Although this plan lays out a clear set of policies and actions for reducing emissions, this plan does not attend to the structural, systemic, and constitutive dimensions of racial inequality. While climate action can and should involve addressing disparities in access to basic resources, these activities are focused on a single and somewhat narrow outcome—carbon reduction—rather than the structural deficits in decision-making and policymaking that have brought about and continue to reify pervasive injustice. On this front, the County is committed to advancing racial equity through creating the Office of Racial and Social Equity staffed at the time of this writing with the first Chief Equity Officer, Shireen Malekafzali. Through the efforts of the Office of Racial and Social Equity, the County has identified to specific actions to build accountable structures to advance equity efforts which include bringing together a community engagement body, collecting data and metrics, training the County workforce, and developing and equity assessment tool for programs and policies.

CLIMATE CHANGE & SAN MATEO COUNTY

Climate Impacts

San Mateo County residents and communities are already facing a new reality: coastal flooding and erosion, reduced water supply, severe fires, and heat waves are occurring more frequently and severely than before. These occurrences are no longer hypothetical scenarios. To mitigate the severity of these impacts in the decades to come, considerable reductions in greenhouse gas emissions are necessary.

Climate change is expected to increase the frequency and severity of heat stress, drought, wildfires, and poor air quality days. These primary impacts from climate change are likely to create secondary impacts on people and systems in the County. Health risks from heat waves, poor air quality, and flooding will increase. Disaster response and relief costs are anticipated to increase as flooding, storms, droughts, wildfires, and other climate-related natural disasters become more common. 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 affect County buildings, stormwater infrastructure, transportation infrastructure, community services, and land-use planning and development. The decisions and changes we make today will have significant implicants for current and future generations.

Primary impacts include biophysical and physiological changes in the environment, including**:**

- Rising temperatures and fire risk
- Changes to the water cycle
- More frequent and intense storms
- Rising sea level

Secondary Impacts include the effects of climate change on humans, infrastructure, and systems, including impacts to:

- Public health and equity
- Energy systems and use
- Natural landscapes
- Agriculture
- Transportation and emergency services

Pollution is warming our planet at an unprecedented rate and driving local changes that are harmful to our community:

Increased Heat

The region's annual maximum temperature increased 1.7°F from 1950-2005. By 2050, 10 additional days of the year or more could feel hotter than 90°F.[16] Air temperatures are expected to increase in San Mateo County by 5°F by 2070, causing widespread impacts on infrastructure and public health.[17]

Rising Sea Levels

Sea level has risen over 8 inches in the last century and could rise 1-2 feet by 2050, and 3-7 feet by 2100 (and up to 10 feet in an extreme ice-melt scenario).[18] San Mateo County is the most vulnerable county in California to the first three feet of sea level rise with respect to population, including underrepresented population, number of homes, property value, and number of contaminated sites.[19]

Larger & Faster Spreading Fires

San Mateo County faces an increasing risk of loss of life and widespread property damage caused by wildfires. In 2020, the CZU Lightning Complex fires burned 86,509 acres across San Mateo and Santa Cruz County. The fires destroyed 1,490 structures, damaged an additional 140, and led to one fatality.[20]

Less Fog

Coastal fog is less frequent than ever before.[16] The presence and duration of coastal fog on the San Mateo Coast is critical to agricultural production and changes in its pattern or density can pose major challenges for producers.

Severe Droughts

The 2012-2016 drought was one of the most severe over the last 1,200 years and led to a 500-year low in Sierra snowpack. By 2100, snowpack is projected to decline 80%. [16] On April 21, 2020, the United States Department of Agriculture declared a drought disaster that included San Mateo

Beach Erosion

San Mateo County's beaches tend to have sand rather than cliffs at the shore. This geology makes the beaches vulnerable to erosion from winds, sea level rise, and inland flooding events, all of which are expected to increase.[22] [23]

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[16] *San Francisco Bay Area Region Report*. California's Fourth Climate Change Assessment, 2018.

[17] "San Mateo County Multijurisdictional Local Hazard Mitigation Plan." San Mateo Department of Emergency Management. https://cmo.smcgov.org/sites/cmo.smcgov.org/files/documents/files/210809%20How%20To%20Review%20the%20Plan_0.pdf.

[18] *State of California Sea-Level Rise Guidance Document*. March 2013 Update.

[19] San Mateo County has more people and property value at risk from sea level rise than any other county in the state. 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. "San Mateo County Sea Level Rise Vulnerability Assessment," Sea Change San Mateo County, 2018.

[20] "San Mateo County Multijurisdictional Local Hazard Mitigation Plan", Pages 16-8.

[22] Gerrity, Brian, Michael Robert Phillips, and Catherine Chambers. "Applying a Coastal Vulnerability Index to San Mateo County: Implications for Shoreline Management." *Journal of Coastal Research* 85 (2018): 1406–10. https://doi.org/10.2112/si85-282.1.

[23] "San Mateo County Multijurisdictional Local Hazard Mitigation Plan." San Mateo Department of Emergency Management. https://cmo.smcgov.org/sites/cmo.smcgov.org/files/documents/files/210809%20How%20To%20Review%20the%20Plan_0.pdf.

County. As of June 2021, the County was at the D3—Extreme Drought level, putting it at further risk of wildfires.[21]

In San Mateo County, climate change could lead to major threats. Figure 10 depicts some ways that our community could be threatened.

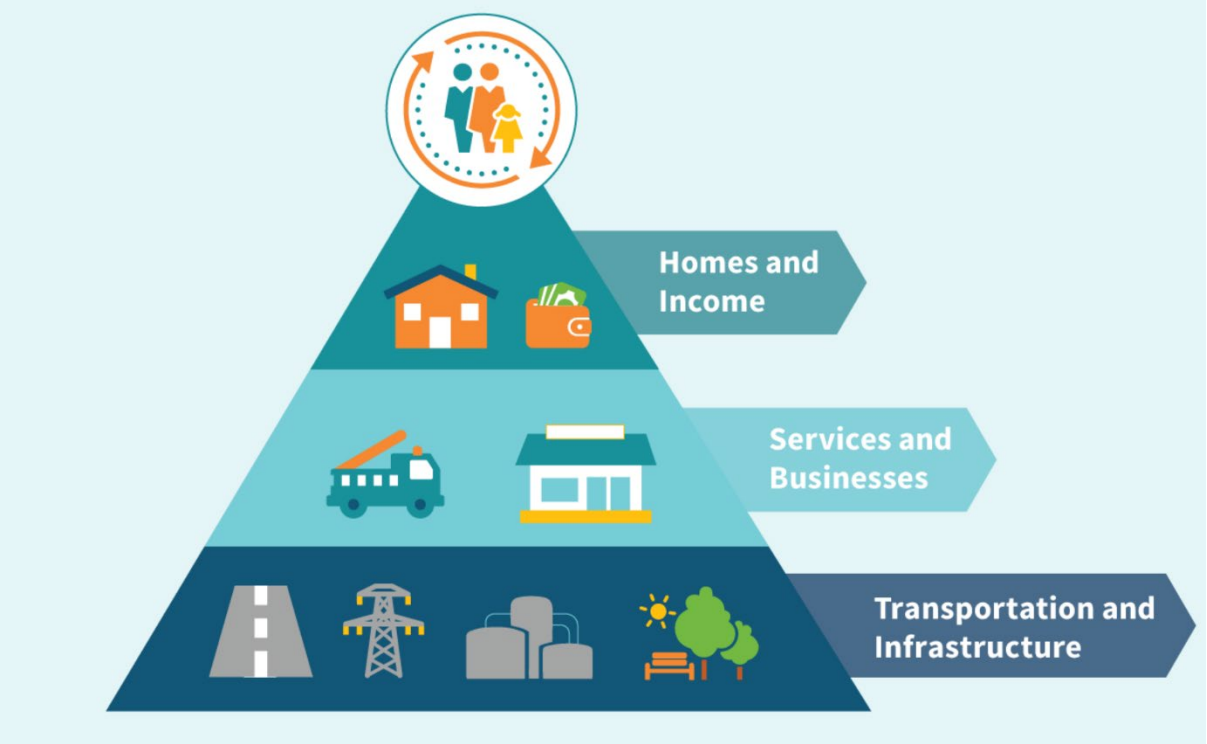

Figure 10. Threats San Mateo County faces from climate change. Source: Sea Level Rise Vulnerability Assessment: Sea Change San Mateo County (www.smcsustainability.org/climate-ready)

Homes & People

- Health risks from heat exposure will increase, especially those that lack air conditioning.
- Hazardous waste sites are at risk of flooding, creating a serious threat of contamination of near low-income and densely populated communities.
- Increased air pollution may create greater risk for people with lung and heart disease.

Services & Economy

- Businesses and services are vulnerable to increased flooding and energy costs.
- Our electrical grid is susceptible to outages from wind and wildfire events.
- Wine production in the region could be in danger due to increased temperatures and water scarcity.

Wildlife & Environment

- Our forests are at risk as the future climate becomes less suitable for redwood and Douglas fir trees.

[21] Ibid., Pages 9-8.

- Wetland, beach, and marsh habitats are in danger from rising seas and diminished shorelines.
- Fish and other aquatic species will be at risk from changing water flows and temperatures.

Global Problems, Local Solutions

Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, and imposing costs to people, communities, and countries today and even more tomorrow. Climate change is a global challenge that crosses geographic and institutional boundaries. To strengthen the global response to the threat of climate change, countries adopted the Paris Agreement at the COP21 gathering, where France hosted representatives from nearly 200 countries to the United Nation climate change conference. The aim was a binding and universal agreement to limit greenhouse gas (GHG) emissions to levels that would prevent global temperatures from increasing more than 2°C (3.6°F) from preindustrial levels. In June 2017, the San Mateo County Board of Supervisors passed a resolution upholding the County's commitment to the Paris Agreement by continuing to prioritize GHG emission reduction efforts, clean energy investments, and resiliency to the effects of climate change.

Climate scientists around the world, represented by the Intergovernmental Panel on Climate Change (IPCC), have an unequivocal position: human activity is changing the earth's climate through the release of GHG emissions caused by the combustion of fossil fuels. In its Sixth Assessment Report, the IPCC shows that under no emissions scenario can we keep global warming levels below the critical 1.5°C level. While the window of opportunity for keeping global warming to below 1.5°C has closed, it is still imperative to reduce GHG emissions to contribute to the global effort to mitigate the worst effects.[24]

San Mateo County is committed to reducing GHG emissions and supporting local, state, and federal efforts to do the same. The scope of this CCAP is limited to GHG emissions and measures to reduce those emissions in unincorporated San Mateo County. San Mateo County recognizes that for progress to be made, there must be coordination across different levels of government and geographic boundaries. This CCAP is also limited by current institutional frameworks. This CCAP does not address the structural problems in democratic processes and policymaking that have created a carbon-based economy and society. Addressing these constitutive roots of climate change will require large-scale changes across multiple government entities.

[24] "Ar6 Climate Change 2021: The Physical Science Basis." Sixth Assessment Report. Accessed January 14, 2022. https://www.ipcc.ch/report/ar6/wg1/.

Community Greenhouse Gas Emissions

Activities that result in the release of GHG emissions in San Mateo County include burning fossil fuels for transportation and building energy, disposing of solid waste in landfills, and treating wastewater. GHG emissions from these activities are summarized below. Continued monitoring and evaluation of the County's GHG emissions over time will ensure that the County targets and reduces its significant emissions sources to meet interim and long-term emission reduction goals.

INTRODUCTION TO GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and three man-made gases: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The more greenhouse gases in the air, the more the sun's energy gets trapped as heat, which means the Earth's temperature will continue to rise.

Not all greenhouse gases are created equally. Some gases are more potent in their heat-trapping capabilities. **Methane**, for example—the main ingredient found in natural gas—is twenty times more potent than carbon dioxide. That means one unit of methane emitted into the atmosphere is equivalent to twenty units of carbon dioxide. This relative potency is known as a gas's **global warming potential (GWP)**. The most notable sources of methane emissions are from landfills, livestock (especially cows), and leaks during the extraction, storing, and burning of natural gas.

Nitrous oxide is even more potent than methane—each unit of nitrous oxide is equivalent to almost 300 units of carbon dioxide. Nitrous oxide is emitted from some agricultural activities, especially from fertilizer use, and fossil fuel combustion.

Other man-made gases are extremely potent greenhouse gases. **Sulfur hexafluoride**—used as an electric insulator, heat conductor, and freezing agent—is rated as the most powerful greenhouse gas ever released to the atmosphere, at 24,000 times more harmful than carbon dioxide. **HFCs** and **PFCs** are also powerful greenhouse gases commonly used in refrigeration and air conditioning equipment, with GWPs in the thousands compared to carbon dioxide.

SAN MATEO COUNTY EMISSIONS: BY THE NUMBERS

Unincorporated San Mateo County has steadily reduced its GHG emissions over time (see Figure 11 below). Many of these reductions are from cleaner electricity fuel sources for residential and commercial buildings.

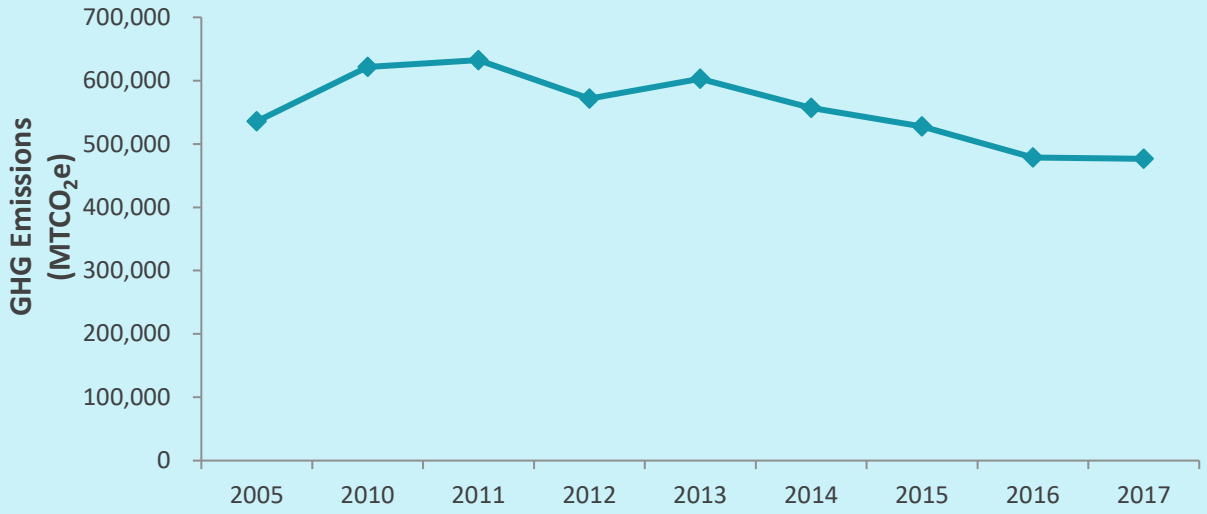

Figure 11. Unincorporated San Mateo County emissions over time.

As shown in Figure 12 below, the majority of the County's 2017 GHG emissions stem from transportation (52%) and building energy (41%). On-road internal combustion engine vehicles make up the bulk of transportation emissions, and natural gas use in residential and commercial buildings make up most building energy emissions.

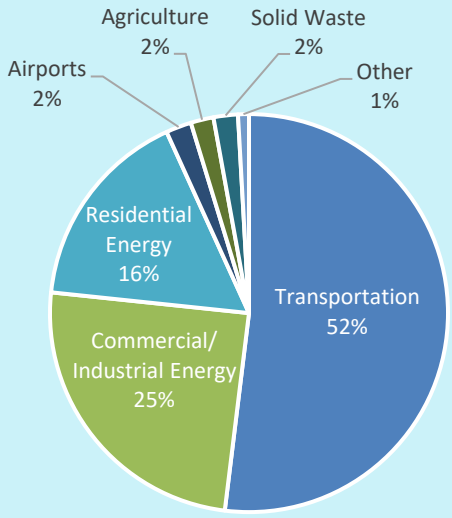

Figure 12. San Mateo County's 2017 GHG emissions by sector.

TRANSPORTATION

Transportation emissions (52% of total 2017 emissions) have remained steady over time, with more significant reductions in recent years (2016 and 2017) due to increases in fuel efficiency because of state and/or federal fuel economy standards (see trends in Figure 13 below). VMT has increased steadily over time (5% increase over 2005 baseline levels), but average fuel efficiency has increased from 19.9 mpg in 2010 to 24.0 mpg in 2017. Although the most current inventory data is from 2017 and, therefore, does not include the period since the COVID-19 pandemic began, transportation emissions did not decline due to the shelter-in-place orders. The sudden reduction in traffic did not result in an appreciable amount of GHG reduction in the transportation sector.

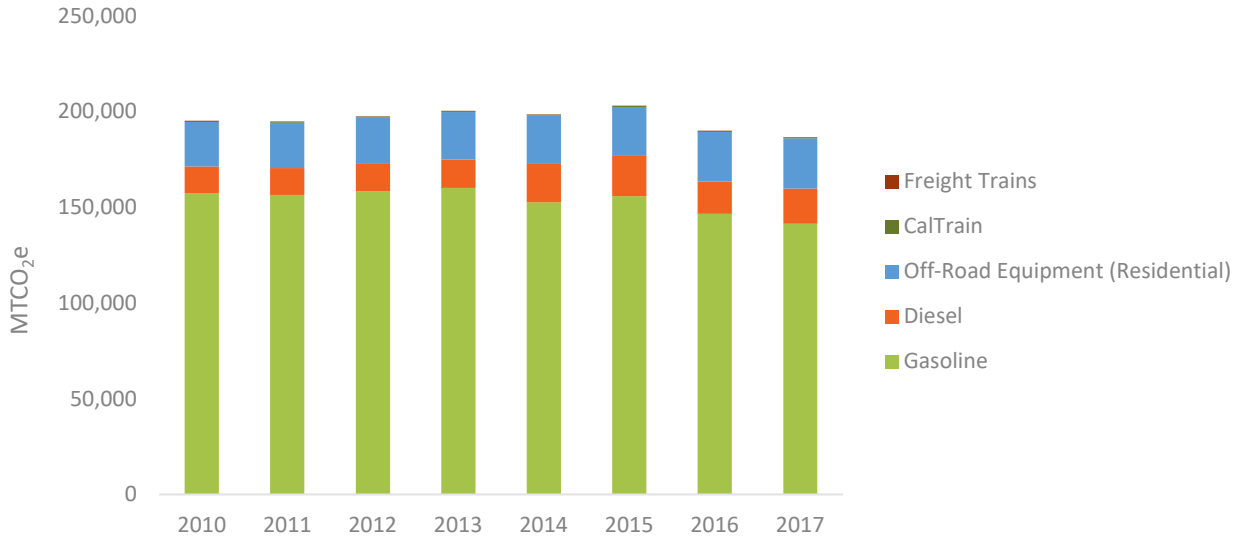

Figure 13. Transportation GHG emissions in $MTCO_2e$ from 2010–2017.

BUILDING & INDUSTRIAL ENERGY CONSUMPTION

Emissions from building and industrial energy consumption (41% of total 2017 emissions) have declined significantly since 2010, largely due to cleaner electricity sources for commercial, industrial, and residential uses. This switch to cleaner fuels was facilitated by the introduction of Peninsula Clean Energy, which provides options for County customers to purchase 100% renewable electricity to heat and power their homes and businesses. Figure 14 summarizes building energy emissions since 2010.

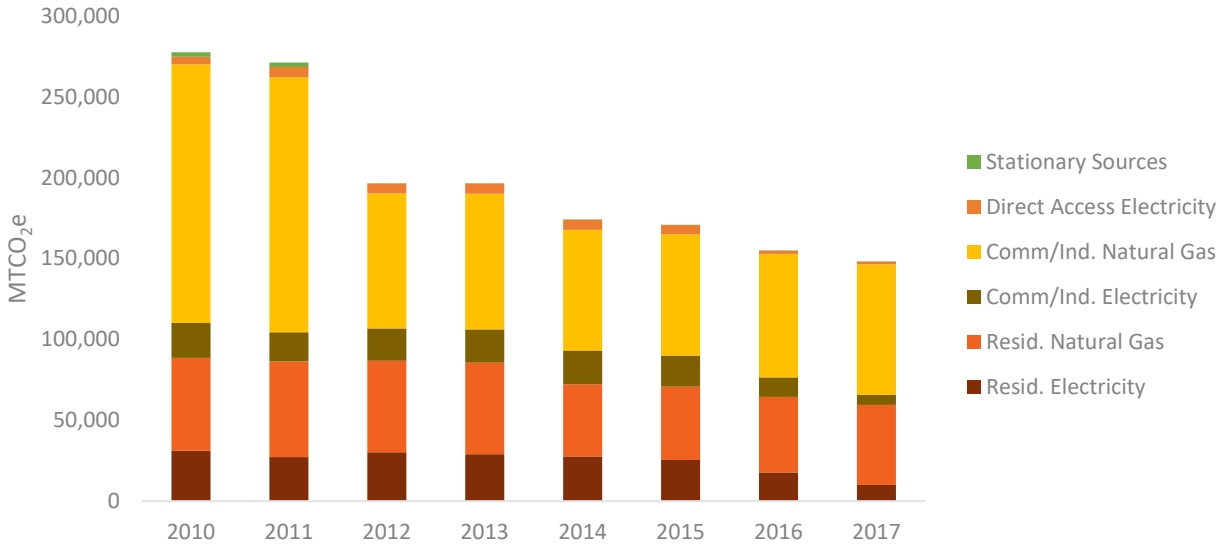

Figure 14. Building energy GHG emissions in $MTCO_2e$ from 2010–2017.

WASTE & CONSUMPTION

Emissions associated with solid waste generation and disposal (2% of total 2017 emissions) have fluctuated over time, with a net increase of 11% (728 $MTCO_2e$) since 2010 (see Figure 15Figure 14). Economy-wide dependence on fossil fuels and a consumeristic "throw-away" culture drives this upward trend in waste generation, transport, and disposal emissions.

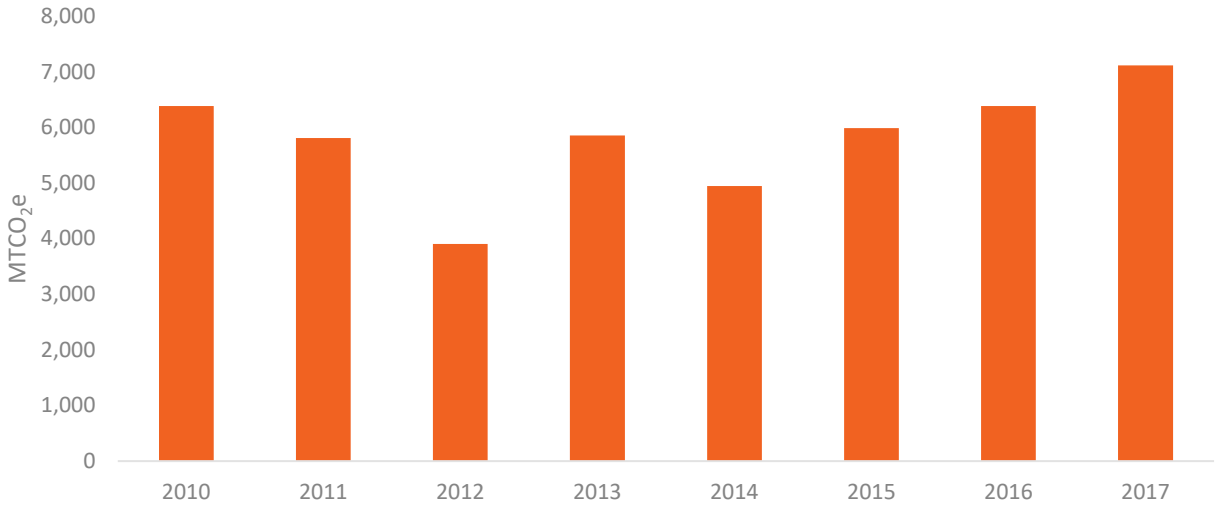

Figure 15. Solid waste GHG emissions in $MTCO_2e$ from 2010–2017.

WORKING LANDS

Agriculture in San Mateo County on both range and cropland releases GHG emissions through off-road vehicles (i.e., tractors), diesel pumps, enteric fermentation, and fertilizer application. Though these activities produce GHG emissions, the relative contribution is quite low compared to building energy and transportation sectors (2% of total 2017 emissions). Unlike other sectors, emissions on working lands are not forecasted to increase, and this is the only sector that currently presents the opportunity to sequester atmospheric carbon into the soil (see Figure 16 below).

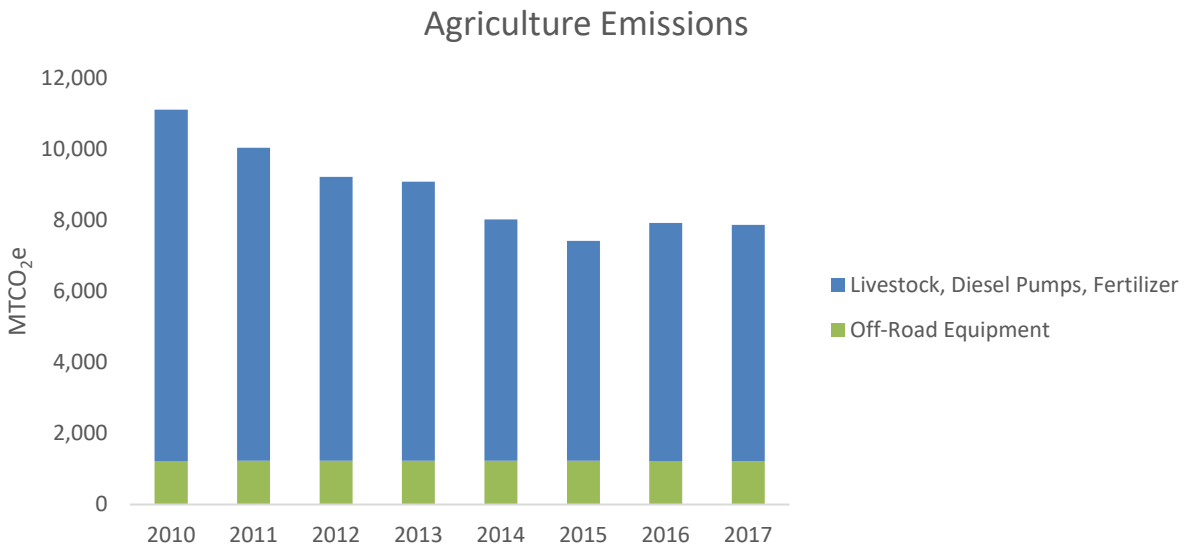

Figure 16. Agricultural GHG emissions in $MTCO_2e$ from 2010–2017.

Consumption-Based Emissions

The County's current GHG emissions inventory and corresponding targets account for emissions that are released largely within County boundaries. While this geographic-focused accounting is a standard approach for characterizing a community's GHG emissions, it is not comprehensive. Namely, the geographic inventory approach does not consider the upstream emissions associated with the goods and services consumed within the community, no matter where the goods and emissions were produced.

These **consumption-based GHG emissions** can be released at many points in a product or service's lifecycle—from extraction, to manufacturing, to transport, to use, to disposal. For example, emissions from consuming one hamburger include energy used to grow food to feed the cow, emissions from the cow itself (i.e., cow gas), energy used to process the cow into ground beef, and energy used to transport the ground beef to the store and then the consumer's home.

Figure 17 below shows the average consumption-based GHG emissions for households in San Mateo County. In addition to sectors already included in the geographic-focused inventory, other major emission sources stem from building and maintaining homes, goods such as furniture and clothing, food (especially meat), and services.

Although the scope of this plan is limited to tracking, analyzing, and ultimately reducing "end-use" GHG emissions (i.e., natural gas use in the home or gasoline use in vehicles), residents may find that reducing their consumption-based emissions is a way to significantly engage in this issue. One starting point for community members is to visit the Bay Area Air Quality Management District's consumption-based inventory, produced in partnership with the Cool Climate Network at UC Berkeley. The website, www.coolclimate.org provides tools, including a "CoolClimate Calculator," a "Small Business Calculator," and a "Green Home Calculator."

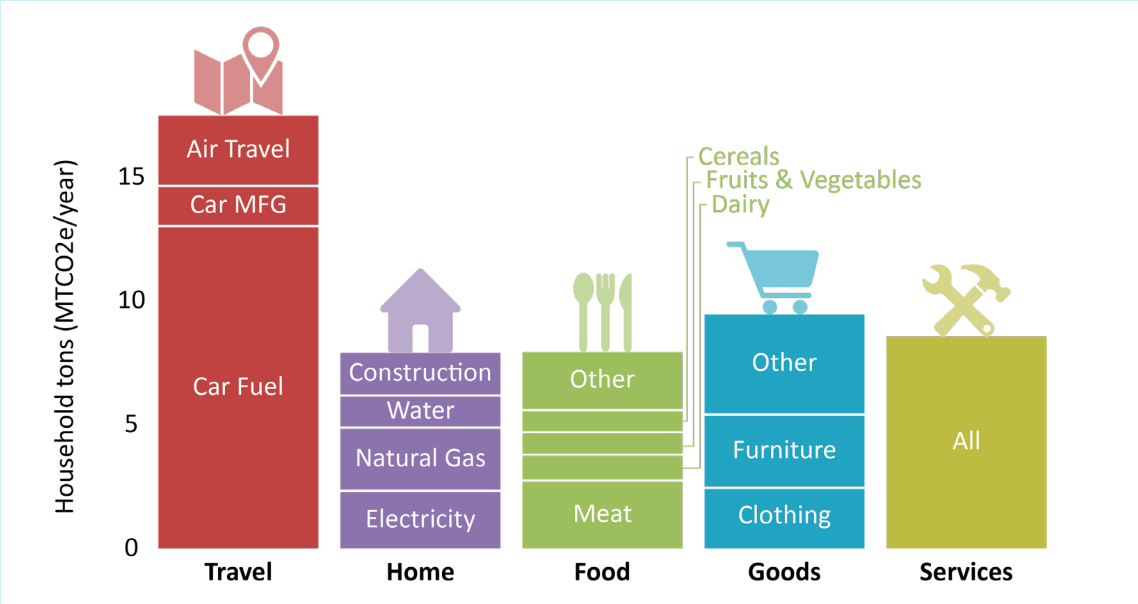

Figure 17. Average consumption-based GHG emissions for households in San Mateo County. ***Source: Coolclimate.org/calculator***

GOALS

GOAL SETTING CONTEXT

San Mateo County's Energy Efficiency Climate Action Plan (EECAP) set a goal to achieve a 17% reduction in 2005 emissions levels by 2020—a goal that exceeds those set forth by California Assembly Bill 32, the Global Warming Solutions Act of 2006. The County has thus far exceeded that goal, achieving a 33% reduction in emissions from 2005 to 2017.

The policy and scientific context have changed since the release of the EECAP in 2013. State Bill 32, the Global Warming Solutions Act of 2016, expands upon AB 32 and requires the state to reduce emissions to 40% below 1990 levels by 2030. More recently, Governor Jerry Brown issued Executive Order B-55-18, which established a statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045.

COUNTY EMISSIONS FORECAST & GOALS

Given this new context, the County has updated its communitywide goals to reflect state policy, international science, and current best practices. **The County aims to reduce emissions by 45% by 2030 and reach carbon neutrality by 2040.**

Emissions projections offer a prediction of what total emissions could look like over time. San Mateo County analyzed four emissions projections scenarios, visualized in Figure 18.

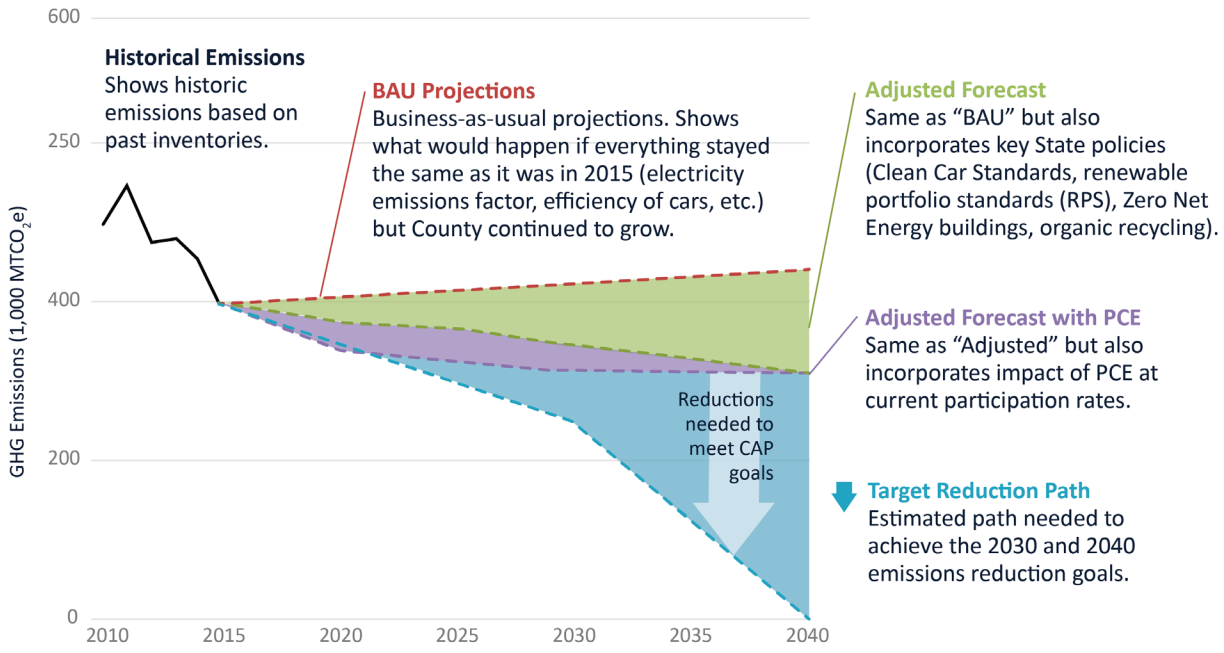

Figure 18. Four emissions projections scenarios.

HOW WE'LL GET THERE

Reducing emissions by 45% by 2030 and reaching carbon neutrality by 2040 will require dedication and coordination. Table 18 summarizes how the policies and actions in this CCAP contribute towards achieving the County's 2030 greenhouse gas (GHG) reduction goals, with notable contributions from building and vehicle electrification, land use planning improvements, organic waste management, and carbon sequestration. ("Supportive" actions do not realize a direct GHG emission benefit but are crucial for achieving overarching emission reduction goal.) The contribution amounts listed below have been rounded to the nearest hundred. For more detailed information on how these contributions are calculated, please see the Technical Appendix.

Table 18. Greenhouse gas emissions reduction contribution of CCAP policies and actions.

Sector	#	Policy	GHG Emissions Reduction Contribution
Energy	**B-1**	Transition to all-electric new construction	**2030:** 4,500 $MTCO_2e$ **2040:** 9,900 $MTCO_2e$
	B-2	Electrify existing construction	**2030:** 19,600 $MTCO_2e$ **2040:** 123,600 $MTCO_2e$
	B-3	Use microgrids to generate local renewable energy and improve resiliency	Supportive
	B-4	Pursue integrated opportunities to address climate adaptation and mitigation	Supportive
Transportation	**T-1**	Increase electric vehicle adoption	**2030:** 18,500 $MTCO_2e$ **2040:** 126,100 $MTCO_2e$
	T-2	Encourage urban density and the revision of parking standards, and support bicycle and pedestrian-friendly planning	**2030:** 1,600 $MTCO_2e$ **2040:** 2,200 $MTCO_2e$
	T-3	Implement programs for shared transit that reduce VMT	Supportive
Waste & Consumption	**W-1**	Reduce construction materials and waste	Supportive
	W-2	Reduce organics in the waste stream	**2030:** 6,400 $MTCO_2e$ **2040:** 6,600 $MTCO_2e$
	W-3	Reduce inorganic waste sent to landfills	Supportive
Working Lands	**L-1**	Identify new financing to scale carbon farming	**2030:** 7,900 $MTCO_2e$ **2040:** 13,600 $MTCO_2e$
	L-2	Support technical assistance, education, and data collection efforts to scale climate beneficial agriculture	
	L-3	Secure access to key implementation infrastructure to advance climate beneficial agriculture	
	L-4	Address permitting barriers to implementing climate beneficial agricultural practices	
	L-5	Ensure agricultural lands are preserved for agricultural production	
	L-6	Support carbon sequestration on natural lands and urban green spaces	
Total CCAP reductions			**2030:** 58,500 $MTCO_2e$ **2040:** 282,100 $MTCO_2e$
Reductions needed to meet 2030 goal			**57,500 $MTCO_2e$**
Reductions needed to meet 2040 goal			**308,900 $MTCO_2e$**

CARBON NEUTRALITY: WHAT DOES IT TAKE?

Achieving net carbon neutrality will not be easy. According to the California Air Resources Board, carbon neutrality means that all GHG emissions emitted into the atmosphere are balanced in equal measure by GHGs that are removed from the atmosphere, either through carbon sinks or carbon capture and storage. This is also referred to as "net-zero GHG emissions."

The first and most important step in reaching carbon neutrality is reducing the sources of GHG emissions as much as possible, which stem primarily from building energy, transportation, and organic solid waste. This means reducing building and transportation energy use as much as possible, transitioning all remaining energy to non-fossil fuel sources, and drastically reducing the amount of organic waste sent to landfills.

Essentially, carbon neutrality means that most San Mateo County residents and businesses will need to occupy an all-electric building, travel by either an electric vehicle or walking/biking/transit, and compost all their food and yard waste.

The second step is offsetting any remaining emissions through carbon sinks. Natural and working lands will play a crucial role in this phase. While the activity occurring on these lands contribute a small fraction of emissions in the overall inventory, these lands and producers' stewardship also stands to sequester carbon dioxide in vegetation and soils. This sequestration process can be enhanced through regenerative or climate beneficial land management practices. For more about this topic, see the Working Lands chapter below.

While this CCAP addresses both steps toward achieving carbon neutrality, implementing just the actions in this plan will not result in carbon neutrality. Additional and expanded policies, programs, partnerships, and technologies will be needed to achieve net zero GHG emissions from San Mateo County unincorporated areas.

POLICIES AND ACTIONS

Introduction

The actions included in this CCAP represent a diverse mix of regulatory and incentive-based programs that cover a wide range of sectors and strategies. This diversity is intended to avoid overreliance on any one approach.

To achieve the County's goal of reducing emissions by 45% by 2030 and reaching carbon neutrality by 2040, San Mateo County will need to implement this full suite of policies, programs, and activities. The County's policies and actions are structured around the following four focus areas:

BUILDING ENERGY

pg. 69

Strategies to reduce energy use and transition to renewable energy sources.

TRANSPORTATION

pg. 80

Strategies to shift to electricity and use transportation modes such as transit, walking, and biking.

WASTE & CONSUMPTION

pg. 90

Strategies to reduce waste generation, divert waste from the landfill, and purchase more sustainable goods and services.

WORKING LANDS

pg. 99

Supporting the stewardship of range and crop land.

Strategies to sequester carbon, improve agricultural resilience, enable climate beneficial agricultural practices, and support the local food system.

Each focus area section describes San Mateo County's climate goals, progress, and policies and actions to achieve future goals. Sections are organized as follows:

- **What are we talking about?** Explains what the focus area includes and its relation to climate change.
- **How are we doing?** Highlights major focus area statistics, achievements, programs, and gaps.
- **What are we trying to achieve?** Outlines focus area goals and provides metrics on how achievements will be measured.
- **How do we get there?** Provides a list of broad policies with specific actions to achieve focus area goals. Each action section describes the action's anticipated impact and co-benefits.

HOW TO READ THE STRATEGIES & ACTIONS

The plan is organized into strategies and actions as follows:

POLICIES summarize San Mateo County's plan for accomplishing stated goals and are used to organize the numerous actions. There are 16 policies across the four focus areas.

ACTIONS are the specific activities that will be implemented to achieve overarching goals. Projected costs and benefits were evaluated to effectively scale and prioritize the list of actions.

Each action includes a brief description, followed by the following information. The action's most important characteristics and co-benefits will be bolded in blue (the greyed-out icons, therefore, do not apply to that action).

Key Action Characteristics:	
	**Criticality:** Critical action for achieving greenhouse gas (GHG) emission reduction goals.
	**Impact:** Action with high calculated GHG emission reduction impact.
	**Urgency:** Action that needs to be implemented first to meet goals, align with other efforts, or leverage windows of opportunity.
	**Cost:** Action helps to reduce costs to community members.
	**Grid Reliability:** Action builds grid reliability.
	**Communication:** Action improves community communications.
Key Partners	**Partnerships:** Partners who would support implementation.
Action Co-Benefits:	
	**Equity:** The County has evaluated all actions using a social equity toolkit. Actions with an icon have been evaluated to benefit equity or assist in bringing about equitable outcomes. Actions without an icon have not been determined to improve equity.
	**Carbon sequestration:** Action can result in carbon sequestration and storage in addition to emission reductions.
	**Resilience:** Action helps make community more resilient to climate change and other disruptions.
	**Public health:** Action can realize public health benefits in addition to GHG emission reductions.

Plan at-a-Glance

Building Energy

Table 19. Building energy policies and actions.

Policy B-1: Transition to all-electric new construction	
B-1.1	Reach code implementation
B-1.2	Heat pump water heater installation in new homes
B-1.3	Heat pump water heater incentives
B-1.4	Renewable energy and storage technologies
B-1.5	Electricity rate increase minimization
B-1.6	Energy efficiency in new construction
B-1.7	Industry and workforce development
Policy B-2: Convert existing buildings to all-electric	
B-2.1	Natural gas phase out
B-2.2	Existing building electrification
B-2.3	Electrification retrofit pilot
B-2.4	Electrification opportunities assessment
B-2.5	Pilot improvements for existing homes
B-2.6	Electrification and renewable energy on-bill financing
B-2.7	Utility user fee evaluation
B-2.8	Electrification outreach
B-2.9	Rental property owner incentives
B-2.10	Energy efficiency in existing buildings
B-2.11	Green Business Program expansion
Policy B-3: Use microgrids to generate local renewable energy and improve resiliency	
B-3.1	Capacity mapping
B-3.2	Microgrid pilots
B-3.3	Battery storage
Policy B-4: Pursue integrated opportunities to address climate adaptation and mitigation	
B-4.1	Cool roof technology
B-4.2	At-risk housing and community facility electrification

Transportation

Table 20. Transportation policies and actions.

Policy T-1: Increase electric vehicle adoption	
T-1.1	EV charging requirements
T-1.2	Public charging stations
T-1.3	EV readiness plan
T-1.4	Alternative fuel outreach
T-1.5	End-of-life vehicle conversion
T-1.6	Electric leaf blowers
Policy T-2: Encourage urban density and the revision of parking standards, and support bicycle and pedestrian-friendly planning	
T-2.1	Mixed-use development requirements
T-2.2	Affordable housing near transportation
T-2.3	Traffic calming and complete streets
T-2.4	Transportation Demand Management Ordinance
T-2.5	Transit improvements to reduce VMT
T-2.6	Pavement-to-parks concepts and green infrastructure
T-2.7	Active Transportation Plan implementation
T-2.8	Regional coordination to increase multimodal travel
T-2.9	Bicycle parking and amenities
Policy T-3: Implement programs for shared transit that reduce VMT	
T-3.1	Access to transportation
T-3.2	Zero-emissions buses
T-3.3	Micro-mobility & shared transportation model policies
T-3.4	Programs to facilitate transportation equity
T-3.5	Tax transit network company trips

Waste & Consumption

Table 21. Waste and consumption policies and actions.

Policy W-1: Reduce construction materials and waste	
W-1.1	Building regulations for deconstruction & waste management
Policy W-2: Reduce organics in the waste stream	
W-2.1	Organics diversion
W-2.2	Edible Food Recovery Program
W-2.3	Recycling & composting outreach & technical assistance
W-2.4	Improvement projects for organic waste
W-2.5	Community carbon sequestration training
W-2.6	Local garden program
W-2.7	Agricultural waste diversion
Policy W-3: Reduce inorganic waste sent to landfills	
W-3.1	Business outreach promoting reusables
W-3.2	Funding for local waste-related outreach
W-3.3	County contract & event permit updates
W-3.4	Waste reduction & reuse programs
W-3.5	Extended producer responsibility requirements for County contracts
W-3.6	Outreach & marketing via the Bay Area Recycling Outreach Coalition
W-3.7	Public education & civic engagement
W-3.8	Workforce development in solid waste reduction

Working Lands

Table 22. Working lands policies and actions.

Policy L-1: Identify new financing to scale carbon farming	
L-1.1	Carbon farming investments
L-1.2	External funding programs for carbon farming
L-1.3	Compost procurement
L-1.4	Cost saving methods
L-1.5	Climate-beneficial communications
L-1.6	Public benefit communications
Policy L-2: Support technical assistance, education, and data collection efforts to scale climate beneficial agriculture	
L-2.1	Technical assistance provider support
L-2.2	On-farm research & demonstrations
L-2.3	Educational opportunities for land managers
Policy L-3: Secure access to key implementation infrastructure to advance climate beneficial agriculture	
L-3.1	Carbon farming implementation infrastructure access
L-3.2	Climate beneficial practices that reduce GHG emissions
L-3.3	Progress tracking
Policy L-4: Address permitting barriers to implementing climate beneficial agricultural practices	
L-4.1	Permit barrier identification & minimization
Policy L-5: Ensure agricultural lands are preserved for agricultural production	
L-5.1	Agricultural land preservation
Policy L-6: Support carbon sequestration and ecological restoration on natural lands and urban green spaces	
L-6.1	Stewardship and ecological restoration on natural lands
L-6.2	Carbon sequestration on natural lands and urban green spaces

BUILDING ENERGY

WHAT ARE WE TALKING ABOUT?

The energy and electricity that power our buildings—including heating, cooling, and cooking systems—often come from fossil fuels such as natural gas and propane. Building energy currently represents the second largest source of emissions in the County, but there is a clear path forward to shift new and existing buildings away from fossil fuels and toward clean, non-fossil fuel sourced electricity: a process often referred to as "electrification."

HOW ARE WE DOING?

Actions by the County, the region, and the State have set a solid foundation for converting buildings to all-electric. The County already receives 100% clean electricity through Peninsula Clean Energy's (PCE) programs and services and has adopted a code banning natural gas in new construction. The County is currently working with PCE to help cities adopt similar codes. With the help of Bay Area Regional Energy Network (BayREN), the County is also promoting funding sources for commercial and home energy efficiency upgrades. This CCAP focuses on converting existing buildings to all-electric while minimizing electricity rates increases and utility burden, reducing costs for upgrades, training the local workforce, and making more use of local renewable energy with batter storage technology. State actions, new technologies, and market forces should continue to make all-electric buildings more cost-effective over time.

San Mateo County Leading the Way in All-Electric Construction

In February 2020 the San Mateo County Board of Supervisors adopted local amendments to the State Building Code Title 24 (Energy Code, Part 6 and Green Building Code, Part 11) requiring all-electric new buildings, solar installation for multifamily and commercial buildings, and increased levels of electric vehicle charging infrastructure for all building types. This ordinance only applies to newly constructed buildings from the ground up and does not apply to additions or remodels. These requirements apply to construction in the unincorporated County only, but other jurisdictions in the County have adopted similar measures to effectively ban natural gas in new building stock. This step is a critical one that helps the County decarbonize its neighborhoods and avoid added costs of retrofitting these buildings later. The CCAP builds on this momentum by directing future electrification efforts at existing building stock to meet the 2030 emissions reduction goal.

Highlight: Peninsula Clean Energy

San Mateo County and the cities it encompasses launched PCE in 2016. PCE is a local public agency that supplies 96 percent of all customers in San Mateo County with electricity principally from wind, solar and hydro resources. In 2020, unincorporated San Mateo County residents saved an estimated $1.21 million in utility costs and, since 2016 have avoided 81,624 metric tons of CO_2 (equivalent to 9.2 million gallons of gas). Across the entire county from 2016 to 2020, PCE has brought customers an estimated savings of $17 million and avoided 1.2 million $MTCO_2e$. Customers in the County reduced their electricity GHG emissions by 96 percent within three years (compared to 2016).

The County looks forward to continuing its partnership with PCE to invest in electrifying buildings and transportation, building electric vehicle charging stations, and installing solar energy and battery storage systems. Potential opportunities for collaboration and partnership include, but aren't limited to:

- Existing building electrification pilots and programs (i.e., incentives for specific technology or retrofit pilots)
- Local industry and workforce development
- Electrification opportunities assessment
- On-bill financing
- Marketing and outreach
- Capacity mapping for distributed energy resources
- Microgrid pilots

WHAT ARE WE TRYING TO ACHIEVE?

Primary Goals

Building energy represents the second largest source of GHG emissions in unincorporated San Mateo County. To meet our climate goals in the coming decades, actions must be taken to improve new buildings and retrofit existing buildings. Primary building goals are to:

- Electrify 100% of newly constructed buildings by 2021.
- Convert 16% of existing buildings to all-electric by 2030 and 100% by 2040.
- Reduce building energy consumption.
- Flexibly manage energy demand.

Supporting Goals

Along with reducing emissions, building energy actions can create lasting day-to-day benefits for residents and property owners in San Mateo County.

- **Improve indoor air quality**. All-electric buildings have lower amounts of small-particle pollution in the air indoors. Young children living in all-electric buildings are less likely to experience acute respiratory illnesses.[25]

[25]Barron, Manuel, and Maximo Torero. "Household Electrification and Indoor Air Pollution," 2017. https://doi.org/10.1596/29227.

- **Reduce long-term energy bills.** For new construction, going all-electric can save money compared to building a gas-connected home in most cases. Upfront costs of constructing the gas line are eliminated and maintenance costs and utility bills may also be lower. One study estimates lifecycle savings of $130 to $540 per year.[26]
- **Improve safety**. Electric heating systems do not have some of the risks of gas-powered heating, such as carbon monoxide leaks and explosions. These risks are particularly high after natural disasters, including fires and earthquakes.

Building Decarbonization

Building decarbonization means to **eliminate carbon dioxide emissions from buildings**. It uses two strategies: switching buildings away from fossil fuels to **clean electricity** ("electrifying" them) and increasing **energy efficiency**.

Electrifying buildings can look like using electric heat pump systems for heating and cooling air, switching to an induction stove from a gas cooktop, and installing a heat pump water heater. It can also mean installing solar panels and charging an EV using clean electricity. Increasing energy efficiency can mean using smart or ENERGY STAR home appliances, efficient lighting like LEDs, and insulation and windows that keep warm or cool air from leaking in or out.

Buildings and their heating and cooling systems and appliances may be more complex to decarbonize because **most buildings may only have their heating and cooling equipment replaced once or twice in the next few decades.** Meeting the County's climate goals will require the installation of efficient all-electric equipment in all replacements in existing buildings and in all new construction and the deployment of solar panels and battery storage technology, where possible.

It is important to keep equity at the forefront and make sure low-income residents are not left behind. As customers leave the natural gas system, those who are left using natural gas could see rate increases. **The County will aim to ensure that electrification and energy efficiency upgrades are accessible to all income levels.**

[26] Delforge, Pierre. "New Study Confirms Benefits of Electrifying CA Buildings." NRDC, June 30, 2020. https://www.nrdc.org/experts/pierre-delforge/new-study-confirms-benefits-electrifying-ca-buildings#:~:text=Compared%20with%20gas%2Dfueled%20single,to%2090%20percent%20by%202050.

HOW DO WE GET THERE?

Policy B-1: Transition to all-electric new construction

B-1.1 REACH CODE IMPLEMENTATION

	Key Partners	Key Characteristics	Co-Benefits
Support Planning and Building staff to implement existing reach code and ensure that the cost of permitting for all-electric projects does not exceed natural gas alternatives.	Planning and Building Department, Office of Sustainability (OOS), developers, landlords		

B-1.2 HEAT PUMP WATER HEATER INSTALLATION IN NEW HOMES

	Key Partners	Key Characteristics	Co-Benefits
Partner with BayREN and PCE to develop a pilot for deploying heat pump water heaters in new single-family and multi-family construction or major remodel or addition projects.	BayREN, Peninsula Clean Energy (PCE), OOS		

B-1.3 HEAT PUMP WATER HEATER INCENTIVES

	Key Partners	Key Characteristics	Co-Benefits
Initiate a public-private partnership to create mid-stream incentives and/or bulk purchasing of heat pump appliance technology. Prioritize partnerships with small and underrepresented businesses.	PCE, Pacific Gas and Electric (PG&E), OOS		

B-1.4 RENEWABLE ENERGY AND STORAGE TECHNOLOGIES

	Key Partners	Key Characteristics	Co-Benefits
Partner with PCE and PG&E to identify locations for installing storage technology in tandem with renewable energy infrastructure. Prioritize community centers and libraries as backup power centers and resiliency hubs.	PCE, PG&E, BayREN, OOS		

B-1.5 ELECTRICITY RATE INCREASE MINIMIZATION

	Key Partners	Key Characteristics	Co-Benefits
Work with PCE, BayREN, and other stakeholders to ensure that future ratemaking and rate-cases do not result in disproportionately high residential electricity rates for lower income residents. This will reduce costs for low-income households, and ensure that electrification reduces monthly utility bills for constituents. County will consider setting up a three-person ratemaking working group to follow trends and ensure	PCE, BayREN, OOS		

we are representing our constituents at appropriate meetings. Working group to include one person from OOS, one person from PCE, and one person from BayREN.			

B-1.6 ENERGY EFFICIENCY IN NEW CONSTRUCTION

	Key Partners	Key Characteristics	Co-Benefits
Improve energy efficiency in new construction through enhancements in the building envelope (aspects such as insulation, windows, door seals, airflow, façade materials) by adopting a more aggressive climate zone in the building code. Adopt a higher climate zone based on anticipated climatic shifts and geotechnical and geographical rationale.	Planning & Building Department, PCE, developers, OOS		

B-1.7 INDUSTRY AND WORKFORCE DEVELOPMENT

	Key Partners	Key Characteristics	Co-Benefits
Provide and promote accessible local workforce development opportunities related to building electrification. Create new partnerships and economic opportunities to provide maximum benefit in the form of employment opportunities for the local workforce, residents with barriers to employment, and communities most affected by climate change.*	OOS, community colleges, adult schools, community-based organizations (CBOs)		

*This involves building on the California Workforce Development Board's high road framework to facilitate high road job training partnerships:[27]

- Facilitate cross-training, knowledge sharing, and recruitment of underrepresented and historically underserved populations between building, plumbing, and electrical trades. Potential approaches could involve establishing closer partnerships with organized labor, which already has robust and leading-edge training opportunities, as well as collaborating with community-based organizations to reach underrepresented populations.
- Collaborate with building and energy industry leaders to provide trainings for emergent electric technologies, energy efficiency, and electrification best practices.
- Adopt a policy on an inclusive and sustainable workforce that would apply to all County contracts. (See Peninsula Clean Energy's Policy 10, which includes policies regarding an inclusive and sustainable workforce, and specifies objectives such as "[e]ngage in broad outreach efforts in diverse communities,

[27] The California Workforce Development Board's high road framework promotes job quality for workers and skilled workers for employers by establishing training partnerships to "build an economy based on equity, skills, innovation, and shared prosperity" ("The High Road in Workforce Development, UCLA Labor Center, https://cwdb.ca.gov/wp-content/uploads/sites/43/2020/08/OneSheet_HRTP_ACCESSIBLE.pdf). Training and employment opportunities provide family-sustaining wages and benefits especially for those with barriers to employment, Black, and undocumented workers; this framework addresses both economic resilience for individuals as well as environmental justice and climate change mitigation and adaptation.

including…low-income communities, to ensure a diverse pool of candidates for open positions" and provide "[s]upport for and direct use of local businesses.")

- Establish formal partnerships with existing community pillars in the workforce realm, including but not limited to San Mateo Community College District, SAMCEDA, Renaissance Entrepreneurship, NOVAworks, adult schools and education programs, high schools, community-based organizations serving and preparing low-income populations for high road workforce training and jobs, and unions. Work to expand existing and create new job training and employment opportunities with a particular focus on individuals experiencing barriers to employment.
- Build a network or database of training opportunities and trained professional for easy and equitable access to training and jobs.
- Drive demand for (i.e., invest in) high road labor by committing to the use of trained contractors on all County-backed pilots and projects, and communicating and promoting to the public the importance of using this labor force.

Policy B-2: Convert existing buildings to all-electric.

B-2.1 NATURAL GAS PHASE OUT

	Key Partners	Key Characteristics	Co-Benefits
Coordinate with PG&E and PCE to eliminate natural gas as an energy source in residential and commercial buildings by 2040.	OOS, PG&E, PCE		

B-2.2 EXISTING BUILDING ELECTRIFICATION

	Key Partners	Key Characteristics	Co-Benefits
Investigate regulatory pathways for converting existing buildings to all-electric. Conduct a feasibility analysis for options including but not limited to point-of-sale or listing requirement, replacement on burnout requirement, a ban of sale of gas-fired equipment, establishing all-electric requirements for additions or remodels, requiring electrification upgrades alongside rental permits, or as a condition of rental permit approval, requiring electrical upgrades at the time of solar installations. Ensure equitable access to incentives so building owners don't forgo necessary upgrades, ensure rental unit protection, and prevent rent increases as a result of upgrades.	Planning and Building Department, OOS, PG&E, PCE, CBOs		

B-2.3 ELECTRIFICATION RETROFIT PILOT

	Key Partners	Key Characteristics	Co-Benefits
Partner with BayREN and PCE to develop a pilot for deploying heat pump appliance technology along with electric panel upgrades in large-scale retrofit opportunities, in existing multi-family buildings, and other buildings such as	OOS, BayREN, PG&E, PCE, CBOs		

homeless shelters and farmworker housing. Prioritize low-income communities and conduct a pilot using a racial equity tool or equity impact assessment.			

B-2.4 ELECTRIFICATION OPPORTUNITIES ASSESSMENT

	Key Partners	Key Characteristics	Co-Benefits
Perform a county-wide electrification opportunities assessment in partnership with PG&E and PCE to identify priority buildings and neighborhoods for targeted electrification incentives. Priority will be placed on low-income households, historically underserved communities, and on locations where infrastructure and/or appliances are aging and where indoor air quality is poor. Consult with the California Energy Commission's Electric Program Investment Charge program, BayREN, PG&E on lessons learned from existing pilot projects on energy efficiency and electrification technologies and pursue opportunities for scaling these efforts at a district or neighborhood level with a goal of permanently retiring natural gas lines. Establish an Office of Sustainability and Housing Department planning process collaboration to evaluate comprehensive opportunities for improving energy efficiency, electrification, and resident education.	OOS, PG&E, PCE, Department of Housing		

B-2.5 PILOT IMPROVEMENTS FOR EXISTING HOMES

	Key Partners	Key Characteristics	Co-Benefits
Accelerate uptake of energy efficiency programs by landlords and renters of both multi- and single-family households. Utilize findings from County-wide electrification opportunities assessment and partner with BayREN, PCE, the Housing Department, and community-based organizations to deploy an electrification, energy efficiency, and environmental health pilot that would bring improvements for select households that are low-income and/or vulnerable to the effects of climate change (e.g., high heat) as well as market-rate renters.*	OOS, BayREN, PCE, Department of Housing, CBOs		

*Approaches and considerations could involve:

- Designing pilot using a racial equity tool or equity impact assessment tool.
- Prioritizing electrification efforts in areas burdened by poor indoor air quality.

- Developing pilot project with the Department of Housing to potentially require electrification upgrades during health and safety upgrade process.
- Utilizing new energy efficiency and electrification technologies that will help with load shifting, decrease energy demand, and improve cost-effectiveness for property owners and tenants, such as low amperage heat pump water heater technology, air source heat pumps, induction stoves, and smart thermostats.
- Partnering with community-based organizations and groups (i.e., promatoras groups) as liaisons to bring people historically excluded to the table to design and deploy programs and incentives. This partnership could also work to raise awareness of cost-savings benefits of all-electric retrofits and energy conservation measures in culturally competent ways.
- Facilitating and accelerating Climate Ready resilience pilot projects in North Fair Oaks focusing on, for example, high heat.

B-2.6 ELECTRIFICATION AND RENEWABLE ENERGY ON-BILL FINANCING

	Key Partners	Key Characteristics	Co-Benefits
Partner with PG&E or PCE to set up on-bill or easy financing solutions for electrifying buildings and/or local renewable installations, such as solar installation, including offering low-interest loans.	OOS, PG&E, PCE, BayREN, California Energy Commission		

B-2.7 UTILITY USER FEE EVALUATION

	Key Partners	Key Characteristics	Co-Benefits
Evaluate feasibility and equity-related concerns of a utility user fee increase that could fund electrification projects. If feasible, and if it will not accrue disproportionately to minority groups and historically underserved communities, partner with PG&E and PCE to implement.	OOS, PG&E, PCE		

B-2.8 ELECTRIFICATION OUTREACH

	Key Partners	Key Characteristics	Co-Benefits
Facilitate electrification of appliances (water heaters, space heaters, stoves and dryers) by expanding and improving targeted outreach in for existing electrification programs and incentives. Initial phase may focus on buildings that have prewiring for electrification. Explore potential partnership with local organizations and libraries to establish induction cooktop loan program. Promote holistic approaches to electrification (e.g., look for opportunities to perform or support electric panel upgrades in the case of retrofits). Encourage or, where possible, require, electric panel upgrades at time of local solar installations so that solarization facilitates electrification. This may involve providing educational materials for homeowners and contractors that	OOS, BayREN, PG&E, PCE, Schools, CBOs		

demonstrates the importance and interconnectedness of these two efforts. Scale these efforts locally by partnering with public schools to engage and build awareness with school district personnel and contractors who work with schools. Disseminate materials tailored to a public-school personnel audience through avenues like parent teacher associations and curriculum.			

B-2.9 RENTAL PROPERTY OWNER INCENTIVES

	Key Partners	Key Characteristics	Co-Benefits
Partner with the SMC Department of Housing and local realtors to educate, engage, and incentivize building owners and real estate and property management representatives to address split-incentive issues[28], including developing tenant improvement guidelines and green lease contracting templates, with a focus on rental protection, minimizing cost increases for low-income renters, transferring benefits like cost savings, and preventing evictions.	OOS, Department of Housing, PG&E, PCE, property owners and managers		

B-2.10 ENERGY EFFICIENCY IN EXISTING BUILDINGS

	Key Partners	Key Characteristics	Co-Benefits
Improve energy efficiency in large additions (400 square feet or larger) by adopting a higher climate zone in the building code that more accurately reflects anticipated climatic shifts. By responding to changes in climatic conditions, new energy efficiency building standards become cost-effective and can be adopted.	Planning and Building Department, OOS, PCE, Developers		

B-2.11 GREEN BUSINESS PROGRAM EXPANSION

	Key Partners	Key Characteristics	Co-Benefits
Expand the reach of the San Mateo County Green Business Program to support 10% more small and medium businesses and establish a GHG reduction goal specifically for unincorporated businesses. Proactively recruit historically underserved businesses and identify opportunities to simultaneously share information about other retrofit/upgrade programs.	OOS, PG&E, PCE		

[28] "Split incentive" refers to a condition where the benefits and costs of capital improvements are unequally distributed. An appliance upgrade, for example, might produce savings or benefits for one party (the renter) while the costs are born by the other party (the property owner).

Policy B-3: Use microgrids to generate local renewable energy and improve resiliency

B-3.1 CAPACITY MAPPING

	Key Partners	Key Characteristics	Co-Benefits
Use utility distribution system capacity maps to investigate the feasibility of siting and maintaining microgrid, solar or wind combined with storage, and other distributed energy resource project opportunities, focusing on emergency-related infrastructure and low-income neighborhoods vulnerable to the effects of climate change.	OOS, PG&E		

B-3.2 MICROGRID PILOTS

	Key Partners	Key Characteristics	Co-Benefits
Establish microgrid pilot projects and distributed energy resources at critical facilities across San Mateo County (e.g., schools, hospitals, fire, police), prioritizing opportunities to serve low-income communities and populations vulnerable to the effects of climate change at the community scale. Use utility distribution system capacity maps to prioritize wind or solar and storage and other distributed energy resource project opportunities, while focusing on communities of concern. Identify regulatory barriers to permitting construction of future projects and investigate shared ownership and maintenance funding models.	OOS, PCE, PG&E, CBOs		

B-3.3 BATTERY STORAGE

	Key Partners	Key Characteristics	Co-Benefits
Support and enhance PCE's existing battery storage incentive program.	OOS, PCE		

Policy B-4: Pursue integrated opportunities to address climate adaptation and mitigation

B-4.1 COOL ROOF TECHNOLOGY

	Key Partners	Key Characteristics	Co-Benefits
Develop and adopt regulations or modify existing adopted regulations to require reroofing projects to meet or exceed the most current cool roof efficiency standards as determined by the California Energy Commission for Climate Zone 11 (or whichever zone deemed best). Work with public schools and community college	Planning and Building Department, OOS, PCE		

districts to develop policies and incentives for deploying this technology in those campuses.			

B-4.2 AT-RISK HOUSING AND COMMUNITY FACILITY ELECTRIFICATION

	Key Partners	Key Characteristics	Co-Benefits
Explore electrification opportunities when developing adaptation strategies for housing and community facilities. Provide technical assistance and support to public schools and communities to plan for electrification of housing and community facilities vulnerable to climate risks.	OOS, BayREN, PCE		

TRANSPORTATION

WHAT ARE WE TALKING ABOUT?

Transportation makes up the largest proportion of San Mateo County's unincorporated area emissions. There are a few key strategies to reduce greenhouse gas (GHG) emissions from transportation. The first strategy is to reduce the amount of driving we do and make other ways to get around more convenient and accessible, such as walking, biking, and public transit. The second strategy is to increase efficiency, so our vehicles release fewer GHG emissions per distance we drive, by changing our driving behaviors and using vehicles with higher fuel efficiencies. The third is to switch to energy sources other than gasoline, such as electricity, that can be produced using clean energy.

This CCAP focuses mainly on reducing vehicle miles traveled (encouraging walking, biking, and public transit instead) and promoting a transition to electric vehicles. San Mateo County is fully committed to providing a set of transportation options that are convenient, safe, and affordable.

Reducing vehicle miles travelled and improvements in active transportation infrastructure have multiple benefits including improved public health, access to resources, and neighborhood resilience. Shifting away from a cultural emphasis on private, single occupancy vehicles stands to increase access to shared communal space and improve the connectivity in and between neighborhoods. This transition and need for shared space and connectivity was a predominant theme in community feedback. These and other benefits are enumerated in more detail in the "Benefits of Climate Action" section below.

HOW ARE WE DOING?

The County included several transportation measures in its 2018 Energy Efficiency Climate Action Plan. Some have already been implemented, like traffic calming requirements, electric vehicle parking spaces in some new developments, and permitting updates to improve walkability. In this updated plan, the County is doubling down on partnerships to take a thorough look at improving biking, walking, transit, and driving infrastructure.

If the County intends to build a sustainable community and invest in active transportation and electric vehicle (EV) charging infrastructure that benefit existing and future residents, existing critical infrastructure must be addressed. The sewer system serving North Fair Oaks and nearby unincorporated areas is in need of repair to support the County's intended growth pattern of high-density housing near high quality transit. Although beyond the scope of this plan, an assessment of current capacity and future needs of the Fair Oaks Sewer Maintenance District is necessary so the County can further its sustainable housing and development goals and provide an important foundation for other important investments in sustainability.

Regional Partnerships Leading the EV Charge

In 2019, Peninsula Clean Energy (PCE), the California Energy Commission, and the Center for Sustainable Energy partnered to launch an electric vehicle incentive program in San Mateo County. Using $12 million from PCE and $12 million from the California Energy Commission, many new EV charging stations will be installed in San Mateo County over the next four years. Public charging stations are essential for those without a charger at home and for those taking longer trips. PCE has also offered yearly programs providing rebates towards the cost of new electric vehicles and hybrids, including both purchases and leases.

These programs encourage residents to move away from internal combustion engine vehicles and raise awareness of electric vehicles to those who are buying their next vehicle.

WHAT ARE WE TRYING TO ACHIEVE?

Primary Goals

Transportation makes up the largest portion of the San Mateo County community's greenhouse emissions. By creating better cycling, pedestrian, and transit systems and promoting electric vehicle adoption, the County aims to:

- Increase adoption of zero-emission vehicles and equipment to 18% by 2030 and 100% by 2040.
- Reduce communitywide vehicle use.

Supporting Goals

Well-designed paths, crossings, transit schedules, and green spaces that help us leave internal combustion engine (ICE) vehicles behind in favor of walking, biking, transit, and electric vehicles can change all our lifestyles for the better.

- **Reduce local air pollution.** Vehicle traffic is a main source of air pollution in many places, and there is growing knowledge about the impact of traffic pollutants on health. Car occupants may be exposed to higher levels of air pollution than cyclists or pedestrians. Reducing use of ICE vehicles can improve life expectancy and overall health.

- **Create more livable and connected communities**. Walking is associated with many social benefits, including increased social interaction and increased safety. Areas with services that are convenient to walk and bike to create better access to jobs, education, services, and social inclusion.

- **Improve community health through time in green spaces and physical activity.** Active transportation can particularly benefit cardiovascular health and mental health, and it has been linked to lower healthcare costs.

- **Bolster local economies.** Active transportation can create more foot traffic to shop at local businesses and can reduce costs related to healthcare, road collisions, congestion, fuel, air pollution, and traffic delays.

- **Get around better.** Better access to active transportation and reliable public transit can reduce traffic congestion and help everyone get where they need to go on time. Less traffic also results in a more pleasant living environment.

The 2021 Unincorporated San Mateo County Active Transportation Plan

In February 2021 the County Board of Supervisors approved the Unincorporated San Mateo County Active Transportation Plan. This plan provides a framework for making walking and bicycling safer and more comfortable for everyone in the county's unincorporated areas. It presents current (2021) conditions, including existing infrastructure and collision trends as well as recommendations to invest in walking and bicycling networks. The plan is oriented around five goals:

- ACCESS: Improve walking and bicycling paths and other facilities so that residents and visitors of all ages and abilities can comfortably access key destinations.
- SAFETY: Improve safety for people walking and bicycling.
- EQUITY: Provide equitable access to transportation investments and improve mobility for all.
- MODE SHARE: Increase the share of people walking, biking, and accessing transit for all trip purposes to reduce congestion and GHG emissions, and to improve public health outcomes.
- FLEXIBILITY: Create a resilient and flexible transportation network that supports a variety of modes of transportation and can adapt to changes in land use, infrastructure, and transportation technologies over time.

The overarching vision of the Plan, as well as its recommendations, align with and support the measures in the Community Climate Action Plan. Investments in active transportation stand to reduce GHG emissions by helping community members utilize less carbon-intensive methods of travel. Given that transportation emissions derived from vehicle miles traveled make up the largest source of emissions in the County (40%), encouraging more active transportation by allocating funding and resources for implementation of the projects and programs outlined in the Active Transportation Plan represents an important avenue for the County to meet its climate goals.

HOW DO WE GET THERE?

Policy T-1: Increase electric vehicle adoption.

T-1.1 EV CHARGING REQUIREMENTS

	Key Partners	Key Characteristics	Co-Benefits
Evaluate the energy and green building standards at each California Building Standards code cycle to ensure that building electrification and EV charging station requirements are sufficient to meet community needs and climate goals. Adopt local ordinances when the State's code does not keep pace with climate action in San Mateo County.	Planning and Building Department, Office of Sustainability (OOS)		

T-1.2 PUBLIC CHARGING STATIONS

	Key Partners	Key Characteristics	Co-Benefits
Install public electric vehicle (EV) charging stations, with an emphasis on daytime charging. Investigate options for shared EV charging, paired with solar and storage capacity. Support Department of Public Works' efforts to install County-owned and operated charging stations that serve a dual purpose of serving County fleets as well as providing publicly available charging. Explore opportunities with public school districts to deploy electric vehicle charging stations in and near public school campuses, potentially pair with opportunities for installing microgrids and utility scale power backups. Because State law may move rapidly and may issue guidance for implementing charging stations, develop a procedural document for internal use for County staff to utilize that reflects up-to-date State guidance.	OOS, Department of Public Works (DPW), Planning and Building Department, SMC Labs		

T-1.3 EV READINESS PLAN

	Key Partners	Key Characteristics	Co-Benefits
Prepare an EV readiness plan to clarify existing conditions relating to charging station infrastructure in the building and zoning code, identify locations where charging infrastructure is best located and the appropriate (not necessarily highest) charge capacity/level, and identify impacts on parking and other aspects of quality of life in unincorporated areas and ways to mitigate those impacts. Develop and implement policy pathways for enabling charging stations to be erected in suitable locations in unincorporated areas by the County directly and in partnership with other organizations to share costs of installation and maintenance.	OOS, DPW, Planning and Building Department, SMC Labs		

T-1.4 ALTERNATIVE FUEL OUTREACH

	Key Partners	Key Characteristics	Co-Benefits
Collaborate with key partners such as Peninsula Clean Energy (PCE) to conduct alternative fuel outreach, focusing on electric vehicles and lawn equipment. Tailor outreach programs to diverse cultural groups and capitalize on opportunities to utilize social networks to spread awareness and socialize EV uptake for example. Partner with public schools and the San Mateo Community College District to create outreach programs and materials tailored to personnel and community members.	OOS, PCE, public schools, San Mateo Community College District		

T-1.5 END-OF-LIFE VEHICLE CONVERSION

	Key Partners	Key Characteristics	Co-Benefits
Partner with PCE and regional partners to develop a program to help convert private-use vehicles to zero emission vehicles at end of life, with a focus on supporting new EV purchases for low-income demographics.	OOS, PCE		

T-1.6 ELECTRIC LEAF BLOWERS

	Key Partners	Key Characteristics	Co-Benefits
Assess opportunities for a program to support the transition to electric leaf blowers. Approaches could involve a buyback program for electric equipment, providing trial equipment, setting up incentives to make the transition cost-effective.	OOS, BayREN, PCE, Community-based organizations (CBOs)		

Policy T-2: Encourage urban density and the revision of parking standards, and support bicycle and pedestrian-friendly planning.

T-2.1 MIXED-USE DEVELOPMENT REQUIREMENTS

	Key Partners	Key Characteristics	Co-Benefits
Update the General Plan and Local Coastal Plan with neighborhood mixed use, commercial mixed use, industrial mixed use, and multi-family residential designations to enable mixed-used development where feasible.	Planning and Building Department, OOS		

T-2.2 AFFORDABLE HOUSING NEAR TRANSPORTATION

	Key Partners	Key Characteristics	Co-Benefits
Continue coordination and collaboration between the Office of Sustainability and the Planning and Building and Housing Departments to update policies according to Housing Element updates to enable and promote affordable housing near transportation.	Planning and Building Department, Department of Housing, OOS		

T-2.3 TRAFFIC CALMING AND COMPLETE STREETS

	Key Partners	Key Characteristics	Co-Benefits
Pursue bicycle and pedestrian-friendly design by maximizing opportunities to implement traffic calming and complete streets measures into infrastructure projects, such as public and private-led development, roadway redesign, and roadway resurfacing/repaving. Identify appropriate application for measures taking into consideration location and community priorities. Prioritize implementation with an equity-lens, focusing on high-need communities. Identify opportunities to incorporate green infrastructure and pavement-to-parks concepts.[29] Tree planting in unincorporated County can provide important benefits including traffic calming, shade for increasingly hot weather, and water and pollution retention when planted in conjunction with green infrastructure. Explore opportunities to secure funding or a funded partnership to address maintenance and operations, and pursue opportunities for tree planting, with size and species in mind, at the corners of neighborhood intersections where trees	DPW, Planning and Building Department, OOS, CBOs, City/County Association of Governments (C/CAG), public schools, San Mateo Community College District		

[29] Pavement-to-parks refers to the creative utilization of unpaved areas or underutilized paved areas in neighborhoods with less access to green space to create new pedestrian and pocket-park spaces. This facilitates traffic calming as well as pedestrian-friendly street environments.

tend to incur the least cost. Partner with public school and community college districts to inform the siting of these investments for maximum community benefit. Use these projects as an opportunity to incorporate transitional employment for people completing a workforce readiness program, including low-income individuals or populations with multiple barriers to employment. Partner with public schools and the San Mateo Community College District to inform the siting of these investments for maximum community benefit.			

T-2.4 TRANSPORTATION DEMAND MANAGEMENT ORDINANCE

	Key Partners	Key Characteristics	Co-Benefits
Update the County's Transportation Systems Management Ordinance to reflect updated regional policies, including but not limited to the San Mateo County Congestion Management Plan Transportation Demand Management Policy.[30]	Planning and Building Department, DPW, Commute.org		

T-2.5 TRANSPORTATION IMPROVEMENTS TO REDUCE VMT

	Key Partners	Key Characteristics	Co-Benefits
Coordinate to develop and adopt local guidelines, policies, and tools to implement changes to the California Environmental Quality Act's transportation significance metric and criteria (SB 743). Expected outcomes of using vehicle miles traveled instead of level of service include an increase in housing co-located with high quality transportation, more active transportation infrastructure, and other transportation demand management strategies that reduce driving.[31]	Planning and Building Department, DPW		

[30] Transportation demand (or systems) management strategies are infrastructure, information, and incentives that influence people's behavior to use the transportation system more efficiently, spreading out the demand for transportation across all available options such as walking, bicycling, transit, and carpooling. Examples of strategies include telework and flexible work schedules, free or subsidized transit, providing high quality bicycle facilities, shuttles from large workplaces to transit, and others.

[31] Senate Bill 743, which was signed into law in 2013, initiated an update to the California Environmental Quality Act (CEQA) guidelines to change how lead agencies evaluate transportation impacts, with the goal of better measuring actual transportation-related environmental impacts of any given project. Starting on July 1, 2020, agencies analyzing impacts of new projects must use vehicle miles traveled, which measures the amount of driving, instead of level of service, which measures roadway impacts from the perception of a driver.

T-2.6 ACTIVE TRANSPORTATION PLAN IMPLEMENTATION

	Key Partners	Key Characteristics	Co-Benefits
Support the implementation of the Active Transportation Plan by implementing priority pedestrian and bikeway projects, with a focus on those in historically underserved neighborhoods.	OOS, Planning and Building Department, DPW		

T-2.7 REGIONAL COORDINATION TO INCREASE MULTIMODAL TRAVEL

	Key Partners	Key Characteristics	Co-Benefits
Collaborate with local and regional partners to study existing parking policies, practices, programs, and demand, and opportunities to revise to support increased multimodal travel.	OOS, Planning and Building Department, DPW		

T-2.8 BICYCLE PARKING AND AMENITIES

	Key Partners	Key Characteristics	Co-Benefits
Review and revise existing bike parking requirements if they are inadequate for current and future demand. In districts without existing bike parking requirements, evaluate opportunities for developing them.	Planning and Building Department, OOS		

Policy T-3: Implement programs for shared transit that reduce VMT

T-3.1 ACCESS TO TRANSPORTATION

	Key Partners	Key Characteristics	Co-Benefits
Work with partners* to implement policies, programs, and pilot projects** that support access to transit and alternative forms of transportation; for example, a first mile-last mile shuttle program or a school district-oriented transportation pilot. Prioritize efforts that provide access for households without access to a car, low-income, disabled, senior, and racial or ethnic minority populations.	OOS, SamTrans, Caltrain, San Mateo Transportation Authority, C/CAG, PCE, San Francisco International Airport (SFO)		

*Partners could include: Connect the Coastside, SamTrans, Caltrain, Commute.org, SFO, C/CAG Countywide Transportation Plan 2040, C/CAG Countywide Bicycle & Pedestrian Plan, Grand Blvd Initiative, Plan Bay Area, public school and community college districts, Safe Routes to School.

**Pilot concepts could include, but aren't limited to the following: first mile-last mile shuttle program, transportation pilot serving specific school districts, expanding participation in the pre-tax commuter benefit program, vanpool programs, youth and/or community transit pass programs, promoting telecommuting, and introducing employer TDM program requirements.

T-3.2 ZERO-EMISSIONS BUSES

	Key Partners	Key Characteristics	Co-Benefits

Support the transition of public and private buses and shuttles to zero emission vehicles.	SamTrans, OOS		

T-3.3 MICRO-MOBILITY AND SHARED TRANSPORTATION MODEL POLICIES

	Key Partners	Key Characteristics	Co-Benefits
Develop model policies for micro-mobility and shared transportation options (bike, scooter, and car share) that facilitate equitable access to mobility services and region-wide transit (first mile-last mile). Include policies for curb management best practices that accommodate multiple modes and transportation options within the curbside environment. Given the low-density landscape of the majority of San Mateo County making consolidated sites for scooters and e-bikes less practical for most commuters, one option to consider is providing a subsidy for residents to purchase their own private electric scooters or e-bikes.	Planning and Building Department, SMC cities and towns, OOS		

T-3.4 PROGRAMS TO FACILITATE TRANSPORTATION EQUITY

	Key Partners	Key Characteristics	Co-Benefits
Facilitate transportation equity through targeted provision of programs and infrastructure that support equity priority communities including but not limited to people of color, low-income households, community members with limited English proficiency to take transit, walk, bike, and use ride- or car-share.	SamTrans, Caltrain, San Mateo Transportation Authority, C/CAG and its CBO partners, SMC cities and towns, OOS		

T-3.5 TAX TRANSIT NETWORK COMPANY TRIPS

	Key Partners	Key Characteristics	Co-Benefits
Explore opportunities for applying a tax on all transit network company trips (rides provided by commercial ride-hail companies and private transit services) that originate in San Mateo County to support transit and complete streets and safety improvements. Promote shared ride-hailing by lowering or eliminating the tax for shared rides on transit network company trips.	OOS		

WASTE & CONSUMPTION

WHAT ARE WE TALKING ABOUT?

Waste connects to climate change in two main ways: 1) producing, transporting, and disposing goods and services requires fuel and creates "lifecycle" greenhouse gas (GHG) emissions and 2) organic materials, like food scraps and yard waste, release methane when they reach the landfill. Methane is a more powerful greenhouse gas than carbon dioxide and it often leaks into the atmosphere from landfills.

San Mateo County is focusing on reducing the use of materials with high lifecycle emissions, such as some common construction materials. The County is also working to reduce the landfilled food waste and ensure that goods bought in the county have long lifespans. This means transitioning away from single-use products toward lending and reuse programs. Adjustments in solid waste management involves behavior change at a large scale. Plastic bags, for example, were not widely available until the second half of the 20th century, but Americans quickly became habituated to using them. Relying so heavily on this product is a collectively learned behavior that can be shifted once again. The benefits of making this transition away from single-use plastic products and recycling organic waste include, but aren't limited to the reduction of methane pollution, helping to feed community members struggling with food insecurity, extending the life of the local landfill, as well as preventing the waste of resources involved in food production (i.e., fertilizer, water, labor, and energy for transportation and refrigeration). By diverting organic materials, the County also stands to benefit local community composting efforts and supply high quality compost for local agricultural producers.

HOW ARE WE DOING?

Waste diversion—recycling or composting rather than landfilling—has already been happening in San Mateo County. State-level goals have been instrumental in achieving higher diversion rates by mandating the implementation of compost and recycling collection programs.

Now, rather than relying on recycling and composting to keep waste out of landfills, the County is aiming to reduce the amount of waste produced overall, regardless of its destination. This "source reduction" approach avoids creating waste in the first place, which can not only decrease landfill emissions, but also lower demand for products—creating a ripple effect of reduced demand for raw materials, energy for manufacturing, and fuel for transportation. This strategy can add up to significant reductions in GHG emissions.

WHAT ARE WE TRYING TO ACHIEVE?

Primary Goals

Waste emissions make up a small portion of emissions generated directly in the County, but they are still important to address. Reducing waste emissions can also help reduce the upstream costs of creating and transporting products. Actions to rescue edible food, recover construction and demolition waste, and reduce single-use items aim to:

- Reduce organics in the waste stream by 75%.
- Reduce landfilled inorganic waste.
- Reduce construction & demolition waste.

Supporting Goals

Waste-related climate actions can also benefit our local businesses, improve social equity, and make our cities and landscapes more beautiful.

- **Support food-insecure residents.** By donating surplus edible food to hunger relief instead of adding it to compost or landfill, local businesses and organizations can help support residents in San Mateo County who are food insecure.
- **Reduce purchasing and landfilling costs for local businesses.** Often, reducing waste means being more strategic in purchasing, which can save on purchasing costs. Waste reduction can also mean less waste going to landfill, which can reduce waste collection costs.
- **Support the local economy.** Many business owners value the environment in San Mateo County, including an increasing number of local Certified Green Businesses. By buying local, we can often save on excess transportation emissions and packaging as well.
- **Reduce litter.** Expanding recycling and compost programs, eliminating single-use plastics in many settings, and bolstering reuse and repair programs can make a big impact on the amount of waste that ends up on our beaches and streets. Reducing trash can help keep the County clean and beautiful.
- **Support lands and farmers.** Compost created from food scraps, yard waste, and other organics has many benefits. It can increase drought tolerance and fire resistance by keeping more water in the soil, improve water quality, reduce soil erosion, and benefit crop yield—helping local farmers and gardeners.

Food Waste and Climate Change

Food waste may not be the first image that comes to mind when thinking about climate change, but food waste is a major source of GHG emissions. It emits methane, a GHG that is 25 times more powerful than CO_2, when it reaches a landfill. When food is wasted, additional resources used in the product's full lifecycle are also lost. Growing, storing, transporting, packaging, distributing, and selling food relies upon countless additional resources such as water, fertilizer, pesticides and/or herbicides, among many others, as well as many gas-powered trucks and machines. When we waste edible food, these critical resources are also put to waste, and this process further contributes to excess GHG emissions. Considering that we waste between 30 to 40 percent of our food from farm to fork in the United States, this adds up quickly.[32]

Globally, if the emissions involved in wasted food were compared to emissions from nations in 2020, it would be the third largest source of GHG emissions, behind the United States and China.[33] Assuming that agriculture accounts for 70 percent of all freshwater use in the United States, it is calculated that wasted food alone represents 25 percent of all freshwater we consume nationally.[34]

Food waste happens all along food supply chains, including in food businesses and at home. Individuals can make a difference by making smart food purchasing decisions, preserving foods items, eating leftovers, and making sure that all food scraps at home go into the compost, not the trash.

[32] "Food Loss and Waste." U.S. Food & Drug Administration. https://www.fda.gov/food/consumers/food-loss-and-waste.

[33] "Food Wastage Footprint & Climate Change." Food and Agriculture Organization of the United Nations. https://www.fao.org/3/bb144e/bb144e.pdf.

[34] Hall KD, Guo J, Dore M, Chow CC. "The Progressive Increase of Food Waste in America and Its Environmental Impact." *PLoS ONE* (2009) 4(11): e7940. doi:10.1371/journal.pone.0007940

HOW DO WE GET THERE?

Policy W-1: Reduce construction materials and waste

W-1.1 BUILDING REGULATIONS FOR DECONSTRUCTION AND WASTE MANAGEMENT

	Key Partners	Key Characteristics	Co-Benefits
Update the building regulations to require deconstruction surveys for single family home demolitions, allow 10 days for salvage and require waste management plans for renovations over $50,000 in total job value.	Office of Sustainability (OOS), Department of Planning and Building		

Policy W-2: Reduce organics in the waste stream

W-2.1 ORGANICS DIVERSION

	Key Partners	Key Characteristics	Co-Benefits
Work with all franchised waste haulers and waste authorities in densely populated unincorporated areas to implement SB 1383 the Short-lived Climate Pollutant Reduction law by 2025. Ensure that all commercial, residential, and multi-family buildings receive organics collection services and collaborate with franchised haulers and waste authorities to conduct outreach and communication campaigns.	Office of Sustainability (OOS), franchised haulers, waste authorities		

W-2.2 EDIBLE FOOD RECOVERY PROGRAM

	Key Partners	Key Characteristics	Co-Benefits
Implement an Edible Food Recovery Program for unincorporated areas as required under SB 1383. Increase the coverage of the Edible Food Recovery Program for densely populated, unincorporated areas, such as North Fair Oaks, and further assist food recovery organizations to increase pickup and redistribution.	OOS, Community-based organizations (CBOs)		

W-2.3 RECYCLING AND COMPOSTING OUTREACH AND TECHNICAL ASSISTANCE

	Key Partners	Key Characteristics	Co-Benefits
Enhance recycling and composting outreach and technical assistance and investigate offering incentives to commercial and agricultural entities in unincorporated areas of San Mateo County. Scale these efforts locally by partnering with public schools and community college districts to engage and build awareness with school district	OOS, franchised haulers, waste authorities, public schools, San Mateo County Community		

personnel and contractors who work with schools. Support the development of materials specifically tailored to a public-school personnel audience.	College District, CBOs		

W-2.4 IMPROVEMENT PROJECTS FOR ORGANIC WASTE

	Key Partners	Key Characteristics	Co-Benefits
Reduce the amount of organics in the landfill by pursuing additional opportunities to repurpose organic materials: • Add additional sites to the Countywide community compost collaborative. • Explore development of a composting facility on the coast. • Explore feasible capital improvement projects for reducing organics in the waste stream, such as organics extraction presses and anerobic digesters.	OOS, CBOs		

W-2.5 COMMUNITY CARBON SEQUESTRATION TRAINING

	Key Partners	Key Characteristics	Co-Benefits
Partner with agricultural-related organizations, public school and community college districts, local community-based organizations, and other stakeholders, to develop a home carbon sequestration and soil health education campaign for residents and training opportunities for landscape professionals, and local government parks and recreation staff.	OOS, San Mateo Resource Conservation District (SMRCD), public schools, San Mateo Community College District, CBOs		

W-2.6 LOCAL GARDEN PROGRAM

	Key Partners	Key Characteristics	Co-Benefits
Develop a local garden program to facilitate the creation of compost and promote the use of compost at community and school gardens. Prioritize schools serving low-income communities.	OOS, public schools		

W-2.7 AGRICULTURAL WASTE DIVERSION

	Key Partners	Key Characteristics	Co-Benefits
Partner with agriculture-related organizations to reduce and divert waste generated in the agriculture sector, including farms, ranches, and equestrian facilities through composting and biodigester use. If feasible, partner with the SMRCD, and public schools and community college district personnel	OOS, SMRCD, agricultural organizations, public schools, San Mateo Community College District		

engaged in land management to improve organic waste disposal practices.			

Policy W-3: Reduce Inorganic Waste Sent to Landfills

W-3.1 BUSINESS OUTREACH PROMOTING REUSABLES

	Key Partners	Key Characteristics	Co-Benefits
Conduct outreach and engagement to inform businesses of applicable laws for reducing/regulating single-use product and shipping packaging and/or promoting reuse, such as food service ware, home meal delivery services, and other packaging.	OOS, franchised haulers, waste authorities, CBOs		

W-3.2 FUNDING FOR LOCAL WASTE-RELATED OUTREACH

	Key Partners	Key Characteristics	Co-Benefits
Expand opportunities to provide funding and technical assistance to non-profit organizations, schools, and other entities to implement projects around reuse, source reduction, recycling, and composting (e.g., 4R's Grants Program, Rethink Disposable Program, regional/countywide reusable food service ware system, fast food champion pilot project, compost and recycling ambassador program etc.).	OOS, franchised haulers and waste authorities		

W-3.3 COUNTY CONTRACT & EVENT PERMIT UPDATE

	Key Partners	Key Characteristics	Co-Benefits
Ensure that all County contracts and event permits require all third-party vendors provide and utilize compostable and/or reusable food service items to serve 50 or more people and provide recycling and composting infrastructure. Scale these efforts by partnering with public school and community college districts to determine if a similar effort or policy would be feasible. If so, provide technical assistance and support to make this possible.	OOS, procurement, public schools, San Mateo Community College District		

W-3.4 WASTE REDUCTION & REUSE PROGRAMS

	Key Partners	Key Characteristics	Co-Benefits

Partner with public institutions, private businesses, and nonprofits (e.g., thrift stores) to develop and implement programs that encourage waste reduction and reuse. Opportunities could include partnering with public schools, community colleges and the San Mateo Resource Conservation District to deploy smart phone repair toolkits at libraries, bike repair stations, and bottle filling water station installations. Programs could also include establishing a County-wide network for sharing surplus material.	OOS, public schools, San Mateo Community College District, private businesses, Thrift stores, SMRCD		

W-3.5 EXTENDED PRODUCER RESPONSIBILITY REQUIREMENTS FOR COUNTY CONTRACTS

	Key Partners	Key Characteristics	Co-Benefits
Require extended producer responsibility (EPR)[35] when an option to advance greater EPR exists. Scale these efforts by partnering with public schools and community colleges to determine if a similar effort or policy would be feasible. If so, provide technical assistance and support to make this possible.	OOS, Procurement Division		

W-3.6 OUTREACH AND MARKETING VIA THE BAY AREA RECYCLING OUTREACH COALITION

	Key Partners	Key Characteristics	Co-Benefits
Continue to collaborate with other local governments through the Bay Area Recycling Outreach Coalition (BAYROC) to implement a regional outreach and marketing campaign.	OOS, BAYROC		

W-3.7 PUBLIC EDUCATION AND CIVIC ENGAGEMENT

	Key Partners	Key Characteristics	Co-Benefits
Expand educational offerings and resources for improving community resource conservation (addressing the "4Rs," reduce, reuse, recycle, rot) through existing and new offerings (e.g., home composting workshops, Fixit Clinics, Master Composter course, webinars). Explore development of a Youth Conservation Corps program that would provide local mentorship, volunteer, internship, and/or employment opportunities for youth and young adults	OOS, franchised haulers, waste authorities		

[35] Extended producer responsibility is a policy strategy to make internal previously external environmental costs involved in a product's life cycle. As it focuses on the end-use of consumer products, it places responsibility for the fate of waste materials on manufacturers and producers as opposed to governments and civil society at large.

in the resource conservation and solid waste reduction field.			

W-3.8 WORKFORCE DEVELOPMENT IN SOLID WASTE REDUCTION

	Key Partners	Key Characteristics	Co-Benefits
Provide and promote accessible local workforce development opportunities related to solid waste programs. Create new partnerships and economic opportunities to provide maximum benefit in the form of employment opportunities for the local workforce, residents with barriers to employment, and communities most affected by climate change. This could involve partnerships, programs and policies focused on the following categories: education*, workforce recruitment**, and continued job training***.	OOS, public schools, San Mateo Community College District, CBOs, industry associations		

***Education**

1. Explore partnerships with high school districts, San Mateo County Community College District, adult schools and education programs, community-based organizations serving and preparing low-income populations for college or workforce training and jobs, and unions to communicate solid waste job opportunities with the County to their students or clients. Explore possibility of also working with these groups to expand existing job opportunities to create a more diverse workforce or create new job training and employment opportunities with the County.

2. Explore partnerships with high school districts, Community College Districts, adult schools and education programs, community-based organizations serving and preparing low-income populations for college or workforce training and jobs, and unions to provide certified trainings to their students or clients so they will be better prepared to seek employment.

****Workforce Recruitment**

1. Explore partnership with the San Mateo County Reentry program and the program's numerous partners to facilitate job training partnerships in key sectors like solid waste.

2. Research the County's interest in providing job opportunities to the recipients of the County Reentry and other community-based reentry programs. Explore partnerships with reentry community programs including but not limited to Corrections to College California, Choices Program, Achieve 180, and Downtown Streets Team to connect this workforce pool to employment opportunities with the County. As County compost, recycling, SB 1383 compliance programs, and other solid waste programs are built out staff will need to be hired to fill positions. This presents an opportunity for the County to commit to using reentry labor that has been

specially trained to work on projects including but not limited to solar panel installation and recycling, hazardous and solid waste management, and building compost and recycling programs.

3. Explore supplementing stipends and living wages to recruit volunteers from agencies like Resilience AmeriCorps or Registered Apprenticeship Program (RAP).

4. Explore partnerships with solid waste industry associations like the North American Solid Waste Association to provide members and the communities that they reach out to with County job opportunities.

*****Continued Job Training**

1. Collaborate with industry and contractors partnered with or hired by the County to provide trainings to their staff on emergent waste reduction and solid waste management technologies and current best practices.

2. Utilize tools and insights generated by the Office of Sustainability's Racial Equity and Social Justice working group as well as other racial and environmental justice resources at the County to ensure that waste reduction programs and community recommendations are accessible and achievable by all communities and individuals.

WORKING LANDS

WHAT ARE WE TALKING ABOUT?

Agriculture is one of the only sectors with the potential to deliver net negative emissions (sequestering CO_2 at rates exceeding the sector's annual emissions) while also delivering significant social, ecological, and economic benefits. Climate beneficial agriculture—or carbon farming—involves implementing practices that reduce current greenhouse gas (GHG) emissions and increase the removal of carbon dioxide (CO_2) from the atmosphere and its storage in plants and soil organic matter. Carbon farming delivers many other benefits in the process, from supporting local and regional food systems to increasing biodiversity and improving water quality.

Agricultural is an important part of San Mateo County's social and economic fabric. San Mateo County has 545 acres of vegetable crops, 315 acres of fruit and nut crops, 809 acres in field crops, 27,109 acres of range and pasture lands, and over 489 acres in flower and nursery production. In 2020, the businesses on these working lands had over $93 million in gross production value, contributing to the local economy, providing jobs, and serving as the foundation of our local food system.[36]

These working lands act as both a source of GHG emissions and a carbon sink that removes CO_2 from the atmosphere. Through photosynthesis, plants remove carbon from the air and store it in their leaves, stems, and roots, which then help enrich the soil. As plants die and decompose, this carbon can either stay in the soil or be released back into the atmosphere. By employing carbon farming practices, rangelands and croplands can significantly improve the rate at which CO_2 is removed from the atmosphere and converted to plant material and soil organic matter. The carbon that has been stored and built up over time on farms and ranches can also be lost back to the atmosphere when soil quality degrades, woody trees and shrubs are cleared, or land is developed. Other GHG emissions from agricultural lands include nitrous oxide (N_2O) from the use of nitrogen fertilizers and methane (CH_4) from livestock and manure management. Carbon beneficial practices are those that increase the sequestration of carbon, reduce GHG emissions, or both.

Techniques such as windbreak and streamside plantings, prescribed grazing, compost and cover crops, and tillage management enhance carbon sequestration in soils and vegetation, which builds resilience to climate change and delivers a host of other social, ecological, and economic benefits beyond climate change mitigation. Soils with more organic matter (carbon) hold more water and are less susceptible to heat and drought. This reduces irrigation costs and local water demand. In fact, if soil organic matter levels increased to just 5% on just croplands in San Mateo County, it would equate to an increase in the soil's water holding capacity of an additional 1,953 acre-feet, or over 636 million gallons. Managing plantings, grazing, tillage, and waste to store more carbon and nutrients can increase productivity, as well provide wildlife and pollinator habitats. By preventing erosion, these practices also protect a farmer's most precious assets, their land, while improving water quality. Compost produced from organic waste that is diverted from landfills (where

[36] "2020 San Mateo County Crop Report." Agriculture / Weights and Measures. https://agwm.smcgov.org/document/2020-san-mateo-county-crop-report.

anaerobic conditions result in methane emissions) is used to build soil health, cycle nutrients, and support food production.[37]

The carbon farming practices outlined below demonstrate that agricultural lands in San Mateo County have the potential to sequester carbon at rates that exceed the sector's annual GHG emissions. Additional opportunities to further reduce GHGs through energy efficiency and alternative energy options can further reduce emissions from the agricultural sector and improve community resilience to emergencies, such as wildfire and public safety power shutoffs.

[37] Ryals, Rebecca, Michael Kaiser, Margaret S. Torn, Asmeret Asefaw Berhe, and Whendee L. Silver. "Impacts of Organic Matter Amendments on Carbon and Nitrogen Dynamics in Grassland Soils." Soil Biology and Biochemistry 68 (2014): 52–61. https://doi.org/10.1016/j.soilbio.2013.09.011.

Table 23. Carbon sequestration practices and benefits.

Carbon sequestration practice	Operation type	Annual GHG benefit ($MTCO_2e$/acre/year) (Source)	Co-benefits
Range planting	Rangeland	0.5*	Restore native plant community, provide/improve livestock and wildlife forage, reduce erosion, improve water quality and quantity
Prescribed grazing	Rangeland	0.009*	Restore native plant community, provide/improve livestock and wildlife forage, improve water quality and quantity, improve watershed function, reduce soil erosion, improve soil health, manage fuel loads
Critical area planting	Rangeland	2*	Stabilize areas with high rates of soil erosion
Compost-Rangeland	Rangeland	1.49†	Reduce erosion, improve soil health, and increase soil organic matter content, improve soil moisture use efficiency
Riparian forest buffer	Rangeland	5.77*	Improve water quality, create and improve riparian habitat
Silvopasture	Rangeland	1.34*	Improve water quality, reduce erosion, enhance wildlife habitat, provide shade for livestock
Hedgerows	All	4.6*	Increase wildlife and pollinator habitat, support integrated pest management, provide natural barrier for airborne particulate matter, chemical drift and odor, act as living fence
Compost-annual	Row, Field, Orchard/vineyard	4.38-4.49*	Improve soils' water and nutrient retention, aeration, and water infiltration, reduce soil erosion, support abundance and diversity of soil organisms
Cover crops	Row, Field, Orchard/vineyard	0.4-1.64*	Reduce erosion, improve soil health and increase soil organic matter content, reduce water quality degradation, suppress excessive weed pressures and break pest cycles, improve soil moisture efficiency, reduce soil compaction
Conservation cover	Orchard/vineyard	2.95*	Reduce soil erosion, improve water quality, enhance wildlife and pollinator habitat, manage pest plants, improve soil health
Windbreaks	Row, Field	4.68*	Reduce soil erosion, protect plants from wind damage, enhance wildlife habitat, provide natural barrier for airborne particulate matter, chemical drift and odor, act as living fence, improve irrigation efficiency

† Ryals and Silver

* CDFA COMET

Producer Input on Climate Beneficial Agriculture

During public engagement, farmers and ranchers in San Mateo County expressed concern about the effect that climate change is already having and will continue to have on conditions that enable food production such as local precipitation and fog patterns, higher temperatures, and wildfire risk, among other changes. Many of the operations are multi-generational and have witnessed our climate changing and its impact on agriculture.

This concern, as well as increasing challenges for agricultural viability, has many producers interested in implementing climate beneficial practices, which they recognize as being valuable for conserving water, improving soil health, and building agricultural resiliency. Producers felt that use of compost, cover crops, prescribed grazing, and irrigation efficiency upgrades were the practices that have the most easily scalable practices in San Mateo County, but this may also reflect familiarity with practices.

Implementation of these climate-beneficial practices can be costly, including annual expenses (like purchasing compost and cover crops) and large investments to upgrade irrigation infrastructure or purchase specialized equipment. Farmers are already operating on very slim margins, and many do not have the capital to implement new climate beneficial practices without financial assistance. Producers expressed that financing, education, technical assistance, and demonstrations will be essential to overcoming barriers to scaling these practices.

San Mateo County has about 30,000 acres in agricultural production which is predominately comprised of grazed rangelands. Based on spatial analysis, existing farming practices, current crop types, and input from producers, it is estimated that agricultural lands in San Mateo County have the potential to sequester an additional 7,900 to 13,500 $MTCO_2e$ annually. The potential to sequester carbon in local soils is contingent on the successful adoption of carbon farming, like those listed in Table 23. The climate benefits of these practices range from one to 20 years, with estimated cumulative potential for carbon sequestration between 39,000 and 67,000 by 2030 and between 166,000 and 282,000 by 2045 (all in $MTCO_2e$). These estimations are based on the adoption of 11 carbon-beneficial land and soil management practices, with compost use providing the greatest potential for increasing carbon sequestration on agricultural soils. For more in-depth information about the methods, assumptions, and results of the analysis to estimate the carbon sequestration potential of San Mateo County agricultural lands, please see the report "A Landscape-scale Analysis San Mateo County Agricultural Lands: Carbon Sequestration Potential" in the Technical Appendix.

Agricultural lands are central to San Mateo County's social and ecological fabric and play a key role in the County's climate future. Farmers and ranchers who manage San Mateo County lands are some of the most valuable stewards of the landscape, and yet, land under agricultural production has been declining significantly since 1990. Row and field crop acreage have declined 57% from 1990 to 2019 and grazing land has declined 18% from 30,300 to 24,742 acres in 2019.[38] Additionally, many farmers and ranchers are leasing land and don't have the same incentives or opportunities as a landowner to invest in soil health building improvements. San Mateo County recognizes the importance of protecting farmland and supporting farmer and rancher access to agricultural land.

HOW ARE WE DOING?

Climate beneficial practices have been implemented across the agricultural landscape, including intact riparian corridors, hedgerows, windbreaks, cover crops, crop rotation, prescribed grazing (including fencing and water infrastructure development), reduced tillage, irrigation efficiency, and annual compost use. Farmers and ranchers indicate that their challenges to scaling these practices include funding and infrastructure. The San Mateo Resource Conservation District (SMRCD) and USDA Natural Resources Conservation Service (NRCS) have been working to bring resources through the Farm Bill, state, and private funders to producers to aid implementation of these projects. For example, the SMRCD is helping producers apply to the California Department of Food and Agriculture's Healthy Soils Program and the Restore California program. Additional support that organizations like the SMRCD, NRCS, Point Blue, and TomKat Ranch Educational Foundation provide includes expanding technical assistance, research, and education and outreach opportunities.

One technique to assist agricultural producers with the planning, design and implementation of climate-beneficial practices is to develop Conservation and Carbon Farm Plans. Conservation and Carbon Farm Plans are comprehensive, individualized plans that are developed with farmers and ranchers to assess natural resource concerns and enhancement opportunities on their properties and to identify carbon farming and other climate beneficial agricultural activities that would work with their unique operations. The result is a pathway of short- and long-term agricultural conservation practices, from cover crops to prescribed grazing, that will sequester carbon while providing myriad co-benefits, such as improved soil health, forage production, pollinator habitat, water quality, and climate change resiliency. The SMRCD has been working

[38] "2019 San Mateo County Crop Report." Agriculture / Weights and Measures. https://agwm.smcgov.org/document/2019-san-mateo-county-crop-report.

with the NRCS and local ranchers and farmers to plan and implement on-farm conservation projects and launched a carbon farming program in 2016. Thus far, the SMRCD has completed carbon farm plans for 15 farms and ranches, encompassing approximately 25% of the County's agricultural lands.

Conservation landowners have developed programs to keep lands in agriculture. Peninsula Open Space Trust (POST) owns over 4,000 acres of agricultural land with 18 farm and grazing leases and holds conservation easements on an additional 7,000 acres of land with farm and ranching operations. Their Farmland Futures Initiative places affirmative agricultural easements on farmland to conserve agricultural lands and supports transitioning farmland to farmer ownership. In addition, they provide long-term leases on POST owned properties. Midpeninsula Regional Open Space District has a conservation grazing program that supports seven ranchers on over 9,400 acres.

WHAT ARE WE TRYING TO ACHIEVE?

Primary Goals

Land management and carbon sequestration will be essential to meeting the County's long-term carbon neutrality emissions goal. Primary land management goals are to:

- Support ranchers and farmers to plan, implement, and scale climate beneficial practices on the County's working lands to mitigate climate change and build agricultural resiliency.
- Sequester a cumulative of 39,000 $MTCO_2e$ and 166,000 $MTCO_2e$ of carbon and carbon in soils and vegetation by 2030 and 2045, respectively.
- To inform and guide the development of sequestration goals, project partners (SMRCD and the Carbon Cycle Institute) along with producers and other agricultural stakeholders established a range of sequestration rates given adoption rates by producers. The primary sequestration goal listed above is the moderate Goal for 2030.
- **2030 Goal**
  - Moderate adoption, annual rate of sequestration: 7,900 $MTCO_2e$
  - Moderate adoption, cumulative amount sequestered between 2022 and 2030: 39,000 $MTCO_2e$
  - High adoption, annual rate of sequestration: to 13,590 $MTCO_2e$
  - High adoption, cumulative amount sequestered between 2022 and 2030: 67,000 $MTCO_2e$
- **2045 Goal**
  - Moderate adoption, annual rate of sequestration: 13,577 $MTCO_2e$
  - Moderate adoption, cumulative amount sequestered between 2022 and 2030: 166,000 $MTCO_2e$
  - High adoption, annual rate of sequestration: 23,729 $MTCO_2e$
  - High adoption, cumulative amount sequestered between 2022 and 2030: 282,000 $MTCO_2e$

Developing Carbon Sequestration Scenarios

A model of total potential carbon sequestration from 11 carbon farming practices (Table 23 above) was developed by Carbon Cycle Institute using spatial and carbon sequestration data. This was further refined by comparing recommendations from 11 existing conservation and carbon farm plans. The SMRCD engaged the agricultural community through outreach, a workshop, and interviews with 28 agricultural stakeholders, including 22 producers. Through their feedback on individual practices, feasibility and interest, the scenarios were developed with a range from moderate to high adoption rates. The goal of this plan is not to enforce management practices onto farmers and ranchers, but to identify opportunities to support the research, technical assistance, and funding of practices for those that are interested in adopting or expanding climate beneficial practices. As each farm and ranch is unique, the best suited climate beneficial practices will change from operation to operation. The range in implementation scenarios accounts for this, as well as ability to access research, education and outreach, technical assistance, and, most importantly, financial resources to support the planning and adoption of such practices.

Supporting Goals

In addition to carbon sequestration, improved land management can produce a multitude of benefits.

- **Increase resilience to climate change impacts.** Improved land management can help minimize the impacts of drought and wildfires for the agricultural businesses and community food supply.
- **Improve water quality and soil health.** Carbon farming and other climate beneficial practices build soil health, reduce soil erosion, and enhance the soil's water holding capacity significantly.
- **Enhance and increase habitat for pollinators and wildlife.** Cover cropping, hedgerow planting, and silvopasture, among other practices, improves or creates spaces and conditions for wildlife to live. Compost application also improves soil biodiversity, a foundational element to ecosystem functioning.
- **Increase energy efficiency and reduce GHG emissions.** Farmers and ranchers also stand to benefit from on-farm efficiency improvements that will reduce water and electricity use (and cost) and reduce the amount of agricultural waste sent to the landfill.
- **Bolster the local agricultural economy.** Healthier soil and a more resilient ecosystem can bolster crop and forage yield, and improves conditions overall for the local agricultural economy to thrive.

HOW DO WE GET THERE?

Policy L-1: Identify new financing to scale carbon farming

L-1.1 CARBON FARMING INVESTMENTS

	Key Partners	Key Characteristics	Co-Benefits
Implement a County funding program, such as Santa Clara County's Agricultural Resilience Incentive, for farmers and ranchers to implement and maintain climate beneficial practices.[39]	Office of Sustainability (OOS), San Mateo Resource Conservation District (SMRCD)		

L-1.2 EXTERNAL FUNDING PROGRAMS FOR CARBON FARMING

	Key Partners	Key Characteristics	Co-Benefits
Support the San Mateo Resource Conservation District (SMRCD) and other land partners to leverage private, regional, state, and federal funding for producer implementation of climate beneficial agricultural practices. Support the SMRCD to help farmers and ranchers access external funding programs.[40] Develop a program or mechanism for San Mateo County businesses, philanthropic institutions, and supportive community members to support local carbon farming projects.	OOS, SMRCD		

L-1.3 COMPOST PROCUREMENT

	Key Partners	Key Characteristics	Co-Benefits
Where feasible, make County-procured compost through SB 1383 compliance available to farmers and ranchers at a reduced cost or for free.	OOS, SMRCD		

L-1.4 COST SAVING METHODS

	Key Partners	Key Characteristics	Co-Benefits
Explore opportunities for establishing a bulk purchasing program for cost savings, such as for cover crop seed.	OOS, Agriculture/ Weights & Measures Department, SMRCD		

[39] Analysis suggests that a funding level beginning at $250,000 and increasing to $700,000 per year by 2030 and $1.5M by 2045 is required to carry out the moderate scenario, which equates to $199 per metric ton of carbon dioxide equivalents.

[40] Existing funding programs include grants through USDA's Farm Bill Programs, CDFA's Climate Smart Agriculture Programs, and Zero Food Print's Restore California Program.

L-1.5 CLIMATE-BENEFICIAL COMMUNICATIONS

	Key Partners	Key Characteristics	Co-Benefits
Assess potential of a communication or labeling program to raise awareness of climate-beneficial agricultural practices of San Mateo County producers, potentially as part of the *As Fresh As It Gets* program. Assess potential of such program to increase revenue for producers.	OOS, SMRCD, Agriculture/ Weights & Measures Department		

L-1.6 PUBLIC BENEFIT COMMUNICATIONS

	Key Partners	Key Characteristics	Co-Benefits
Assess and report the estimated public benefits and cost savings provided by climate-beneficial agricultural practices to the agricultural and larger San Mateo County communities.	OOS, SMRCD, Agriculture/ Weights & Measures Department		

Policy L-2: Support technical assistance, education, and data collection efforts to scale climate beneficial agriculture

L-2.1 TECHNICAL ASSISTANCE PROVIDER SUPPORT

	Key Partners	Key Characteristics	Co-Benefits
Support the SMRCD and other land partners in providing technical assistance to agricultural producers to scale carbon farming and GHG-reducing practices. Support adequate staffing for technical assistance providers to undertake outreach, planning, implementation, monitoring, and maintenance.	OOS, SMRCD, Natural Resources Conservation Service		

L-2.2 ON-FARM RESEARCH AND DEMONSTRATION

	Key Partners	Key Characteristics	Co-Benefits
Support trials, research, and monitoring by the SMRCD, agricultural producers, and other land partners to refine local data on carbon sequestration and GHG reduction occurring from existing and new climate beneficial practices.	OOS, SMRCD, agricultural producers, Point Blue Conservation Science, UC Cooperative Extension		

L-2.3 EDUCATIONAL OPPORTUNITIES FOR LAND MANAGERS

	Key Partners	Key Characteristics	Co-Benefits
Support the SMRCD and other land partners in providing educational opportunities to assist producers in evaluating and adopting climate-beneficial agricultural practices, including trainings and peer-to-peer learning opportunities.	OOS, SMRCD, Farm Bureau, UC Cooperative Extension		

Policy L-3: Secure access to key implementation infrastructure to advance climate beneficial agriculture

L-3.1 CARBON FARMING IMPLEMENTATION INFRASTRUCTURE ACCESS

	Key Partners	Key Characteristics	Co-Benefits
Support development of key infrastructure for cost savings for carbon farming. Investigate feasibility of equipment share or low-cost rental program to increase access to essential equipment to facilitate carbon farming practices, such as a compost spreader or no-till drill. If feasible, support and finance equipment purchasing, coordination, and maintenance of such a program. Improve and increase the availability of high quality and affordable local agricultural compost.	OOS, SMRCD		

L-3.2 CLIMATE BENEFICIAL PRACTICES THAT REDUCE GHG EMISSIONS

	Key Partners	Key Characteristics	Co-Benefits
Implement the following climate beneficial practices for reducing agricultural GHG emissions: • Support work to improve irrigation efficiency and increase use of on-farm GHG reducing equipment and alternative energy, such as solar. • Fund chipping program to reduce annual burning of pruning waste. • Assist in the development of infrastructure that supports the local agricultural economy while reducing travel, such as development of agricultural services or markets in San Mateo County. • Support efforts that assist producers with agricultural waste reduction, reuse, and recycling. • Ensure that woody material removed for fuel load reduction projects are recycled into a beneficial use, such as compost or biochar. Investigate feasibility of procuring a mobile pyrolysis facility and establish shared funding mechanism for ongoing costs of repair and maintenance. • Partner with Pacific Gas and Electric (PG&E) and Peninsula Clean Energy (PCE) to assess the feasibility of establishing an incentive program that would help producers plan for and	OOS, SMRCD, PG&E, PCE		

install solar panels and battery storage for on-farm operations. • Partner with PG&E and PCE to provide producers with on-farm energy audits to identify energy efficiency opportunities and connect them to existing county and statewide energy upgrade programs, including incentives, rebates, and financing.			

L-3.3 PROGRESS TRACKING

	Key Partners	Key Characteristics	Co-Benefits
Develop a platform for tracking and reporting climate goals and on-farm benefits of climate beneficial agricultural projects.	OOS, SMRCD, Agriculture/ Weights and Measures Department		

Policy L-4: Address permitting barriers to implementing climate beneficial agricultural practices

L-4.1 PERMIT BARRIER IDENTIFICATION & MINIMIZATION

	Key Partners	Key Characteristics	Co-Benefits
Implement the following actions to address barriers to climate beneficial agriculture: • Assess local permitting and ordinances to identify barriers to efficient and effective planning and implementation of climate-beneficial agricultural practices. • Participate in the statewide Cutting Green Tape initiative. • Engage in efforts to reduce regulatory barriers to efficient and effective climate beneficial agricultural practices. • Align local regulations to statewide streamlining permitting efforts for on-farm composting and climate beneficial agricultural practices.	OOS, Planning and Building Department, SMRCD		

Policy L-5: Ensure agricultural lands are preserved for agricultural production

L-5.1 AGRICULTURAL LAND PRESERVATION

	Key Partners	Key Characteristics	Co-Benefits
Support efforts to improve access, tenure, and ownership for next generation and new farmers and ranchers.	OOS, SMRCD		

Policy L-6: Support carbon sequestration and ecological restoration on natural lands and urban green spaces

L-6.1 STEWARDSHIP AND ECOLOGICAL RESTORATION ON NATURAL LANDS

	Key Partners	Key Characteristics	Co-Benefits
Explore opportunities to encourage and support ecological restoration efforts where feasible. Explore opportunities to provide tribal access to land for indigenous agriculture and other cultural activities and events that are dedicated to tribal citizens as well as shared opportunities for members of the broader public to visit the land and learn about and tend native plants. Support development of accompanying place-based public education opportunities focused on local microclimates, indigenous plant communities, and land stewardship. This may involve working in partnership to identify areas where access can be provided to tribal citizens for ceremony, invasive plant removal, and other ecological restoration efforts while also using this space as an opportunity for the public to learn about native traditions and participate in native plant stewardship.	OOS, Indigenous community leaders,[41] SMRCD, Santa Cruz Mountain Stewardship Network, Midpeninsula Regional Open Space District, Community-based organizations (CBOs)		

L-6.2 CARBON SEQUESTRATION ON NATURAL LANDS AND URBAN GREEN SPACES

	Key Partners	Key Characteristics	Co-Benefits
Develop strategies through diverse stakeholder participation for carbon sequestration and climate adaptation on natural lands and urban green spaces, including urban forests.[42]	OOS, SMRCD, CBOs		

[41] Indigenous community leaders may include federally recognized tribes as well as non-federally recognized tribes.

[42] Please see "T-2.3 Traffic Calming and Complete Streets" for more information on urban canopy.

BENEFITS OF CLIMATE ACTION

While rapidly reducing GHG emissions will contribute to a more stable and favorable climate that everyone stands to benefit from, emission reductions can also contribute to healthier communities, more enjoyable neighborhoods, and economic opportunity for those historically left out of career-track and livable wage employment.

The COVID-19 pandemic has underscored the interconnections between health, equity, and the economy. In the recovery process, we can invest in meaningful, green jobs for all that also support a prosperous and truly sustainable economy—one that values and supports essential workers, provides accessible career paths, and supports our most marginalized and historically underserved communities.

Reducing emissions is a smart investment in the future of San Mateo County. Cost-effective energy efficiency improvements and solar panel installation on buildings can create new high road jobs and reduce utility bill costs for residents. Improved infrastructure for active transportation such as biking and walking are healthy alternatives that provide safe, green spaces to recreate and spend time with friends and family. Planting more trees makes our landscapes more beautiful, improves local air quality, and ameliorates urban heat islands. Other climate action benefits, detailed further below, include:

PUBLIC HEALTH AND EQUITY

RESILIENT COMMUNITIES

REDUCED TRAFFIC CONGESTION

ECONOMIC OPPORTUNITY AND GREEN JOBS

RESILIENT LOCAL FOOD SYSTEMS

Public Health and Equity

Taking climate action creates many opportunities to improve public health and invest in equitable outcomes for community members. The challenge in grappling with climate change is not merely about changing the fuel that powers our homes and cars, it is about the quality of our communities and our built and natural environments. It is about people living dignified lives, it is about all of us.

During the CCAP public outreach, community health figured prominently in residents' priorities across the County. For most, confronting climate change must also involve drastic improvements in public health, equity, and quality of life through better housing quality, energy and food security, and poverty alleviation. For example, building energy improvements such as better insulation, draft proofing, and regulated indoor temperatures can enhance indoor air quality, correct system performance issues, lower energy costs, and provide a more comfortable living environment. Actions to mitigate climate change can benefit our communities by prioritizing health and wellbeing for everyone in the County, giving space back to people and nature, reimagining and innovating our streets, cleaning our air, and improving mental and physical health and safety.

One of the best ways to improve our health and reduce climate pollution is to spend less time driving cars and more time using active transportation modes such as walking, biking, and using public transit. Shifting from less car travel to more active transportation can provide noticeable reductions in the incidence of chronic diseases. A San Francisco study found that increasing biking and walking from 4 to 24 minutes per day would

reduce heart disease and diabetes by 14 percent.[43] Actions that encourage active modes of transportation can also reduce societal costs associated with public health services and improve long-term mental health.

Other climate actions also provide health and wellbeing benefits. Green infrastructure projects such as parks, tree plantings, and drainage projects using stones and plants have been shown to create conditions where residents are more likely to engage in physical fitness activities such as dog walking or jogging.[44] Denser, transit-oriented neighborhoods can also increase local access to essential services and nutritious food sources. These kinds of investments also stand to improve neighborhood connectivity, increase access to shared communal space, and enhance the "locality" of life, a common theme that emerged repeatedly throughout the public engagement phase shared by many community members throughout the county.

Actions aimed at reducing traffic congestion, taking vehicles off the road, and transitioning to an all-electric fleet can also mitigate risks of cardiovascular disease, chronic and acute respiratory illnesses, cancer, and preterm births. Research suggests that living within 50 to 200 meters of major roadways can trigger asthma symptoms among adults and children and contribute to the development of asthma in children.[45] Actions aimed at reducing traffic congestion, taking vehicles off the road, and transitioning to an all-electric fleet will improve air quality for those located near busy roads.

Transitioning homes to electric energy sources can improve public health by reducing exposure to toxic byproducts of gas-powered appliances. More research is emerging about the potentially harmful effects of gas-powered appliances on indoor air quality. Gas-powered appliances emit numerous pollutants including carbon monoxide (CO), nitrogen oxides (NOx and N_2O), fine particulate matter ($PM_{2.5}$), ultrafine particles, and formaldehyde. The presence and use of gas cooking appliances can result in hazardous levels of indoor air pollution, especially if the kitchen does not have adequate ventilation. In fact, a two-hour use of a gas stove and oven under average conditions (i.e., low usage rates of overhead ventilation) can lead to indoor air pollution levels that exceed outdoor air quality standards and acute exposure to nitrogen oxides. The health effects of pollution from gas combustion inside the home include, but are not limited to: asthma, cardiovascular disease, increased blood pressure, bronchitis, respiratory illness in children, cancer, headaches, birth defects, among others.[46] Low-income, black, indigenous, people of color (who are more likely to suffer from asthma and other respiratory conditions), renters, the elderly, and children are most vulnerable to poor indoor air quality and these associated chronic and inequitable health outcomes.[47]

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[43] "C40. Benefits of Climate Action." C40 Cities, October 29, 2021. https://www.c40.org/research/#:~:text=By%20providing%20evidence%20of%20the,economic%20opportunities%20of%20urban%20citizens.

[44] "The Value of Green Infrastructure - CNT." https://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf.

[45] McConnell, R. "Childhood Incident Asthma and Traffic-Related Air Pollution in a Longitudinal Cohort Study." *Epidemiology* 18, no. 5 (2007). https://doi.org/10.1097/01.ede.0000276913.45372.95.

[46] "Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California." Center for Occupational & Environmental Health. https://coeh.ph.ucla.edu/effects-of-residential-gas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/.

[47] "Asthma and African Americans." U.S. Department of Health and Human Services Office of Minority Health. Accessed January 25, 2022. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=15#:~:text=Non%2DHispanic%20African%20Americans%20were,the%20non%2DHispanic%20white%20population.

Health benefits from climate action bring tangible economic benefits. The benefits of avoided human death and illness from reducing GHG emissions—valued between $50 and $380 per $MTCO_2e$ reduced (metric tons of carbon dioxide equivalent)—have been shown to exceed the costs of those emission reductions.[48]

An important caveat in advancing public health and equity while also reducing GHG emissions is that certain discrete actions, such as reducing pollution burden in historically underserved neighborhoods, does not address the underlying forces and decision-making processes that created those inequitable conditions and outcomes in the first place. More robust policy changes are needed that will attend to these and other root causes. Taking climate action *can* foster a more equitable and inclusive community, but not if fundamental structural defects in other policy and decision-making processes remain in place. A planning process for implementing climate action related projects that centers equity in its design has a greater chance at bringing about a truly sustainable society insofar as it attends to the complexity and root causes of the cultural and economic challenges we face.

[48] Haines, Andy. "Health Co-Benefits of Climate Action." *The Lancet Planetary Health* 1, no. 1 (2017). https://doi.org/10.1016/s2542-5196(17)30003-7.

Resilient Communities

Actions that address climate change can also increase a community's capacity and strength to withstand disruptions and emergencies such as power outages, wildfires, and economic crises.

Low-income and rural households face the highest energy burden in the country, spending 9% of household income on energy bills compared to the national average of 3%.[49] This can force many households to make difficult tradeoffs between paying energy bills and meeting other basic needs such as food or medicine. This economic vulnerability increases the likelihood that these households could see their utility services shut off. The COVID-19 pandemic has only exacerbated pre-existing economic disparities, making utility burden more acute for many residents.

We can reduce energy costs and improve community resilience by making energy efficiency improvements and deploying microgrids and distributed energy systems such as on-site solar power coupled with battery storage. Public safety power shutoffs may help to prevent wildfires, but they pose major challenges for residents who have been left without power for several days. Microgrids and clean backup power sources will help make these events less disruptive and help communities, especially the coastside, withstand these events while also facilitating the transition away from natural gas. Peninsula Clean Energy will be a lead partner in this transition away from natural gas and towards a resilient energy network. In a 2020 Resiliency Strategy, PCE lays out a multi-year plan for programs that will support medically fragile customers, municipal community resiliency centers, and critical infrastructure with microgrids and/or clean backup power sources. They also anticipate establishing a program for implementing microgrids for residential and commercial customers.[50] Facilitating a transition away from natural gas and toward a resilient and clean energy network

[49] "Low-Income Household Energy Burden Varies Among States — Efficiency Can Help In All of Them." U.S. Department of Energy, 2018. https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf.

[50] "Resiliency Strategy." Peninsula Clean Energy, 2020. https://www.peninsulacleanenergy.com/wp-content/uploads/2021/02/2021-02-25-PCE-BOD-Agenda-Packet-updated.pdf.

will require coordination and partnership and PCE's leadership and strategy in this realm will help the County address the concerns residents expressed about the future of the electricity grid.

Energy efficiency upgrades such as insulation and air leak sealing not only protect against extreme weather events but can also reduce rural energy burdens by as much as 25%.[51] Investing in on-site renewable energy systems and community-wide energy-efficiency programs can also drive local job growth and provide resilience to power outages from extreme wind and wildfire.

We can also make communities more resilient to energy disruptions through investments in electric vehicle charging infrastructure. The Los Angeles Air Force Base recently installed electric vehicle charging infrastructure that allows for both vehicle-to-building and vehicle-to-grid charging capabilities.[52] This innovative approach means the electric vehicle can supply emergency power to buildings and other equipment in the case of a power outage—enough to operate a building for multiple days.

More examples of microgrids are emerging throughout California. Microgrids in the cities of Borrego Springs, Santa Barbara, Fremont, Richmond, and Santa Rosa, among others, protect critical facilities such as medical centers, fire stations, or wastewater treatment plants against power outages and reduce grid energy demand by using stored energy during peak usage times of the day. There are opportunities to pursue even larger scale microgrids that serve a wider network of facilities. One such example is the Goleta Load Pocket Community Microgrid, which will span 70 miles of Southern California coastline and will include Goleta, Santa Barbara, Montecito, and Carpinteria. The project envisions community microgrids at individual critical facilities in Montecito and at the Santa Barbara Unified School District, a large energy storage project in Carpinteria, a wind energy project, and a residential solar microgrid project.[53] The Goleta Load Project and other individual projects demonstrate the potential for generating and storing more renewable energy, shifting load demand during peak hours, and building community resilience to grid vulnerability.

Climate actions can also enhance community cohesion—the networks of formal and informal relationships among neighbors that foster a mutually supporting human environment. One study showed a direct link between increased vegetation and use of outdoor spaces for social activity.[54] A survey measuring the social capital of residents in a wide range of neighborhood types found a positive relationship between neighborhood walkability and knowing neighbors, participating politically, trusting others, and being socially engaged.[55]

[51] Greer, Ryan. "An analysis of state and voluntary moratoria on electric utility shutoffs". Center for Biological Diversity. (2020).

[52] Princeton Power Systems (2014). Case Study, *L.A. Air Force Base EV Charging Stations*. Retrieved from Globe Newswire. https://www.globenewswire.com/fr/news-release/2014/07/09/990445/0/en/Los-Angeles-Air-Force-Base-Installs-Princeton-Power-Systems-Bidirectional-Electric-Vehicle-Chargers.html

[53] "Goleta Load Pocket Community Microgrid." Clean Coalition, December 1, 2021. https://clean-coalition.org/community-microgrids/goleta-load-pocket/.

[54] Sullivan, William C., Frances E. Kuo, and Stephen F. Depooter. "The Fruit of Urban Nature." *Environment and Behavior* 36, no. 5 (2004): 678–700. https://doi.org/10.1177/0193841x04264945.

[55] Leyden, Kevin M. "Social Capital and the Built Environment: The Importance of Walkable Neighborhoods." *American Journal of Public Health* 93, no. 9 (2003): 1546–51. https://doi.org/10.2105/ajph.93.9.1546.

Reduced Traffic Congestion

Climate actions that encourage carpooling, public transit, walking, and biking can reduce traffic congestion.

Benefits from climate-friendly transportation such as public transit, walking, and biking include improved traffic flow, safer and more convenient routes for pedestrians and cyclists, and lower greenhouse gas emissions.

There is evidence that walking and cycling improvements reduce traffic congestion. For example, a major study in Phoenix found that there is significantly less congestion in higher density areas than in lower density suburban areas. The high-density areas have neighborhoods with mixed housing and retail uses, better access to transit, and a more connected street grid, which enables more walking and cycling. A different study in Washington DC found that the City's bikeshare program reduced traffic congestion by four percent when it began, mainly by reducing traffic in the most congested areas of the city.[56]

At the beginning of the COVID-19 pandemic, amid the tragedy of what was unfolding, Bay Area residents noticed that the sudden shelter-in-place order brought about a precipitous decrease in traffic and noise, as well as a clearer night sky. While some of the dynamics behind the clarity of night- and day-time skies was driven by regional weather patterns, the sudden reduction in traffic prompted many to wonder about the GHG emissions reduction benefits and what it would take to keep traffic and pollution levels lower as the pandemic eased. While the effects of that relatively short-lived reduction in traffic had a minor effect on emissions regionally, the experience underscores what is possible with enough investment in transit, transit-oriented development, and walkable, livable environments.

[56] Litman, Todd. "Evaluating Active Transport Benefits and Costs." Victoria Transport Policy Institute, 2021. https://www.vtpi.org/nmt-tdm.pdf.

Economic Opportunity and Green Jobs

Climate actions can boost the local economy through local projects, programs, and jobs.

Investments in the construction, manufacturing, clean technology, green infrastructure, and civil engineering sectors provide businesses with opportunities for growth and create skilled, well-paying green jobs for the community. For example, many jobs in the renewable energy and energy efficiency sector are in installation, maintenance, and construction—making them inherently local and influential to the local economy. One example of this is ChargerHelp!, a company that provides on-demand repair of EV charging stations in California. They work with local job centers to hire from within local communities. They invest in employee training and provide pathways to certification. This approach—both filling a need for repairing EV chargers and building a new, inclusive workforce—is an excellent example of the economic opportunities available in creating a less carbon-dependent society.

Actions related to improved bike and pedestrian access can generate more visibility for local shops and outlets, which serves to improve the viability and financial sustainability of small businesses. The inclusion of bike lanes along streets can help to attract businesses back to local neighborhoods and reverse the vacancy rates of stores and commercial spaces. For example, bike lanes were added to Valencia Street in the Mission District of San Francisco by reducing driving lanes from two to one in each direction. When local businesses were surveyed about its impacts, 63% felt that the number of customers arriving by bicycle increased, 56% felt that the number of local residents shopping there had increased, and 37% reported that their sales had

increased overall.[57] Similarly, when on-street parking spaces were replaced with bike lanes in Seattle, results showed up to a 400% increase in sales after bicycle lanes were installed.[58]

Climate actions can also provide cost savings. A study by the University of California Transportation Center estimated that electric vehicles would have 50% to 75% of the average maintenance cost of conventional vehicles.[59]

The economic sectors most likely to benefit from climate actions and policies are those related to household spending, such as housing, wholesale, and retail. Other positively impacted sectors include manufacturing sectors that produce energy efficiency equipment and appliances and renewable energy generation equipment.[60]

[57] Active Living Research. (2013). Business Performance in Walkable Shopping Areas.

[58] Litman, Todd. "Economic Value of Walkability." Victoria Transport Policy Institute, 2018. https://vtpi.org/walkability.pdf.

[59] DeLuchi, Mark, Quanlu Wang, and Daniel Sperling. "Electric Vehicles: Performance, Life-Cycle Costs, Emissions, and Recharging Requirements." *Transportation Research Part A: General* 23, no. 3 (1989): 255–78. https://doi.org/10.1016/0191-2607(89)90007-1.

[60] Wei, Dan, Alejandro Brugués, Adam Rose, Carlos A. de la Parra, Rigoberto García, and Federico Martínez. "Climate Change and the Economy in Baja California: Assessment of Macroeconomic Impacts of the State's Climate Action Plan." *Ecological Economics* 131 (2017): 373–88. https://doi.org/10.1016/j.ecolecon.2016.08.020.

Resilient Local Food Systems

Enabling and supporting climate beneficial agricultural practices on San Mateo County working lands such as compost application, cover cropping and hedgerow planting has the potential to pull carbon from the atmosphere and store or "sequester" it in the soil, reduce GHG emissions, and build resilience to a changing climate. These and other climate beneficial practices are demonstrated to play an important role not only in climate change mitigation, but also in adapting to a changing climate throughout California. Supporting the County's range and crop land stewards (i.e., farmers and ranchers) to implement climate beneficial and agricultural practices can deliver benefits to the climate and broader ecological and economic resilience to the agricultural community.

Farmers and ranchers in California are already having to adapt to climate change stresses, from drought and extreme heat to changing seasonal patterns and pest pressures.[61] These climate change stresses are only expected to worsen in the coming decades, continuing to strain producers, food production, and local food systems.[62] By building soil health and agroecosystem diversity, these practices help adapt to climate change and play a pivotal role in supporting resilient local food systems.[63]

[61] Pathak, Tapan, Mahesh Maskey, Jeffery Dahlberg, Faith Kearns, Khaled Bali, and Daniele Zaccaria. "Climate Change Trends and Impacts on California Agriculture: A Detailed Review." *Agronomy* 8, no. 3 (February 26, 2018): 25. https://doi.org/10.3390/agronomy8030025.

[62] IPCC. "Summary for Policymakers." In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, et al. Cambridge: Cambridge University Press, 2021.

[63] IPCC. "Summary for Policymakers." In Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems, edited by P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, et al. Geneva: Intergovernmental Panel on Climate Change, 2019.

Sequestering carbon in soils, a process which increases soil organic matter levels, is widely known to increase a soil's ability to soak up and hold onto water. For example, increasing soil organic matter by 1% will on average allow that soil to hold onto approximately 27,000 gallons more water.[64] In practice, research has found that Bay Area rangelands that received organic matter amendments were more able to soak up heavy rainfall and hold water during dry periods.[65] Agroforestry practices such as riparian restoration play an important role in increasing water retention, flood mitigation, and improving water quality.[66]

Many climate beneficial practices benefit agricultural productivity, both due to increased water availability as well as carbon and nutrient cycling. For example, research has found that applying compost to California rangelands results in increased forage productivity.[67] In Marin and Yuba Counties, a one-time application of compost led to 42% and 78% increases in forage production, respectively.[68] Similarly on cropland, cover crops and other soil health-building practices support greater yields or greater yield stability over time.[69]

Many producers have experienced economic benefits not only from increased water availability and yields, but also from decreased inputs, improved nutrient cycling, and improved pest management.[70] For example, case studies of two California almond farms found that after adoption of soil health practices, their net income increased by $657 and $991 per acre, respectively.[7172]

Strategies that promote carbon farming offer the largest available pathway to draw down atmospheric carbon while also increasing food security, enhancing ecosystem resilience, and supporting the agricultural communities who steward San Mateo County's beautiful agricultural and open coastal landscapes.

[64] USDA NRCS. "Soil Health Key Points," 2013. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1082147.pdf.

[65] State of California. "California's Fourth Climate Change Assessment: San Francisco Bay Area Region Report." California Climate Assessment, 2019. https://climateassessment.ca.gov/regions/.

[66] Jackson, Louise, Amanda Hodson, Katherine Fyhrie, and Valerie Calegari. *Creekside Plantings and Restoration in California Rangelands*. UC Davis Department of Land, Air and Water Resources, 2015.

[67] Carey, Chelsea J., Kelly Gravuer, Sasha Gennet, Dillon Osleger, and Stephen A. Wood. "Supporting Evidence Varies for Rangeland Management Practices That Seek to Improve Soil Properties and Forage Production in California." *California Agriculture* 74, no. 2 (June 2020): 101–11. https://doi.org/10.3733/ca.2020a0015.

[68] Ryals, Rebecca, and Whendee L. Silver. "Effects of Organic Matter Amendments on Net Primary Productivity and Greenhouse Gas Emissions in Annual Grasslands." *Ecological Applications* 23, no. 1 (January 2013): 46–59. https://doi.org/10.1890/12-0620.1.

[69] Myers, Rob, Alan Weber, and Sami Tellatin. "Cover Crop Economics." Ag Innovation Series Technical Bulletin. SARE, 2019.

[70] Brodt, Sonja B., Nina M. Fontana, and Leigh F. Archer. "Feasibility and Sustainability of Agroforestry in Temperate Industrialized Agriculture: Preliminary Insights from California." *Renewable Agriculture and Food Systems* 35, no. 5 (October 2020): 513–21. https://doi.org/10.1017/S1742170519000140.

[71] USDA NRCS and American Farmland Trust. "Soil Health Case Study: Tom and Dan Rogers, California," 2020. https://s30428.pcdn.co/wp-content/uploads/sites/2/2020/02/CA_RogersFarm_Soil_Health_Case_Study_AFT_NRCS.pdf.

[72] USDA NRCS and American Farmland Trust. "Soil Health Case Study: Ralf Sauter, Okuye Farms, CA," 2019. https://s30428.pcdn.co/wp-content/uploads/sites/2/2020/02/CA_OkuyeFarms_Soil_Health_Case_Study_AFT_NRCS.pdf

IMPLEMENTATION

Achieving our climate goals will require dedication, time, and resources from County government and the broader San Mateo County community. Successful plan implementation will require ongoing creativity and adaptivity in response to changes in technologies, state and federal policies, budgets, grants and other funding opportunities, and community priorities. Effective implementation will also require creating meaningful opportunities for community input, and an ongoing investment in building relationships with indigenous community leaders as County staff and partners develop programs and projects and enforce policies that emerge from the plan. Soliciting and incorporating diverse perspectives and making a concerted effort to involve tribal leaders as early as possible in project scoping and siting efforts will be a key aspect of meeting emissions reductions goals in an equitable and culturally relevant manner. Doing so will enable County staff to avoid culturally sensitive areas and resources early on in their planning. The County must be strategic in sequencing, executing, and funding climate action to meet our goals in a manner that brings the whole community along and maintains our vision for a sustainable, prosperous future.

PHASING

Implementation of the plan will be divided into three phases:

NEAR-TERM (1-2 YEARS)

Near-term implementation will focus on establishing a foundation for meeting the 2030 goal. This phase will involve establishing funding strategies and partnerships, establishing key policies to facilitate electrification and carbon sequestration, conducting education and outreach campaigns, establishing pilot projects that can be scaled up, and voluntary incentive measures that address top emissions sources.

MID-TERM (2-5 YEARS)

Mid-term solutions address measures needed to "close the gap" for meeting interim goals and to position the County for meeting long-term goals. Actions include broader regulatory requirements, if necessary, expanded infrastructure investments to support rapid and long-term energy transitions, and actions focused on lower priority emissions sources.

LONG-TERM (5-10 YEARS)

Long-term strategies are more comprehensive solutions that require long-term investment, careful planning, and broad coordination. They include actions that are dependent upon crucial foundational actions in the near- and mid-term phases.

FUNDING

The County will utilize existing County resources, grant, and other external funding sources to the extent possible in implementing this plan. Over the long term, it will be important to identify funds that are ensured rather than dependent on uncertain potential funding sources. Potential sources include the following:

- Private grants/investment and public-private partnerships
- Federal and state grants
- County general fund
- Revolving loan funds
- Bonds
- Taxes, fees, and utility revenues
- Local carbon offset funds

Many climate expenditures will not only reduce greenhouse gas emissions, but will also bring valuable environmental, social, and economic benefits that will contribute to a positive net return on investment.

ACCOUNTABILITY & COLLABORATION

Key accountability and collaboration approaches for implementation of the CCAP are summarized below:

PROGRESS REPORTING

Plan progress reports will be developed and reviewed annually. GHG inventories will be updated every year.

IMPLEMENTATION TEAM

Office of Sustainability staff will work in collaboration with key implementing partners in other County departments including the Department of Public Works, and Planning and Building, as well as external entities and organizations such as the San Mateo Community College District, the San Mateo Resource Conservation District, and others.

PARTNERSHIPS

Much of the work needed to implement this Plan will necessarily be done in partnership with local, regional, and State entities like the San Francisco International Airport, California Air Resources Board, Metropolitan Transportation Commission, SamTrans, Bay Area Rapid Transit, SamTrans, CalTrain, and others.

PUBLIC PARTICIPATION

The County continued to engage the public through the spring of 2022 to solicit feedback on the final draft of the Plan. After completing Board adoption, the County will engage the public on climate action as specific measures and policies are developed and implemented.

LEAD BY EXAMPLE

The County will lead by leveraging its resources in partnership with others and pursuing ways to meet its own climate goals that also bring co-benefits for the cities and towns within the County. The County has established a precedence in this strategy, which brought about the establishment of Peninsula Clean Energy and the Regionally Integrated Climate Action Planning Suite (RICAPS), among others.

PLAN UPDATES

The plan will be updated every 5 years. However, given the pace of climate change and the rapidity of change needed to meet climate goals, progress on meeting the plan will be assessed every year and implementation efforts will be adjusted accordingly.

1-2 Year Implementation Matrix for Key Actions

Table 24. One- to two-year implementation matrix for key actions.

Action	Lead Department	Key Partners	Next Steps & Considerations
B-2.2 Investigate regulatory pathways for electrifying existing buildings	OOS, Planning and Building	OOS, Planning and Building	**Next steps:** Assemble working group, allocate funding for feasibility study **Considerations:** Grid reliability, equity, utility cost burden
B-2.3 Conduct electrification retrofit pilot	OOS, Housing, San Mateo Community College District	OOS, Housing, San Mateo Community College District	**Next steps:** Assemble working group to scope initial pilot and identify funding source(s) **Considerations:** Build on other pilots and local and regional studies
T-2.3 Improve traffic calming and complete streets features, including urban canopy, in North Fair Oaks	Public Works, OOS, Health	Public Works, OOS, Health	**Next steps:** Assemble project team, establish a plan for identifying best locations for tree plantings, apply for grant funding **Considerations:** Utilize a phased approach, focusing on areas of high need first, address long-term maintenance costs
T-2.7 Support the implementation of the Active Transportation Plan by implementing priority pedestrian and bikeway projects.	OOS, Public Works, Planning	OOS, Public Works, Planning	**Next steps:** Support implementation of existing grant-funded projects, identify projects for inclusion in the Capital Improvement Plan **Considerations:** Focus on historically underserved neighborhoods
B-3.1 Perform capacity mapping for distributed energy resource project opportunities	OOS, PCE, PG&E, Planning, OES, Health, Housing	OOS, PCE, PG&E, Planning, OES, Health, Housing	**Next steps:** Assemble working group, case study research, allocate funding **Considerations:** Coastside grid reliability, utility cost burden, frameworks for co-ownership and maintenance

Action	Lead Department	Key Partners	Next Steps & Considerations
B-1.7 & W-3.8 Plan workforce development programs in energy and solid waste reduction sectors	OOS	San Mateo Community College District, PCE, public schools, community-based organizations (CBOs)	**Next steps:** Assemble internal OOS working group to identify areas of opportunity in both sectors, establish strategic partnerships and more inclusive working group to scope potential program and identify funding sources **Considerations:** Focus on *local* workforce, high road job and career opportunities
B-1.6 & B-2.10 Improve energy efficiency in new and existing buildings	Planning and Building, OOS		**Next steps:** Develop a workplan and budget for adopting a more aggressive climate zone in the building code **Considerations:** Housing cost impacts
T-1.3 Prepare an EV Readiness Plan to deploy electric vehicle (EV) charging	OOS, Public Works, PCE, PG&E	CBOs	**Next steps:** Assemble County working group to develop scope and workplan, potentially issue an RFP for support in evaluating equity-related impacts as well as technical feasibility and siting **Considerations:** Whether charging infrastructure is needed (i.e., if local residents have EVs), impact on parking availability, grid load
T-3.1 First mile-last mile pilot shuttle program	OOS, Health, City/County Association of Governments (C/CAG)	SamTrans, Caltrain, San Mateo County Transportation Authority, public schools, San Mateo Community College District, CBOs	**Next steps:** Identify potential areas and routes, identify potential funding sources **Considerations:** Build on lessons learned from SamTrans' previous pilots, providing multiple benefits for areas of the County most burdened by the cost and relative inaccessibility of public transit

Action	Lead Department	Key Partners	Next Steps & Considerations
Develop or expand incentives for residents to buy or lease EVs	OOS	PCE, CBOs	**Next steps:** Evaluate existing incentive programs, determine how and where County efforts can accelerate or expand these efforts **Considerations:** Equitable access to financing, charging infrastructure availability

Building on a Foundation

San Mateo County has two climate action plans: a Governmental Operations Climate Action Plan (GOCAP) first adopted in 2012 and updated in 2020, and a communitywide Energy Efficiency Climate Action Plan (EECAP) adopted in 2013. This plan is an update to the communitywide Energy Efficiency Climate Action Plan.

As illustrated below in Figure 19, the County has made steps in reducing its emissions since the adoption of the EECAP and GOCAP in 2012 and 2013, respectively.

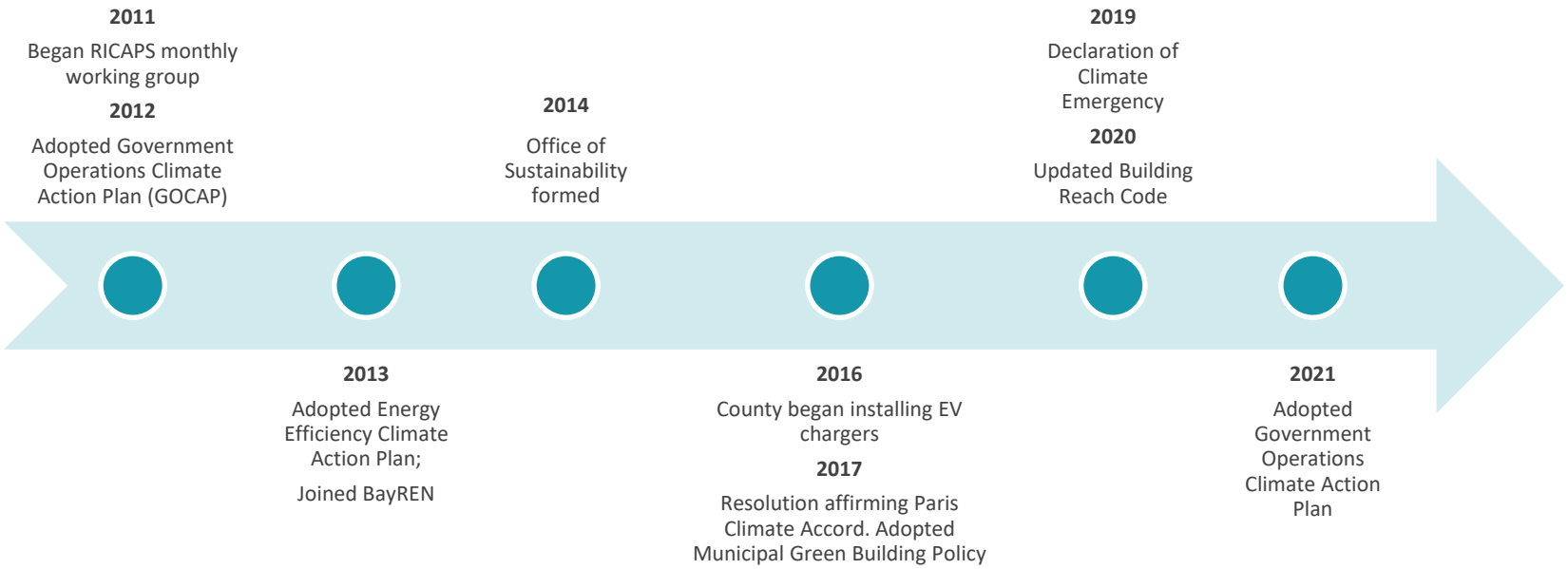


Figure 19. Timeline of San Mateo County emissions reduction efforts since 2011.

KEY ACCOMPLISHMENTS

The EECAP set a goal to achieve a 17% reduction below 2005 baseline emissions by 2020—a goal that exceeds those set forth by California Assembly Bill 32. The County met that goal early, by 2017 achieving a 33% reduction in emissions below 2005 levels. This historic reduction is largely due to the establishment of Peninsula Clean Energy, a public and locally controlled electricity provider. The County has taken steps in numerous other sectors that reduce emissions and improve resource conservation. Key accomplishments are summarized below in Table 25 to Table 29.

Building Energy Efficiency

Table 25. Building energy efficiency accomplishments.

Nonresidential Building Benchmarking

In 2010, the County began assisting towns and cities in benchmarking their facilities (tracking building energy use and comparing to peer facilities) for commercial buildings such as schools using the Energy Star Portfolio Manager platform. This service was later extended to public K-12 schools and small businesses.

Formation of Regionally Integrated Climate Action Planning Suite (RICAPS)

In 2011, the County launched the RICAPS program through the San Mateo County Energy Watch Program administered for C/CAG. The RICAPS program includes a set of climate action tools and a monthly working group to support municipal sustainability staff in ongoing outreach and implementation of initiatives that reduce energy use and help them achieve GHG emissions reduction goals.

Energy Efficiency Requirements

In 2013, the County strengthened energy efficiency requirements in the Green Building Ordinance.

Formation of Bay Area Regional Energy Network (BayREN)

In 2013, the County joined with the eight other Bay Area counties to form BayREN. Led by the Association of Bay Area Governments (ABAG), BayREN provides regional-scale energy efficiency programs, services, and resources. BayREN is funded by utility ratepayer funds through the California Public Utilities Commission, as well as other sources, drawing on the expertise, knowledge, and proven track record of Bay Area local governments.

Beacon Award

In 2015, the County was the first county to receive a silver-level full Beacon Award and Spotlight Awards for the following accomplishments:

- 5% savings in agency electricity use,
- 7% savings in agency natural gas use,
- 8% reduction in community greenhouse gas emissions, and
- 15% reduction in agency greenhouse gas emissions.

BayREN Home+ Program Electrification Rebates

Beginning in 2020, BayREN began offering incentives for heat pump space heating and cooling, heat pump water heaters, induction electric ranges, and heat pump clothes dryers.

PCE On-Bill financing program

On August 26, 2021, PCE approved an on-bill financing program for building electrification, which will provide residents with a maximum loan amount of $10,000.

2019 Reach Code

On February 25, 2020, the County adopted local amendments to the State Building Code Title 24 (Energy Code, Part 6 and Green Building Code, Part 11) requiring all-electric buildings, solar installation for multifamily and commercial buildings, and increased levels of electric vehicle charging infrastructure for all building types.

SMC Green Business

In 2007, the County launched the San Mateo County Green Business Program. The program certifies and promotes small to medium-sized businesses that operate in an environmentally responsible manner and provides technical assistance and resources for businesses to save money, prevent pollution, and conserve resources. Between January 2013 to September 2021, San Mateo County Green Businesses achieved 1,956 metric tons of CO^2e in GHG emissions reductions.

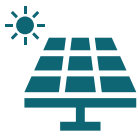
Renewable Energy Sources

Table 26. Renewable energy accomplishments.

Formation of Peninsula Clean Energy

In 2016, Peninsula Clean Energy (PCE) was formed as a community-controlled, not-for-profit, joint powers agency that provides the San Mateo County community with higher rates of clean energy and at a lower cost than PG&E. Earnings are reinvested in the community to further reduce greenhouse gas emissions.

Solar Panel Assistance



In 2018, the County began partnering with the SunShares program to promote residential solar panels. The 2018 program provided a 15% discount on residential solar panels as well as consultation and technical advice for those looking to install solar.

Green Waste Energy

The County is partnering with the South Bay Waste Management Authority to develop a pilot project that would extract and send organics from the municipal waste to a wastewater treatment plant to capture methane as energy. The County is also looking at potential sites in the county for an anaerobic digestor.

Sustainable Transportation

Table 27. Sustainable transportation accomplishments.

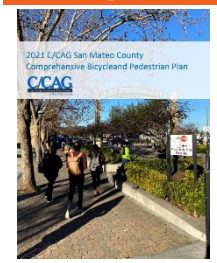
Alternative Fuel Readiness Plan

In 2016, C/CAG completed the Alternative Fuel Readiness Plan for San Mateo County, which provides guidance for the transition to alternative (renewable and low-carbon) fuel vehicles and infrastructure through a menu of policies for local jurisdictions.

Walking and Biking Improvements

In 2021, the County adopted the first Unincorporated San Mateo County Active Transportation Plan, which provides a framework to improve conditions for people walking and biking throughout unincorporated county communities. Post-adoption efforts to improve walking and biking have included pursuing funding for implementation of the Plan's priority projects and incorporating bicycle and pedestrian facilities into existing road projects, such as a buffered bike lane on 5th Avenue in North Fair Oaks as part of a roadway repaving project.

Planning for Active Transportation



In 2021, C/CAG completed the Comprehensive Bicycle and Pedestrian Master Plan, which establishes goals and objectives to create a network of safe and convenient bicycle and pedestrian facilities throughout the County.

Planning for Active Transportation

In 2021, C/CAG completed the San Mateo Countywide Sustainable Streets Master Plan, which provides a plan and guidance for how and where to build sustainable streets that incorporate active transportation features with stormwater management and climate change adaptation.

Traffic Calming Measures

Traffic calming measures contribute to a more friendly bicycle and pedestrian environment by reducing vehicle speeds. Traffic calming measures have been implemented by the County through standalone projects, such as a sidewalk with bioretention parkway (a form of green infrastructure) on Carlos Street between California Avenue and Virginia Avenue in Moss Beach in 2017, and as part of larger

corridor improvement projects, like the bulb-outs and crosswalks included in the Middlefield Road Improvements Project in North Fair Oaks over the past ten years.

Housing Near Transit

Between 2015 and 2019, the County has adopted multiple new higher density residential and residential mixed-use zoning districts in North Fair Oaks, enabling the production of significant new market-rate and affordable housing along high-quality transit corridors such as El Camino Real. The County will extend these zoning districts along El Camino Real to allow more housing close to pedestrian, bicycle, and high-frequency transit facilities.

EV Parking

Between 2015 and 2019, the County introduced new parking regulations in new zoning districts in North Fair Oaks, requiring dedicated EV parking spaces in all higher-density multifamily, commercial, and industrial mixed-use developments in North Fair Oaks, including along Middlefield Road, Bay Road, and El Camino Real.

Tree Planting

Over the past ten years, the County introduced street tree requirements along El Camino Real and 5th Avenue in North Fair Oaks to support expanded tree canopy cover.

Waste and Materials

Table 28. Waste and materials management accomplishments.

Recycling

Partnered with local recyclers and other cities to establish additional sites for public redemption of bottles and cans.

Waste Reduction

Passed an ordinance prohibiting the distribution of plastic and compostable plastic food service ware and requiring the provision of utensils only upon request.

Waste Reduction Grants

Distributed $950,000 through 4Rs Grants Program to fund 88 different waste reduction projects throughout the county.

Waste Reduction & Public Education

Developed a suite of workshops and classes on a variety of waste reduction topics including repair of broken items and home composting.

Organics Diversion

Provided a $1 million grant for a new program to use an extraction press at the local transfer station to increase the amount of organics diverted from the landfill.

Organics Diversion & Composting

Between 2019 and 2021, diverted over 21,000 pounds of food scraps from the landfill to compost through community composting program.

Waste Diversion

Funded the expansion of a building materials salvage center to encourage reuse of construction materials.

Edible Food Recovery

Partnered with local core service agencies and food banks to redistribute 5.5 million pounds of surplus edible food from grocery stores to hungry people.

Working Lands

Table 29. Working lands accomplishments.

Sustainable Agriculture Policies

The County continued collaborating with and supporting the San Mateo Resource Conservation District (RCD) to provide farmers and ranchers with on-farm conservation projects, including permitting off-stream water storage, water efficiency projects, urban farming and composting projects.

Local Product Purchasing

The County Department of Agriculture has supported locally grown fruit and vegetable and purchasing through the “As Fresh As It Gets” program, a partnership with the Farm Bureau and Silicon Valley Convention and Visitors Bureau.

Policy Context

The State of California has been a leader in developing and implementing policies and regulations to address climate change. Below is a snapshot of the key recent statewide legislation aimed at reducing GHG emissions, which San Mateo County strives to align with and, in some cases, exceed, as we proactively plan for climate action.

STATE GHG EMISSIONS POLICY

- **EO-55-18:** Sets a statewide goal of carbon neutrality (net zero emissions) by 2045 and net negative emissions thereafter.
- **SB 32 (2016):** Sets a statewide goal to reduce GHG emissions to 40% below 1990 levels by 2030. This law also codifies natural and working lands policy objectives relating to reducing greenhouse gas (GHG) emissions in forests, rangelands, farmlands, wetlands, and soils.

BUILDING ENERGY

- **SB 100 (2018):** Requires the state to procure 60 percent of all electricity from renewable sources by 2030 and 100 percent carbon-free sources by 2045.
- **SB 350 (2015):** Set a goal to double the energy efficiency of existing buildings and allow greater electric utility investment in EV charging infrastructure.
- **California's Green Building Standards (CALGreen) Code** includes mandatory measures to support the goals of the State's greenhouse gas reduction program and is updated every three years. It also includes voluntary "reach" standards with model language for local governments to use if they wish to go beyond the minimum state standards for building energy requirements.
- **San Mateo County Reach Code (2020)**: Requires that no gas or propane plumbing is installed in new buildings, and that electricity be used as the energy source for water, space heating, cooking, and clothes drying appliances.

TRANSPORTATION

- **SB 743 (2013):** Updates the way transportation impacts of new development projects are measured, making sure new developments are built in a way that allows Californians more options to drive less.
- **SB 1 (2017):** Increases the state's gasoline tax by $0.12 per gallon to provide over $5 billion per year for transportation projects to reduce emissions and increase fuel efficiency.
- **SB 99 (2013):** Creates California's Active Transportation Program (ATP), consolidating state programs: Transportation Alternatives Program, Bicycle Transportation Account, and State Safe Routes to School.
- **SB 375 (2008):** Sets regional GHG emissions reduction goals for passenger vehicles.

WASTE

- **SB 1383 (2020):** Set a Statewide goal to reduce GHG emissions from short-lived climate pollutants by 40-50 percent compared to 2013 levels by 2030. Short-lived pollutants such as methane and hydrofluorocarbons remain in the atmosphere for shorter periods of time compared to carbon dioxide but are more potent in their effect on global climate change. Requires local jurisdictions to

reduce organic waste going to the landfill by 75 percent compared to 2015 levels by 2025 and ensure that 20 percent of edible surplus food is donated for human consumption.

- **AB 1826 (2016):** Requires commercial buildings to divert their organic waste and requires local governments to develop organic waste diversion programs covering both commercial and multifamily residential buildings.
- **AB 341 (2012):** Requires all commercial businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place.
- **AB 939 (2011):** Required diversion of at least 50 percent of all waste from landfill.
- Additional policies also require businesses and multi-family residential dwellings to implement recycling programs (**AB 341**) and organics collection programs (**AB 1826**) and require local jurisdictions to conduct solid waste reduction planning (**AB 2176**).

WORKING LANDS

- **SB 1386 (2016):** Identifies the protection and management of natural and working lands as a key strategy towards meeting the State's GHG emissions reduction goal established through SB 32. Specifically, SB 1386 directs State agencies to consider the carbon sequestration potential of natural and working lands "when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria related to [their] protection and management."
- **California Air Resource Board 2017 Scoping Plan:** Restates that reducing GHG emissions from and increasing sequestration on natural and working lands is crucial in the State's long term climate change strategy. It outlines climate objectives to maintain natural and working lands as a resilient carbon sink and sets a preliminary goal to reduce GHG emissions from these lands by at least 15 – 20 million metric tons of carbon dioxide equivalents (MMT CO2e) by 2030.
- **Draft 2030 Natural and Working Lands Climate Change Implementation Plan (2019):** Designed to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working lands. The draft proposes that the State will strive to increase State-funded soil conservation practices; forest management or restoration efforts; and oak woodland, riparian wetland, and seagrass restoration by two to five-fold through 2030.
- **2022 Scoping Plan Update:** The California Air Resource Board will incorporate the Natural and Working Lands Plan into the 2022 update to the Scoping Plan, which will chart the pathway to carbon neutrality by 2045.
- **Natural and Working Lands Climate Smart Land Strategy (2020):** Governor Newsom signed Executive Order (EO) N-82-20, which directs an interagency working group, led by CNRA, to develop a Natural and Working Lands Climate Smart Strategy to update the target and strategies for the NWL sector in achieving the state's 2045 carbon neutrality goal. The Strategy was released in draft form in October 2021 and will be finalized in the Spring of 2022.

Stakeholders and Partnerships

San Mateo County needs to work with partners to make progress on climate change. Alone, the County has limited control over many emissions-reducing actions. For example, the County is not the ultimate decision-maker about transit systems that run through County lands. But together, the County and partners in our community, across the state, and around the globe, can:

- Create and enforce local policies
- Manage programs
- Deliver education and outreach
- Advocate at the regional, state, and federal level
- Decrease emissions from municipal operations

NATIONAL & INTERNATIONAL

NGOS and international organizations: Local Governments for Sustainability (ICLEI), Intergovernmental Panel on Climate Change (IPCC)

Federal government: Federal Emergency Management Agency (FEMA), United States Environmental Protection Agency (USEPA)

STATE

State of California: CalTrans, CalRecycle, CA Energy Commission, CA Public Utilities Commission, California Independent System Operator Flex Alert

Regional agencies and partnerships: Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), San Francisco Bay Conservation and Development Commission (BCDC), Metropolitan Transportation Commission (MTC), Bay Area Regional Energy Network (BayREN), Sustainable Silicon Valley, Joint Venture: Silicon Valley Network

COUNTY & LOCAL

County agencies and partnerships: San Mateo County Energy Watch, San Mateo City/County Association of Governments (C/CAG), RICAPS, Transportation Network Companies (TNCs)

Utilities: Pacific Gas and Electric, Peninsula Clean Energy (PCE)

San Mateo County community: Sustainable San Mateo County (SSMC) and other community groups, businesses, residents

Partnership Spotlight: San Mateo Community College District

San Mateo County is home to an impressive network of community colleges that provide for residents and Bay Area community members with access to job training and higher education pathways. The San Mateo Community College District (SMCCD) is well-positioned to partner with the County on advancing its most important climate-related initiatives given its central role and capacity as an institution within San Mateo County and the Bay Area.

Recent achievements

- The District has designed all new buildings which earned a U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Silver rating.
- The District has implemented water conservation strategies, including the conversion of eight out of ten SMCCCD athletic fields to artificial turf, saving 5.8 million gallons of water and approximately $370,000 per year in water costs.
- The District established an effective waste management and recycling program that is on track to exceed the statewide landfill diversion goal of 75% by 2020.
- District courses and degree programs focus on and integrate environmental policy and sustainability-related themes to help prepare and inspire students to become leaders of sustainable change.

Opportunities for partnership and collaboration

- **Industry and workforce development and engagement:** There is significant opportunity to work with SMCCD to build upon and expand existing credentialled programs to train the local workforce and promote local opportunities. Skyline College, for example, used to have a sustainable construction program but due to challenges with marketing and low market uptake, enrollment declined, and the program ceased. There may be similar opportunities to explore and bring tangible benefits to local community members through a persistent investment in creating and supporting credentialed programs that offer certificates, and career pathways.
- **VMT reduction:** Many of SMCCD's students commute to campus in single-occupancy vehicles. One potential avenue to explore in partnership with SamTrans is establishing a shuttle service or shared ridership program to reduce this vehicle travel.
- **Building energy efficiency and existing building electrification:** The SMCCD owns and maintains housing stock that could benefit from energy efficiency and electrification upgrades. Investing in these improvements could also bring a training and educational opportunity for local contractors and students and could help build a co-learning network within the County on building electrification.

Partnership Spotlight: SamTrans

SamTrans is committed to supporting sustainability in San Mateo County. This is woven into their standard operating procedures and long-term decision making which allows SamTrans to achieve its vision of being a sustainable, equitable mobility leader.

Recent achievements

- GHG emissions have declined 9% since 2019.
- Facility electricity usage has declined approximately 5% since 2019.
- Diesel usage has declined 6% since 2019
- Release of criteria air pollutants has declined 14% since 2019.
- The agency was acknowledged with a Silver level recognition from the American Public Transportation Association.

Opportunities for partnership and collaboration

- **First mile/last mile pilot projects serving specific neighborhoods or schools/school districts:** One of the top priorities that community members expressed during community outreach was greater accessibility to existing public transit amenities. In response to this need, some cities within the County have provided bikes and e-scooters in more dense urban areas (in some cases this has been with mixed success). During the community engagement process, several jurisdictions cited the need for consistent first mile/last mile policies across the County and the need for technical assistance in developing these. This ultimately resulted in a measure in the plan (T-3.4).

  This could involve a program wherein residents who commute locally to schools or transit stops are provided incentives to purchase an e-bike or e-scooter. Another potential area for collaboration between the County and SamTrans would be an innovative shuttle service pilot project that focuses on a specific area in the County, near a concentration of schools, for example, to alleviate congestion during peak traffic hours. Regardless of the specific technology, first mile/last mile projects tailored to specific areas and neighborhoods would be better suited for the relatively low-density development pattern that characterizes most of San Mateo County.

  The County is well positioned to leverage the framework and recommendations for improving active transportation conditions for people throughout the unincorporated County presented in San Mateo County Active Transportation Plan, and partner with SamTrans to build on past shuttle service projects, to identify the best location(s), how it might function, and work collaboratively to fund and implement it.

- **Marketing campaign about sustainability and public transit:** The County and SamTrans could also work collaboratively on a marketing campaign to raise awareness of existing public transit options and incentives and to enhance public understanding of the environmental benefits of utilizing public transit.

KEY PERFORMANCE INDICATORS

To meet the County's interim and long-term GHG emission reduction goals, the County must continue to monitor, report, and adaptively manage CAP progress and GHG emissions sources. In addition to tracking progress on CAP action outcomes, the following table outlines quantitative key performance indicators (KPIs) that the County will monitor during the CAP implementation phase.

KPI	Unit	2017 Baseline	2030 Target	Change
Building Energy				
Building GHG emissions	$MTCO_2e$	148,396	62,648	-58%
All-electric new buildings	%	Unknown	100%	N/A
All-electric existing buildings	%	Unknown	16%	N/A
Building natural gas consumption	Therms	24,487,071	19,542,520	-20%
Electricity emissions factor	$kgCO_2e/kWh$	0.0760	0.0211	-72%
Transportation				
Transportation GHG emissions	$MTCO_2e$	159,835	111,629	-30%
Average vehicle carbon intensity	$kgCO_2e/mile$	0.39	0.26	-32%
Electric vehicle ownership	%	1.2%	18%	93%
Vehicle miles traveled	Miles	412,106,557	418,900,156	1.6%
Bike lanes	Miles	Unknown	+90	
Waste & Consumption				
Organics in waste stream	% of total waste	71%	18%	-75%
Total waste disposed	Tons	45,363	19,307	-50%
Working Lands				
Annual carbon sequestration	$MTCO_2e$	0	7,900	NA
Cumulative carbon sequestration	$MTCO_2e$ since 2022	N/A	67,000	N/A

KEY DEFINITIONS

MITIGATION

Reduction of greenhouse gas (GHG) emissions. These include strategies to reduce transportation fuel use, natural gas used to heat buildings, electricity used to light and power buildings, and the disposal of materials into landfills. Reducing GHG emissions is the primary way to avoid the worst impacts of climate change.

ADAPTATION

Activities that can help San Mateo County withstand current climate change impacts and prepare for future climate impacts. Projected local climate impacts include sea level rise, increased occurrence of extreme heat events and wildfires, and extreme precipitation events. Adaptation strategies may include preserving wetlands and other natural shoreline features, upgrading flood, storm, and sewer infrastructure, establishing renewable energy microgrids, planting trees, using "cool" pavements or roofing technologies, and practicing water conservation. Adaptation strategies are needed regardless of mitigation accomplishments because we are already feeling some of the impacts of climate change.

EQUITY

The ability of all communities to have what they need to enjoy full, healthy lives. Equity is the goal of just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. To create equitable outcomes, we must create the conditions that allow all to reach their full potential. Root causes of inequities stem from historic systems of oppression, discrimination, and explicit exclusion from economic prosperity, access to health care, and political representation. These root causes are reified in policy and practice in government and civil society. Actions to mitigate climate change and create a "sustainable" future must not merely address carbon-based energy systems, they must *simultaneously* address the social and economic drivers behind inequity.

GREENHOUSE GAS

Any gas that traps heat in the air and causes climate change. Primary greenhouse gases are carbon dioxide, methane, and nitrous oxide. Each of these gases occurs naturally in the atmosphere, but human activities have added high enough levels to create long-lasting climate change. The phrase "greenhouse gas emissions" refers to the amount of greenhouse gases being released into the atmosphere from a certain activity.

RESILIENCE

The capacity of government, infrastructure, and communities to anticipate how people and places are vulnerable to hazards or shocks, such as a natural disaster (i.e., wildfire), extreme weather (i.e., heat waves), or a public safety power shutoff, and then respond so that everyone in the county can grow and thrive in the coming decades. Communities can plan for resilience in the context of climate impacts, power outages, COVID-19, and other emergencies.

ACRONYMS

ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
BAU	Business as usual
BayREN	Bay Area Regional Energy Network
BCDC	San Francisco Bay Conservation and Development Commission
CARB	California Air Resources Board
C/CAG	San Mateo City/County Association of Governments
CCAP	Community Climate Action Plan
CEQA	California Environmental Quality Act
CH_4	Methane (a potent greenhouse gas)
CO_2	Carbon dioxide
EECAP	Energy Efficiency Climate Action Plan
FEMA	Federal Emergency Management Agency
GHG	Greenhouse gas
GOCAP	Governmental Operations Climate Action Plan
HFCs	Hydrofluorocarbons (a potent greenhouse gas)
ICLEI	Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change
MTC	Metropolitan Transportation Commission
$MTCO_2e$	Metric tons of carbon dioxide equivalent
PCE	Peninsula Clean Energy
PFCs	Perfluorocarbons (a potent greenhouse gas)
PG&E	Pacific Gas and Electric
RICAPS	Regionally Integrated Climate Action Planning Suite
SF_6	Sulfur hexafluoride (a potent greenhouse gas)
SMCEW	San Mateo County Energy Watch
SSMC	Sustainable San Mateo County
TNC	Transportation Network Company
USEPA	United States Environmental Protection Agency
VMT	Vehicle miles travelled