

## 2.1 Project Location and Project Area

The boundary of the proposed *Climate Action 2020: Community Climate Action Plan* (CAP) Project (project) encompasses Sonoma County (County). Sonoma County is the largest and northern-most county of the nine counties that comprise the San Francisco Bay Area (Bay Area). The County is located along the Pacific coastline, approximately 40 miles north of the City of San Francisco and the Golden Gate Bridge. Sonoma County is bordered by Mendocino County to the north; the Pacific Ocean to the west; Marin County and San Pablo Bay to the south; and Solano, Napa, and Lake Counties to the east.

For the purposes of this draft environmental impact report (draft EIR) and the analyses herein, the boundary of the project area is the County boundary. The project area includes eight incorporated jurisdictions (Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, and Windsor) and unincorporated areas within the County. Santa Rosa is not included in the project area because it already adopted a CAP and subsequent supplemental general plan EIR. However, as discussed in the CAP, the assessment of meeting the CAP's overall target is of a countywide target and includes Santa Rosa and its reductions from the Santa Rosa CAP. The project area consists of 1,500 square miles and encompasses the land within the city limits of each incorporated city, the existing sphere of influence (SOI) area of each city, and the boundaries of the unincorporated County.

## 2.2 Project Objectives

The proposed CAP would include both regional measures (to be implemented by the Sonoma County Regional Climate Protection Authority [RCPA] and other regional agencies with local government support) and local measures (to be implemented by local governments with RCPA and regional agency support and on their own) to reduce greenhouse gas (GHG) emissions. The proposed objectives of the CAP are to:

- Identify specific actions that the RCPA, other regional agencies, each participating jurisdiction, and individual residents and businesses can implement to reduce GHG emissions consistent with and even exceeding the goals established in Assembly Bill 32 (AB 32); **specifically, the CAP target is to reduce countywide GHG emissions by 25% below 1990 levels by 2020.**
- Promote consistency with the land use policy direction and growth anticipated in local general plans.
- Allow for continued economic growth to provide opportunities for businesses and residents.

As part of the CAP, the RCPA is estimating GHG emissions for 1990 and 2010 and forecasting future emissions for 2020 and beyond. The community inventory includes GHG emissions occurring in association with the land uses within a jurisdictional boundary, and it consists of sources of emissions that a community can more readily influence or control. Emissions sectors analyzed in the

CAP include: building energy, land use and transportation, off-road transportation and equipment, solid waste generation, wastewater treatment, water conveyance, and agriculture.

The draft CAP will be released before or during the public review period for this draft EIR. The draft CAP may be revised in response to public input throughout the public review process prior to consideration for adoption by the RCPA and by the participating jurisdictions.

## 2.3 Project Background

### 2.3.1 Regional Climate Protection Authority

In 2009, the RCPA was created to coordinate climate change issues, establish a clearinghouse for efforts to reduce GHG emissions in the County, and secure funding for GHG-reducing efforts. The RCPA consists of ten communities, including Sonoma County, the Town of Windsor, and the following cities: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, and the City of Sonoma. The Staff Working Group (SWG) that developed the CAP collaboratively includes all communities except for the City of Santa Rosa. The City of Santa Rosa completed a separate climate action plan previously and therefore is not included in this draft EIR (and is not part of the SWG); however, it does participate in the RCPA.

The local governments within Sonoma County and the RCPA plan to reduce and avoid GHG emissions associated with community activities, which include everyday activities within the incorporated cities and the unincorporated areas of the County.

### 2.3.2 Past Actions to Reduce GHG Emissions

Sonoma County has a history of taking action to reduce GHG emissions. The County's past efforts to reduce GHG emissions was spearheaded by the leadership of forward-thinking local community officials at the city and County government levels, the actions of interested non-governmental organizations, and, most importantly, the individual actions of Sonoma County residents and businesses.

Some of the milestones in climate action planning in Sonoma County include the following:

- 2001: All Sonoma County communities committed to the International Council for Local Environment Initiatives campaign called Cities for Climate Protection, an initiative to reduce GHG emissions through local government action.
- 2005: The elected leadership in all Sonoma County communities adopted a countywide GHG emissions reduction target of 25% below 1990 levels by 2015. The City of Cotati adopted an even more aggressive goal of 30% below 1990 levels by 2015.
- 2008: A local community non-profit group, the Climate Protection Campaign (now known as the Center for Climate Protection), developed a community climate action plan, which was the first community-wide examination of strategies to reduce community-wide GHG emissions.
- 2009: Sonoma County communities established the nation's first regional climate protection authority, a multi-jurisdictional agency tasked with coordinating countywide efforts to reduce GHG emissions and become more resilient to climate change. The RCPA members and partners have created and pioneered innovative approaches to climate solutions including Property

Assessed Clean Energy (PACE) financing, Pay As You Save (PAYS) on-bill repayment for resource efficiency, community choice aggregation, carbon-free water, electric vehicle infrastructure deployment, climate action through conservation, adaptation planning, and more.

- 2012: The City of Santa Rosa was the first local government in the County to adopt its own CAP and adopt a new GHG emissions reduction target of 25% below 1990 levels by 2020 (City of Santa Rosa 2012).

Community leadership has resulted in direct actions by the citizens, businesses, and communities in the County to reduce GHG emissions. For example:

- All communities in the county (except Healdsburg, which has its own electric utility) now participate in the local Community Choice Aggregation program (known as Sonoma Clean Power [SCP]), which provides electricity with a higher renewable energy content than otherwise available. Healdsburg's municipal utility has provided electricity with a large renewable portfolio for many years.
- The County established a PACE program known as the Sonoma County Energy Independence Program to help property owners finance energy and water efficiency improvements. This program has reduced GHG emissions equal to taking 3,000 cars off the road and generated enough clean energy to power nearly 6,000 homes for a year.
- RCPA and County communities support energy-efficiency efforts and solar retrofits through a variety of programs. Waste minimization, recycling, and composting programs are already an essential part of resource conservation in the County.
- The Sonoma County Water Agency (SCWA) is a leader in innovating low-carbon methods for delivering water supplies and conserving water. SCWA reached its goal of a carbon-free water delivery system in 2015 and is a prominent supporter of energy conservation financing.
- The County is a center for sustainable wine growing and other sustainable agricultural practices.

By 2010, the combined actions of all Sonoma County communities had reduced countywide GHG emissions to approximately 7% below 1990 levels, even while the County's population and economy grew substantially by 17% between 1990 and 2010. On a per capita basis, County GHG emissions declined approximately 26% over the same period. However, based on projections from the 2010 GHG inventory, the County is not expected to meet the 2015 goal of 25% below 1990 levels. Furthermore, the County's population is projected to increase by 5% between 2010 and 2020, and employment is projected to increase by 13% over the same period. Population and economic growth are the main factors influencing the growth of GHG emissions.

Without additional actions, GHG emissions in 2020 and beyond will not be reduced and could increase because of continued population and economic growth. Therefore, the primary goal of the CAP is to grow smarter by reducing countywide GHG emissions to a level that is 25% below 1990 emissions by 2020, a target that is well beyond that established in current state law (AB 32). With ongoing efforts already underway combined with new actions proposed in the CAP, emissions reductions in 2020 are projected to meet the target of 25% below 1990 levels. Achieving the CAP's 2020 goal will place the County in a favorable position for meeting more aggressive goals for 2030 and 2050.

## 2.4 Project Characteristics

The goal of the CAP is to identify specific actions that each community can implement to reduce GHG emissions. The CAP includes measures to reduce GHG emissions and reduce the County's vulnerability to climate change hazards. The GHG reduction element of the CAP involves an assessment of GHG-reduction strategies, engagement of the public in planning efforts, and creation of a framework to maintain reductions in the future. The climate adaptation element of the CAP involves an analysis of the vulnerability of the communities to the effects of future climate change and identifies broad-level policies and actions that would increase the resiliency of the communities to these changes. This draft EIR analysis is limited to the GHG reduction measures and does not address the climate adaptation element of the CAP because the adaptation element of the CAP is a broad overview of climate vulnerabilities and general options for policy, not an implementation plan for GHG emissions.

The project includes reduction measures for the following sectors that produce GHG emissions: building energy; transportation and land use; solid waste generation; water conveyance and wastewater treatment; and livestock and fertilizer. The project also includes advanced climate initiatives that would protect and enhance the value of open and working lands, promote sustainable agriculture, increase carbon sequestrations, and educate residents about GHG emissions from the consumption of goods and services.

The RCPA has prepared a draft CAP for reducing countywide GHG emissions to 25% below 1990 levels by 2020. The draft CAP was prepared in consultation with the Sonoma County Transportation Authority (SCTA) and the SWG. The draft CAP may be revised in response to public input throughout the public review process prior to consideration for adoption by the RCPA and by the participating jurisdictions.

The entire draft CAP, including appendices, is hereby incorporated by reference as part of this draft EIR.<sup>1</sup> The CAP is summarized further below. For a full description of the CAP and the GHG-reduction measures, please refer to the CAP document itself.

### 2.4.1 Sonoma County's Community Greenhouse Gas Emissions

This section is derived from Chapter 2 and Appendix B of the draft CAP, which discuss the County's GHG emissions.

#### 2.4.1.1 GHG Profiles and Methodology for Measuring Emissions

Estimates of historic, current, and future GHG emissions are essential to understanding local emission sources that communities can influence to reduce local contributions to climate change. These profiles—referred to as backcasts, inventories, and forecasts—help to identify priorities for emissions reductions strategies and for tracking progress. Several GHG profiles were developed for the CAP:

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<sup>1</sup> The *Climate Action 2020: Community Climate Action Plan* is available on the RCPA's website at: <http://rcpa.ca.gov/projects/climate-action-2020/>.

- **1990 Backcast:** An estimate of community-wide emission levels in 1990 was developed to understand historic emission levels in the County and to provide a baseline for measuring future GHG reductions.
- **2010 Inventory:** The 2010 inventory measured existing emissions sources that are either created within the County or participating jurisdictions or that occur in association with the land uses within the city limits. Any actions initiated by communities to reduce GHG emissions implemented prior to 2010 are accounted for in the inventory.
- **2020 Business-as-usual (BAU)<sup>2</sup> Forecast:** The 2020 emissions forecast was developed to predict how community emissions may occur in 2020, in the absence of state and local actions to reduce GHG emissions. This 2020 forecast was developed to evaluate the magnitude of the challenge in meeting the short-term CAP target of 25% below 1990 levels. The 2020 forecast is based on the expected growth in population, employment, and housing for the County in 2020.

Appendix B of the draft CAP describes the data sources and general methods and protocols used to develop the County's GHG profiles. The RCPA inventoried 2010 GHG emissions from community activities for all cities (except Santa Rosa) and the unincorporated County areas. The 2010 inventory was extrapolated to forecast GHG emissions for 2020 and backcast GHG emissions for 1990. The CAP also forecasts future emissions in 2040 and 2050 under a BAU scenario to help prepare the County to meet long-term GHG reduction goals.

The 2010 inventory includes GHG emissions occurring in association with the land uses within a jurisdictional boundary, and generally consists of sources of emissions that a community can influence or control. The inventory includes emissions that occur inside and outside the jurisdictional boundary, but only to the extent that such emissions are created by land uses within the community. Emissions generated by the County's municipal operations (e.g., government-owned facilities, vehicle fleets) are not individually highlighted in the CAP because separate municipal inventories were not prepared as part of the CAP effort. However, emissions generated by the County's municipal operations occurring within the boundaries of participating jurisdictions are calculated into the overall community emissions inventories and subject to the CAP.

As is the standard practice, the GHG profiles are presented in metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>). Presenting inventories in MTCO<sub>2e</sub> allows one to characterize the complex mixture of GHGs as a single unit, taking into account that each gas has a different global warming potential (GWP).<sup>3</sup>

#### **2.4.1.2 1990, 2010, and 2020 Countywide GHG Emissions**

As shown in Table 2-1, approximately 3.97 million MTCO<sub>2e</sub> emissions were generated by activities in the County in 1990. By 2010, emissions were approximately 8% lower, at 3.66 million MTCO<sub>2e</sub>, or per capita emissions of approximately 7.6 MTCO<sub>2e</sub> for the 483,878 residents in the County. However, in the absence of state and local climate actions, emissions in 2020 are projected to grow to 4.40 million MTCO<sub>2e</sub>, which is largely driven by population and economic growth.

<sup>2</sup> The BAU scenario assumed that future development trends follow those of the past and no changes in climate action strategies or policies will take place. The BAU scenario can be forecast for multiple years.

<sup>3</sup> The global warming potential, or GWP, is used to compare GHGs based on their potential to trap heat and remain in the atmosphere. Some gases can absorb more heat than others, and thus have a greater impact on global warming. For example, CO<sub>2</sub> is considered to have a GWP of 1, whereas N<sub>2</sub>O has a GWP of 265. This means that N<sub>2</sub>O is 265 times more powerful than CO<sub>2</sub>.

**Table 2-1. Summary of 1990, 2010, and 2020 Countywide GHG Emissions**

<b>Key CAP Indicators</b>	<b>Backcast 1990</b>	<b>Inventory 2010</b>	<b>Forecast 2020 BAU</b>
Countywide emissions (MTCO <sub>2</sub> e)	3,966,000	3,659,000	4,395,000
Percent change from 1990	N/A	-8%	11%
Per capita emissions (MTCO <sub>2</sub> e/person)	10.2	7.6	8.6
California per capita emissions (MTCO <sub>2</sub> e/person) <sup>1</sup>	14.5	12.1	12.5
Population (people)	388,222	483,878	509,766
Housing (housing units)	149,382	189,773	202,942
Employment (jobs)	172,064	202,123	229,710

<sup>1</sup> For details on how the California per capita emissions were estimated, please refer to Appendix C of the draft CAP.

Table 2-2 depicts a breakdown of GHG emissions in the County by emissions sector. Of the total emissions in 2010, on-road transportation and building energy use (including residential and non-residential uses) are the largest sources of emissions at 52% and 33%, respectively. The third largest source of GHG emissions is fertilizer and livestock (9%), followed by solid waste generation (4%), off-road equipment (2%), wastewater treatment (0.4%), and water conveyance (0.1%).

As the County experiences population and economic growth, energy consumption, water usage, waste generation, and transportation activities will increase. For the CAP, BAU forecasts have been developed to evaluate the impacts of this growth on future GHG emissions in 2020, 2040, and 2050. The BAU forecast is based on changes in population, households, and employment, and it represents a scenario that does not consider the effects of future local, state, or federal actions to reduce GHG emissions. Both Tables 2-1 and 2-2 compare the 2020 BAU forecast to the 1990 backcast and 2010 inventory. As shown in Table 2-1, GHG emissions would increase by approximately 20% between 2010 and 2020 without state, regional, and local GHG reduction actions. Much of this increase in GHG emissions from 2010 to 2020 BAU is attributable to increases in building energy, on-road transportation (vehicle trips), off-road equipment, and solid waste generation emission sectors.

Changes in emissions by the community over time are a product of a number of factors, including economic and population growth, annexations, urban growth boundaries, an emphasis on city-centered growth, and changes in efficiency, energy sources, and behavior. Table 2-3 compares the 1990 backcast and 2010 GHG emissions inventory to projected 2020 BAU forecast for each community in the County. The cities of Windsor, Rohnert Park, and Petaluma are projected to experience the highest increase in GHG emissions between 2010 and 2020. Figure 2-1 shows the County's emissions changes by sector from 1990 to 2050. For more information, please refer to Chapter 2 and Appendix B of the CAP.

**Table 2-2. 1990, 2010, and 2020 Countywide GHG Emissions by Sector**

Emission Sector	Emissions (MTCO <sub>2e</sub> )			Change in Emissions (%)	
	Backcast 1990	Inventory 2010	Forecast 2020 BAU	1990 to 2010	2010 to 2020
Building energy	859,100	1,219,800	1,410,500	42%	16%
On-road transportation	1,203,400	1,899,300	2,349,500	58%	24%
Off-road equipment	42,900	62,500	77,300	46%	24%
Solid waste generation	281,200	133,600	235,900	-52%	77%
Wastewater treatment	14,900	14,500	13,600	-3%	-6%
Water conveyance	26,600	3,500	13,600	-87%	289%
Fertilizer and livestock	415,100	325,700	294,800	-22%	-9%
Santa Rosa 1990 emissions <sup>1</sup>	1,123,100	--	--	--	--
<b>Sonoma County Total (rounded)</b>	<b>3,966,000</b>	<b>3,659,000</b>	<b>4,395,000</b>	<b>-8%</b>	<b>20%</b>

<sup>1</sup> Santa Rosa's emissions in 1990 are not provided in the city's CAP; 1990 emissions were therefore assumed to be equal to 15% below the baseline level of emissions, per the city's CAP. As a result, sector emissions for Santa Rosa in 1990 are not available and are included as a separate line item. Sector emissions for 2010 and 2020 are included in the totals above.

Note: For details on changes in emissions over time, please refer to Chapter 2 and Appendix B of the draft CAP.

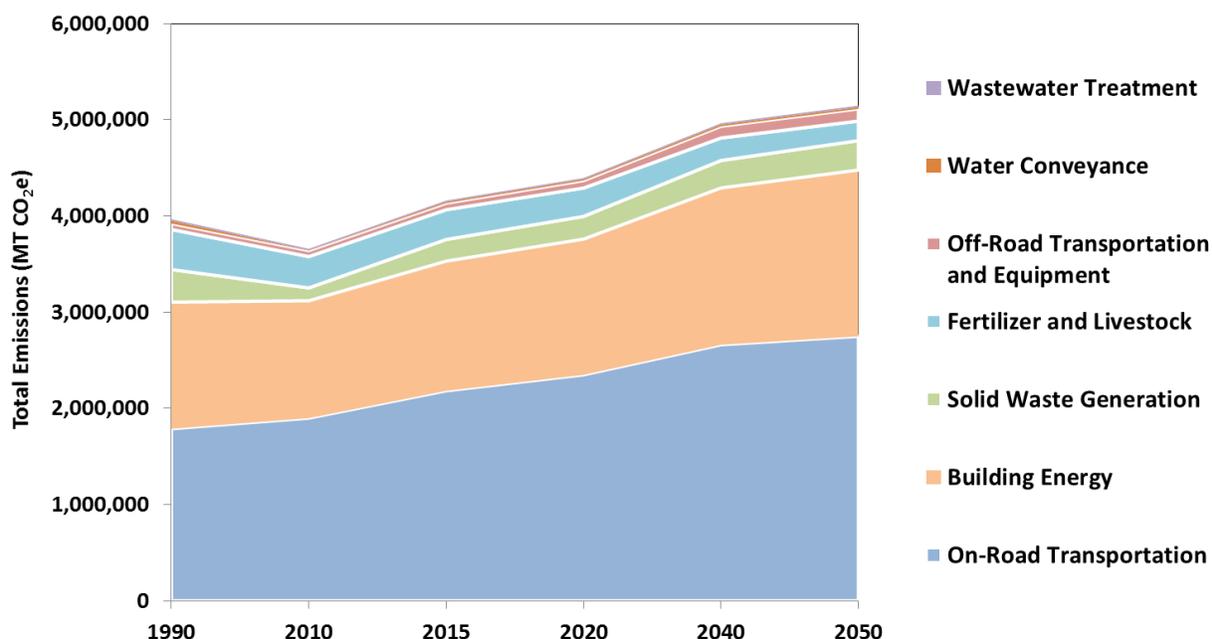
**Table 2-3. 1990, 2010, and 2020 Countywide GHG Emissions by Community**

Community	Emissions (MTCO <sub>2e</sub> )			Change in Emissions (%)	
	Backcast 1990	Inventory 2010	Forecast 2020 BAU	1990 to 2010	2010 to 2020
Cloverdale	57,300	59,000	73,300	3%	24%
Cotati	51,500	52,100	61,300	1%	18%
Healdsburg	93,500	108,800	121,000	16%	11%
Petaluma	387,000	441,900	543,000	14%	23%
Rohnert Park	291,300	264,300	372,700	-9%	41%
Santa Rosa	1,123,100	1,065,200	1,396,900	-5%	31%
Sebastopol	73,200	76,300	93,000	4%	22%
Sonoma	96,900	103,400	122,200	7%	18%
Windsor	133,000	157,800	188,100	19%	19%
Unincorporated Sonoma County	1,244,300	1,004,500	1,128,800	-19%	12%
<i>Emissions Not Assigned to Individual Communities</i>					
Fertilizer and Livestock <sup>1</sup>	415,100	325,700	294,800	-22%	-9%
<b>Sonoma County Total (rounded to thousands)</b>	<b>3,966,000</b>	<b>3,659,000</b>	<b>4,395,000</b>	<b>-8%</b>	<b>20%</b>

<sup>1</sup> Agriculture emissions (fertilizer and livestock) were not considered on an individual community basis. Thus, agriculture emissions are disaggregated from the community emissions and shown separately here.

Note: For details on changes in emissions over time, please refer to Chapter 2 and Appendix B of the draft CAP.

**Figure 2-1. 1990 to 2050 Countywide GHG Emissions by Sector**



## 2.4.2 Greenhouse Gas Reduction Targets and Goals

This section is derived from Chapter 3 of the draft CAP, which discusses GHG reduction targets for the County.

### 2.4.2.1 GHG Reduction Target for 2020

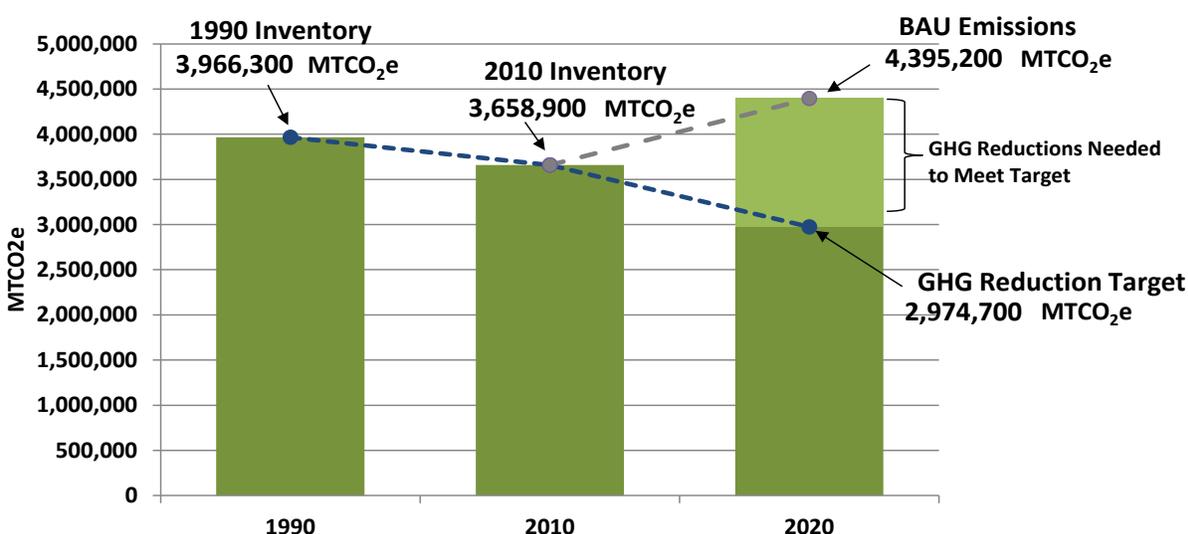
Prior commitments by the County and participating jurisdictions to reduce GHG emissions included adopting and codifying reduction targets. In 2005, the County and all participating jurisdictions adopted regulations to reduce GHG emissions by 25% below 1990 levels by 2015. Although a 2015 inventory has not yet been completed, based on BAU projections from the 2010 inventory, the County is not expected to meet the previously adopted target of 25% below 1990 levels by 2015. Furthermore, the County’s population is expected to increase by 5% between 2010 and 2020, and employment is expected to increase by 14% over the same period. Without additional action, GHG emissions in the County in 2020 and beyond will increase as a result of continued population and economic growth.

Creation of the CAP was motivated by a need to identify specific near-term actions to reduce GHG emissions and to establish updated goals for 2020 and beyond. Year 2020 is an important milestone in the State of California because of the Global Warming Solutions Act (also known as AB 32). Under AB 32, California is seeking to reduce statewide GHG emissions to 1990 levels by 2020. In 2006, Sonoma County communities were significantly more ambitious than the state when adopting the goal of 25% below 1990 levels by 2015. Even though no formal GHG reduction plan was adopted, that ambition has driven positive results—emissions in 2010 were already 7.5% lower than 1990 levels.

A range of GHG reduction targets was considered for the CAP. The Sonoma County communities have agreed to adopt an updated countywide target of 25% below 1990 levels by 2020, as

illustrated in Figure 2-2. This goal is ambitious because it significantly surpasses the state’s AB 32 target. However, it is also a practical target because it can be achieved by implementing the suite of state, regional, and local measures outlined in the CAP. The selection of the countywide target is based on the aspiration to set ambitious goals that would place Sonoma County communities on track in the long-term and would recognize what is attainable through the package of measures considered and adopted by each community through 2020.

**Figure 2-2. Achieving Sonoma County’s 2020 GHG Reduction Target**



### 2.4.2.2 Long-Term Goals and Vision

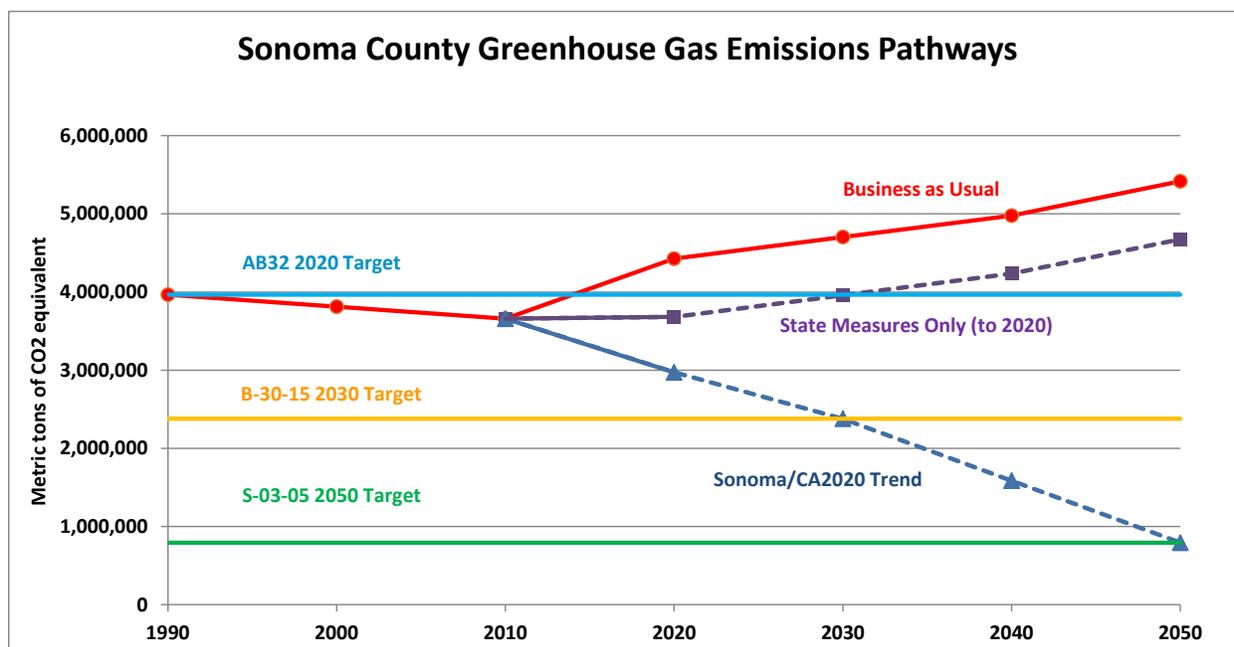
The scientific consensus about the potential long-term ramifications of unchecked human-induced climate change has been integrated into state policy. Governor Schwarzenegger’s 2005 Executive Order S-03-05 (EO S-03-05) established a long-term statewide goal of 80% below 1990 levels by 2050. In order to reach this target for 2050, the state will have to go above and beyond what is included in the AB 32 Scoping Plan for 2020. Accordingly, in April 2015, Governor Brown issued Executive Order B-30-15 (EO B-30-15), which established an interim reduction target of 40% below 1990 levels by 2030. EO B-30-15 also directed the California Air Resources Board to update the AB 32 Scoping Plan to reflect the interim target; the updated Scoping Plan is expected in late 2016. There is currently no statewide plan to achieve the 2030 or 2050 targets; therefore, the California communities must continue to reduce emissions aggressively beyond 2020. The state legislature is also considering Senate Bill 32 (SB 32), which, if adopted, would establish the 2030 goal as a legislative mandate, thus broadening its legal applicability.<sup>4</sup>

In addition to the near-term target of 25% below 1990 levels by 2020, Sonoma County communities have agreed to pursue the long-term goals of 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050. Although the specific path to reach this goal has not yet been determined—either locally or by the State of California—it is clear that pursuing the ambitious 2020 target will make substantial progress toward the 2030 statewide target in a manner that is more aggressive than the state’s current path under AB 32. Figure 2-3 shows that current state GHG reduction measures (e.g., vehicle fuel standards and renewable portfolio standards for electricity) will only achieve a portion

<sup>4</sup> Executive Orders are not binding on the private sector or local governments; only state law is.

of the reductions needed to meet long-term goals. While further state action to reduce emissions is anticipated, success will require scaling up existing local and regional strategies, including those in the CAP, and developing new solutions.

**Figure 2-3. Sonoma County GHG Emissions Pathway from 1990 to 2050**



Another way to look at the long-term challenge of achieving 80% below 1990 levels by 2050 is on a per capita basis. As shown in Figure 2-4, countywide GHG emissions were 7.6 MTCO<sub>2e</sub> per person in 2010 and are forecast to increase to 8.4 MTCO<sub>2e</sub> per person by 2015. Projected per-capita BAU emissions increase slightly to 8.6 MTCO<sub>2e</sub> 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<sub>2e</sub>, an even steeper decline than is needed for overall emissions reduction. The County’s 2020 target is equivalent to 5.8 MTCO<sub>2e</sub> 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.

Although the long-term goal presents a challenge, there is much work underway in California, the United States, and in international negotiations to understand how to achieve it. The state has begun evaluating the cost and feasibility of strategies to achieve the long-term targets. Projects like the California Pathways Project demonstrate 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. Further, implementing the local measures in the CAP will complement state efforts and would help Sonoma County achieve the near-term target while advancing goals for the long-term response beyond 2020.

## 2.4.3 Development of the Greenhouse Gas Reduction Strategies

In order to develop the GHG reduction measures, the County and the participating jurisdictions compiled a list of candidate GHG reduction measures for quantification and potential inclusion in the CAP, based on existing city and County documents, general plans, and local policies and programs. A comprehensive review of potential candidate measures recommended by the California Attorney General, California Air Pollution Control Officers Association (CAPCOA), and existing climate action plans throughout California was also conducted.

An extensive list of potential GHG reduction measures was developed and submitted to the RCPA and SWG for technical review. Based on feedback provided by the RCPA and SWG, candidate measures were selected to be analyzed in greater detail. The amount of GHG emissions that could be avoided in 2020 by each measure was calculated. Costs and savings associated with each measure were also quantified, as feasible, to help identify the financial and economic impact of the measures. Other benefits, such as reduction in air pollution, were also identified for all measures. The County also evaluated the methods of implementing different measures, including whether each measure should be implemented through incentive-based voluntary approaches, flexible performance-based measures, or new local mandates.

Based on consideration of the GHG reduction effectiveness, financial and economic costs of measures, and benefits, the County identified a list of voluntary and mandatory measures for inclusion in the CAP.

## 2.4.4 Greenhouse Gas Reduction Measures

This section is derived from Chapter 3 of the draft CAP, which discusses the GHG-reduction measures. Appendix C of the draft CAP provides an in-depth discussion of all GHG-reduction measures.

### 2.4.4.1 Overall GHG Reduction Strategy

The CAP planning process explored a variety of state, regional, and local measures to reduce GHGs within the County in order to achieve the target of 25% below 1990 levels by 2020 and provide a strong foundation for meeting the 2030 and 2050 goals. Measures were identified across levels of government and along a spectrum of strategies from voluntary to regulatory. Many of the measures build on existing programs, whereas other measures represent new opportunities. Public meetings and online engagement tools were used to collect input on community priorities for climate action.

The CAP measures are grouped into the following six sectors:

- Building Energy
- Transportation and Land Use
- Solid Waste Generation
- Water Conveyance and Wastewater Treatment
- Livestock and Fertilizer
- Advanced Climate Initiatives

Table 2-4 identifies the reduction goals for each sector. There are 20 overall goals for the GHG-reduction measures in the CAP.

**Table 2-4. Greenhouse Gas Reduction Measure Goals**

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

The GHG reduction measures in the CAP would be implemented at three levels.

- **State** measures adopted and implemented by state agencies, including statewide fuel efficiency standards and renewable portfolio standards for electricity generation.
- **Regional** measures implemented by cross-jurisdictional agencies like the RCPA, SCP, transit agencies, and waste management and water supply agencies.
- **Local** actions implemented by the cities and the County. These local measures include voluntary, incentive-based, and regulatory approaches.

Appendix B, *CAP Measures*, summarizes the state, regional, and local measures included in the CAP to reduce GHG emissions. The measures are organized by GHG-reduction goals for the County as a whole, not including the City of Santa Rosa.

Statewide efforts to reduce GHG emissions are a fundamental part of the CAP. For example, the state's Renewables Portfolio Standard (RPS) will reduce the carbon content of electricity throughout the state, including in Sonoma County. Electricity provided to the County will therefore be cleaner and less GHG-intensive than if the RPS had not been established. Regional actions, such as the SCP measure, encourage members of the community to subscribe to electricity service that surpasses RPS in terms of reducing carbon content. The SCP measure and others make the regional measures a critical part of the CAP as well. The CAP includes the impact of 9 state measures and 32 regional measures to reduce GHG emissions, as discussed further in Chapter 3 and Appendix C of the draft CAP.

In addition to the state and regional measures, 30 local measures have also been identified. The communities have reviewed the list of local measures and have selected from this list the measures that they would like to include as part of their individual community commitments. Thus, the suite of measures that a community will implement varies by each community. Although each community won't implement all 30 local measures, the individual community commitments will, in conjunction, act as a comprehensive GHG emissions reduction program and help the County achieve the countywide goal.

Some of the local measures include voluntary, incentive-based programs that would reduce emissions from both existing and new development in the communities. Some of the measures establish mandates for development, either pursuant to state regulations or through existing programs. Several other measures would be implemented by each community, while the regional measures would be implemented by other regional agencies with varying levels of coordination with the communities. While a number of the measures build on existing policies and programs, others provide new opportunities to address climate change. Successful implementation of these actions would require commitment from regional agencies, all participating jurisdictions and their various departments, and residents. The RCPA and communities would adaptively manage the implementation of the CAP to maximize GHG reductions and operational efficiency for each measure. Accordingly, the RCPA and communities may revise measures or add new measures to ensure that the region achieves the reduction target by 2020. If new federal programs that achieve local GHG reductions beyond state and local mandates are adopted and implemented prior to 2020, these federal programs may also be added to the CAP.

Successful implementation of the local strategies would rely on the combined participation of community staff along with residents, businesses, and community leaders throughout the County. The state and regional measures apply to all communities. There is diversity in the local measures selected by each community as the communities have made different choices in which measures are most appropriate for their community. Coordinating GHG-reduction programs within and across communities would streamline CAP implementation and potentially boost GHG reduction outcomes through synergies created among measures.

#### **2.4.4.2 GHG Reduction with Implementation of the CAP**

Table 2-5 presents countywide GHG emissions and reductions by sector for 2020 under both BAU conditions and with implementation of the CAP. As shown in Table 2-5, the County would achieve GHG reductions of over 1.4 million MTCO<sub>2e</sub>, including emission reductions from Santa Rosa, with implementation of the CAP. Table 2-6 presents the countywide GHG emissions and reductions by community. Under the CAP, the amount of GHG reductions would allow the County to meet the target goal of 25% below 1990 levels by 2020.

**Table 2-5. 2020 Countywide GHG Emissions and Reductions by Sector**

Emission Sector	Emissions (MTCO <sub>2</sub> e)			% Reduction
	2020 BAU	CAP Reductions	2020 with CAP	
<i>Countywide CAP Sectors</i>				
Building energy	1,410,500	324,000	1,086,500	23%
On-road transportation	2,349,500	431,420	1,918,080	18%
Off-road equipment	77,300	5,440	71,860	7%
Solid waste generation	235,900	65,400	170,500	28%
Wastewater treatment	13,600	22,100	-8,500 <sup>3</sup>	163%
Water conveyance	13,600	500	13,100	4%
Livestock and Fertilizer	294,800	16,300	278,500	6%
<i>Santa Rosa CAP Reductions, including applicable state and city regulations</i>				
Santa Rosa CAP	--	558,080 <sup>1</sup>	--	
<b>Sonoma County Total (rounded)<sup>2</sup></b>	<b>4,395,200</b>	<b>1,423,200</b>	<b>2,971,900<sup>4</sup></b>	<b>32%</b>

Totals may not add up due to rounding.

<sup>1</sup>This number is from the Santa Rosa Climate Action Plan (City of Santa Rosa 2012).

<sup>2</sup>Sonoma County total emissions are rounded down to the nearest hundreds.

<sup>3</sup>The CAP reduction for the wastewater treatment sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Wastewater treatment measures reduce direct fugitive emissions within the wastewater sector and also improve treatment efficiency, which reduces electricity use within the building energy sector.

<sup>4</sup>The County total emission for 2020 with the CAP (2,971,900) does not include the Santa Rosa CAP reductions (558,080).

NOTE: For details on methodology and emissions calculations for emission sectors, please refer to Chapter 3 the draft CAP.

**Table 2-6. 2020 Countywide GHG Emissions and Reductions by Community**

Community	Emissions (MTCO <sub>2</sub> e)			% Reduction
	2020 BAU	CAP Reductions	2020 with CAP	
Cloverdale	73,340	23,200	50,140	32%
Cotati	61,350	19,650	41,700	32%
Healdsburg	121,040	33,860	87,180	28%
Petaluma	542,970	167,710	375,260	31%
Rohnert Park	372,730	123,130	249,600	33%
Santa Rosa	1,396,900	558,080	838,820	40%
Sebastopol	92,990	30,220	62,770	32%
Sonoma	122,170	36,060	86,110	30%
Windsor	188,120	60,770	127,350	32%
Unincorporated Sonoma County	1,128,810	354,300	774,510	31%
<i>Emissions Not Assigned to Individual Communities</i>				
Fertilizer and Livestock	294,800	16,300	278,500	6%
<b>Sonoma County Total (rounded)<sup>1</sup></b>	<b>4,395,200</b>	<b>1,423,200</b>	<b>2,971,900</b>	<b>32%</b>
Countywide Target (25% below 1990 levels)	--	--	2,975,000	--

<sup>1</sup> Sonoma County total emissions are rounded down to the nearest hundreds.

Note: For details on methodology and calculations for each community, please refer to Chapter 5 the draft CAP.

Implementing state, regional, and local measures in the CAP would avoid the generation of more than 1.4 million MTCO<sub>2</sub>e in 2020 (annually), which is equivalent to any of the following individual actions (U.S. Environmental Protection Agency 2014):

- Removing almost 300,000 passenger vehicles from the road each year.<sup>5</sup>
- Reducing gasoline consumption by more than 160 million gallons per year.
- Providing renewable energy to power over 130,000 homes each year.

The actions in the CAP are priority actions and are intended for near-term implementation, such that the County can achieve its GHG reduction targets for 2020.

## 2.4.5 Potential Physical Effects of CAP Measures

The CAP is a planning document; therefore, its adoption would not directly result in any physical changes. However, the goal of the CAP is to facilitate reductions in GHG emissions. This is the chief anticipated environmental effect. While the actions called for in the CAP would result in a number of environmental benefits, some of the actions may also result in adverse secondary impacts on the environment, which are analyzed in this draft EIR. Subsequent CEQA compliance would be required

<sup>5</sup> Assuming 10,000 miles traveled per year in a typical vehicle.

at a project level for any physical improvements necessary to implement the CAP measures, but the likely impacts would be analyzed at a planning level.

While state measures are discussed in the CAP, these state measures would apply whether or not the CAP is implemented. Thus, this draft EIR is focused on the potential environmental impacts of regional and local measures, and not state measures.

The physical changes resulting from the actions proposed in the CAP can be broadly categorized as follows:

- Building Energy
  1. *Increase the energy efficiency of buildings.* CAP measures focus on retrofits of existing buildings, greater energy efficiency in new development, more efficient lighting, planting of shade trees, and cogeneration in new development. Physical changes would be primarily associated with and located within existing and new buildings.
  2. *Increase renewable energy use.* CAP measures focus on increasing the use and production of renewable energy through SCP and supporting distributed solar installations on existing and new buildings. New energy facilities, primarily in the form of rooftop or parking lot solar, may result from these measures.
  3. *Switch equipment from fossil fuel to electricity.* CAP measures focus on supporting shifts from the use of fossil fuel (such as propane) for heating to electric heating. Physical changes would be primarily associated with and located within existing and new buildings.
- Transportation and Land Use
  4. *Reduce travel demand through focused growth.* CAP measures focus on reducing travel demand by promoting mixed use development, transit-oriented development, transit accessibility, and affordable housing linked to transit. Local plans already promote such development. As discussed in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, while the CAP supports these measures, the CAP would not result in changes to the existing land use plans. This draft EIR notes some of the effects that may come from implementing existing land use plans, but as a disclosure item and not as an impact of the CAP itself.
  5. *Encourage a shift toward low-carbon transportation options.* CAP measures support a shift to transit, trip reduction, carsharing, bike sharing, carpools, traffic calming, bicycle and pedestrian linkages, parking policies, and other strategies. These measures may result in additional transit facilities and operations, bicycle and pedestrian facilities, and traffic calming improvements.
  6. *Increase vehicle and equipment fuel efficiency.* CAP measures in this category are all previously adopted state measures. As such, any associated environmental impacts would not be impacts of CAP adoption.
  7. *Encourage a shift toward low-carbon fuels in vehicles and equipment.* Likely CAP measures in this category focus on reducing the carbon intensity of transportation fuels and promotion of alternative fuel use (including electric vehicles and equipment). These measures may require new facilities such as electric charging or alternative fueling facilities. These measures would also increase demand for alternative fuels, the production of which may have impacts on the environment.

8. *Reduce idling.* CAP measures support reduction of heavy vehicle and construction equipment idling, which would result in changes to heavy vehicle operations but likely would not require new facilities.
- Solid Waste Generation
    9. *Increase solid waste diversion.* CAP measures would increase waste diversion from landfills, reuse of materials, and recycling. In order to achieve increased diversion, additional solid waste facilities and operations may be necessary.
    10. *Increase capture and use of methane from landfill.* CAP measures would support the modification of landfill control and gas collection systems and the addition, modification, or expansion of waste-to-energy facilities.
  - Water Conveyance and Wastewater Treatment
    11. *Reduce water consumption.* CAP measures to increase water efficiency would primarily involve improvements within existing and new development as well as modifications to landscaping and landscaping irrigation systems. Some of these measures are already required by existing state law (such as Senate Bill X7-7 [SB X7-7]) and would occur with or without CAP adoption.
    12. *Increase recycled water and greywater use.* CAP measures would support the expansion of recycled water treatment facilities and distribution lines and expanded greywater use. These expansions would require plumbing and fixture alterations.
    13. *Increase water and wastewater infrastructure efficiency.* CAP measures to support efficiency improvements would require modification of existing water and wastewater treatment facilities.
    14. *Increase the use of renewable energy in water and wastewater systems.* CAP measures in this category would result in expansion of renewable energy installations. This would happen primarily at existing water and wastewater treatment locations, but also indirectly through potential purchase of renewable energy for use at such facilities.
  - Livestock and Fertilizer
    15. *Reduce emissions from livestock operations.* CAP measures support additional methane collection and methane gas digestion facilities at dairies as well as exploration of methods to reduce enteric fermentation through modification of feed or feed supplements.
    16. *Reduce emissions from fertilizer use.* CAP measures support continued replacement of fossil-fuel based fertilizer with alternative fertilizer or agricultural practices. Measures in this area would not likely result in construction of new facilities.
  - Advanced Climate Initiatives
    17. *Protect and enhance the value of open and working lands.* CAP measures support conservation of open space and agricultural lands. CAP measures represent primarily a continuation of existing city and County preservation policies.
    18. *Promote sustainable agriculture.* CAP measures support certification programs, local sustainable and organic foods and products, and urban agriculture. CAP measures represent primarily a continuation of existing County support for sustainable agriculture and local farmer's markets. Urban agricultural efforts would result in reuse of existing urban land.

19. *Increase carbon sequestration.* CAP measures support changes in farming and grazing practices to increase carbon sequestration. These measures could result in changes in land management practices.
20. *Educate residents about emissions from the consumption of goods and services.* The CAP would expand education about the lifecycle emissions of goods and services to support shifts to lower carbon goods and services. Education efforts would not result in construction of new facilities, but would likely in time shift demand to lower-carbon goods and services; this may result in changes in good and service supply chain practices.

This draft EIR evaluates whether any of the physical changes outlined above would potentially result in significant environmental effects.

## 2.4.6 Community Co-Benefits

Implementing the CAP would result in environmental and community “co-benefits” that surpass GHG emissions reductions. For example, many of the CAP actions would improve public health by reducing air pollutants like ozone, carbon monoxide, and fine particulates. CAP measures improving mobility and alternative modes of transportation would increase walking and biking, activities that substantially lower the incidence of disease. These changes can also complement and encourage other sustainable modes of transportation, including public transit.

The GHG-reduction measures in the CAP create community co-benefits in a variety of ways:

- GHG reduction measures in the Building Energy and Transportation and Land Use sectors would reduce electricity and gasoline usage, which can help lessen the impact of future energy cost increases on County businesses and residents.
- Reducing gasoline consumption also reduces dependence on foreign oil and the environmental impacts of oil exploration, production, and transportation.
- Recycling and waste diversion measures would also reduce material consumption and the need for landfill space.
- Water efficiency measures would reduce water use in a water-constrained future and would adapt to the long-term hydrological effects of climate change.
- Transportation and Land Use measures would conserve natural resources and protect the long-term viability of natural and working landscapes in the County.
- Open space preservation offers aesthetic and recreational benefits for community residents as well as habitat for native wildlife and plants.
- Sustainable agriculture and wine-making practices would help preserve agricultural soil fertility and protect water quality.

## 2.4.7 Implementing the CAP

This section is derived from Chapter 4 of the draft CAP, which discusses implementation of the CAP.

### 2.4.7.1 Coordinated Implementation

The RCPA is committed to continuing its leadership role through the implementation of the CAP. 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-community efficiencies through communication and collaboration; and promoting accountability for CAP implementation through measurement and reporting.

As a part of the implementation process, each community would participate in the SWG and may also identify additional staff to bring specific expertise to the CAP implementation effort. Each community'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 coordinate and lead the implementation of measures specific to their communities, with the support from RCPA and one another. Local governments will use the CAP as a tool to communicate and solidify their priorities within their communities.

RCPA member communities 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 community 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 countywide approach of the CAP recognizes that the cost of implementation would be higher if each community 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.

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

Other local countywide public agencies that would implement the regional measures in the CAP include:

- North Sonoma County Air Pollution Control District (NSCAPCD)
- Sonoma Clean Power (SCP)
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Energy Independence Office
- Sonoma County Waste Management Agency (SCWMA)
- Sonoma County Transportation Authority (SCTA)
- Sonoma County Water Agency (SCWA)

In addition, continued community involvement is vital to the implementation of the CAP, particularly given that many strategies depend on voluntary commitment, creativity, and participation. Community members will participate in the public process at individual cities and the County to help shape the details of local measure implementation. 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.

#### **2.4.7.2 Implementation Strategy**

The RCPA would coordinate with the SWG to accomplish the following general implementation steps in support of implementing the emissions reduction strategies:

- Develop implementation plans for each emissions-reduction measure.
- Estimate project-specific costs.
- Review new development for consistency with the CAP.
- Draft ordinances and/or codes.
- Establish partnerships.
- Pursue funding sources and facilitate investments in solution at scale.
- Create monitoring/tracking processes and indicators.
- Engage the community and stakeholders.
- Lobby for state and federal action.

#### **2.4.7.3 Implementation Schedule**

Implementation of the emissions-reduction strategies would occur following adoption of the CAP to ensure that all GHG-reduction measures are in place as planned by 2020. The RCPA and member agencies would initially pursue strategies based the following three groupings to prioritize measures:

- 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 implemented immediately but still require time for development to meet 2020 reduction targets.
- Group 3 strategies are those that need only to be developed by 2020 and can be implemented later in the decade.

Measure prioritization would be based on several factors, including: 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 2-4. Implementation Timeline for CAP GHG Reduction Measures**

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

## 2.5 Required Permits and Approvals

The RCPA would use this draft EIR when deciding whether to certify the EIR, and whether to adopt the project (the CAP) and recommend its adoption by the local participating communities. The individual participating jurisdictions would then need to adopt specific local measures for their community. Most of the implementing actions of the CAP will involve other agencies and project-level CEQA review of the approving agency.

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