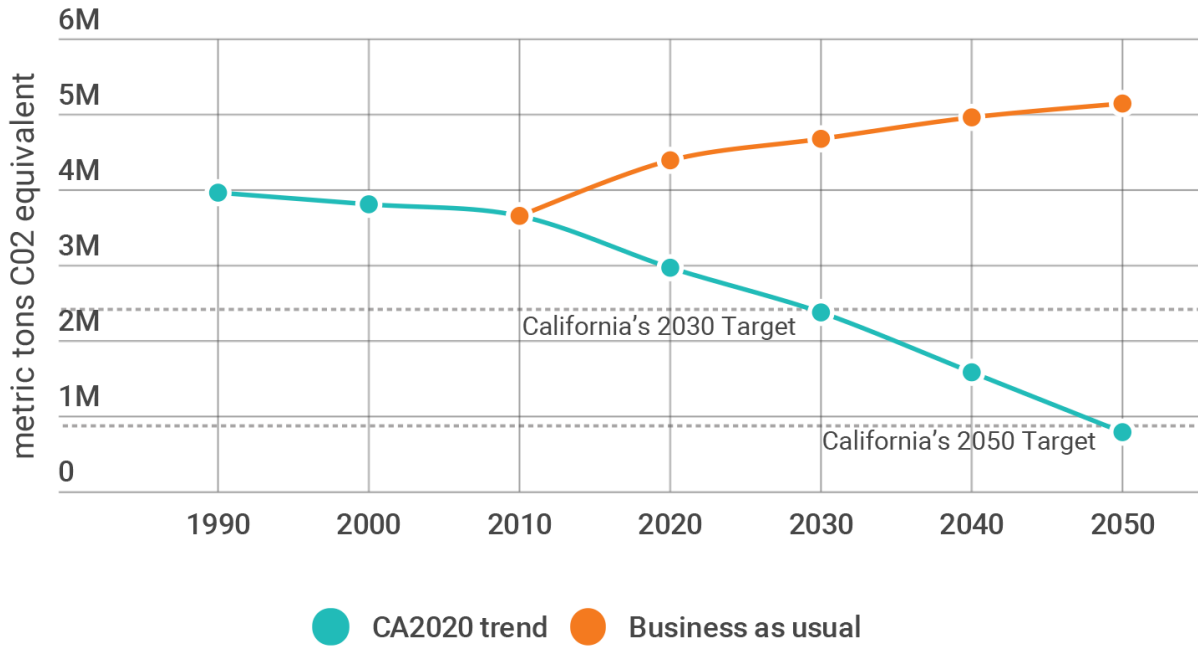
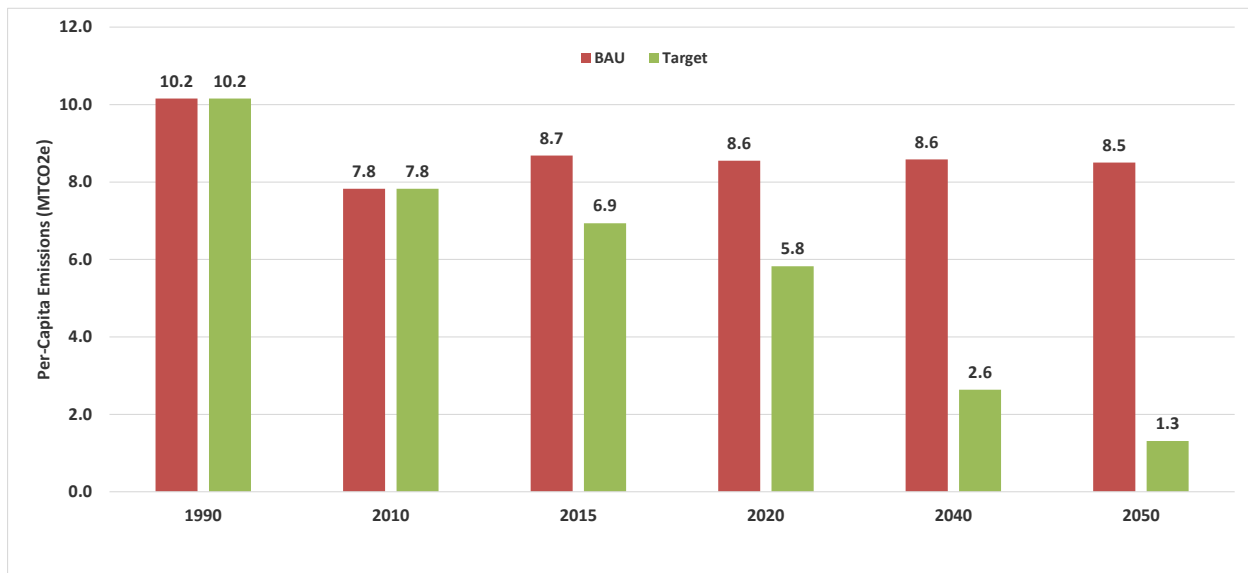


Figure 3-2. Sonoma County 1990 to 2050 GHG Emissions Pathways



Another way to look at the long-term challenge is on a per capita basis. As shown in Figure 3-3, countywide GHG emissions were 7.8 metric tons of carbon dioxide equivalent (MTCO_{2e}) per person in 2010 and are forecast to increase to 8.7 MTCO_{2e} per person by 2015. Projected per-capita business-as-usual (BAU) emissions decrease slightly to 8.6 MTCO_{2e} in 2020 and beyond because population is projected to increase somewhat faster than emissions. Nonetheless, given projected population and economic growth, meeting the long-term reduction target requires that per capita emissions in 2050 not exceed 1.3 MTCO_{2e}, an even steeper decline than is needed for overall emissions reduction. The County's 2020 target is equivalent to 5.8 MTCO_{2e} per capita, further emphasizing the challenge of meeting the long-term goals and the importance of adopting an aggressive target of 25% below 1990 levels by 2020 to put the county on the right track to meet the long-term goals.

Figure 3-3. Sonoma County Per-Capita Emission Targets from 1990 to 2050



The state has begun evaluating the cost and feasibility of strategies to achieve the long-term targets. For example, in early 2014, the California Air Resources Board, California Energy Commission, California Public Utilities Commission and the state’s Independent System Operator, initiated the California PATHWAYS Project to evaluate the feasibility and cost of strategies to meet interim targets on the way to achieving an 80% reduction in GHG emissions by 2050. The PATHWAYS model demonstrates that success is possible based on scaling up the primary strategies in this plan: resource efficiency, zero carbon electricity, and switching away from fossil fuels.

Implementing the local measures in CA2020 will complement state efforts and reduce GHG emissions well beyond 2020. In addition to specific GHG reduction measures, the RCPA and partner agencies will actively lobby state and federal government for programs and funding that to support long-term GHG reduction goals. State and federal support could include funding sources like cap & trade and carbon pricing.

The California PATHWAYS Project: Long term Greenhouse Gas Reduction Scenarios

To support the 2030 emissions target, the California Air Resources Board, Energy Commission, Public Utilities Commission, and the Independent System Operator commissioned Energy + Environmental Economics (E3) to evaluate the feasibility and cost of potential 2030 targets that would facilitate reaching the state's 2050 goal of 80% below 1990 levels. E3 developed eight emission reduction scenarios described below that demonstrate technically and economically viable scenarios to achieve the 2050 target. E3 conducted the analysis using its California PATHWAYS model, which encompasses the entire California economy with detailed representations of the buildings, industry, transportation, and electricity sectors. The following scenarios would achieve the 2050 target in different ways, with varying costs and benefits.

- 1. Reference:** Current GHG policies continue through 2020 only.
- 2. Straight Line:** Low carbon technologies including energy efficiency, building electrification, renewable electricity, zero emission vehicles, and renewable liquid fuels.
- 3. Early Deployment:** Same technology focus as the Straight Line Scenario with faster deployment of renewable electricity and near term measures with air quality benefits, including zero emission vehicles and electric heat pumps.
- 4. Slower Commercial Adoption:** Same technology focus as the Straight Line Scenario, but with delayed implementation of higher cost measures, primarily zero emission vehicles and electric heat pumps in the commercial sector; adoption is accelerated post 2030 to hit 2050 goal.
- 5. Low Carbon Gas:** Focus on decarbonized pipeline gas, no renewable liquid fuels, and no building electrification.
- 6. Distributed Energy:** Focus on distributed photovoltaic and grid storage.
- 7. Carbon Capture and Non Biological Sequestration:** Phase in of natural gas carbon capture and sequestration in electricity generation and hydrogen production post 2030.
- 8. High Battery Electric Vehicles:** Focus on battery electric vehicles instead of fuel cell vehicles.

These eight scenarios demonstrate a range of costs—from \$40 to \$60 billion by 2050—associated with achieving California's emissions goals, illustrating that success in mitigating climate change is possible at reasonable economic costs with proven technologies.

Source: Energy + Environmental Economics 2015

However, state action will not be enough by itself; further local action to reduce GHG emissions will also be needed. Future local actions will be guided in part by the state's framework for post-AB 32 climate protection, as well as by lessons learned through the adaptive management approach to implementing CA2020. As noted in Chapter 1, CA2020 is part of a much longer-term effort. To reach long-term goals, a new phase of climate action planning will be needed after 2020 to build upon the goals and strategies in this plan and take advantage of new technologies and climate protection science that are constantly evolving.

A long-term climate action strategy for Sonoma County will most likely include some or all of the following.

By 2030:

- Sonoma County buildings will be 100% carbon neutral to the maximum extent feasible.

- A fully integrated smart power grid will ensure maximum efficiency of energy use through load balancing will compensate when variable energy sources (such as wind and solar) are not available, advanced batteries and other storage, or fossil fuel generation with carbon capture.
- State, regional, and local strategies will drive a 50% improvement in building efficiency in both new and existing buildings.
- Building heating and cooking will shift away from natural gas in favor of renewable electricity sources.
- The California Energy Commission will implement its goals for Zero Net Energy in new residential buildings by 2020 and for new commercial buildings.
- Per capita vehicle miles traveled (VMT) are reduced beyond 2020 through focused growth, increasingly efficient and electrified public transit systems, active transportation, and other mobility strategies.
- State, regional, and local strategies will drive a 50% reduction in petroleum use.
- The widespread adoption of electric vehicles – on the order of 150,000 vehicles – will allow local utilities to meet or exceed the requirement of 50% of electric power to be provided from renewable sources.
- Institutional and technological capacity to integrate distributed energy resources will dramatically improve.

By 2050:

- Electric vehicles (EV) and alternative fuel vehicles will be in use across all vehicle types. Self-driving cars will reduce congestion and improve fuel efficiency.
- Implementation of Moving Forward 2040, the SCTA's Comprehensive Transportation Plan, will set up a countywide transportation system with 80% lower GHG emissions per capita compared to 1990 levels, the maximum feasible extent of carbon-free transportation. All commercial agricultural properties will be enrolled in certified programs that promote sustainability and natural resource conservation.
- Agricultural soil carbon levels will be substantially higher in 2050 through soil management practices supporting crop development and carbon sequestration.
- There will be zero waste through implementation of diversion, waste reduction, and green energy systems.
- Widespread use of recycled water, greywater, and rainwater catchment will further offset the demand for potable water. Agricultural water users will continue to pioneer lower water use strategies, which may include the use of different crops and/or varieties.
- All wastewater treatment plants will have biogas systems to capture nearly 100% of all methane generated from their operations.

- A consumption-based emissions inventory will be developed and used to guide the actions of public agencies, private businesses and non-governmental entities, and individual county residents to reduce emissions related to consumption of goods and services.

3.2.3 Advanced Climate Initiatives

In recognition of the challenges associated with meeting the longer-term GHG reduction goals, CA2020 also includes several Advanced Climate Initiatives that can be started in the near term, but will result in steadily increasing GHG reduction benefits after 2020. These advanced initiatives include reducing emissions related to the consumption of goods and services, including food, as well as land use and sustainable agriculture strategies that focus on retaining and increasing carbon sequestration in soils and vegetation. Although these strategies are known to have GHG benefits, implementation of these strategies will not directly affect the emissions inventoried in CA2020. Moreover, methods to quantify those benefits are still in development and implementation is more complex. For these reasons, CA2020 does not rely on emission reductions from Advanced Climate Initiatives to meet the GHG reduction goal for 2020, and emissions reductions from these initiatives are not quantified at this time. Nonetheless, these advanced initiatives are essential to long-term success and are therefore included in this CAP.

The measures to implement the Advanced Climate Initiatives are listed as Regional Measures in this CAP because regional agencies, like the RCPA, will lead implementation. Nonetheless, the local communities are likely to have an important supporting role with specific measures. For example, the County will likely be involved with measures related to open and working lands, carbon sequestration and sustainable agriculture. Likewise, all local jurisdictions will have a role to play in the measures aimed at reducing emissions from consumption of goods and services.

3.3 Overall Greenhouse Gas Reduction Strategy

The CA2020 planning process explored a variety of state, regional, and local measures to reduce GHG emissions to achieve the 2020 target and provide a strong foundation for meeting the 2030 and 2050 goals. Public meetings and online engagement tools were used to collect input on community priorities for climate action. In addition, a 2014 report titled *Proven and Promising Climate Measures from U.S. Communities for Possible Application in Sonoma County*, prepared by the Center for Climate Protection, was used to develop the measures included in CA2020.

The success of the regional GHG reduction strategy described in this chapter depends on committed implementation by the RCPA, other regional agencies and, most importantly, by the local government partners. This CAP identifies five core elements of plan implementation: coordination across many partners; securing funding; engaging the community; monitoring and reporting; and adaptive management. Please see Chapter 4: *Implementation* for detailed information about CAP implementation.

3.3.1 GHG Reduction Goals

As a starting point for developing specific GHG reduction measures, Table 3-2 identifies reduction goals for each GHG source. Table 3-3 shows the expected emissions reductions from measures adopted to advance each goal.

Table 3-2. Greenhouse Gas Reduction Goals







Source	Key	Goals
Building Energy		<ol style="list-style-type: none"> 1. Increase building energy efficiency 2. Increase renewable energy use 3. Switch equipment from fossil fuel to electricity
Transportation & Land Use		<ol style="list-style-type: none"> 4. Reduce travel demand through focused growth 5. Encourage a shift toward low-carbon transportation options 6. Increase vehicle and equipment fuel efficiency 7. Encourage a shift toward low-carbon fuels in vehicles and equipment 8. Reduce idling
Solid Waste		<ol style="list-style-type: none"> 9. Increase solid waste diversion 10. Increase capture and use of methane from landfills
Water & Wastewater		<ol style="list-style-type: none"> 11. Reduce water consumption 12. Increase recycled water and greywater use 13. Increase water and wastewater infrastructure efficiency 14. Increase use of renewable energy in water and wastewater systems
Livestock & Fertilizer		<ol style="list-style-type: none"> 15. Reduce emissions from livestock operations 16. Reduce emissions from fertilizer use
Advanced Climate Initiatives		<ol style="list-style-type: none"> 17. Protect and enhance the value of open and working lands 18. Promote sustainable agriculture 19. Increase carbon sequestration 20. Reduce emissions from consumption of goods and services, including food

Table 3-3. Achieving Sonoma County’s 2020 Greenhouse Gas Reduction Target

GHG Source and Goal		GHG Emission Reductions (MTCO₂e)
Building Energy		322,500
1	Increase building energy efficiency	53,877
2	Increase renewable energy use	267,027
3	Switch equipment from fossil fuel to electricity	1,625
Transportation and Land Use		426,000
4	Reduce travel demand through focused growth	4,693
5	Encourage a shift toward low-carbon transportation options	43,058
6	Increase vehicle and equipment fuel efficiency	358,720
7	Encourage a shift toward low-carbon fuels in vehicles and equipment	19,413
8	Reduce idling	163
Solid Waste		65,400
9	Increase solid waste diversion	26,219
10	Increase capture and use of methane from landfills	39,140
Water and Wastewater		22,600
11	Reduce water consumption	19,217
12	Increase recycled water and greywater use	75
13	Increase water and wastewater infrastructure efficiency	759
14	Increase use of renewable energy in water and wastewater systems	2,556
Livestock and Fertilizer		1,800
15	Reduce emissions from livestock operations	NQ ¹
16	Reduce emissions from fertilizer use	1,759
Advanced Climate Initiatives		
17	Protect and enhance the value of open and working lands	NQ ¹
18	Promote sustainable agriculture	NQ ¹
19	Increase carbon sequestration	NQ ¹
20	Reduce emissions from consumption of goods and services	NQ ¹
Total CAP Reductions		838,300
Santa Rosa CAP Reductions (including applicable state and city reductions)		558,080
Total County 2020 GHG Reductions		1,396,380

¹ These measures were not quantified (NQ) for GHG reductions because they are qualitative supporting measures. Refer to Appendix C for more information.

These reductions will be achieved through a combination of existing programs (like Title 24 building energy efficiency standards and statewide clean fuel standards) and new local actions that will be taken by cities and the County. These *Local Measures* are the heart of this countywide CAP because they are the actions that Sonoma County jurisdictions can implement through local initiative.

The following sections describe the specific GHG reduction measures that will accomplish the goals outlined above, organized according to the entity taking action (i.e., state, regional, or local).

3.4 State GHG Reduction Measures

The Governor's latest Environmental Goals and Policy Report (2015) identifies the following five pillars to support the state's long-term reduction of climate pollution, protection of public health and stewardship the state's natural resources to support resilience and other environmental benefits:

1. Increasing the share of renewable energy in the State's energy mix to at least 50% by 2030
2. Reducing petroleum use by up to 50% by 2030
3. Increasing the energy efficiency of existing building by 50% by 2030
4. Reducing emissions of short-lived climate pollutants
5. Stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits

These five pillars build on the Governor's 2015 executive order establishing a statewide goal of reducing GHG emissions by 40% (compared to 1990 levels) by 2030, and they are fully congruent with the climate protection goals established in this CAP. The first four pillars are focused on reducing GHG emissions related to energy use (transportation and buildings) and short-lived climate pollutants. The fifth pillar emphasizes the importance of natural and working lands, which are addressed as part of the Advanced Climate Initiatives contained in this CAP (see Regional Reduction Measures in Section 3.5). The Governor has also established the "Carbon-Rich, Healthy Soils Initiative" to support carbon sequestration through restoration of soil organic matter in agricultural soils through improved farming practices.

Specific measures implemented by the state of California will address CA2020 goals for two GHG sources: building energy and transportation and land use. State measures for these two sources are listed in Tables 3-4 and 3-5. These measures have already been adopted by state agencies and are under way. A full description of each measure, including the assumptions and methodology used to calculate GHG reductions, is included in Appendix C.

Table 3-4. State Measures to Reduce Building Energy Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 1: Increase building energy efficiency				
1-S1	Title 24 Standards for Commercial and Residential Buildings	Requires that new and remodeled buildings be designed to conserve energy and water.	<i>Developed by:</i> California Energy Commission (CEC); <i>Enforced by:</i> local building departments and the California Building Standards Commission	14,440
1-S2	Lighting Efficiency and Toxics Reduction Act (AB 1109)	Will decrease electricity used for lighting in new buildings through regulation and lighting standards.	<i>Developed by:</i> CEC <i>Enforced by:</i> CEC	21,085
1-S3	Industrial Boiler Efficiency	Requires an annual tuning of all boilers, or the installation of controls and systems to maximize efficiency.	<i>Developed by:</i> California Air Resources Board (ARB) <i>Enforced by:</i> ARB and local air districts	345
Goal 2: Increase renewable energy use				
2-S1	Renewables Portfolio Standard (RPS)	Requires electric utilities (including Pacific Gas & Electric Company [PG&E]), Healdsburg, and Sonoma Clean Power [SCP]) to procure an increasing amount of their electricity from eligible renewable sources up to 33% by 2020.	<i>Developed by:</i> California Public Utilities Commission (CPUC) <i>Enforced by:</i> CPUC	181,793
2-S2	Residential Solar Water Heater Program (AB 1470)	Provides incentives to encourage the installation of solar water heating systems.	<i>Developed by:</i> CPUC <i>Enforced by:</i> CPUC	800

Table 3-5. State Measures to Reduce On-Road Transportation and Off-Road Equipment Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 6: Increase vehicle and equipment fuel efficiency				
6-S1	Pavley Emissions Standards for Passenger Vehicles and the Low-Carbon Fuel Standard	Will increase the efficiency of automobiles and light-duty trucks by 30%, compared with 2002 efficiency, by 2016. This also includes the Low-Carbon Fuel Standard for on-road vehicles.	<i>Enforced by:</i> ARB <i>Implemented by:</i> ARB, vehicle manufacturers, and fuel producers	333,030
6-S2	Advanced Clean Cars	Requires that vehicle manufacturers increase the average fuel efficiency of their new vehicles, beyond the Pavley requirements.	<i>Enforced by:</i> ARB <i>Implemented by:</i> ARB and vehicle manufacturers	9,679
6-S3	AB 32 Vehicle Efficiency Measures	Increases the efficiency of vehicles through proper tire inflation, aerodynamic efficiency for heavy-duty vehicles, hybrid technology for heavy-duty vehicles, and other measures.	<i>Enforced by:</i> ARB <i>Implemented by:</i> ARB, vehicle service facilities, and vehicle manufacturers	16,010
Goal 7: Encourage a shift toward low-carbon fuels				
7-S1	Low-Carbon Fuel Standard: Off-Road	Requires a minimum 10% reduction in the carbon intensity of transportation fuels sold in California by 2020.	<i>Enforced by:</i> ARB <i>Implemented by:</i> ARB and fuel producers	5,182

3.5 Regional GHG Reduction Measures

Measures implemented by regional entities and programs will address CA2020 goals in four GHG sources: building energy, transportation and land use, solid waste, and water and wastewater. Regional measures for these four sources are listed below in Tables 3-6 through 3-9. Most of these measures have already been adopted by regional entities and are already underway; RCPA is expected to lead and support the development of any new or enhanced regional measures. A full description of each measure, including the assumptions and methodology used to calculate GHG reductions, is included in Appendix C.

The regional measures (cross jurisdictional efforts in Sonoma County) in this CAP also help support climate protection efforts in the larger Bay Area region, such as the *2016 Clean Air Plan/Regional Climate Protection Strategy* now underway at the Bay Area Air Quality Management District. The District's strategy prioritizes actions to: 1) reduce GHG emissions in agriculture through management of animal waste and improved soil management; and 2) preserve and maximize carbon sequestration on working lands in the Bay Area. The updated Clean Air Plan is expected to propose several "control measures" for agriculture and working lands, including support for carbon farming, carbon sequestration on working lands, and expand dairy digesters.

Regional measures also include measures focused on the four goals under the advanced climate initiatives (Goals 17 through 20) because the RCPA and other regional agencies are well-positioned to support innovation and pilot programs in these areas. However, as these measures are developed and implemented, the local jurisdictions will have opportunities to participate in and advance these goals. Table 3-10, below, presents the regional measures.

Table 3-6. Regional Measures to Reduce Building Energy Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 1: Increase building energy efficiency				
1-R1	Community Energy Efficiency Retrofits for Existing Buildings	Includes all existing programs to improve the energy efficiency of community buildings (including homes and businesses) through retrofits such as Energy Upgrade California, PACE Financing, utility incentives, and technical assistance.	<i>Implemented by:</i> Energy Independence Office, RCPA, SCP	3,954
1-R2	Expand Community Energy Efficiency Retrofits Program	Expand programs to promote energy efficiency in existing residential buildings and commercial buildings, and remove barriers for energy efficiency improvements. Includes accelerating participation in existing programs and pursuing innovation through efficiency efforts including: on-bill repayment programs like Windsor PAYS, energy disclosure programs like Home Energy Score, community based campaigns, and others.	<i>Implemented by:</i> Energy Independence Office, RCPA, SCP	12,394
Goal 2: Increase renewable energy use				
2-R1	Community Choice Aggregation	SCP is a community choice aggregation program and electricity provider that works with PG&E to provide their customers between 33% and 100% renewable energy. SCP also supports local renewable energy generation (e.g., solar or wind) through its <i>NetGreen</i> program.	<i>Implemented by:</i> SCP	47,995
Goal 3: Switch Equipment from fossil fuel to electricity				
3-R1	Stationary Fuel Switching Incentives	Will provide incentives and financing options for fuel switching from fossil fuel use to electricity.	<i>Implemented by:</i> SCP, Sonoma County Energy Independence Office, RCPA, Bay Area Air Quality Management District (BAAQMD), Northern Sonoma County Air Pollution Control District (NSCAPCD)	1,022

Table 3-7. Regional Measures to Reduce On-Road Transportation and Off-Road Equipment Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 5: Encourage a shift toward low-carbon transportation options				
5-R1	Improve and Increase Transit Service	Increase bus service, implement bus preferential treatments, implement bus rapid transit and/or express service, improve transit marketing, and improve transit amenities.	<i>Implemented by:</i> SCTA, Golden Gate Transit, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus	147
5-R2	Supporting Transit Measures	Implement measures designed to improve the county’s transit system.	<i>Implemented by:</i> SCTA, Golden Gate Transit, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus	NQ ¹
5-R3	Sonoma-Marin Area Rail Transit (SMART)	Ensure policies support planned SMART corridor, such as transit-oriented development at planned SMART stations, future local transit planning for SMART, and pedestrian and bicycle facilities to connect to SMART stations.	<i>Implemented by:</i> SMART and local jurisdictions with SMART stations	NQ ¹
5-R4	Trip Reduction Ordinance (TRO)	Develop and implement a mandatory TRO for employers with 50+ employees by offering pre-tax transit expenses, transit or vanpool subsidy, free or low-cost shuttle, or an alternate trip reduction benefit. The TRO will also include a non-trip reduction alternative, in the form of purchase of an equivalent amount of GHG offsets, for employers choosing not to implement trip reductions.	<i>Implemented by:</i> SCTA	6,113
5-R5	Supporting Measures for the Transportation Demand Management (TDM) Program	Implement TDM measures to support the TRO.	<i>Implemented by:</i> SCTA	NQ ¹

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
5-R6	Reduced Cost Transit Passes	Provide reduced cost transit passes to encourage commuters to take transit. If this measure is made mandatory by a jurisdiction, then the measure will also include a non-trip reduction alternative in the form of purchase of an equivalent amount of GHG offsets.	<i>Implemented by:</i> SCTA, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus	5,660
5-R7	Alternative Travel Marketing and Optimize Online Service	Conduct countywide marketing efforts (and consistent community-wide efforts) to provide information on alternate travel modes.	<i>Implemented by:</i> SCTA, SMART, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus	4,528
5-R8	Safe Routes to School	Create safe routes to school programs for communities where they currently do not exist.	<i>Implemented by:</i> SCTA	14,234
5-R9	Car-sharing Program	Build on the work that the Sonoma County Spare-the-Air Resources Team has already conducted to implement a car-sharing program.	<i>Implemented by:</i> SCTA	NQ ¹
5-R10	Bike Sharing Program	Create a countywide Public Bike Share Program to encourage a shift from automobiles to bicycle use.	<i>Implemented by:</i> SCTA	NQ ¹
Goal 7: Encourage a shift toward low-carbon fuels in vehicles and equipment				
7-R1	Shift Sonoma County (Electric Vehicles [EV])	Countywide EV promotion program, in partnership with SCP.	<i>Implemented by:</i> RCPA, SCTA, and SCP	11,353
7-R2	Alternative Fuels for Transit Vehicles	Replace diesel and gasoline buses with hybrid buses, compressed natural gas buses, or electric buses.	<i>Implemented by:</i> SCTA, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus	40

¹ These measures were not quantified (NQ) for GHG reductions because they are either qualitative supporting measures (e.g., 5-R2) or they are already incorporated into the BAU forecasts (e.g., 5-R3). Refer to Appendix C for more information. Supporting measures are measures that cannot currently be quantified and included in the reduction analysis but are provided to strengthen the quantified measures. Although emissions reductions have not been quantified for these measures, they are still an important part of the CAP and ensure a comprehensive approach to climate action planning. Further development and implementation of these measures may result in sufficient data to quantify the GHG reductions in the future.

Table 3-8. Regional Measures to Reduce Solid Waste Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 9: Increase solid waste diversion				
9-R1	Waste Diversion Goal	Increase the diversion rate of the total waste stream.	<i>Implemented by:</i> Sonoma County Waste Management Agency (SCWMA) with cooperation from RCPA and local jurisdictions	26,217
Goal 10: Increase capture and use of methane from landfills				
10-R1	Increase Landfill Methane Capture and Use for Energy	Develop new waste-to-energy projects at landfills.	<i>Implemented by:</i> SCWMA, landfill owners/operators	39,140

Table 3-9. Regional Measures to Reduce Water and Wastewater Emissions

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 11: Reduce Water Consumption				
11-R1	Countywide Water Conservation Support and Incentives	Sonoma County Water Agency (SCWA) will continue to work with its water contractors and others to incentivize local water conservation and water-use efficiency measures.	<i>Implemented by:</i> SCWA, supported by local jurisdictions	NQ ¹
Goal 12: Increase recycled water and greywater use				
12-R1	Recycled Water	Use recycled water instead of potable water.	<i>Implemented by:</i> Water/wastewater service providers	48
Goal 13: Increase water and wastewater infrastructure efficiency				
13-R1	Infrastructure and Water Supply Improvements	Reduce energy demand from water supply infrastructure, investigate new water supply sources, and increase local water production.	<i>Implemented by:</i> SCWA and other water/wastewater service providers	230
13-R2	Wastewater Treatment Equipment Efficiency	Reduce energy demand from wastewater treatment operations.	<i>Implemented by:</i> Wastewater service providers	529
Goal 14: Increase use of renewable energy in water and wastewater systems				
14-R1	Sonoma County Water Agency Carbon-Free Water by 2015	SCWA has contracted to procure 100% of its electricity needs through renewable and carbon-free resources, thus achieving a carbon-neutral electricity supply.	<i>Implemented by:</i> SCWA	2,145

¹ These measures were not quantified (NQ) for GHG reductions because they are qualitative supporting measures. Refer to Appendix C for more information. Supporting measures are measures that cannot currently be quantified and included in the reduction analysis but are provided to strengthen the quantified measures. Although emissions reductions have not been quantified for these measures, they are still an important part of the CAP and ensure a comprehensive approach to climate action planning. Further development and implementation of these measures may result in sufficient data to quantify the GHG reductions in the future.

Table 3-10. Advanced Climate Initiative Measures

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
Goal 17: Protect and Enhance the Value of Open and Working Lands				
17-R1	Conserve Open Space and Working Lands	Preserve natural open space and working lands to prevent loss of carbon stock due to conversion of such lands to urban uses or other land use changes that also drive increased vehicle miles traveled.	<i>Implemented by:</i> Sonoma County Agricultural Preservation and Open Space District (SCAPOSD) working with other agencies (including cities and the County) and non-governmental partners	NQ ¹
17-R2	Enhance Natural Resources on Open and Working Lands through Climate Beneficial Management Practices	Continue to work to enhance the natural resources of open and working lands, including agricultural and timber lands.	<i>Implemented by:</i> Resource Conservation Districts and partners	NQ ¹
Goal 18: Promote Sustainable Agriculture				
18-R1	Sustainable Agriculture Certification Programs	Support sustainable agriculture certification programs that reduce GHG emissions and/or enhance carbon stocks or increase sequestration.	<i>Implemented by:</i> Collaborative effort with agriculture groups, the County, and agriculture-related agencies	NQ ¹
18-R2	Promote Local, Sustainable Food and Ag Products	Support local farmer’s markets to provide communities with sustainable local food.	<i>Implemented by:</i> jurisdictions with support from regional entities	NQ ¹

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
18-R3	Urban Agriculture	Amend zoning codes to allow urban farming and gardens in appropriate areas.	<i>Implemented by:</i> cities and the county with support from regional entities such as the University of California (UC) Cooperative Extension	NQ ¹
Goal 19: Increase Carbon Sequestration				
19-R1	Carbon Farming	Increase carbon sequestration on croplands and working rangelands by adding soil organic material and other measures. Support increasing availability of local compost.	<i>Implemented by:</i> The County, Resource Conservation Districts, Natural Resources Conservation Service, and the SCAPOSD	NQ ¹
19-R2	Establish a Target for Increased Carbon Sequestration	Work with local partners to establish short- and long-term targets for increasing carbon sequestration throughout the County.	<i>Implemented by:</i> RCPA, the County, Resource Conservation Districts, Natural Resources Conservation Service, the SCAPOSD, and partners	NQ ¹
Goal 20: Reduce Emissions from Consumption of Goods and Services				
20-R1	Measure and Track Consumption-based Emissions	Develop metrics and tools to analyze and track carbon intensity of goods and services consumed in Sonoma County.	<i>Implemented by:</i> RCPA with support from the SCWMA	NQ ¹
20-R2	Educate Consumers	Provide information to residents and businesses about the carbon content of goods and services consumed in Sonoma County with emphasis on options that will reduce GHG emissions.	<i>Implemented by:</i> RCPA with support from the SCWMA	NQ ¹

Number	Name	Description	Responsible Entities	2020 GHG Reductions (MTCO ₂ e/year)
20-R3	Encourage and Promote Sustainable Consumption	Develop and provide resources that help residents get the goods and services they need with the least full life-cycle GHG emissions.	<i>Implemented by:</i> RCPA	NQ ¹
20-R4	Reduce carbon intensity of product supply chains	Explore partnerships and seek opportunities to support local businesses reducing the carbon intensity of their supply chain.	<i>Implemented by:</i> RCPA	NQ ¹

¹ These measures were not quantified (NQ) for GHG reductions because they will not directly affect the emissions inventoried in CA2020. Refer to Appendix C for more information. Although emissions reductions have not been quantified for these measures, they are still an important part of the CAP and ensure a comprehensive approach to climate action planning. Further development and implementation of these measures may result in quantifying these GHG reductions in the future.

3.6 Local GHG Reduction Measures

The local GHG reduction measures are presented here in greater detail because these are the new and enhanced actions that Sonoma County local governments—the cities and the County—will contribute toward meeting the ambitious countywide GHG reduction target for 2020. Table 3-11 below provides an at-a-glance listing of all local measures, including which jurisdictions are implementing each measure and anticipated GHG reductions. Table 3-11 includes the City of Santa Rosa, which adopted their Climate Action Plan (CAP) in June 2012. Check marks indicate similar measures between CA2020 and Santa Rosa’s CAP, showing how well Santa Rosa’s CAP works with CA2020 and contributes to greenhouse gas emissions reductions to help meet local reduction targets. Following the table, the measures are organized by GHG source and presented in more detail, including implementation information, Key Progress Indicators, and community co-benefits.

Please see Chapter 5, *Community Greenhouse Gas Profiles and Emissions Reductions for 2020*, for additional information about existing actions, plans, and policies for each jurisdiction. A complete description of each measure, including the assumptions and methodology used to calculate GHG reductions, is included in Appendix C.

Table 3-11. Local GHG Reduction Measures

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
Goal 1. Increase building energy efficiency														
1-L1	Expand the Green Building Ordinance Energy Code	Require new residential and nonresidential development to exceed CALGreen Tier 1 voluntary standards by complying with CALGreen Tier 2 standards.	Points beyond Title 24	-	-	-	-	-	-	-	-	10	-	62
1-L2	Outdoor Lighting	Adopt outdoor lighting standards in the zoning ordinance to reduce electricity consumption above and beyond the requirements of AB 1109.	(% of outdoor lighting)	-	50%	80%	50%	50%	✓	25%	80%	25%	20%	1,550
1-L3	Shade-Tree Planting	Expand on current urban tree-planting policies and programs to establish a shade-tree planting goal for each jurisdiction.	(# of trees)	100	100	100	1,000	1,000	✓	400	50	500	1,000	45

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
1-L4	Co-Generation Facilities	Encourage co-generation facilities to supply a certain amount of energy in new commercial and industrial facilities greater than 100,000 square feet.	(MWh)	-	-	-	-	-	✓	-	-	-	10	1
Goal 2. Increase renewable energy use														
2-L1	Solar in New Residential Development	Implement solar energy installation requirements for new residential buildings to increase renewable energy generation.	% of new development	-	50%	8%	50%	15%	✓	100%	8%	25%	-	248
2-L2	Solar in Existing Residential Buildings	Incentivize solar energy installation for existing residential buildings to increase renewable energy generation.	% of existing homes	5%	15%	2%	15%	15%	✓	15%	11%	15%	15%	9,942
2-L3	Solar in New Nonresidential Developments	Implement solar energy installation requirements for new nonresidential development to increase renewable energy generation.	% of new nonresidential development	-	10%	2%	10%	10%	✓	75%	2%	5%	-	535

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate											2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma		
2-L4	Solar in Existing Nonresidential Buildings	Incentivize solar energy installation for existing nonresidential development to increase renewable energy generation.	% of existing nonresidential development	10%	15%	2%	20%	10%	✓	25%	2%	25%	25%	25,714	
Goal 3. Switch equipment from fossil fuel to electricity															
3-L1	Convert Building Equipment to Electricity	Replace residential natural gas water and space heating equipment with high efficiency electric equipment.	% of households	-	-	1%	10%	5%	✓	10%	-	10%	-	603	
Goal 4. Reduce travel demand through focused growth															
4-L1	Mixed-Use Development in City Centers and along Transit Corridors	Identify specific areas for transit-oriented, city-centered, mixed-use development, focusing on identified existing and planned transit corridors.	% of growth to result in mixed use	15%	70%	20%	60%	20%	✓	60%	50%	50%	20%	3,494	

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
4-L2	Increase Transit Accessibility	Encourage new residential projects consisting of 25 units or more to be located within 0.5 mile of a transit node, shuttle service, or bus route with regularly scheduled daily service.	% of growth to be 25+ units	5%	15%	20%	15%	75%	✓	15%	15%	15%	-	1,057
4-L3	Supporting Land Use Measures	Undertake actions that will support transportation-related land use.	Yes/No	Yes	Yes	Yes	Yes	Yes	✓	Yes	Yes	Yes	Yes	NQ ¹
4-L4	Affordable Housing Linked to Transit	Provide affordable housing developments near transit corridors, transit hubs, and downtown cores.	% of new development to be affordable	15%	15%	15%	15%	15%	✓	20%	20%	15%	-	142

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
Goal 5. Encourage a shift toward low-carbon transportation options														
5-L1	Local Transportation Demand Management (TDM) Program	Implement support for voluntary TDM measures for employers with 49 employees or fewer, voluntary TDM measures for larger employers that are in excess of the TRO, and requirements for TDM measures in larger new residential projects.	% of employees eligible	38%	38%	20%	-	38%	✓	38%	-	-	38%	2,975
5-L2	Carpool Incentives and Ride-Sharing Program	Create or promote a countywide ride-sharing program and encourage participation by local employers through their TDM programs.	% of employees eligible	71%	78%	25%	-	78%	✓	78%	-	-	78%	5,709
5-L3	Guaranteed Ride Home	Create a guaranteed ride-home program to provide a free car-share, shuttle, or taxi ride home to employees in case of an emergency.	Yes/No	Yes	Yes	No	No	No	✓	Yes	No	No	Yes	NQ ¹

Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate											2020 GHG Reductions (MTCO ₂ e/yr)
			Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma		
5-L4	Supporting Bicycle/ Pedestrian Measures	Implement local actions to support bicycle use and pedestrians.	Yes/No	Yes	Yes	Yes	Yes	Yes	✓	Yes	Yes	Yes	Yes	NQ ¹
5-L5	Traffic Calming	Implement traffic-calming measures in downtown cores, accident hot-spot locations, near schools and libraries, etc.	% of trips affected	90%	100%	50%	100%	100%	✓	100%	80%	100%	100%	1,205
5-L6	Parking Policies	Implement additional parking policies to promote a reduction in single-occupancy vehicle travel.	% of area affected	10%	-	50%	-	-	✓	-	-	-	10%	2,489
5-L7	Supporting Parking Policy Measures	Implement actions to support parking policies, such as prioritized parking for EVs, carpools, and hybrids.	Yes/No	Yes	Yes	Yes	Yes	No	✓	Yes	Yes	Yes	Yes	NQ ¹
Goal 7. Encourage a shift toward low-carbon fuels in vehicles and equipment														
7-L1	Electric Vehicle (EV) Charging Station Program	Develop local charging stations to support EVs.	# of charging stations	2	5	20	5	5	✓	5	3	50	5	60

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
7-L2	Electrify Construction Equipment	Incentivize replacement of fossil-fuel construction equipment with alternatively fueled or electric equipment.	% of equipment	-	10%	10%	10%	-	✓	10%	5%	5%	-	386
7-L3	Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	Encourage use of more efficient equipment and support equipment conversion to alternative fuels with lower GHG intensity	Yes/No	Yes	Yes	Yes	Yes	Yes	✓	Yes	Yes	Yes	Yes	2,392
Goal 8. Reduce idling														
8-L1	Idling Ordinance	Limit idling of all commercial vehicles to 3 minutes, except as necessary for the loading or unloading of cargo within a period not to exceed 30 minutes.	Minutes below state law	2	2	2	2	2	✓	2	2	-	2	NQ ¹
8-L2	Idling Ordinance for Construction Equipment	Adopt an ordinance that limits idling time to 3 minutes for heavy-duty construction equipment.	Minutes below state law	-	-	-	2	2	✓	2	-	-	2	163

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
Goal 9. Increase solid waste diversion														
9-L1	Create Construction and Demolition Reuse and Recycling Ordinance	Implement goal for construction and demolition waste.	% beyond baseline	3%	3%	0%	3%	0%	✓	3%	0%	0%	3%	5
Goal 11. Reduce water consumption														
11-L1	SB X7-7 – Water Conservation Act of 2009	Meet or exceed water use reduction goal, as identified by SB X7-7 (20% reduction in urban per capita use by 2020).	Per capita water savings goal	20%	20%	20%	20%	37%	✓	20%	10%	15%	12%	16,540
11-L2	Water Conservation for New Construction	Require adoption of the voluntary CALGreen Tier 1 water efficiency measures for new residential and nonresidential construction.	% of new residential/nonresidential development	0%/0%	0%/0%	0%/0%	100%/50%	100%/50%	✓	100%/50%	50%/50%	100%/50%	0%/0%	252

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma	
11-L3	Water Conservation for Existing Buildings	Incentivize renovation of existing buildings to achieve higher levels of water efficiency; encourage existing buildings to retrofit with CALGreen Tier 1 water efficiency measures.	% of new residential/nonresidential development	0%/0%	0%/0%	0%/0%	25%/50%	25%/50%	✓	25%/50%	25%/10%	25%/10%	0%/0%	2,425
Goal 12. Increase recycled water and greywater use														
12-L1	Greywater Use	Incentivize greywater use instead of potable water for residential non-potable uses.	% greywater goal	0%	0%	1%	2%	0%	✓	25%	2%	0%	10%	26
Goal 14. Increase use of renewable energy in water and wastewater systems														
14-L1	Green Energy for Water Production and Wastewater Processing in Healdsburg and Cloverdale	Healdsburg will use 100% renewable energy for a certain percentage of its water production and/or conveyance. Cloverdale has implemented solar energy arrays at the city water and wastewater plants.	Yes or N/A	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	412

#	Name	Description	Participation Rate Selection	In-place/Adopted by or Participation Rate										2020 GHG Reductions (MTCO ₂ e/yr)	
				Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	County of Sonoma		
Goal 15. Reduce Emissions from Livestock Operations															
15-L1	Livestock Manure Management	Encourage voluntary manure management techniques that reduce emissions from the decomposition of manure at dairies	Yes or N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	NQ1
15-L2	Reduce Emissions from Enteric Fermentation	This voluntary measure would encourage dairies and livestock operations to explore ways to reduce GHG emissions from enteric fermentation.	Yes or N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	NQ1
Goal 16. Reduce Emissions from Fertilizer Use															
16-L1	Optimize Fertilizer Use	Encourage voluntary agricultural practices that reduce or eliminate the need for fertilizer (especially synthetic fertilizer)	Yes or N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	1,759

¹ These measures were not quantified (NQ) for GHG reductions because they are qualitative supporting measures. Refer to Appendix C for more information. Supporting measures are measures that cannot currently be quantified and included in the reduction analysis but are provided to strengthen the quantified measures. Although emissions reductions have not been quantified for these measures, they are still an important part of the CAP and ensure a comprehensive approach to climate action planning. Further development and implementation of these measures may result in sufficient data to quantify the GHG reductions in the future.

Expand the Green Building Ordinance Energy Code

1-L1

Supports CA2020 Goal 1: Increase Building Energy Efficiency

GHG Reduction Potential: 62 MTCO₂e per year

Require new development to exceed CALGreen Title 24 standards through Tier 1 voluntary standards (15% reduction from 2010 Title 24 standards) or Tier 2 (30% reduction from 2010 Title 24 standards), or another percentage beyond Title 24. Extend this requirement to apply to future updates to the Title 24 code until zero net energy is achieved through state building standards. Incorporate green building principles and practices into the planning, design, construction, management, renovation, operations, and demolition of all new buildings.

Community Co-Benefits



Implementation:

Each jurisdiction would be responsible for developing and implementing a new Green Building Ordinance (GBO) consistent with the goals chosen as part of this measure.

Measure Commitments:

Each jurisdiction will adopt a percentage beyond Title 24 as part of an updated GBO.

Key Progress Indicators:

1. Energy consumption
 2. Energy savings
 3. The number of new homes and businesses compliant with new GBOs
-

Outdoor Lighting

1-L2

Supports CA2020 Goal 1: Increase Building Energy Efficiency

GHG Reduction Potential: 1,550 MTCO₂e per year

Adopt outdoor lighting standards to reduce electricity consumption above and beyond the requirements of AB 1109. Replace a certain percentage of incandescent outdoor lighting with light-emitting diode (LED) bulbs by 2020.

Community Co-Benefits



Implementation:

Implementation mechanisms will be chosen by each jurisdiction and may include developing a new ordinance requiring LED outdoor lighting for new development and/or providing incentives for bulb replacement in existing fixtures.

Measure Commitments:

Each jurisdiction will adopt a goal for the percent of outdoor lighting to be replaced with high efficiency LEDs, between 20% and 80%.

Key Progress Indicators:

1. Energy consumption
 2. Energy savings
 3. The number of LED outdoor lights installed/sold
-

Shade-Tree Planting

1-L3

Supports CA2020 Goal: 1 Increase Building Energy Efficiency

GHG Reduction Potential: 45 MTCO₂e per year

Expand on current urban tree planting policies and programs to establish a shade tree planting goal for each jurisdiction to help reduce building energy use. The communities already have different tree planting programs that vary by location. Urban tree planting (sometimes called “urban forestry”) also increases carbon sequestration by adding additional biomass, although this benefit is not quantified.

Community Co-Benefits



Implementation:

Implementation mechanisms may include:

- Establishing goals and funding sources for new trees planted on city/County property
- Implementing a requirement to account for trees removed and planted as part of new construction
- Requiring new development to plant shade trees (e.g., a certain number of new trees per dwelling unit, new resident, square footage of building, or size of lot)
- Providing rebates for the purchase of new trees and education about the benefits of shade trees and tree care for residents.

Measure Commitments:

Each jurisdiction will adopt a goal for the number of new trees planted by 2020, between 50 and 1,000.

Key Progress Indicators:

1. Energy consumption
 2. Energy savings
 3. The number of trees planted
-

Co-Generation Facilities

1-14

Supports CA2020 Goal 1: Increase Building Energy Efficiency

GHG Reduction Potential: 1 MTCO₂e per year

Optimize the use of locally generated energy by encouraging, where feasible, co-generation facilities in new commercial and industrial facilities greater than 100,000 square feet. The jurisdictions will encourage co-generation facilities through a number of actions, such as amending ordinances, removing regulatory barriers, providing financial incentives, and providing outreach.

Community Co-Benefits



Implementation:

Implementation mechanisms in each jurisdiction could include developing new ordinances or offering incentives for co-generation facilities. For example, a GBO may include LEED certification credits (or other GBO compliance mechanisms) for the use of co-generation. The jurisdictions could offer financial incentives for combined heat and power system development by securing funding available through partnerships with utilities, state and federal government programs (e.g., tax credits, rebates, grants, low-interest loans), energy performance contracts, and non-profit organizations. The communities can also encourage cogeneration by removing any unintended regulatory barriers, such as standard interconnection requirements, net metering, and output-based regulations (U.S. Environmental Protection Agency 2014b). The communities would need to identify land uses that would be appropriate for this measure, and then conduct outreach efforts that explain new ordinances or incentives that are being offered.

Measure Commitments:

Each jurisdiction will adopt a goal for installation of new combined heat and power capacity.

Key Progress Indicators:

1. The number of co-generation projects
 2. The capacity (kilowatt) and generation (kilowatt-hours) for each new combined heat and power system facility
-

Solar in New Residential Development

2-L1

Supports CA2020 Goal 2: Increase Renewable Energy Use

GHG Reduction Potential: 248 MTCO₂e per year

Implement a requirement to install solar energy systems on new residential buildings to increase local renewable energy generation. Under this measure, the jurisdictions will also encourage or require solar installations on as many new multi-family developments as feasible.

Community Co-Benefits



Implementation:

This could be implemented through discretionary approvals and permitting for new projects. This program may also include streamlined permitting, providing information to homeowners for low-interest financing, assisting homeowners in purchasing solar photovoltaics through low-interest loans or property tax assessments, requiring that new development provide for solar access and build solar-ready features into buildings, and establishing guidelines for solar development. The jurisdictions may encourage solar installation by forming partnerships with Sonoma Clean Power, Pacific Gas & Electric Company (PG&E), and other private sector resources, or other solar lease or power purchase agreement (PPA) companies. The communities would be responsible for implementing this measure through coordination with relevant entities, such as PG&E, PPA companies, and solar financing organizations. The actual market penetration rates that each jurisdiction will achieve will likely be influenced by how the community implements this measure. For example, adopting an ordinance to require solar in all new housing would result in a 100% participation rate. Alternatively, a jurisdiction may rely on voluntary solar installation using the technical resources, funding sources, and financing options discussed above. In this approach, participation rates would increase to the extent that funding is available, most likely resulting in less than a 100% participation rate.

Measure Commitments:

Each jurisdiction will adopt a goal for the percentage of new homes installing solar by 2020, between 8% and 100%.

Key Progress Indicators:

1. The number of residential photovoltaic (PV) installations
 2. PV electric generation capacity
 3. Actual PV electric generation
-

Solar in Existing Residential Buildings

2-L2

Supports CA2020 Goal: 2 Increase Renewable Energy Use

GHG Reduction Potential: 9,942 MTCO₂e per year

Incentivize solar energy installation on existing residential buildings to increase renewable energy generation.

Community Co-Benefits



Implementation:

This could be implemented through the permitting process for major remodels and through incentives for existing homes. The jurisdictions could require solar installation on all existing homes that undergo major remodels. This program may also include streamlined permitting, providing information to homeowners for low-interest financing, assisting homeowners in purchasing solar photovoltaics through low-interest loans or property tax assessments, and establishing guidelines for solar development. Funds may be provided through the Property Assessed Clean Energy (PACE) Financing Marketplace options available through the County of Sonoma. The jurisdictions may encourage solar installation by forming partnerships with PG&E and other private sector funding sources including SunRun, SolarCity, or other solar lease or PPA companies. The jurisdictions would be responsible for implementing this measure through coordination with relevant entities, such as PG&E, PPA companies, and solar financing organizations.

Measure Commitments:

Each jurisdiction will adopt a goal for the percentage of existing homes installing solar by 2020, between 2% and 15%.

Key Progress Indicators:

1. The number of PV installations on existing homes
 2. PV electric generation capacity
 3. Actual PV electric generation
-

Solar in New Nonresidential Developments

2-L3

Supports CA2020 Goal: Increase Renewable Energy Use

GHG Reduction Potential: 535 MTCO₂e per year

Implement a requirement to install solar energy systems on new nonresidential development to increase local renewable energy generation. Under this measure, the jurisdictions will encourage or require solar installations on as many new nonresidential developments as feasible.

Community Co-Benefits



Implementation:

This could be implemented through discretionary approvals and permitting for new projects. This program may also include streamlined permitting, providing information to developers for low-interest financing, assisting developers in purchasing solar photovoltaics through low-interest loans or property tax assessments, requiring that new development provide for solar access and build solar-ready features into buildings, and establishing guidelines for solar development. The jurisdictions may encourage solar installation by forming partnerships with Sonoma Clean Power, PG&E and other private sector funding sources, or other solar lease or PPA companies. The communities would be responsible for implementing this measure through coordination with relevant entities, such as PG&E, PPA companies, and solar financing organizations. The actual market penetration rates that each community will achieve will likely be influenced by how the jurisdiction implements this measure. For example, adopting an ordinance to require solar in all new nonresidential development would result in a 100% participation rate. Alternatively, an ordinance with building-size thresholds, such as an ordinance that requires solar only for buildings greater than a certain square footage, would result in a lower participation rate.

Measure Commitments:

Each community will adopt a goal for the percentage of new nonresidential projects installing solar by 2020, between 2% and 75%.

Key Progress Indicators:

1. The number of nonresidential PV installations
 2. PV electric generation capacity
 3. Actual PV electric generation
-

Solar in Existing Nonresidential Buildings

2-L4

Supports CA2020 Goal 2: Increase Renewable Energy Use

GHG Reduction Potential: 25,714 MTCO₂e per year

Incentivize solar energy installation for existing nonresidential buildings to increase renewable energy generation.

Community Co-Benefits



Implementation:

This measure could be implemented through discretionary approvals and permitting for existing projects as well as incentives for nonresidential buildings outside the permitting process. The jurisdictions can require all existing buildings that undergo major remodels or renovations to install solar. This program may also include streamlined permitting, providing information to developers for low-interest financing, assisting developers in purchasing solar photovoltaics through low-interest loans or property tax assessments, and establishing guidelines for solar development. Funds may be provided through the Property Assessed Clean Energy (PACE) Financing Marketplace available through the County of Sonoma. The jurisdictions may encourage solar installation by forming partnerships with PG&E and other private sector funding sources including SunRun, SolarCity, or other solar lease or PPA companies. The communities would be responsible for implementing this measure through coordination with relevant entities, such as PG&E, PPA companies, and solar financing organizations.

Measure Commitments:

Each jurisdiction will adopt a goal for the percentage of existing nonresidential buildings installing solar by 2020, between 2% and 25%.

Key Progress Indicators:

1. The number of nonresidential PV installations
 2. PV electric generation capacity
 3. Actual PV electric generation
-

Convert to Building Equipment to Electricity

3-L1

Supports CA2020 Goal 3: Switch Equipment from Fossil Fuel to Electricity

GHG Reduction Potential: 603 MTCO₂e per year

Replace residential natural gas space and water heating equipment with high efficiency electric systems, such as air or ground source heat pumps. This measure shifts the energy source from a relatively high GHG-intensive source (natural gas) to a lower GHG-intensive source—clean electricity.

Community Co-Benefits



Implementation:

Implementation mechanisms in each jurisdiction could include developing ordinances to require high efficiency electric equipment for new development or implementing incentives for installing electric equipment in existing buildings. The communities would need to develop outreach efforts to increase community awareness about the status of electric equipment and the life cycle cost and efficiency benefits relative to older, inefficient resistance heating technologies.

Measure Commitments:

Each jurisdiction will adopt a goal for the percentage of homes replacing natural gas furnaces or water heaters with efficient electric systems, between 1% and 10%.

Key Progress Indicators:

1. Energy consumption
 2. Energy savings
 3. The number of electric heating systems installed
-

Mixed-Use Development in City Centers and along Transit Corridors

4-L1

Supports CA2020 Goal: Reduce Travel Demand through Focused Growth

GHG Reduction Potential: 3,494

The jurisdictions would focus new residential and commercial development in their city centers and along existing and planned transit corridors. Mixed-use development (such as residential use above commercial uses) in such locations would improve the diversity of nearby land uses and facilitate easier access to retail and commercial destinations. Improving the jobs/housing balance would also facilitate access to work destinations. Development adjacent to transit centers and along active transit corridors (commonly called *transit-oriented development* or TOD) would increase the amount of trips that can be completed via transit instead of personal vehicles.

Community Co-Benefits



Implementation:

The jurisdictions will develop appropriate tools for cities and urbanized unincorporated areas to encourage mixed-use, infill, TOD, and economic development intended to serve local residents. The primary method will be through updated General Plans and Specific Plans and associated land use designations and site zoning. Policies could include updating zoning codes and improving transit and shuttle service in areas targeted for mixed-use development as well as supporting economic development geared toward local residents to reduce travel for goods and services. The communities would promote and apply existing policies and incentives to further encourage mixed-use, infill, and TOD. Potential incentives could include reduced parking requirements, reductions in building and permit fees, density increases, and other related items.

Measure Commitments:

Each community will set a goal for percentage of new development that results in mixed use, between 15% and 70%; reduces VMT by 4% to 19%.

Key Progress Indicators:

1. The percentage of growth resulting in mixed-use development
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Increase Transit Accessibility

4-L2

Supports CA2020 Goal 4: Reduce Travel Demand through Focused Growth

GHG Reduction Potential: 1,057 MTCO₂e per year

Encourage all new residential projects consisting of 25 units or more to be located within 0.5 mile of a transit node, shuttle service, or bus route with regularly scheduled, daily service. Consider requirements such as reduced parking, unbundled parking, subsidized public transportation passes, or ride-matching programs, based on site-specific review.

Community Co-Benefits



Implementation:

Each jurisdiction will identify potential areas for TOD and prepare policies and incentives to encourage development near high-quality transit service. Strategies include encouraging TOD in updated General Plans, Specific Plans, and zoning codes, and developing new ordinances requiring transit accessibility. Potential incentives could also include reduced parking requirements, reductions in building and permit fees, density increases, and other related items. The communities may also work with the RCPA/Sonoma County Transportation Authority (SCTA) and transit agencies on this measure.

Measure Commitments:

Reduce communitywide VMT by 0.4% to 5% by encouraging residential development near transit.

Key Progress Indicators:

1. The percentage of growth resulting in 25+ unit residential development located 0.5 mile from a transit station
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Supporting Land Use Measures

4-L3

Supports CA2020 Goal 4: Reduce Travel Demand through Focused Growth

GHG Reduction Potential: Not Quantified

Encourage new development to provide amenities to support transit and other modes of transportation, including transit stops, bicycle facilities, good pedestrian networks, car-sharing locations, and EV charging stations. Support voter-approved urban growth boundaries (UGBs) and community separators. Support conservation of lands outside UGBs.

Community Co-Benefits



Implementation:

Each jurisdiction will identify potential areas for TOD and develop policies and incentives to encourage development near high-quality transit service. Strategies include encouraging TOD in updated General Plans, Specific Plans, and zoning codes, and developing new ordinances requiring transit accessibility. Potential incentives could also include reduced parking requirements, reductions in building and permit fees, density increases, and other related items. The communities may also work with the RCPA/SCTA and transit agencies on this measure. The County is currently preparing a ballot measure to extend voter-approval protections for Community Separators and is considering additional areas for its community separators. The work of the Sonoma County Agricultural Preservation and Open Space District is also essential to the focused growth principles adopted by the County and each city by protecting lands outside UGBs and within community separators.

Measure Commitments:

Encourage new development to provide amenities to support transit and other modes, including transit stops, bicycle facilities, pedestrian networks, car-sharing, and EV charging

Key Progress Indicators:

1. VMT by transportation mode
 2. Transportation mode share percentages
 3. Gasoline/diesel fuel usage/sales
-

Affordable Housing Linked to Transit

4-L4

Supports CA2020 Goal 4: Reduce Travel Demand through Focused Growth

GHG Reduction Potential: 142 MTCO₂e per year

Encourage affordable housing developments to locate near transit corridors, transit hubs, and downtown cores.

Community Co-Benefits



Implementation:

Each jurisdiction would develop policies and incentives to encourage affordable housing development for cities and urbanized unincorporated county areas. The jurisdictions would draft new ordinances or offer incentives encouraging the affordable housing development near transit hubs and city centers. Potential incentives could include reduced parking requirements, reductions in building and permit fees, increased density, and other related items. The communities may also work with RCPA/SCTA on this measure.

Measure Commitments:

Establish a goal for the percentage of housing developments greater than 5 units to be affordable and located near transit, between 15% and 23%; reduces VMT by 0.1% to 0.6%.

Key Progress Indicators:

1. The percentage of units that will be affordable housing units
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Local Transportation Demand Management Program

5-L1

Supports CA2020 Goal 5: Encourage a Shift toward Low-Carbon Transportation Options

GHG Reduction Potential: 2,975 MTCO₂e per year

This measure includes a mandatory trip reduction ordinance (TRO) for employers with 50 employees or more. The mandatory TRO will also provide a non-trip reduction alternative in the form of purchase of an equivalent amount of GHG offsets for employers who decide not to implement trip reductions. This measure also supports voluntary transportation demand management (TDM) measures for employers with fewer than 50 employees, additional voluntary TDM measures (beyond the minimum TRO requirements) for larger employers, and requirements for TDM measures in new large residential projects.

Community Co-Benefits



Implementation:

Each jurisdiction will define the threshold for application of the ordinance, the specific TDM measures to be implemented, and methods for monitoring employer compliance. The jurisdictions may require certain TDM strategies (beyond the minimum TRO requirements) through the permitting process for businesses with 50 or more employees. Incentives for voluntary TDM by employers with fewer than 50 employees may also be used, such as reduced parking requirements, reductions in fees, and other related items. The communities may also work with RCPA/SCTA. For mandatory aspects of the ordinance, a non-trip reduction alternative will be provided in the form of requirements to purchase an equivalent amount of GHG offsets.

Measure Commitments:

Support voluntary TDM measures for small employers (< 50); implement mandatory TRO for employers with 50 employees or more (would reduce communitywide VMT by 2%).

Key Progress Indicators:

1. Number of businesses or employees participating in the TDM program
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales (and GHG offsets for those selecting this option)
-

Carpool-Incentives and Ride-Sharing Program

5-L2

Supports CA2020 Goal 5: Encourage a Shift toward Low-Carbon Transportation Options

GHG Reduction Potential: 5,709 MTCO₂e per year

Create or promote a regional ride-sharing program and encourage participation by local employers through their TDM programs. Focus on large employers to create programs. Actively disseminate information to the community regarding the variety of ridesharing options from 511.org to private companies.

Community Co-Benefits



Implementation:

Each participating jurisdiction will develop a carpool incentive program attractive to employers, including managing the financial incentives for carpooling. For example, the City of Santa Rosa offers free parking in downtown garages and eligibility for monthly prize drawings to carpool commuters (and employers) registered in the City's Trip Reduction program. Similar incentives could be provided by other communities. Additional strategies include connecting commuters to formal carpool organizers. Jurisdictions can consider using 511 ridesharing forums, dynamic rideshare apps (e.g., Carma, Zimride, Ridejoy), or helping to facilitate communication among employers in the same geographic area. Communities can also designate convenient locations as casual carpool pickup spots/park-and-ride lots. Other possible strategies include making the requirements for ridesharing services less restrictive to reduce the barrier to entry, such as lowering age limits or eliminating affiliation requirements. Connecting vanpool organizers with commuters would also be beneficial.

Measure Commitments:

Develop a carpool incentive program with employee participation between 25% and 80%; reduce VMT by 1.3% to 3.9%.

Key Progress Indicators:

1. Number of businesses or employees participating in the program
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Guaranteed Ride Home

5-L3

Supports CA2020 Goal 5: Encourage a Shift toward Low-Carbon Transportation Options

GHG Reduction Potential: Not Quantified

Implement a guaranteed ride home program to provide a free car-share, shuttle, or taxi ride home in case of an emergency (illness, family crisis, unscheduled overtime) for employees who use an alternative to driving alone to work (public transit, carpooling, vanpooling, biking, or walking) on the day of the emergency. For example, the City of Santa Rosa has a guaranteed ride home program for employees (or employers) registered in the City's Trip Reduction Program.

Community Co-Benefits



Implementation:

Each jurisdiction would be responsible for implementing this measure. The jurisdictions may work with RCPA/SCTA to implement this program.

Measure Commitments:

Percentage participation in guaranteed ride home program.

Key Progress Indicators:

1. Number of businesses or employees participating in the guaranteed ride home program
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Supporting Bicycle/Pedestrian Measures

5-L4

Supports CA2020 Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options

GHG Reduction Potential: Not Quantified

This measure includes several local actions to support bicycle use and pedestrian travel.

- Identify bicycle/pedestrian route gaps including improving connections across community boundaries. Prioritize funding and construction of routes that close key gaps across community boundaries.
- Encourage implementation of city and County bike/pedestrian master plans. Identify common barriers to implementation of current plans.
- Update municipal codes to require pedestrian and bicycle facilities (if needed).
- Work with transit agencies to increase bike storage on buses, at bus stops, and at transit hubs and ferry terminals.
- Require bicycle facilities at all park-and-ride lots and transit stations.
- Consider implementing bike-sharing programs.

Community Co-Benefits



Implementation:

SCTA will work with the cities and county transit agencies to coordinate the identification and implementation of cross-jurisdictional bicycle and pedestrian corridor projects. Each jurisdiction will update municipal codes and prepare or update their bike/pedestrian master plans, as needed. As discussed above, the jurisdictions will need to identify route gaps and coordinate with the County and SCTA on routes that are cross-jurisdictional. The bike and pedestrian master plans will outline needed improvements and the areas identified for expansion. Communities will also coordinate with transit agencies to improve the bike-transit facilities.

Measure Commitments:

Percentage participation in program.

Key Progress Indicators:

1. Number of businesses or employees participating in the program
2. VMT by transportation mode
3. Transportation mode share percentages
4. Gasoline/diesel fuel usage/sales

Traffic Calming

5-L5

Supports CA2020 Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options

GHG Reduction Potential: 1,205 MTCO₂e per year

Implement traffic-calming measures in downtown cores, accident hotspot locations, near schools and libraries, etc. Project design will include pedestrian/bicycle safety and other traffic-calming measures that exceed current jurisdiction requirements. Traffic-calming measures reduce motor vehicle speeds and encourage pedestrian and bicycle trips. Specific measures may include: marked crosswalks, countdown signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

Community Co-Benefits



Implementation:

Each jurisdiction will develop a strategy to implement this measure appropriate to its community setting. Implementation may include holding public meetings to identify areas of concern for the community, conducting traffic studies to determine where traffic calming is needed, and securing funding to construct traffic-calming features. Traffic-calming measures can be made a condition of new development approvals where appropriate and can be incorporated in General Plans and Specific Plans. Jurisdictions will select specific measures to implement based on the issues and characteristics of each area. The communities may also work with SCTA.

Measure Commitments:

Implement traffic-calming measures in downtown core and near schools, yields communitywide VMT reduction of 0.1%.

Key Progress Indicators:

1. Percentage implementation of traffic-calming measures
 2. VMT by transportation mode
 3. Transportation mode share percentages
 4. Gasoline/diesel fuel usage/sales
-

Parking Policies

5-L6

Supports CA2020 Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options

GHG Reduction Potential: 2,489 MTCO₂e per year

Implement additional parking policies to promote reduction in single-occupancy vehicle travel, such as on-street market pricing in downtown core areas. Consider reduced parking requirements, shared parking, and in-lieu fees, in combination with providing transit and bicycle facilities, in appropriate areas.

Community Co-Benefits



Implementation:

Each jurisdiction would be responsible for implementing this measure. The communities may also work with SCTA. Staff would select parking pricing policies appropriate for their community and develop a process for implementation and management, which may include updating municipal codes. The jurisdictions would draft new ordinances and/or General Plan policies, or offer incentives encouraging reduced parking requirements and increased transit or bicycle facilities. Potential incentives could include tax breaks or deductions, or other rebates.

Measure Commitments:

Percentage increase in parking prices and the percentage of area subject to pricing.

Key Progress Indicators:

1. Percentage increase in parking pricing
 2. Percentage of applicable area subject to parking pricing
 3. VMT by transportation mode
 4. Transportation mode share percentages
 5. Gasoline/diesel fuel usage/sales
-

Supporting Parking Policy Measures

5-L7

Supports CA2020 Goal: 5 Encourage a Shift Toward Low-Carbon Transportation Options

GHG Reduction Potential: Not Quantified

Offer prioritized parking for hybrid/EV cars, carpools, vanpools at city-center corridors, new developments, public parking areas, and municipal facilities. Consider amending zoning code to require new parking lots to provide prioritized parking for carpools, vanpools, hybrids, and EVs, and provide charging facilities.

Community Co-Benefits



Implementation:

The jurisdictions will identify supporting parking policy strategies appropriate for their community and develop specific policies and guidelines to implement and monitor them. Implementation could include new ordinances and/or General Plan policies, zoning code amendments, or incentives encouraging prioritized parking requirements for alternatively fueled vehicles or carpools. Potential incentives could include tax breaks or deductions, or other rebates. The jurisdictions may also work with RCPA/SCTA.

Measure Commitments:

Provide priority parking for low emission vehicles, carpools, vanpools.

Key Progress Indicators:

1. VMT by transportation mode
 2. Transportation mode share percentages
 3. Gasoline/diesel fuel usage/sales
-

Electric Vehicle Charging Station Program

7-L1

Supports CA2020 Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment

GHG Reduction Potential: 60 MTCO₂e per year

Develop local charging stations to support EVs. This measure is in addition to the regional Measure 7-R1.

Community Co-Benefits



Implementation:

The jurisdictions would work with PG&E and SCP to identify grants and other funding sources to help finance the installation of charging stations throughout the county. In addition, SCP, ESD (through available PACE financing options) and Northern Sonoma County Air Pollution Control District (NSCAPCD) would create a package to install and finance charging stations.

Measure Commitments:

Install 100 Level I and II charging stations.

Key Progress Indicators:

1. The number of EVs registered
 2. The number of EV charging stations installed
 3. The amount of electricity distributed/sold by the charging stations
 4. The number of Clean Vehicle Rebate Project rebates issued
 5. Gasoline/diesel fuel usage/sales
-

Electrify Construction Equipment

7-L2

Supports CA2020 Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment

GHG Reduction Potential: 386 MTCO₂e per year

Establish a goal for a percentage of construction equipment to use alternative fuels or electricity in place of diesel and gasoline. Equipment could include electric or hybrid-electric dozers, excavators, or loaders, all of which are on the market. Construction equipment powered by other alternative fuels, such as compressed natural gas (CNG), is also available. New development would be required to provide a construction equipment management plan that meets the local community requirements for use of alternatively fueled equipment (including electrical equipment) during project construction.

Community Co-Benefits



Implementation:

Each jurisdiction would work in close cooperation with the appropriate air district to draft an ordinance and develop outreach programs to be consistent with current air district rules and California Environmental Quality Act (CEQA) guidelines. The air district sets air quality related requirements on construction vehicles and also provides mitigation options related to construction vehicles through Voluntary Emission Reduction Agreement programs that may overlap with this measure.

This measure could be implemented through discretionary approvals and permitting for new projects. Communities could provide incentives for electric and more efficient construction equipment to developers and contractors, such as rebates and subsidies and information on financing for this equipment. Encourage the use of alternative fuels for construction equipment on site, where feasible, such as CNG, liquefied natural gas, propane, or biodiesel. Require a certain percentage of all construction equipment on new development projects to be electrically powered as a condition of approval; this could be incorporated into the construction contracts.

Measure Commitments:

Electrify 5% to 10% of construction equipment.

Key Progress Indicators:

1. Electric equipment purchases
 2. Construction equipment fuel use
-

Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching

7-L3

Supports CA2020 Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment

GHG Reduction Potential: 2,392 MTCO₂e per year

This local measure has two elements: First, it is a voluntary measure to support farmers wanting to convert equipment to fuels with lower GHG intensity. Second, the City of Petaluma has received a grant for a Biomass to Biofuel Project, which is expected to result the quantified reduction.

Farmers can reduce fossil fuel use in agricultural equipment by converting equipment currently using gasoline, diesel, or liquefied petroleum gas to alternative fuels with lower GHG intensity (such as natural gas, biofuels, or solar electricity) as feasible, keeping equipment maintained and in good working order, replacing old equipment with newer and more efficient equipment, and using global positioning systems (GPS) to optimize equipment operation.

The City of Petaluma has received a grant to partner with the California Energy Commission on a project to capture gas released by wastewater solids and food waste generated in the City and reuse it for fuel for the City's municipal fleet (transit and waste collection vehicles).

Community Co-Benefits



Implementation:

Encourage farmers to participate in the California Air Resources Board's (ARB) Carl Moyer Program, which provides incentives for engines that beat emissions standards. A particular focus may be expanding renewable energy use for water pumps and wind machines. The City of Petaluma will implement its biofuels project in accordance with the state grant.

Measure Commitments:

Support owners of agricultural and other off-road equipment in switching to cleaner fuels and keeping equipment in good working order; goal of 10% reduction in GHG. The City of Petaluma will implement its biofuels project.

Key Progress Indicators:

1. Alternative fuel equipment purchases
 2. Equipment fuel use
-

Idling Ordinance

8-L1

Supports CA2020 Goal 8: Reduce Idling

GHG Reduction Potential: Not quantified

Limit idling of all commercial vehicles to 3 minutes except as necessary for the loading or unloading of cargo within a period not to exceed 30 minutes.

Community Co-Benefits



Implementation:

Each jurisdiction would adopt and implement a new commercial vehicle idling ordinance. The communities could also work with RCPA and/or Bay Area Air Quality Management District (BAAQMD) and NSCAPCD to implement the ordinance.

Measure Commitments:

Limiting idling of commercial vehicles to 3 minutes will save 2% of commercial vehicle fuel.

Key Progress Indicators:

1. Adoption of idling limit ordinances
 2. Diesel fuel usage/sales
-

Idling Ordinance for Construction Equipment

8-L2

Supports CA2020 Goal 8: Reduce Idling

GHG Reduction Potential: 163 MTCO₂e per year

Adopt an ordinance limiting idling time for heavy-duty construction equipment beyond ARB or local air district regulations and if not already required as part of CEQA mitigation. The California Air Pollution Control Officers Association (2010) recommends a 3-minute idling limit. Encourage contractors as part of permitting requirements or city contracts to submit a construction vehicle management plan that may include idling time requirements, hour meters on equipment, and/or documenting the horsepower, age, and fuel of all on-site equipment. California state law currently requires all off-road equipment fleets to limit idling to no more than 5 minutes.

Community Co-Benefits



Implementation:

Each jurisdiction would adopt and implement a new commercial vehicle idling ordinance. The jurisdictions could also work with RCPA and/or BAAQMD and NSCAPCD to implement the ordinance.

Measure Commitments:

Reduce idling time for construction equipment to 3 minutes (beyond state requirement of 5 minutes).

Key Progress Indicators:

1. Adoption of idling limit ordinances
 2. Diesel fuel usage/sales
-

Create Construction and Demolition Reuse and Recycling Ordinance

9-L1

Supports CA2020 Goal 9: Increase Solid Waste Diversion

GHG Reduction Potential: 3 MTCO₂e per year

Implement consistent countywide goals for recycling and reuse of construction and demolition (C&D) waste. This could follow the Petaluma model, which requires development projects to have a Construction Phase Recycling Plan that addresses the reuse and recycling of major waste materials, creates a minimum diversion rate for C&D waste on all projects (such as 75%), and requires an inventory of usable materials prior to any demolition.

Community Co-Benefits



Implementation:

Each jurisdiction will implement this measure through a C&D ordinance, with assistance from the Sonoma County Waste Management Agency (SCWMA). SCWMA or the RCPA could assist by drafting a model ordinance for use/adaptation by local jurisdictions.

Measure Commitments:

Implement consistent countywide goals for C&D waste to establish goal and procedures. Increase C&D diversion to 72% to 75% by 2020.

Key Progress Indicators:

1. C&D waste diversion rate
 2. Tonnage of C&D waste sent to landfills
 3. Tonnage of C&D waste recycled
 4. Tonnage of C&D waste composted
 5. Tonnage of C&D waste diverted to other ends
-

Senate Bill SB X7-7 – Water Conservation Act of 2009

11-L1

Supports CA2020 Goal 11: Reduce Water Consumption

GHG Reduction Potential: 16,540 MTCO₂e per year

Meet (or exceed) the state’s per-capita water use reduction goal for 2020 as established by SB X7-7 (2009). This statute requires urban water agencies throughout California to increase conservation to achieve a statewide goal of a 20% reduction in urban per-capita use (compared to nominal 2005 levels) by December 31, 2020 (referred to as the “20X2020 goal”). Each urban water retailer in the county subject to the law has established a 2020 per-capita urban water use target (in terms of gallons per capita per day) to meet this goal. Specific per-capita water use reduction goals vary by water agency.

Community Co-Benefits



Implementation:

Each urban water retailer in the county subject to the law has established a 2020 per-capita urban water use target to meet this goal and is responsible for implementing this measure. The jurisdictions would also need to work with the water retailers to implement water-saving measures at the local level. Water cutbacks would require the communities to engage and encourage residents and businesses to find ways to save water. The jurisdictions will use the Energy Watch partnership and work with SCP and PG&E to help implement this measure. The jurisdictions will also encourage “pay as you save” programs for energy and water efficiency.

Measure Commitments:

Meet or exceed state goal (20% reduction in per capita use).

Key Progress Indicators:

1. Per-capita water use for each water retailer/community
 2. Gallons of water saved
 3. Water consumption
-

Water Conservation for New Construction

11-L2

Supports CA2020 Goal 11: Reduce Water Consumption

GHG Reduction Potential: 252 MTCO₂e per year

Implement a water-reduction target for new development that exceeds the SB X7-7 20% reduction target, such as a 30% reduction in water use for each community. To satisfy this goal, require adoption of the Voluntary CALGreen Tier 1 water-efficiency measures for new residential and nonresidential construction. CALGreen voluntary measures recommend use of water-efficient appliances and plumbing and irrigation systems, as well as more aggressive water savings targets.

Community Co-Benefits



Implementation:

The jurisdictions will update building codes for new buildings to require use of voluntary CALGreen Tier 1 water-efficiency measures, including:

- Use of low-water irrigation systems
- Installation of rainwater systems
- Installation of water-efficient appliances and plumbing fixtures
- A 30% to 40% reduction over baseline indoor water use, and a 55% to 60% reduction in outdoor potable water use (CALGreen Tier 1 or 2).

Communities could apply for State Water Resources Control Board grant money for the water-energy “standard offer” pilot project.

Measure Commitments:

Require Voluntary CALGreen Tier 1 water-efficiency measures for 0% to 50% of new residential and 0–100% of new residential and nonresidential construction.

Key Progress Indicators:

1. Gallons of water saved
 2. Water consumption
 3. Energy savings associated with water usage
 4. Total energy consumption associated with water usage
-

Water Conservation for Existing Buildings

11-L3

Supports CA2020 Goal 11: Reduce Water Consumption

GHG Reduction Potential: 2,425 MTCO₂e per year

Achieve a water-reduction target for existing development that exceeds the SB X7-7 20% reduction target, such as a 30% reduction in water use by implementing a program to retrofit existing buildings to achieve higher levels of water efficiency. Encourage existing buildings (constructed before 2015) to use voluntary CALGreen Tier 1 water-efficiency measures.

Community Co-Benefits



Implementation:

The jurisdictions could require water conservation upgrades for all existing buildings that undergo major remodels or renovations and/or incentivize water-efficiency upgrades outside the permitting process. Education and outreach programs will help educate residents and businesses about the importance of water efficiency and how to reduce water use. Rebate programs will help promote installation of water-efficient plumbing fixtures. The program could include:

- A Water Audit Program in collaboration with local water purveyors that offer free water audits
- Development plans to ensure water conservation techniques are used (e.g., rain catchment systems, drought tolerant landscape)
- Requirements for water-efficiency upgrades when permitting renovations or additions of existing buildings
- Use of water conservation pricing (e.g., tiered rate structures) to the extent allowed by law to encourage efficient water use
- Incentives for projects that demonstrate significant water conservation through use of innovative technologies

The jurisdictions will use the Energy Watch partnership and work with SCP and PG&E to help implement this measure. The communities will also encourage “pay as you save” programs for energy and water efficiency.

Measure Commitments:

Install water-efficiency measures in 0% to 25% of existing residential and 0% to 50% of existing nonresidential.

Key Progress Indicators:

1. Gallons of water saved
 2. Water consumption
 3. Energy savings associated with water usage
 4. Total energy consumption associated with water usage
-

Greywater Use

12-L1

Supports CA2020 Goal 12: Increase Recycled Water and Greywater Use

GHG Reduction Potential: 26 MTCO₂e per year

Establish a goal to replace a certain percentage of potable water used for residential non-potable uses (landscaping, toilet flushing, etc.) with greywater.

Community Co-Benefits



Implementation:

Each participating jurisdiction will establish a greywater goal for this measure and will work with water providers to assess progress toward the goals.

Measure Commitments:

Replace 1% to 50% of potable water currently used for non-potable uses with greywater.

Key Progress Indicators:

1. Percentage of greywater water used for residential non-potable water uses
 2. Gallons of greywater used
 3. Gallons of potable water saved
 4. Total potable water consumption
-

Green Energy for Water Production and Wastewater Processing in Healdsburg and Cloverdale

14-L1

Supports CA2020 Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems

GHG Reduction Potential: 412 MTCO₂e per year

Healdsburg would use green energy (100% renewable) sources for a certain percentage of its water production and/or conveyance. Cloverdale has implemented solar energy arrays at the city water and wastewater plants.

Community Co-Benefits



Implementation:

Healdsburg will be responsible for implementing green energy projects at its water production and wastewater processing facilities. Cloverdale has already implemented solar arrays at its water and wastewater plants and will be responsible for continuing to ensure that the arrays are used to their maximum potential

Measure Commitments:

Provide increasing amount of renewable energy for water supply and wastewater treatment in the two cities.

Key Progress Indicators:

1. Solar electric generation capacity
 2. Electricity generation
 3. Renewable portfolio for Healdsburg's electricity
 4. Healdsburg electricity emission factor
-

Livestock Manure Management

15-L1

Supports CA2020 Goal 15: Reduce Emissions from Livestock Operations

GHG Reduction Potential: Not quantified

This voluntary measure would encourage manure management techniques that reduce emissions from the decomposition of manure at dairies. Strategies include on-site management approaches that reduce methane emissions, like dry composting or pasturing, as well as opportunities to convert methane to fuel using some form of methane digestion.

Community Co-Benefits



Implementation:

Under this measure, the County would work with local partners, like the Resource Conservation Districts, and with dairies to discuss relevant incentives and the feasibility of alternative manure management strategies, including installing methane capture equipment.

Measure Commitments:

Pursue manure management practices that reduce or capture methane that would otherwise be released to the atmosphere.

Key Progress Indicators:

1. Percentage of dairies (and dairy cows) using a low-methane manure management practice
 2. Number and capacity of methane digester(s) installed
-

Reduce Emissions from Enteric Fermentation

15-L2

Supports CA2020 Goal 15: Reduce Emissions from Livestock Operations

GHG Reduction Potential: Not Quantified

This voluntary measure would encourage dairies and livestock operations to explore ways to reduce GHG emissions from enteric fermentation (methane and nitrous oxide). One method for reducing these emissions would be changing animal diets to inhibit GHG production. Options include dietary oils (such as whole cottonseed oil, sunflower oil, coconut oil, and palm oil), the use of corn or legume silage in place of grass silage, use of concentrate feeds, nitrates, ionophores, and tannins, and improvement of forage quality and the overall efficiency of dietary nutrient use. Potential use of pomace from winemaking should also be explored. The primary challenge is the limited availability of alternative feed materials that both reduce enteric fermentation and allow dairies to maintain their organic certification; 80% to 90% of Sonoma County dairies are organic.

Community Co-Benefits



Implementation:

Under this measure, the County would work with dairy and livestock operators to test feasible and cost-effective approaches suitable for application at organic dairies in Sonoma County. The County would help to identify grant sources to fund demonstration projects with voluntary dairy/livestock operator participation.

Measure Commitments:

Pursue best practices for animal diets to minimize enteric fermentation.

Key Progress Indicators:

1. Animal diet best practices
-

Optimize Fertilizer Use

16-L1

Supports CA2020 Goal 16: Reduce Emissions from Fertilizer Use

GHG Reduction Potential: 1,759 MTCO₂e per year

Encourage voluntary agricultural practices that reduce or eliminate the need for fertilizer (especially synthetic fertilizer). Work with growers to provide incentives for organic fertilizers as an alternative. Create an outreach program to help growers optimize nitrogen application rates, decrease overall fertilizer inputs and cost, maintain current crop yields, and reduce emissions of nitrous oxide.

Community Co-Benefits



Implementation:

The County would lead this measure, given that the vast majority of agricultural activity is in the unincorporated area. Cities with agricultural activities (including urban farming and community gardens) could collaborate with the County to implement this measure. The County would develop voluntary policies that encourage alternatives to synthetic fertilizers. The County would need to work with growers to discuss which incentives would be relevant and the levels of reduction that would be feasible.

Measure Commitments:

Develop incentives and tools to reduce fossil fuel-based fertilizer use by 20%.

Key Progress Indicators:

1. The amount and type of fossil fuel-based fertilizer applied to crops
-

4. Implementation



Chapter 4

Implementation

4.1 Introduction

Development of this plan by the Regional Climate Protection Authority (RCPA) and its member governments is another step in Sonoma County's ongoing local climate leadership. Coordinated efforts to translate this leadership into action are essential to realize the greenhouse gas (GHG) reductions and community co-benefits identified in Chapter 3.

This chapter describes five core elements of plan implementation:

1. Coordinating implementation across many entities
2. Securing funding and facilitating financing for plan implementation
3. Engaging the community and encouraging broad participation
4. Monitoring and reporting on progress
5. Adaptively managing plan implementation and updates

In this discussion of implementation it is important to acknowledge the regional, multi-jurisdictional nature of Climate Action 2020 (CA2020). While RCPA has led the development of CA2020 and will remain in that leadership role through implementation, specific details about implementation of the local GHG reduction measures will be determined by the city (and town) councils and the County Board of Supervisors. City- and county-level implementation will need to reflect local conditions and priorities and additional input from the local community. Therefore, the local measures in CA2020 may be implemented in different ways in different jurisdictions. The cities and the County are committed to the local GHG reduction measures they have identified in CA2020, including a commitment to develop the necessary implementation details to achieve key progress indicators, with support from RCPA and others.

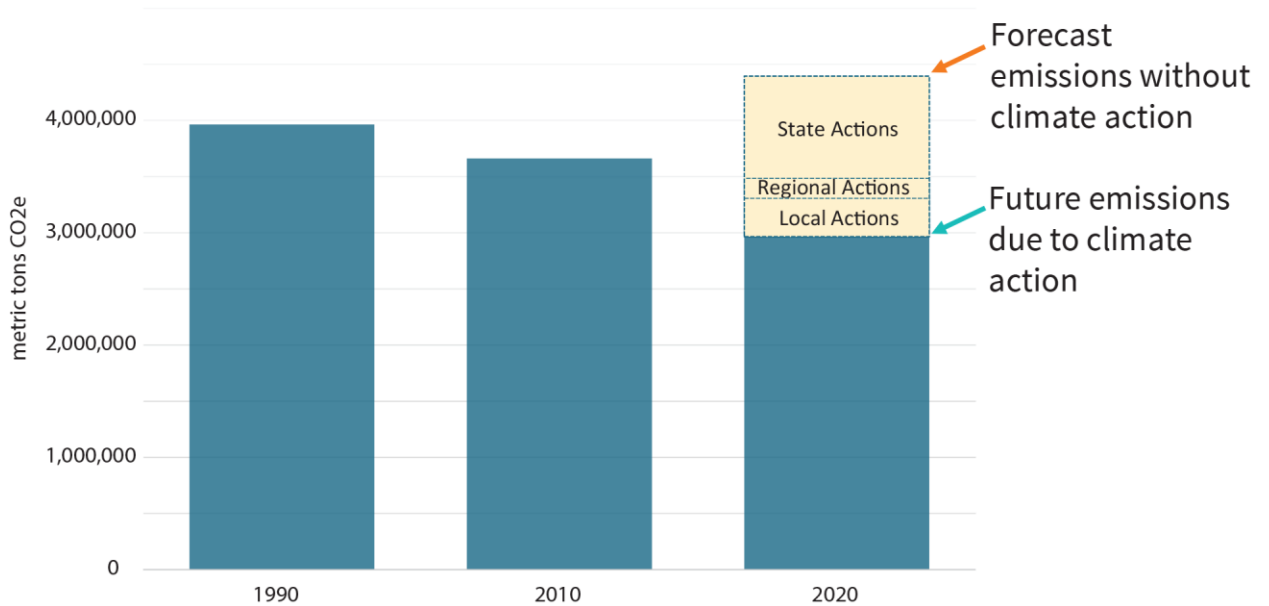
As noted elsewhere in CA2020, the City of Santa Rosa adopted its community CAP in 2012. The City will continue to implement the measures in its plan and those measures will contribute to regional (countywide) GHG reductions.

4.2 Coordinated Implementation

If ever an issue called for coordinated, multi-partner effort, it is climate change; progress depends on communities working together. CA2020 reflects an innovative, collaborative approach to responding to climate change across multiple local communities. By working together, Sonoma County's jurisdictions can achieve greater GHG reductions, and do it more efficiently than if each jurisdiction acted on its own.

CA2020 includes a regional (countywide) goal that will be achieved through the combined impact of local, regional, and state measures implemented in a coordinated manner as a comprehensive GHG emissions-reduction program. With the local commitments identified in this CAP for implementation by 2020, Sonoma County will achieve its regional target of 25% below 1990 levels and be well on the way toward the RCPA’s long-term goals of 40% below 1990 levels by 2030 and 80% below by 2050 (Figure 4-1).

Figure 4-1. Countywide 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



CA2020 commits local governments to implementing a suite of measures appropriate for each community based on their prior efforts, development and economic trends, and community priorities. In Chapter 3, 39 GHG reduction measures are identified that are unique to local government authorities and from which RCPA member jurisdictions have selected. Specific commitments are outlined by jurisdiction in Chapter 5.

Success in achieving CA2020 goals will also rely on GHG reduction measures implemented by state and regional entities that can provide services and resources on behalf of *all* communities more efficiently than individual jurisdictions on their own. These state and regional measures, most of which are already in place or underway, are a critical part of CA2020 and provide a foundation from which local measures can build. State and regional measures are also outlined in Chapter 3.

4.2.1 The Role of RCPA

RCPA is a local government agency created in 2009 to coordinate a regional response to climate change. It is overseen by a Board of elected officials from each of the nine cities and the county, the same Board that oversees the Sonoma County Transportation Authority (SCTA). RCPA builds from SCTA capacity to support, expand, and replicate successful programs already underway at member jurisdictions and partner agencies, and to fill gaps in local climate response. The regional

structure provided by RCPA helps ensure that all jurisdictions participate in achieving the countywide GHG reduction goals.

RCPA led development of this plan and is committed to its implementation by securing funding, managing pilots and programs, developing research and best practices, and supporting members and regional partners in coordinated implementation. Principles that drive collaboration are embedded in RCPA's approach.

- **Consistency:** Policies and programs developed and deployed through regional collaboration minimize gaps in service so all residents benefit from climate action. Inter-jurisdiction consistency also creates more transparency for residents and businesses in the county.
- **Efficiency:** By pooling resources the jurisdictions of Sonoma County are able to aggregate and align human and financial resources, across partners large and small.
- **Integration:** Collaborative structures bring individual agency or community efforts together for a common purpose, aligning related projects toward common goals.
- **Multi-benefit impact:** When agencies work toward a shared vision, both common and distinct goals are served; success is more likely with more invested partners.

The RCPA Board provides a venue for local governments in Sonoma County to participate in establishing priorities, and to direct RCPA staff in the implementation of pilots and programs. The Board oversees climate action programs that serve the entire county, including those offered by the Bay Area Regional Energy Network, long range planning including CA2020, the Shift Sonoma County transportation plan, the Climate Ready North Bay vulnerability assessment, and community engagement related to climate change, such as the Sonoma County Climate Adaptation Forums.

To carry out the priorities of the Board, RCPA staff work with staff from member agencies to develop and manage programs to the benefit of the entire county. Staff collaboration includes a Staff Working Group (SWG) used to develop CA2020. The SWG will continue to provide ongoing coordination of CA2020 implementation. RCPA staff also support individual jurisdictions and agency partners to integrate the implementation of specific programs into a cohesive strategy.

As the lead agency, RCPA will adopt CA2020 first (including certification of the Environmental Impact Report). In addition to the 2020 GHG emissions reduction goal, the RCPA will also adopt longer-term reduction goals for 2030 and 2050. Following adoption by RCPA, each city and the County will adopt its portion of CA2020 (see Chapter 5) in a form appropriate to that jurisdiction. Once adopted, the cities,

In 2014, RCPA was identified by the White House as one of 16 local government Climate Action Champions from around the United States, in recognition of the successes achieved via the collaborative model in place in Sonoma County.



county, and regional agencies will implement the measures each has committed to in their respective CA2020 adoption processes.

RCPA will coordinate and facilitate implementation actions by aggregating funding opportunities to leverage federal, state, and regional grants; providing technical assistance to local partners; developing shared tools (such as case studies, model policy language, and new development consistency checklists); promoting inter-jurisdiction efficiencies through communication and collaboration; and promoting accountability for CAP implementation through measurement and reporting.

RCPA will also directly implement certain measures on behalf of its members as it has since its inception. Examples include Windsor Efficiency Pay As You Save, Energy Upgrade California, Climate Ready North Bay, and Shift Sonoma County.

4.2.2 The Role of RCPA Members

While the coordinating role of RCPA is critical, the ambitious countywide GHG reduction target cannot be achieved without strong leadership and commitment to action from RCPA member jurisdictions. RCPA can help ensure that the actions of individual jurisdictions are greater than the sum of its parts, but local action is essential.

As a part of the implementation process, each jurisdiction will participate in the CA2020 SWG and may also identify additional staff as needed to bring specific expertise to the CA2020 implementation effort. Each jurisdiction's SWG representative will be responsible for participating in RCPA efforts to support implementation, and for organizing, monitoring, and reporting on implementation in their community. RCPA will provide as many resources as possible on behalf of SWG members in order to maximize efficiency.

SWG members will also coordinate and lead the implementation of measures specific to their communities, as well as local actions to support regional GHG reduction measures, including Advanced Climate Initiatives, with the support from RCPA and one another. Local governments will also use CA2020 as a tool to communicate and solidify their priorities within their communities.

RCPA member jurisdictions will continue to pool resources essential to the success of RCPA, staff participation in coordination meetings and processes (such as data collection and status reporting), collaboration on grant applications, and active participation in other aspects of plan implementation. Given the breadth of measures, success will require engagement from key departments that oversee different GHG reduction strategies such as planning, engineering, public works, fleet management, facilities management, police, fire and emergency services, and parks and recreation.

The regional approach to CA2020 recognizes that the cost of implementation would be higher if each jurisdiction developed and implemented measures on their own. RCPA staff contributions can help ensure that city- or county-specific investments can be most efficient and effective, and leveraged across multiple local governments.

As noted elsewhere, the City of Santa Rosa adopted its own CAP in 2012. The City will continue to implement the measures in its plan and may coordinate and collaborate with RCPA and other cities throughout the implementation process.

4.2.3 The Role of Regional Entities

RCPA is not the only local agency that provides services and support to communities in reducing GHG emissions and preparing for climate change. CA2020 also includes GHG reduction measures that will be implemented by agencies under local governance that provide services and resources on behalf of *all* (or multiple) jurisdictions more efficiently than the individual communities can on their own, especially the smaller cities.

These regional measures are a critical part of CA2020 (as outlined in Chapter 3). Other local public agencies are also already working regionally to advance local climate action goals in support of CA2020, including the following.

- **Northern Sonoma County Air Pollution Control District (NSCAPCD)** is the regional agency responsible for developing and implementing air quality plans for the northern part of Sonoma County. NSCAPCD also sponsors various air quality programs that can support implementation of several energy-efficiency, transportation, and renewable energy strategies.
- **Sonoma Clean Power (SCP)** is the community choice aggregator in Sonoma County and will be the lead for expanding participation rates over time and increasing the renewable portfolio for electricity generated to serve the county. SCP may also offer incentives and rebate programs to encourage energy efficiency, distributed and community-scale renewable energy, and use of electric vehicles.
- **Sonoma County Agricultural Preservation and Open Space District** permanently protects the diverse agricultural, natural resource, and scenic open space lands of Sonoma County for future generations. Conserving and improving the management of natural and working landscapes reduces net GHG emissions and delivers multiple other benefits. A healthy forest, for instance, sequesters carbon while also storing and filtering water, providing habitat for wildlife, and building resilience to climate change.
- **Sonoma County Energy Independence Office:** The County's Energy and Sustainability Division was created in 2006 to promote and deliver solutions necessary to mitigate environmental impacts and prepare for climate change. As the community-facing office of the Energy and Sustainability Division of the County of Sonoma, the Energy Independence Office serves as a community clearinghouse of information, tools, services, programs, and resources for the general public, contractors, and other public entities engaged in pursuing energy efficiency, water conservation, and renewable energy. It also manages the PACE programs throughout the County. Although the office is part of the County of Sonoma, it provides services countywide and is therefore listed among the regional agencies.
- **Sonoma County Waste Management Agency (SCWMA):** Sonoma County jurisdictions (except Petaluma) contract all solid waste collection and recycling services through SCWMA.

The jurisdictions will work with the agency to increase waste reduction, recycling, and composting, consistent with the solid waste measures in CA2020. The cities/County and SCWMA may also be able to share facilities, programs, and incentives to help ensure that waste diversion goals are achieved by 2020.

- **Sonoma County Transportation Authority (SCTA):** To implement the local transportation strategies fully, collaboration with regional transportation agencies is necessary. It is essential that the cities, the County, SCTA, and the various transit agencies establish a shared vision for how transportation and land use planning can support sustainable growth. SCTA's Comprehensive Transportation Plan is the primary platform for coordinated, countywide planning for transportation measures.
- **Sonoma County Water Agency (SCWA)** is the primary water wholesaler in the county. SCWA has been implementing numerous measures to reduce the carbon footprint of providing water and integrating renewable energy into its system. SCWA also operates several water conservation and educational programs. The jurisdictions can work with SCWA to promote water conservation in the future.

Essentially, there are already many partners with tools in place and underway to achieve GHG reductions. This plan leverages those tools and encourages their use at larger scales.

4.2.4 The Role of the Community

As described in Chapter 1, CA2020 was developed with extensive community input and builds on earlier community-based efforts to address climate change, such as the Community Climate Action Plan developed by the Center for Climate Protection (formerly the Climate Protection Campaign). Continued community involvement is no less important for implementation of CA2020, particularly given that many strategies depend on voluntary commitment, creativity, and participation. Efforts like the Community Resilience Challenge led by Daily Acts demonstrate the power of collective action to advance the goals of CA2020.

Community Resilience Challenge

The Community Resilience Challenge is an annual campaign that inspires citizens, leaders and groups to take action to save water, grow food, conserve energy, reduce waste and build community. From 2010 to 2016, more than 5,000 people registered over 28,000 resilience building actions in Sonoma County. Nearly double this number of actions and projects have been registered through regional and national partners. The campaign encourages individuals, schools, organizations, municipalities and businesses to take practical actions to create more resilient homes, schools, workplaces and communities. The Challenge inspires action, collaboration and civic engagement, strengthening both relationships and networks for lasting change.

In addition to the individual actions that Sonoma County residents and businesses can take to reduce their own carbon footprint (see Chapter 1, Section 1.3.3), community members will also participate in the public process at individual cities and the County to help shape the details of local measure implementation. Support from the community will be essential to this local decision-making process if Sonoma County is going to achieve its ambitious GHG reduction target. Local non-governmental organizations will likewise play a key role in this process, not only supporting the local implementation actions, but also providing key expertise to inform CA2020 implementation and ongoing adaptive management.

The community—including residents, businesses, and non-governmental organizations—will also play an important role in holding local governmental entities accountable for successful plan implementation. RCPA and local government partners are committed to transparent reporting and implementation and to collaborating with local businesses, community groups, residents, developers, and property owners to establish partnerships and encourage active involvement in CA2020. However, as with most governmental initiatives, that commitment will only be successful if the community reciprocates with active engagement and participation in CA2020 implementation.

4.2.5 Implementation Strategy

RCPA will coordinate with the SWG to accomplish the following general implementation steps:

- **Develop Implementation Plans for Each Emissions-reduction Measure.** RCPA will develop implementation plans that will include milestones, deadlines, funding opportunities, partners, programs, and other details, as necessary, to support implementation.
- **Estimate Project-Specific Costs.** The estimated costs/savings for certain emissions-reduction strategies are provided in Appendix C, *Reduction Measure Methods*. Wherever possible, RCPA will develop more detailed project-specific costs and savings estimates to provide a more accurate assessment of up-front costs and potential returns to communities.
- **Review New Development for Consistency with the Plan.** As described in Chapter 1, meeting the countywide GHG reduction target for 2020 requires new development to be consistent with climate goals by implementing measures that will minimize new GHG emissions. To accomplish this, RCPA member agencies will use the checklist in Appendix A to determine future project consistency with the applicable measures CA2020.
- **Draft Ordinances and/or Codes.** RCPA will support efforts of member agencies to amend their municipal codes where needed to implement certain emissions-reduction measures. Implementation tools may include examples from existing models in other communities, draft policy or model code language, and working with member agency staff to address questions and opportunities for consistency.

- **Establish Partnerships.** Some of the emissions-reduction measures will require new program partnerships that will be internal to each jurisdiction, among the participating communities, and with external agencies.
- **Pursue Funding Sources and Facilitate Investment in Solutions at Scale.** RCPA will lead and support the pursuit of funding from state and federal agencies to support the implementation of emissions-reduction measures. RCPA will also pursue strategies to expand private investment in climate solutions. RCPA member jurisdictions will continue to participate in RCPA-led grant efforts, but will also consider internal funding sources such as facility master plan programs, enterprise budgets, and capital improvement programs.
- **Create Monitoring/Tracking Processes and Indicators.** RCPA will lead emissions tracking and monitoring of program progress, particularly to identify and remedy shortfalls or ineffective programs.
- **Engage the Community and Stakeholders.** RCPA and partners will engage and educate the public and stakeholder groups regarding the implementation of emissions-reduction measures.
- **Lobby for State and Federal Action.** RCPA and partners will identify and lobby for state and federal actions that will help Sonoma County reach its emissions reduction and adaptation goals. State and federal actions that could help fund local climate change programs include cap and trade and carbon pricing.

The specific steps for implementing CA2020 measures will vary, but an illustration of how the RCPA will support member jurisdictions is provided in Table 4.2-1.

Table 4.2-1. Sample process for RCPA supported implementation of local measures

Implementation Process: Measure 2-L1 Solar in New Residential Development	Responsible Party
Research current status of solar energy requirements in jurisdictions	RCPA
Assemble examples of solar installation requirements for new residential buildings are identified and researched	RCPA
Convene ad hoc solar and building industry meeting to discuss current and potential future practice	RCPA
Develop draft measure tool materials (background information, cost estimates, case studies, resources, best practices, FAQs, incentives & rebates) and model policy language	RCPA
Present draft measure tool materials and model policy language to Staff Working Group (SWG)	RCPA
Review and comment on draft measure tool materials and model policy language	SWG
Refine measure tool materials and model policy language based on feedback and further research as needed	RCPA
Assemble and deliver customized final measure tool materials, including a draft model policy and supporting analysis to be used in jurisdiction staff reports to propose measure implementation	RCPA
Provide direction on jurisdiction specific requirements	Individual Jurisdictions
Refine model policy to reflect jurisdiction specific needs and opportunities	SWG
Adopt requirements for solar energy installation	Individual Jurisdictions

4.2.6 Implementation Schedule

Implementation of the emissions-reduction strategies will occur following adoption of CA2020 to ensure that all measures are in place as planned by 2020. RCPA and member agencies will initially pursue strategies based on the grouping outlined below and summarized in Figure 4-2.

- Group 1 strategies are those that need to be developed early and/or require long lead times to achieve reduction targets by 2020.
- Group 2 strategies are those that do not need to be online immediately but need time for development to meet 2020 reduction targets.
- Group 3 strategies are those that need only to be online by 2020 and can be started later in the decade.

These groupings were proposed based on expected GHG reductions, cost and availability of funding, co-benefits, consistency with existing programs, implementation effort, and the timing necessary to support meeting the 2020 target. However, measures may be implemented in a different order depending on funding or policy opportunities.

Figure 4-2. Implementation Timeline for the GHG Reduction Measures

2016	2016	2017-2018	2019	2019-2020	Post-2020
<ul style="list-style-type: none"> • Adopt the CAP • Identify funding mechanisms 	<ul style="list-style-type: none"> • Implement Group 1 strategies • Develop protocols for monitoring, reporting, and responding to CAP progress 	<ul style="list-style-type: none"> • Implement Group 2 strategies • Update emissions inventories • Examine CAP progress 	<ul style="list-style-type: none"> • Implement Group 3 strategies 	<ul style="list-style-type: none"> • Update emissions inventories • Examine CAP progress • Consider post-2020 targets 	<ul style="list-style-type: none"> • Update emissions inventories • Report on CAP success • Adopt post-2020 targets

Implementation of the individual emissions-reduction strategies will be led by the specific city/County divisions shown in Table 4.2-2, with support from RCPA and other local agency staff as appropriate. Other regional entities (e.g., SCP) will be responsible for implementing regional measures and may also support local measures. The primary entities responsible for implementation of each measure are also shown in Table 4.2-2.

Table 4.2-2. Implementation Timeline for the GHG Reduction Measures

Measure	Responsible Entities
Group 1 – Continuation or start of implementation, 2016	
Regional Measures	
1-R1. Community Energy Efficiency Retrofits for Existing Buildings	Sonoma County Energy Independence Program, RCPA, Sonoma Clean Power (SCP)
1-R2. Expand Community Energy Efficiency Retrofits Program	Sonoma County Energy Independence Program, RCPA, SCP
2-R1. Community Choice Aggregation	SCP
5-R1. Improve and Increase Transit Service	Sonoma County Transportation Authority, Golden Gate Transit, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus
5-R2. Supporting Transit Measures	SCTA, Golden Gate Transit, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus
5-R3. Sonoma-Marin Area Rail Transit (SMART)	SMART and local jurisdictions with SMART stations
9-R1. Waste Diversion Goal	Sonoma County Waste Management Authority with cooperation from RCPA and local jurisdictions
14-R1. Sonoma County Water Agency Carbon-Free Water by 2015	Sonoma County Water Agency, supported by local jurisdictions

Measure	Responsible Entities
17-R1. Conserve Open Space and Working Lands	Sonoma County Agricultural Preservation and Open Space District working with other agencies (including cities and the County) and non-governmental partners
17-R2. Enhance Natural Resources on Open and Working Lands through Climate Beneficial Management Practices	Resource Conservation Districts (RCDs) and partners
18-R1. Sustainable Agriculture Certification Programs	Winemakers/winegrowers, the County
18-R2. Promote the Sale of Local, Sustainable, and Organically Grown Foods and/or Products	Farmers, ranchers, cities/County
19-R1. Carbon Farming	The County, RCDs, Natural Resources Conservation Service (NRCS), Sonoma County Agricultural Preservation and Open Space District
19-R2. Establish a Target for Increased Carbon Sequestration	RCPA, the County, RCDs, NRCS, Sonoma County Agricultural Preservation and Open Space District, and partners
Local Measures	
1-L1. Expand the Green Building Ordinance Energy Code	Windsor
1-L2. Outdoor Lighting	Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
1-L3. Shade Tree Planting	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
1-L4. Co-Generation Facilities	Petaluma and the County
2-L1. Solar in New Residential Development	Pacific Gas & Electric (PG&E), SCP, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Windsor
2-L2. Solar in Existing Residential Buildings	PG&E, SCP, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
2-L3. Solar in New Nonresidential Developments	PG&E, SCP, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Windsor
2-L4. Solar in Existing Nonresidential Buildings	PG&E, SCP, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Windsor, the County
4-L1. Mixed-Use Development in City Centers and along Transit Corridors	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
4-L2. Increase Transit Accessibility	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor

Measure	Responsible Entities
4-L3. Supporting Land Use Measures	SCTA, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
4-L4. Affordable Housing Linked to Transit	SCTA, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor
5-L1. Local Transportation Demand Management (TDM) Program	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Healdsburg, Rohnert Park, Sebastopol, the County
5-L2. Carpool Incentives and Ride-Sharing Program	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Healdsburg, Rohnert Park, Sebastopol, the County
5-L3. Guaranteed Ride Home	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Sebastopol, the County
5-L4. Supporting Bicycle/ Pedestrian Measures	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
5-L5. Traffic Calming	SCTA, Sonoma County Transit, Petaluma Transit, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
9-L1. Create Construction and Demolition Reuse and Recycling Ordinance	Sonoma County Waste Management Authority (SCWMA), Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
14-L1. Green Energy for Water Production and Wastewater Processing in Healdsburg and Cloverdale	Healdsburg, Cloverdale
Group 2 – Implementation to start by 2018	
Regional Measures	
3-R1. Stationary Fuel Switching Incentives	SCP, Sonoma County Energy Independence Office, RCPA, Bay Area Air Quality Management District (BAAQMD), NSCAPCD
7-R1. Shift Sonoma County (Electric Vehicles)	SCP, Sonoma County Energy Independence Office, RCPA, BAAQMD, NSCAPCD
7-R2. Alternative Fuels for Transit Vehicles	SCTA, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus
5-R4. Trip Reduction Ordinance (TRO)	SCTA, transit agencies, cities/County
5-R5. Supporting Measures for the Transportation Demand Management (TDM) Program	SCTA, transit agencies, cities/County
5-R6. Reduced Cost Transit Passes	SCTA, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus
5-R7. Alternative Travel Marketing and Optimize Online Service	SCTA, Sonoma County Transit, Petaluma Transit, and Santa Rosa City Bus

Measure	Responsible Entities
5-R8. Safe Routes to School	SCTA, cities/County
5-R9. Car-sharing Program	SCTA, cities/County
5-R10. Bike Sharing Program	SCTA, cities/County
10-R1. Increase Landfill Methane Capture and Use for Energy	SCWMA, landfill owners/operators
11-R1. Countywide Water Conservation Support and Incentives	SCWA, supported by local jurisdictions
12-R1. Recycled Water	Water/wastewater service providers
13-R1. Infrastructure and Water Supply Improvements	SCWA, other water/wastewater service providers
Local Measures	
3-L1. Convert to Electric Water Heating	Pacific Gas & Electric, SCP, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Windsor
7-L1. Electric Vehicle Charging Station Program	Pacific Gas & Electric, SCP, NSCAPCD, BAAQMD, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
On-Road-3. Neighborhood/Site Enhancement Strategies	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
5-L6. Parking Policies	Cloverdale, Healdsburg, Sebastopol, the County
5-L7. Supporting Parking Policy Measures	Cloverdale, Cotati, Healdsburg, Petaluma, Sebastopol, Sonoma, Windsor, the County
8-L1. Idling Ordinance	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, the County
11-L1. SB X7-7 – Water Conservation Act of 2009	SCWA, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, Windsor, the County
11-L2. Water Conservation for New Construction	SCWA, Petaluma, Rohnert Park, Sebastopol, Windsor
11-L3. Water Conservation for Existing Buildings	SCWA, Petaluma, Rohnert Park, Sebastopol, Windsor
12-L1. Greywater Use	SCWA, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Windsor, the County
Group 3 – Implementation to start by end 2019	
Regional Measures	
13-R2. Wastewater Treatment Equipment Efficiency	Wastewater service providers: Cloverdale, Healdsburg, Petaluma, Santa Rosa, Windsor, Sonoma County Water Agency
18-R3. Urban Agriculture	Cities/County

Measure	Responsible Entities
20-R1. Measure and Track Consumption-based Emissions	Farmers, ranchers, RCPA, the County
20-R2. Educate Consumers	Farmers, ranchers, RCPA, the County
20-R3. Encourage Sustainable Consumption	Farmers, ranchers, RCPA, the County
20-R4. Reduce carbon intensity of product supply chains	Farmers, ranchers, RCPA, the County
Local Measures	
7-L2. Electrify Construction Equipment	BAAQMD, NSCAPCD, Cotati, Healdsburg, Petaluma, Sebastopol, Windsor
8-L2. Idling Ordinance for Construction Equipment	BAAQMD, NSCAPCD, Petaluma, Rohnert Park, Sebastopol, , the County

4.3 Funding and Financing

4.3.1 Plan Implementation Costs and Benefits

Responding to climate change will require public and private investment (costs). These costs are at least partially offset through direct economic benefits (like lower fuel cost) and through avoidance of future costs associated with unmitigated climate change impacts. Most GHG reduction measures in this CAP have a net positive economic result where savings exceed costs, especially in the long term.

Local governments will incur some costs by taking a leading role in responding to climate change. Costs will include staff time, community engagement, and direct investment for some measures (e.g., municipal infrastructure, energy purchases, and program administration).

The private sector – residents and businesses – will also incur costs associated with the implementation of this plan, mainly due to individual choices about how to participate in climate mitigation. Examples include costs to retrofit buildings and equipment, purchase new vehicles, install rooftop solar, or provide employee commute programs.

Public and private entities will also benefit financially by implementing climate action strategies. For many climate action measures, the financial benefits exceed the costs and generate a positive return on investment. These benefits can include reduced fuel, utility, and maintenance costs, higher property values, tax incentives, and rebates. There are many less direct benefits that are more difficult to evaluate financially including employee recruitment and retention, marketing and branding, building occupant health and productivity, and the other co-benefits introduced in Chapter 3.

Of course, looking exclusively at the traditional economic bottom line is insufficient when it comes to climate change. The full value of co-benefits derived from an individual measure is very difficult to quantify. Even more challenging, the full social cost of inaction is impossible to quantify for an individual community. As Chapter 6 illustrates, climate change is generating local impacts with real economic implications. Flooding, fire, drought, and heat will create many economic risks: damage to buildings and infrastructure, impacts to human health and safety, rising health care and emergency services costs, pressure on food and water supply, rising energy costs, and unpredictable agricultural productivity.

Assessing specific measure costs and benefits – to the extent possible – will be an important step in implementing this climate action plan. It will be equally important to acknowledge that there are costs, benefits, challenges, and opportunities associated with mitigating and adapting to climate change, but they are costs and challenges that local and regional agencies can confidently confront head on, knowing that they are essential to the long-term economic well-being and safety of communities.

In confronting the costs of climate action, the RCPA and local governments will work to minimize costs and maximize local economic benefits by pursuing funding for implementation and facilitating financing tools to support regional investment.

4.3.2 Government Funding Strategies

Implementation of CA2020 will require considerable investment from multiple entities. RCPA will continue to strive for an overall funding approach that ensures that the emissions-reduction strategies will be funded and implemented efficiently and quickly by:

- Pursuing funding for strategies concurrently, whenever possible, to use funds most efficiently
- Leveraging federal, state, and regional grants and other funding sources
- Partnering with other communities and regional entities to administer joint programs, and partnering with the private sector on measure implementation
- Reducing barriers to private investment in climate solutions and supporting strategies to direct investments in energy, buildings, transportation, water, and other GHG sources toward low-carbon options
- Seeking long-term strategies to increase the amount of funding available for local climate action

Various funding options are available to support RCPA and local governments with implementation of emissions-reduction strategies. These options can provide initial capital, reduce overall program costs, and support long-term measure implementation. Appendix D provides information on specific funding and financing options that are currently available to the jurisdictions and that RCPA will pursue to support implementation.

Local jurisdictions are able to obtain funding from the California cap-and-trade program to support certain GHG emissions-reduction measures in CA2020. RCPA is continually monitoring the availability of funding from the sale of cap-and-trade proceeds and the applicability to local GHG emissions-reduction measures along with other sources that may be in development.

4.3.3 Private Sector Financing

Implementation of the emissions-reduction measures in CA2020 will result in costs *and* savings for residents, businesses, and other members of the community (please refer to Appendix C for a cost-effectiveness analysis for certain measures). In fact, most measures have a net positive economic result where savings exceed costs, especially in the long term. Financing tools can help offset the up-front costs of some cost-effective measures. An important role for RCPA and member agencies will be to facilitate sound investments in GHG reduction strategies that will maximize the overall economic return for residents, businesses, and the communities themselves.

For voluntary CA2020 measures (such as energy efficiency and solar retrofits for existing buildings), the private sector will incur associated costs and savings only for those strategies they choose to implement. Some of the measures, however, will be mandatory and will impose costs on public and private parties. The private-sector incentives and rebates identified in Chapter 3 and Appendix D can significantly improve the economics of individual projects. It is also important to note that the entity making the up-front investment may not be the same one that realizes the savings. For example, developers may invest in energy efficiency measures during construction, but it is the subsequent homeowners who will receive lower utility bills (although, with better energy disclosure requirements, buyers may be willing to pay more for an energy-efficient home).

4.4 Community Engagement

To help facilitate the community involvement described in Section 4.2.4, periodic public updates will provide information and inform each community regarding progress toward attaining the countywide 2020 emissions reduction target. These updates will provide opportunities for collaboration and an opportunity for the cities and the County to receive feedback on potential improvements or changes to the emissions-reduction measures. Other outreach activities, including online and social media, community presentations, event participation, and other strategies, will also be pursued to engage the public and solicit input, suggestions, and participation.

4.5 Evaluation and Monitoring

Regular monitoring is important to ensure that programs are functioning as they were originally intended and the desired GHG reduction outcome is achieved. CA2020 also will provide CEQA streamlining, which requires monitoring of the plan's progress towards achieving the adopted targets.

Early identification of effective strategies and potential issues will help the jurisdictions adapt and make informed decisions regarding priorities, funding, and scheduling.

RCPA will lead periodic updates of countywide emissions inventories and provide an annual report to document progress. The first inventory update will occur in 2016 based on data for calendar year 2015. Future inventory updates will be completed in 2018 and 2020 to inform further refinements to near- and long-term climate action strategies. These updated inventories will be presented to the RCPA Board and provided to the public in the annual report. SWG members will present the information to their governing boards. These updates are essential to understanding how successful existing efforts have been in reducing emissions, and how to further prioritize actions included in CA2020.

RCPA will also develop key program indicators that track specific reduction measures to evaluate how well local government strategies are working. To streamline this effort, RCPA will develop a custom tool to track the progress of the GHG reduction measures. This tool will contain the GHG reduction measures along with metrics, checklists, benchmarks, timelines, goals, key performance indicators, and other items identified by the RCPA Board and its member agencies as essential to the monitoring process. Possible tools for communicating the results of monitoring to the community include RCPA website dashboards and other tools that support local government reporting, such as the Statewide Energy Efficiency Collaborative ClearPath tool and existing community social media accounts.

4.6 Adaptive Management

4.6.1 Learning from What Works and What Doesn't

Despite substantial progress in the past decade, climate action planning is still in its relative infancy. Technology, behavior, and mandates are constantly changing and not every new idea works as planned. Therefore, where program tracking, inventory updates, or other information indicates that the emissions-reduction measures are not being implemented or are not as effective as was originally anticipated, RCPA, the SWG, and the participating agencies will adaptively manage CA2020. The goal of adaptive management is to identify and correct ineffective measures quickly, make necessary corrections, and stay on track both toward the countywide GHG reduction target, and toward successful achievement of the level of GHG reduction agreed to by each participating agency through their adoption of reduction measures described in Chapter 5 of this plan. If the current reduction measures are inadequate to meet the reduction targets, they will be amended.

In order to be utilized for CEQA streamlining, CEQA Guideline 15183.5 requires that this plan “Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels.” In addition to the monitoring described in the previous section, RCPA will conduct a 2-year review of overall CA2020 effectiveness as part of its annual reporting in 2018. The review will include measure status and impact data updates

and adjustments and amendments to the plan as necessary to meet the individual and countywide targets.

Ultimately, the purpose of monitoring and adaptive management is to ensure that the plan achieves the reduction target for the County as a whole as well as the level of GHG reduction targeted in each participating jurisdiction. If the current implementation measures are inadequate to meet the reduction targets, the plan will be amended to revise or add implementation measures.

4.6.2 Implementation Beyond 2020

CA2020 is critical local step toward a long-term future with drastically lower GHG emissions. The jurisdictions of Sonoma County are on the leading edge of promoting lower GHG emissions by pursuing a target of 25% below 1990 levels by 2020. This target is consistent with (and far exceeds) the goals and milestones outlined in Assembly Bill 32. Nonetheless, as 2020 approaches, statewide focus will shift to emissions reductions beyond 2020. This trend has been observed elsewhere through the United States, with New York City recently releasing a plan to reduce GHG emissions to 80% below 1990 levels by 2050. California Executive Order S-03-05, issued in 2005, articulates a similar long-term goal for the state. California Executive Order B-30-15, issued in April 2015, establishes an interim goal for the state to reduce GHG emissions to 40% below 1990 levels by 2030.

As part of CA2020 adoption, the RCPA will also adopt long-term goals consistent with those identified in the Executive Orders. The measures implemented by 2020 as part of this CAP put the county on a trajectory to meet these longer-term goals, and CA2020 measures will be the foundation for future climate action planning.

As noted in Chapter 3, a new phase of climate action planning will be needed after 2020 to expand and build upon the goals and strategies in CA2020 and take advantage of new technologies and climate protection science that are constantly evolving. RCPA and Sonoma County jurisdictions will need to develop plans for the future that build on the measures put in place under CA2020. The region will also most likely rely on further state and federal action to achieve post-2020 targets.

5. Community

Community Greenhouse Gas
Profiles and Emissions Reductions
for 2020

The background of the page is a photograph of several bicycles parked against a dark metal fence. The scene is outdoors, with green grass visible in the foreground and some foliage in the background. The entire image has a semi-transparent teal overlay, which serves as a background for the white text.

Chapter 5

Community Greenhouse Gas Profiles and Emissions Reductions for 2020

This Chapter contains separate sections for each jurisdiction in a form that can be easily excerpted for use in the local adoption process. These sections provide key information about each jurisdiction, including demographic and socioeconomic data and forecasts, as well as a greenhouse gas (GHG) emissions profile for each.

The GHG emissions profile includes detail on each jurisdiction’s main sources of emissions in the form of a “backcast” for 1990 emissions, a 2010 emissions inventory and emissions forecasts for 2015, 2020, 2040 and 2050 under business-as-usual (BAU) scenario (i.e., with no state, regional or local GHG reduction measures). The actions that each jurisdiction has already taken to reduce GHG emissions are also described.

Most importantly, these jurisdiction-specific sections show the local GHG reduction measures that each community will implement, and the expected GHG reductions that will be achieved by 2020. Together with state and regional GHG reduction measures, these local measures will achieve the regional target of a 25% emissions reduction (compared to 1990 levels) by 2020.

It should be noted that the City of Santa Rosa’s section in this chapter incorporates by reference the previously adopted Climate Action Plan (2012) that will contribute significantly to reaching the regional CAP target for 2020.

Jurisdiction-specific sections are included as follows:

- 5.1 City of Cloverdale
- 5.2 City of Cotati
- 5.3 City of Healdsburg
- 5.4 City of Petaluma
- 5.5 City of Rohnert Park
- 5.6 City of Santa Rosa
- 5.7 City of Sebastopol
- 5.8 City of Sonoma
- 5.9 Town of Windsor
- 5.10 County of Sonoma

Cloverdale

Commitments to meeting
community greenhouse
gas reduction goals.



5.1 Cloverdale

This section presents the community greenhouse gas (GHG) emissions profile specific to Cloverdale and the measures that the City of Cloverdale will implement, with the support of the RCPA and other regional entities, as part of the regional approach to reducing GHG emissions.

5.1.1 Community Summary

The City of Cloverdale is an attractive small town community that is home to many small local businesses, a thriving performing arts center, the annual Cloverdale Citrus Fair, and ample recreational opportunities. Cloverdale is the northernmost city in Sonoma County, located approximately 3 miles south of the Mendocino County-Sonoma County border and 30 miles north of Santa Rosa. The City’s location along the major transportation corridors of Highway 101 and Highway 128 offers local economic development opportunities set in the picturesque Alexander Valley wine region. With proximity to urban centers (Santa Rosa, San Francisco, and Arcata/Eureka), Cloverdale is evolving as a smart-growth city with small town charm.

Demographics

The City spans 2.7 square miles and had a population of 8,618 as of the 2010 census. By 2020 the population is expected to increase over 9% to 9,425, while employment is expected to increase by 8%. Cloverdale’s demographic composition in 2010 was 75% White, 0.6% African American, 1.1% Native American, 1.1% Asian, 0.1% Pacific Islander, 17.8% from other races, and 4% from two or more races. Persons of Hispanic or Latino origin composed 33% of the population in 2010.

As shown in Table 5.1-1, Cloverdale is expected to experience steady growth in population, housing, and jobs in the future.

Table 5.1-1. Cloverdale Socioeconomic Data

	Actual			Projected		
	1990	2010	2015	2020	2040	2050
Population	4,924	8,618	9,015	9,425	10,952	11,651
Housing	1,868	3,249	3,432	3,625	4,230	4,495
Employment	2,455	3,012	3,624	3,928	4,324	4,492

Socioeconomic data were derived from the Sonoma County Transportation Authority travel demand model and incorporate input from the City based on its internal planning forecasts.

According to 2010 Census data, the majority of housing in the City of Cloverdale is owner-occupied with 66% of all housing units owned, and about 34% of housing units renter-occupied.

Energy and Water Use

Compared to households in the county as a whole, Cloverdale households use less electricity but more natural gas and water. They also use less electricity, natural gas, and water than households statewide.

Table 5.1-2. Cloverdale, County, and State 2010 Average Energy and Water Use (per household, per year)

	Cloverdale	County	State
Electricity (kWh)	6,652	7,042	9,320
Natural Gas (Therms)	441	413	512
Water Use (Gallons)	88,256	75,810	107,869

Sources:

City Data: provided by PG&E (energy) and by the City of Cloverdale (water).

County Data: provided by PG&E (energy) and the cities or their Urban Water Management Plans (water).

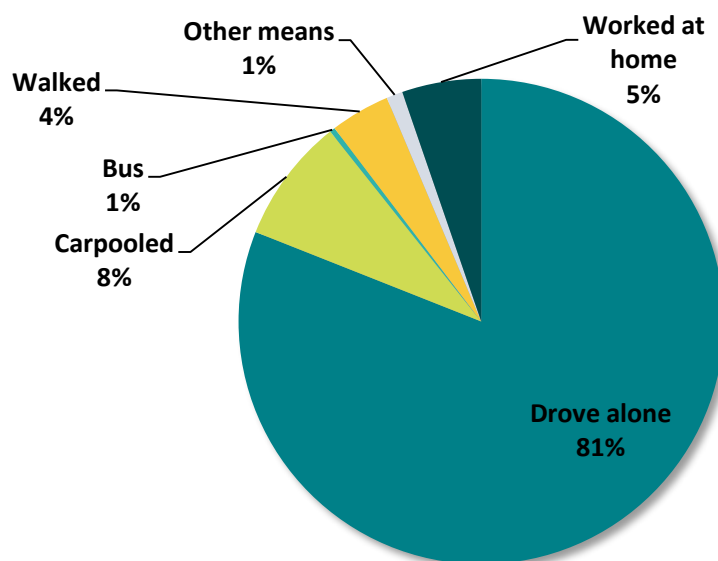
State Data: U.S. Energy Information Administration 2009, U.S. Geological Survey 2014, California Department of Finance 2015.

kWh = kilowatt hours

Transportation Commute Modes

In the inventory year 2010, most Cloverdale residents (81%) drove alone to work, with only 8% carpooling. This is typical and similar to the other communities in Sonoma County. Cloverdale is the northernmost city in the county and many people have to drive out of the City to work in Santa Rosa to the south, Ukiah to the north, or elsewhere in or out of the county. With the average trip to work for residents of Cloverdale taking 25.2 minutes, riding a bus is not a viable option due to time constraints as well as limited access and routes (U.S. Census Bureau 2014).

Figure 5.1-1. Modes to Work in Cloverdale in 2010



Source: U.S. Census Bureau 2014: American Community Survey 2006–2010

5.1.2 Cloverdale's Existing Actions to Reduce Greenhouse Gas Emissions

Cloverdale has already taken a number of steps to reduce energy use, promote renewable energy use, and other actions that have been helping to reduce greenhouse gas (GHG) emissions. The City has adopted the following ordinances and General Plan policies that help to reduce GHG emissions and will support implementation of the GHG reduction measures in CA2020.

- Building Energy
 - The City has adopted the California Green Building Standards Code, making the Tier 1 Voluntary measures for residential and non-residential structures mandatory requirements.
 - General Plan Policy 8-2: Use, support, and encourage energy and resource efficient methods in private construction. Study and develop ordinances and incentives to encourage energy efficient transportation, locally generated solar and alternative energy power sources, and green building methods for private buildings and projects. The City of Cloverdale Building Department has ongoing efforts to support solar power projects, locally generated solar and alternative energy power sources, and green building methods for private buildings and projects.
 - General Plan Policy CDO 8-1: Use energy and resource efficient methods in daily City operation. Where feasible, use energy efficient transportation, locally generated solar and alternative power sources, and green building methods for City buildings. This policy is ongoing. The City has not constructed or remodeled any City buildings.
- Land Use and Transportation
 - General Plan Policy LU 3-1: Develop an Urban Growth Boundary [UGB]. Protects important farmlands and open space from urban development (UGB Ordinance). City voters adopted Cloverdale's Urban Growth Boundary in 2010.
 - General Plan Policy CE 4-3: Support local, countywide, and regional bus service. Maintain and encourage use of the Cloverdale City bus by maintaining schedules that serve the community and by use of distinctive vehicles to bring visibility to the service. The City continues to support the use of public transportation in Cloverdale. Sonoma County Transit operates a shuttle bus that is accessible to all residents of the City.
 - General Plan Policy CE 3-1: Pedestrian and bike pathways. Provide an extensive network of pedestrian and bicycle pathways to support community health and provide a safe alternative to automobile use. Integrate routes with transit stops. The Sonoma County Transportation Authority (SCTA), in conjunction with the City, created a pedestrian and bike master plan for Cloverdale.
 - General Plan Policy CE 4-1: Participate in efforts to establish rail service on the SMART right of way. Encourage passage of rail bonds and develop appropriate land uses that will support rail ridership. The City supported the passage of the ballot measures to support

the SMART Train. In anticipation of the SMART Train having a stop in Cloverdale, properties around the train station have been zoned for Transit Oriented Development.

- General Plan Policy CDO 3-8: SMART station area plan. Develop Transit Oriented Development design plan before or concurrent with the Transit Oriented Development Specific Plan. The City adopted a Station Area Plan in 2010 that focuses on development around the SMART Train Station.
- Trip Reduction Ordinance: Municipal Code Chapter 10.54. Requires employers within the City with 100 or more employees at individual job sites to disseminate trip reduction information on alternative transportation in addition to telecommuting, compressed work weeks, and flexible hours.
- General Plan Policy CE-4-4: Encourage ridesharing to reduce commute trips. Coordinate with regional ridesharing plans. The City has worked with regional ridesharing plans to encourage residents and employees to use these programs.
- Waste Minimization and Recycling
 - Recycled Products Purchasing: Municipal Code Chapter 3.08.090.
 - General Plan Policy LU 9-1: Maintain waste management contracts and participation in countywide waste disposal facilities to accommodate household waste and to meet or exceed state and countywide recycling goals.
- Water and Wastewater Efficiency
 - General Plan Policy LU 6-1: Ensure adequate water and waste water capacities. Upgrade the City Wastewater Treatment Plant to provide tertiary treatment so that tertiary treated water can be distributed to new development, open space parks and other uses. Promote water conservation and encourage water conserving landscaping.
 - Water Efficient Landscape Ordinance: Municipal Code Chapter 15.30
- Agriculture
 - General Plan Policy LU 3-3: Protect Prime Farmland, Unique Farmland, and Farmland of Statewide Importance from urban development. Retain these farmland designations as Conservation Features under the Urban Growth Boundary Ordinance. City voters adopted the Urban Growth Boundary in 2010.
- Urban Forestry and Natural Areas
 - General Plan Policy CDO 6-2: Protect distinctive natural vegetation. Develop and urban forest/plan street tree plan with a management strategy for maintaining existing and newly planted trees, including best practice provisions for installation, maintenance, and succession planning.
 - General Plan Policy CDO 6-6: Prepare and urban forest/street tree plan. Design a program for new trees to be installed with development and a plan for retrofit in areas where development or streets were installed without trees.