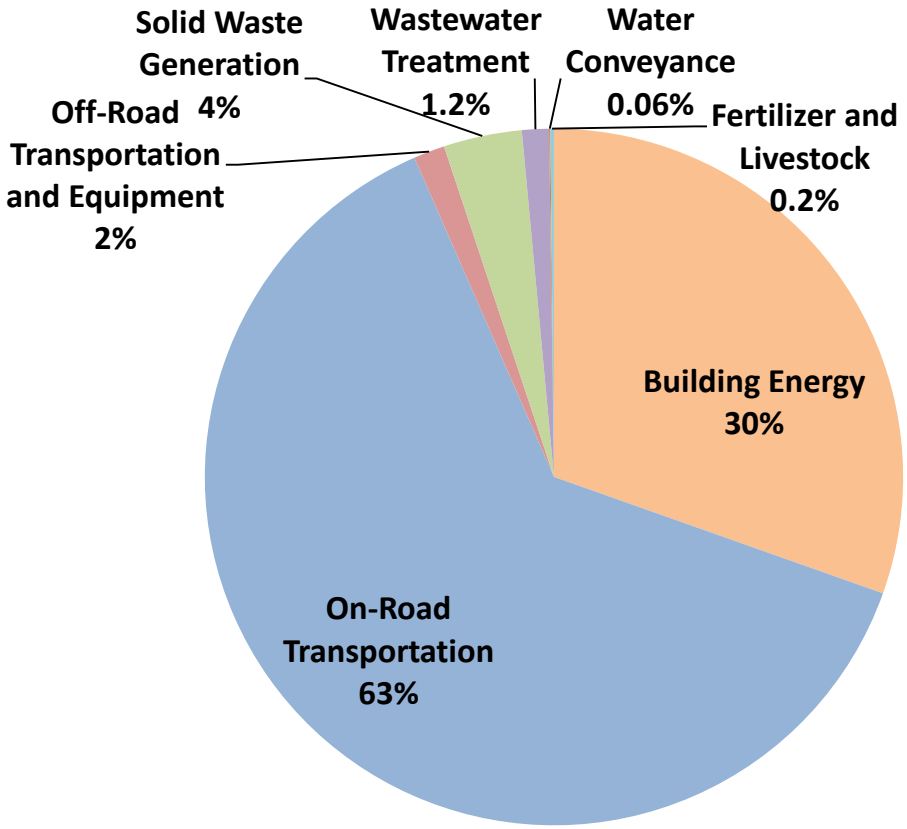
- General Plan Policy CDO 6-1: Maintain and expand the tree canopy within and outside the developed areas of the City. Develop and urban forest/plan street tree plan with a management strategy for maintaining existing and newly planted trees, including best practice provisions for installation, maintenance, and succession planning.

- General
  - General Plan Policy CDO 8-3: Inventory and Reduce Greenhouse Gas Emissions. Work with the Northern Sonoma County Air Pollution Control District and California Air Resources Board to prepare a Climate Action Plan inventorying current GHG emissions, emissions from 1990, and projected emissions for 2020.

5.1.3 Greenhouse Gas Inventory and Forecast

Figure 5.1-2. Cloverdale 2010 Community GHG Inventory by Source



Cloverdale's inventory is similar to other cities in the county and state. The majority of the GHG emissions are from transportation, from the combustion of fossil fuels in personal and light-duty vehicles. The next largest source is building energy, which includes emissions related to energy consumed for heating, cooling, lighting, and cooking in the residential, commercial, and industrial sectors. Residential uses account for most (69%) of the building energy emissions in Cloverdale.

Commercial uses account for 31% of building energy emissions. The other categories of emissions are much smaller in comparison to building energy and on-road transportation.

In Cloverdale, total GHG emissions generated by community activities in 2010 were 59,040 metric tons of carbon dioxide equivalent ($MTCO_2e$), which is approximately 2% of total countywide GHG emissions in the same year.[1] This is a 3% increase from estimated 1990 emissions, which were 57,330 $MTCO_2e$. Table 5.1-3 shows the 1990 backcast, the 2010 inventory and business-as-usual (BAU) forecasts for 2015, 2020, 2040 and 2050 for the City of Cloverdale.

[1] Sonoma County total GHG emissions in 2010 were 2.6 million metric tons of CO_2e.

Table 5.1-3. Cloverdale Community GHG Backcast, Inventory, and Forecasts

Source	1990 Backcast		2010 Inventory		2015 Forecast		2020 Forecast		2040 Forecast		2050 Forecast	
Building Energy	12,920	23%	17,990	30%	20,880	30%	22,250	30%	25,450	27%	26,840	29%
On-road Transportation	36,510	64%	37,270	63%	44,160	64%	46,380	63%	61,310	66%	60,200	64%
Off-road Transportation and Equipment	610	1%	860	1%	1,090	2%	1,320	2%	2,560	3%	2,690	3%
Solid Waste	6,550	11%	2,140	4%	2,390	3%	2,540	3%	2,880	3%	3,030	3%
Wastewater Treatment	420	1%	740	1.3%	770	1%	810	1%	940	1%	1,000	1%
Water Conveyance	320	1%	30	0.1%	40	0%	40	0%	40	0%	50	0%
Total	**57,330**	**100%**	**59,040**	**100%**	**69,320**	**100%**	**73,340**	**100%**	**93,170**	**100%**	**93,790**	**100%**
Per-Capita Emissions	**11.6**		**6.9**		**7.7**		**7.8**		**8.5**		**8.1**	

5.1.4 Greenhouse Gas Reduction Goal and Measures

The City of Cloverdale joins the other Sonoma County communities to support the regional GHG emissions reduction target of 25% below 1990 countywide emissions by 2020 through adoption of 20 local greenhouse gas reduction measures. The City's GHG emissions under 2020 business-as-usual (BAU) conditions (in absence of state, regional, and local reduction measures) would be approximately 73,340 $MTCO_2e$. The City's local GHG reduction measures, in combination with state and regional measures, would reduce the City's GHG emissions in 2020 to 50,530 $MTCO_2e$, which would be a reduction of approximately 31% compared to 2020 BAU conditions. The City will achieve these reductions through a combination of state (72%), regional (21%), and local measures (7%) that are technologically feasible and cost-effective per Assembly Bill (AB) 32. With the reduction measures in CA2020, per-capita emissions in Cloverdale will be 5.4 $MTCO_2e$ per person, a 54% reduction in per capita emissions compared to 1990.

Table 5.1-4. Cloverdale 2020 GHG BAU Emissions, Reductions, and CAP Emissions

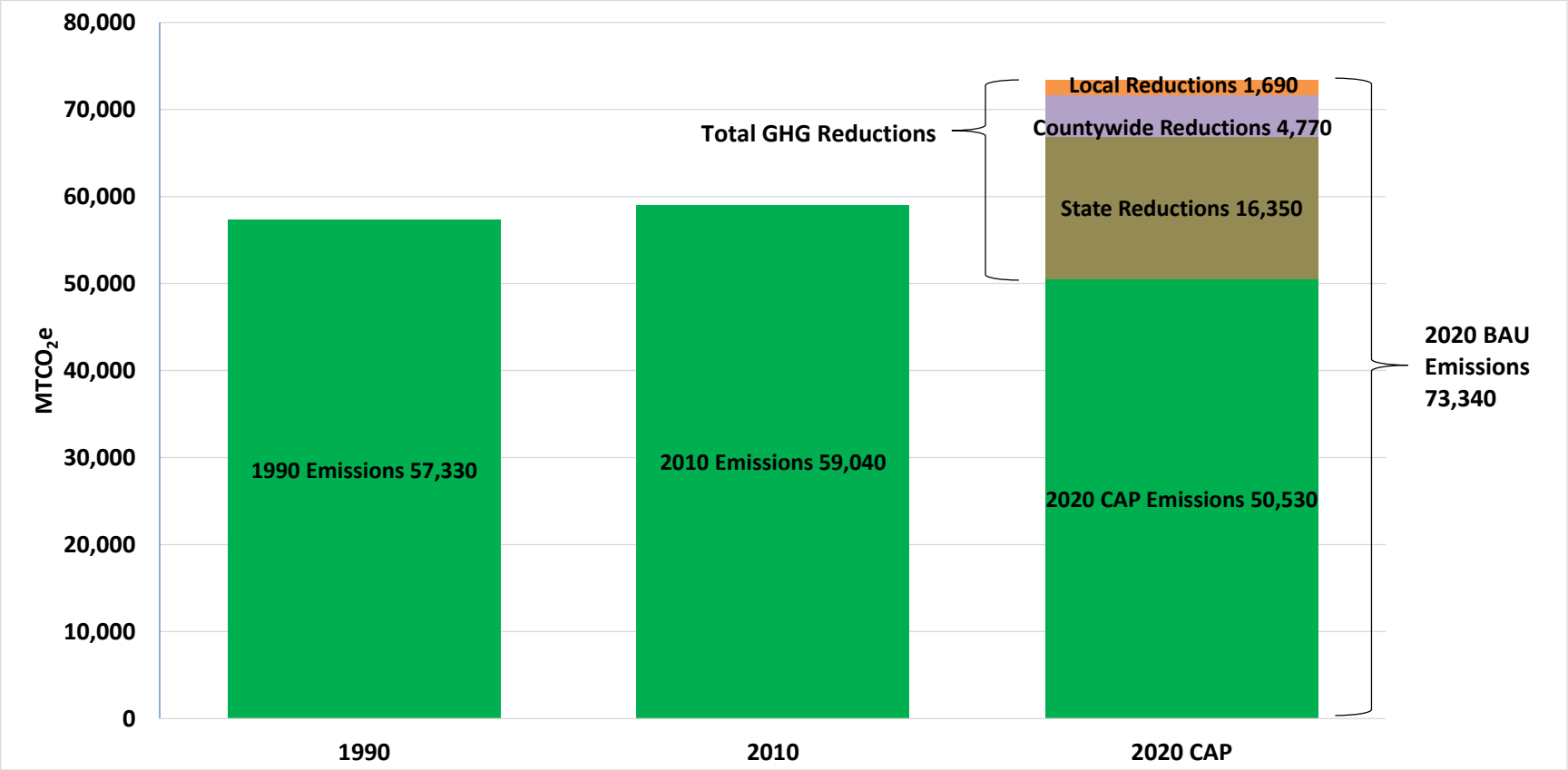
	2020 BAU	2020 Reductions					
Source	**Forecast**	**State**	**County-wide**	**Local**	**Total**	**2020 CAP Emissions**	**% Reduction from BAU**
Building Energy	22,250	5,290	1,610	370	7,270	14,980	33%
On-road Transportation	46,380	10,940	1,230	560	12,730	33,650	27%
Off-road Transportation and Equipment	1,320	120	-	-	120	1,210	9%
Solid Waste	2,540	-	1,920	-	1,920	620	75%
Water Conveyance	40	-	10	750	760	- [1]	100%
Wastewater Treatment	810	-	10	-	10	790	2%
Total Emissions	73,340	16,350	4,770	1,680	22,810	50,530	31%
		72%	**21%**	**7%**			

Values may not sum due to rounding.

[1] The CAP reduction for the water conveyance sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Water conveyance measures reduce improve efficiency, which reduces electricity use within the building energy sector.

Figure 5.1-3 shows Cloverdale's 1990 and 2010 GHG emissions total, 2020 BAU emissions forecast total, and the total emissions remaining after implementation of the City's reduction measures. The contribution of state, regional, and local reductions are overlaid on the 2020 BAU emissions forecast total, representing the total emissions reductions achieved in 2020. Like the other communities, Cloverdale benefits greatly from the work the state and regional entities are committed to implementing on climate action. See Chapter 4 for more information on state and regional actions.

Figure 5.1-3. Cloverdale 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



Greenhouse Gas Reduction Measures

As shown in Table 5.1-5, the City of Cloverdale will achieve its reduction goal through a combination of state, regional, and local measures. State reduction measures are implemented through state law, including some that require action by the City to comply with state mandates (e.g., Title 24 energy efficiency measures). State measure reductions total 16,350 $MTCO_2e$, including the Pavley vehicle fuel efficiency standards, Title 24 building standards, the state's low carbon fuel standard, and the Renewables Portfolio Standard (RPS).

Regional measures will reduce emissions by 4,770 $MTCO_2e$ and will be implemented by regional entities, including the Regional Climate Protection Authority (RCPA), Sonoma County Water Agency (SCWA), County of Sonoma Energy and Sustainability Division (ESD), Sonoma County Transportation Authority (SCTA), and Sonoma Clean Power (SCP).

An additional reduction of 1,690 $MTCO_2e$ will be achieved through locally adopted measures relevant to the City of Cloverdale. The locally adopted measures, although not as high-achieving of GHG reductions as the state and regional measures, are important because they represent the actions that local communities can take directly. The communities have selected the local measures that best suit the needs of their community.

The three measures that will have the greatest impact in Cloverdale are, in order of importance, Measure 11-L1 (Senate Bill SB X7-7 - Water Conservation Act of 2009), Measure 2-L4 (Solar in Existing Non-Residential Buildings), and Measure 5-L2 (Carpool-Incentives & Ride-Sharing Program). These three measures, in addition to reducing GHG emissions, will save energy, improve air quality and public health in the City, and conserve natural resources. As the county and state continue to experience a historic drought, water conservation will remain an especially important co-benefit.

On the state level, the RPS and the Pavley measures have the greatest potential to reduce emissions in the City. Of the regional measures, the measures with the greatest impact include the Community Choice Aggregation (CCA) measure and the waste-to-energy measure.

Table 5.1-5 presents the individual GHG reduction measures that Cloverdale has selected for the CAP. For more information on the specifics of each measure, see Appendix C.

Solar Water and Wastewater Treatment Plants in Cloverdale

In 2014, Cloverdale approved a Power Purchase Agreement to finance solar panel arrays at the City's water and wastewater treatment plants. The City expects that the water and wastewater treatment plants will be supplied by 100% solar energy when the project is fully up and running.

Table 5.1-5. Cloverdale 2020 GHG Emissions Reductions by Measure

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
State and Regional Measures		
Goal 1: Increase Building Energy Efficiency	**1,364**	
Measure 1-S1: Title 24 Standards for Commercial and Residential Buildings	540	N/A
Measure 1-S2: Lighting Efficiency and Toxics Reduction Act (AB1109)	452	N/A
Measure 1-S3: Industrial Boiler Efficiency	-	N/A
Measure 1-R1: Community Energy Efficiency Retrofits for Existing Buildings	41	N/A
Measure 1-R2: Expand the Community Energy Efficiency Retrofits Program	331	N/A
Goal 2: Increase Renewable Energy Use	**5,532**	
Measure 2-S1: Renewables Portfolio Standard	4,272	N/A
Measure 2-S2: Solar Water Heaters	24	N/A
Measure 2-R1: Community Choice Aggregation	1,237	N/A
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**891**	
Measure 5-R1: Improve and Increase Transit Service	3	N/A
Measure 5-R2: Supporting Transit Measures	NQ	N/A
Measure 5-R3: Sonoma-Marin Area Rail Transit	NQ	N/A
Measure 5-R4: Trip Reduction Ordinance	185	N/A
Measure 5-R5: Supporting Measures for the Transportation Demand Management Program	NQ	N/A
Measure 5-R6: Reduced Transit Passes	171	N/A
Measure 5-R7: Alternative Travel Marketing & Optimize Online Service	137	N/A
Measure 5-R8: Safe Routes to School	394	N/A
Measure 5-R9: Car-sharing Program	NQ	N/A
Measure 5-R10: Bike Sharing Program	NQ	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 6: Increase Vehicle and Equipment Fuel Efficiency	**10,944**		
Measure 6-S1: Pavley Emissions Standards for Passenger Vehicles and the Low Carbon Fuel Standard	10,205	N/A	
Measure 6-S2: Advanced Clean Cars	329	N/A	
Measure 6-S3: Assembly Bill 32 Vehicle Efficiency Measures	410	N/A	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**452**	-	
Measure 7-S1: Low Carbon Fuel Standard: Off-Road	117	N/A	
Measure 7-R1: Shift Sonoma County (Electric Vehicles)	335	N/A	
Goal 9: Increase Solid Waste Diversion	**739**		
Measure 9-R1: Waste Diversion Goal	739	N/A	
Goal 10: Increase Capture and Use of Methane from Landfills	**1,176**		
Measure 10-R1: Increase Landfill Methane Capture and Use for Energy	1,176	N/A	
Goal 11: Reduce Water Consumption			
Measure 11-R1: Countywide Water Conservation Support and Incentives	NQ	NQ	
Goal 12: Increase Recycled Water and Greywater Use	**<1**		
Measure 12-R1: Recycled Water*	<1	N/A	
Goal 13: Increase Water and Wastewater Infrastructure Efficiency	**24**	-	
Measure 13-R1: Infrastructure and Water Supply Improvement	10	N/A	
Measure 13-R2: Wastewater Treatment Equipment Efficiency*	14	N/A	
Local Measures			
Goal 1: Increase Building Energy Efficiency	**1**		
Measure 1-L3: Shade Tree Planting	1	100	trees planted

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 2: Increase Renewable Energy Use	**373**		
Measure 2-L2: Solar in Existing Residential Building	107	5%	of existing homes with solar
Measure 2-L4: Solar in Existing Non-Residential Buildings	267	10%	of existing non-residential development with solar
Goal 4: Reduce Travel Demand Through Focused Growth	**36**		
Measure 4-L1: Mixed-Use Development in City Centers and Along Transit Corridors	29	15%	of growth to result in mixed use
Measure 4-L2: Increase Transit Accessibility	3	5%	of growth to be 25+ units
Measure 4-L3: Supporting Land Use Measures	NQ	Yes	
Measure 4-L4: Affordable Housing Linked to Transit	4	15%	of new development to be affordable
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**525**		
Measure 5-L1: Local Transportation Demand Management Program	137	38%	of employees eligible
Measure 5-L2: Carpool-Incentives & Ride-Sharing Program	247	71%	of employees eligible
Measure 5-L3: Guaranteed Ride Home	NQ	Yes	
Measure 5-L4: Supporting Bicycle/Pedestrian Measures	NQ	Yes	
Measure 5-L5: Traffic Calming	35	90%	of trips affected
Measure 5-L6: Parking Policies	106	10%	of area affected
Measure 5-L7: Supporting Parking Policy Measures	NQ	Yes	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**1**		
Measure 7-L1: Electric Vehicle Charging Station Program	1	2	charging stations installed
Measure 7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	NQ	Yes	

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 8: Reduce Idling			
Measure 8-L1: Idling Ordinance	NQ	2	minutes below state law
Goal 9: Increase Solid Waste Diversion	**<1**		
Measure 9-L1: Create Construction and Demolition Reuse and Recycling Ordinance	<1	3%	beyond baseline
Goal 11: Reduce Water Consumption	**522**		
Measure 11-L1: Senate Bill SB X7-7 - Water Conservation Act of 2009*	522	20%	Reduction in per capita water use
Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems	**227**		
Measure 14-L1: Green Energy for Water Production and Wastewater Processing in Healdsburg and Cloverdale*	227	Yes	
State Measure Reductions in Cloverdale	**16,350**		
Regional Measure Reductions in Cloverdale	**4,770**		
Local Measure Reductions in Cloverdale	**1,680**		
Grand Total Emissions Reductions in Cloverdale	**22,810**		

*Measures reduce emissions from multiple sources (i.e. water and energy)
NQ = not quantified

5.1.5 Municipal Greenhouse Gas Reduction Measures

Like the other cities and the county, Cloverdale has recognized the need to reduce GHG emissions from municipal operations. The City has existing programs in place for green municipal buildings and alternative fuels for its municipal fleet. Although municipal GHG reduction measures are not part of this countywide plan, action by the cities and the County to reduce municipal emissions is still important. Cloverdale and the other local communities will continue to pursue actions that reduce GHG emissions from municipal operations. Descriptions of potential municipal GHG reduction measures are provided in Appendix E as an informational resource.

Cotati

Commitments to meeting community greenhouse gas reduction goals.

5.2 Cotati

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

5.2.1 Community Summary

Located at the crossroads of Highways 101 and 116, the City of Cotati's early history as a trade center for surrounding agricultural lands, has earned its nickname, "The Hub." Cotati has a wide spectrum of housing types which accommodate a variety of lifestyles from large lot, animal-friendly rural living, to suburban neighborhoods with easy access to shopping, to dense, compact, and walkable urban living. The City has an energetic and involved business community that offers the full array of goods and services and a small but vibrant downtown. Cotati is home to a clean light-industrial area and is proud of its focus on infill development and "green" priorities for new building. Sonoma State University is nearby, and with initiation of service, SMART trains will stop at the City's newly completed train depot and transit hub.

The heart of Cotati is La Plaza Park, located within the historic hexagonal plaza, a designated state historical landmark. La Plaza Park hosts a number of annual events throughout the year including the annual Kids' Day Parade and Festival, the summertime Farmers' Market, the Cotati Jazz Festival, Oktoberfest, and the annual Holiday Tree Lighting Celebration. The annual Cotati Accordion Festival is the largest accordion festival in California.

Demographics

Cotati spans 1.9 square miles and had a population of 7,265 as of the 2010 census. In 2020 its population is expected to be 7,777, an increase of 7% over 2010. Employment in the area is expected to increase by 15%. Cotati's demographic composition in 2010 was 82% White, 2% African American, 1% Native American, 4% Asian, 0.4% Pacific Islander, 6% from other races, and 5% from two or more races. Persons of Hispanic or Latino origin were 17%.

As shown in Table 5.2-1, the City is expected to experience steady growth in population, housing, and jobs in the future.

Table 5.2-1. Cotati Socioeconomic Data

	Actual		Projected			
	1990	2010	2015	2020	2040	2050
Population	5,714	7,265	7,483	7,777	8,809	9,404
Housing	2,281	3,041	3,162	3,321	3,777	4,028
Employment	2,940	3,217	3,413	3,714	4,302	4,502

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

According to the 2010 US Census, City of Cotati housing is majority owner-occupied with 59% of housing units owned and 41% rented.

Energy and Water Use

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

Table 5.2-2. Cotati, County, and State 2010 Average Energy and Water Use (per household, per year)

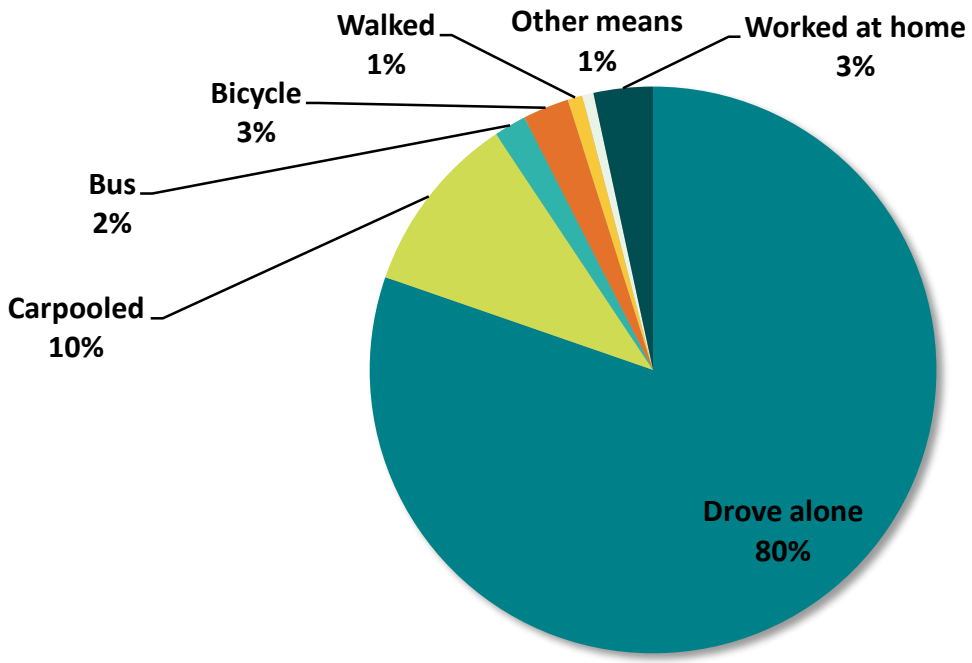
	Cotati	County	State
Electricity (kWh)	6,051	7,042	9,320
Natural Gas (Therms)	395	413	512
Water Use (Gallons)	60,624	75,810	107,869

Sources:
City Data: provided by PG&E (energy) and by the City of Cotati Urban Water Management Plan.
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 Cotati residents drove alone to work, and about 10% carpooled. For many residents of Cotati, alternative transportation options are not available for their commute trip. With the average trip to work for residents of Cotati taking 26.9 minutes, and limited bus service, riding a bus is not a viable option for many Cotati residents (U.S. Census Bureau 2014).

Figure 5.2-1. Modes to Work in Cotati in 2010



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

5.2.2 Cotati's Existing Actions to Reduce GHG Emissions

Cotati has already taken a number of steps to reduce energy use, promote renewable energy use, and other actions that have been helping to reduce GHG emissions.

- Building Energy
  - Residential Retrofits: Energy Upgrade California in Sonoma County – Whole House Upgrade Program.
  - Residential Appliance Upgrades: Programs through Pacific Gas & Electric Company (PG&E) and other agencies.
  - Solar Installations at Residences: Energy Upgrade California in Sonoma County – Whole House Upgrade Program. Streamlined permitting through Building Department.
  - Solar Sonoma County program.
- Land Use and Transportation
  - Focus on Infill Development: The General Plan update in 2015 includes several tools to incentivize new development in areas of the City that are along or near major transportation corridors. In addition, both the Downtown and Santero Way Specific Plans call for walkable, mixed use development with a combination of jobs and housing.
  - Traffic Signal Synchronization: Synchronization occurs with new development when installation of a new signal is required.

- Increased Transit Infrastructure: Installation of three electric vehicle charging stations in 2012 at City Hall. In addition to the SMART service mentioned below, additional infrastructure such as a train depot, SCTA Park-n-Ride facility, new sidewalks, expanded bicycle parking, and bus turnouts are all being provided adjacent to the rail service line.
- Increased Transit Service: Coordination of construction of SMART Train facilities at Santero Way and East Cotati Avenue. Facilities include construction of depot building, SCTA Park-n-Ride, and Smart Train service.
- Bicycle and Pedestrian Master Plan: Long range bicycle and pedestrian planning goals and policies.

- Solid Waste
  - Methane capture occurs at the Santa Rosa Sub-regional Treatment Plant, which serves Cotati.
- Water and Wastewater Efficiency
  - Efficiency Upgrades: One of the goals of the City's water conservation program is to reduce wastewater generation by increasing indoor water conservation. Initiation of efforts to increase efficiency of waste collection system which reduces pumping—installation of more energy efficient pumps, and installation of a new Supervisory Control and Data Acquisition (SCADA) system, which enables off-peak pumping times.
  - Water Fixture Retrofits: Higher efficiency requirements (low flow toilets, showers, and faucets) required at the time of new development or significant remodel of existing. City coordinates water audit (performed by City of Santa Rosa and paid for out of water use fees).
  - Greywater or Recycled Water: Greywater retrofit parts/equipment provided, along with informational seminars provided by Daily Acts and paid for by the City.

The City has adopted the following ordinances and General Plan policies that also help to reduce GHG emissions and would support the implementation of the formal GHG reduction measures presented herein.

- Building Energy
  - Alternative Energy – General Plan Policy: Chapter 5 – Policy 3.3. Promote the use of alternative energy in new development.
  - CALGreen Building Code: Municipal Code Chapter 14.04.130. Makes Tier 1 mandatory for new residential and non-residential structures.
  - Green Building – General Plan Policy: Chapter 7 – Policy LU 1.5. Use sustainable best management practices (BMPs) in green building, stormwater management, and conservation to mitigate infrastructure impacts, while minimizing effects on water, sewer, and energy.

- Green Building BMPs – General Plan Policy: Chapter 5 – Policy CON 3.2. Support innovative green building practices and encourage development to exceed CALGreen Tier 1 standards.
- Heating Devices – General Plan Policy: Chapter 5 – Policy CON 2.4. Require new development to install only fireplaces, stoves, and/or heaters to meet current Bay Area Air Quality Management District (BAAQMD) standards.

- Land Use and Transportation
  - Improve air quality through managed growth – General Plan Policy: Chapter 5 – Policy CON 2.1. Focus City growth in and around existing urbanized areas, locating new housing near employment, encouraging alternative transportation, and requiring developers to mitigate air quality impacts.
  - Development Layout and Design – General Plan Policy: Chapter 5 – Policy CON 3.10. Ensure new development and significant remodels encourage the use of alternative transportation modes.
  - Transportation Demand Management – General Plan Policy: Chapter 2 – Policy CI 3.3. Work with local employers and institutions to implement Transportation Demand Management (TDM) programs such as subsidized transit passes, carpool matching, telecommuting, and car-sharing, etc.
  - Transit Oriented Development. All street classifications above residential alley, include provisions for bicycle and pedestrian facilities (Chapter 17.26 of Land Use Code). The Santero Way Specific Plan is a transit oriented plan for the area of East Cotati Avenue adjacent to the rail tracks. Future development will comprise a mix of uses and will utilize design standards to further the goals of reducing vehicle miles traveled.
  - Parking Policies: Mandatory bike parking for all multi-family and non-residential development. Chapter 17.36 of Muni Code.
  - Sonoma State Traffic Reduction – General Plan Policy: Chapter 2 – Policy CI 3.4. Coordinate with Sonoma State University to minimize traffic impacts.
  - Idling Ordinance. Restrictions are placed on idling of construction vehicles as mitigation measures to new projects.
  - Alternative Transportation – General Plan Policy: Chapter 5 – Policy CON 2.12. Minimize single passenger motor vehicle use. Encourage alternative modes and services.
  - Park-And-Ride Lots – General Plan Policy: Chapter 2 – Policy CI 3.2. Increase the number of trips made by transit and carpooling by identifying locations for park-and-ride lots.
  - Street Design – General Policy: Chapter 5 – Policy CON 3.6. Street design and layout should reduce the use of pavement where possible to reduce cooling energy needs.

- Waste Minimization and Recycling

- Waste and Recycling Services – General Plan Policy: Chapter 4 – Policy CSF 3.1. Provide adequate waste disposal, recycling and reuse services.
- Solid Waste Reduction – General Plan Policy: Chapter 4 – Policy CSF 3.2. Reduce solid waste and increase reduction, reuse, and/or recycling in Compliance with Countywide Integrated Waste Management Plan.
- Resource Recovery – General Plan Policy: Chapter 4 – Policy CSF 3.4. Require and/or support the operation of resource recovery facilities by the City waste hauler.
- City Operations – General Plan Policy: Chapter 4 – Policy CSF 3.5. City operations should use recycled materials whenever feasible.
- Green Waste – General Plan Policy: Chapter 4 – Policy CSF 3.8. Require new or significantly remodeled development to incorporate sufficient, attractive and convenient interior and exterior storage for recyclables and green waste.
- Re-use of materials – General Plan Policy: Chapter 4 – Policy CSF 3.6. Support programs that re-use recycled materials and solid waste, such as the use of biomass waste for energy production.
- Solid Waste – General Plan Policy: Chapter 5 – Policy CON 3.12. Continue efforts to reduce solid waste.

- Water and Wastewater Efficiency
  - Funding – General Plan Policy: Chapter 4 – Policy CSF 2.20. Ensure adequate funding is available to improve wastewater conveyance infrastructure to reduce storm water infiltration.
  - Recycled Water – General Plan Policy: Chapter 4 – Policy CSF 2.12. Use recycled water for landscaping irrigation at City parks and City facilities.
  - Wastewater Procurement – General Plan Policy: Chapter 4 – Policy CSF 2.11. Procure recycled water supplies from the Santa Rosa Subregional Wastewater Treatment and Reclamation System where economically feasible. Water Efficient Landscaping Standards: Establishes requirements for landscaping to control soil erosion, conserve water, improve soil quality, enhance the appearance of development projects, screen potentially incompatible land uses, preserve the integrity of neighborhoods, improve pedestrian and vehicular traffic and safety, improve ecosystem services, water infiltration, and air quality, and reduce heat and glare.
  - Water Conservation Toilet Retrofit Ordinance for Non-Residential Customers: Municipal Code Chapters 13.72 and 13.73. Requires the installation of Water Sense toilets at the time of any change in water service by residential and nonresidential customers, respectively.
  - Drought Tolerance – General Plan Policy: Chapter 5 – Policy CON 3.9. Require the use of drought-tolerant and regionally native plants in landscaping.

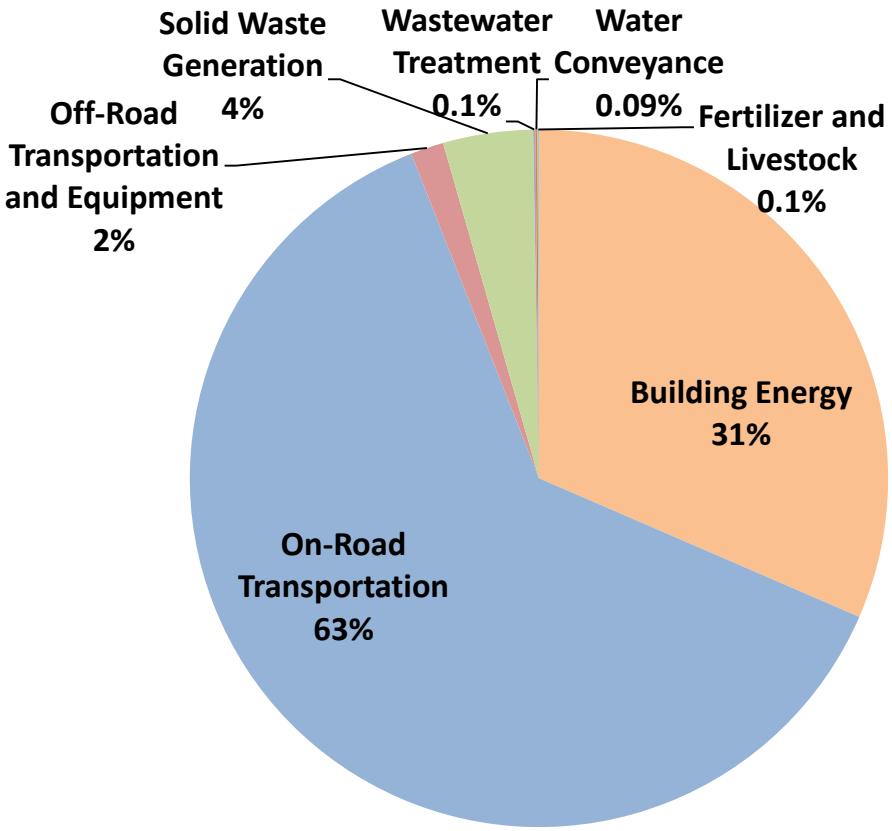
- Conservation – General Plan Policy: Chapter 5 – Policy CON 3.8. Promote water conservation among water users.

- Agriculture
  - Urban Agriculture – General Plan Policy: Chapter 3 – Policy CHW 3.3. Recognize that urban agriculture has the potential to reduce overall energy consumption and lower food costs. Land Use Code Animal Keeping regulations are very generous; chicken keeping is allowed in most residential zones.
- Urban Forestry and Natural Areas
  - Open Space Conservation: Several General Plan policies call for preservation and provision of active parks.
  - Tree Planting: Chapter 17.54 of the Land Use Code requires a permit to remove all trees over 12 inches in diameter. Removal must be for good cause and typically requires replacement at a ratio of at least 1:1.
  - Watercourse and Riparian Resource Protection: Municipal Code Chapter 17.50. Provides standards for the protection of watercourse and riparian resources within the City, including provisions for adequate buffer areas between watercourses and adjacent development, to retain the watercourses as valuable natural, scenic, and recreational amenities as appropriate.
  - Required Plantings: Municipal Code Chapter 11.10.030. Every new project for which a building or other City permit is required, and/or where construction of gutter and sidewalk is necessary, shall include full street-tree planting.
  - Deciduous Trees – General Plan Policy: Chapter 5 – Policy CON 3.15. Plant and maintain deciduous native trees on Old Redwood Hwy to provide a street canopy.
  - Tree Planting for Climate Protection – General Plan Policy: Chapter 5 – Policy CON 3.7. Encourage tree planting as wind breaks and as a way of reducing summer temperatures.
  - Carbon Sequestration – General Plan Policy: Chapter 5 – Policy CON 2.11. Preserve, protect and enhance the City's carbon sequestration resources to improve air quality.
- General
  - Resource Conservation: Municipal Code Chapter 17.51. Standards for all proposed development and new land uses to reduce per capita energy consumption and its contributions to global greenhouse gas production, potable water consumption and resulting wastewater production, and solid waste production.
  - GHG and Businesses – General Plan Policy: Chapter 5 – Policy CON 2.10. Encourage local businesses and industries to reduce GHG and energy consumption.
  - City Facilities – General Plan Policy: Chapter 5 – Policy CON 2.6. Reduce GHG emissions from City facilities to 30% below 1990 levels by 2015 consistent with 2008 GHG Emissions Reduction Action Plan.

- Climate Action Plan – General Plan Policy: Chapter 5 – Policy CON 2.8. Support development and implementation of a Climate Action Plan.
- Regional Coordination of GHGs – General Plan Policy: Chapter 5 – Policy CON 2.9. Consolidate efforts with other jurisdictions to reduce countywide GHGs.
- Support for Climate Action 2020 – General Plan Policy: Chapter 2 – Policy CI 3.1. Actively support RCPA in its goals for Climate Action 2020.

5.2.3 Greenhouse Gas Inventory and Forecast

Figure 5.2-2. Cotati 2010 Community GHG Inventory by Source



Cotati's inventory is similar to other cities in the county and state. The majority of the GHG emissions result from fossil fuel combustion in personal and light-duty vehicles. The next largest source is building energy, which includes emissions related to energy used to heat the homes and businesses in Cotati. Residential uses account for most (64%) of the building energy emissions in Cotati. Commercial uses account for 36% of total building energy emissions. The other categories of emissions are much smaller in comparison to building energy and on-road transportation.

In Cotati, total GHG emissions generated by community activities in 2010 were 52,060 $MTCO_2e$, which is approximately 1% of countywide GHG emissions in the same year. This is a 1% increase from estimated 1990 emissions, which were 51,480 $MTCO_2e$.

Table 5.2-3. Cotati Community GHG Backcast, Inventory, and Forecasts

Source	1990 Backcast		2010 Inventory		2015 Forecast		2020 Forecast		2040 Forecast		2050 Forecast	
Building Energy	14,650	28%	16,410	32%	18,160	32%	19,330	32%	22,130	32%	23,430	33%
On-Road Transportation	29,840	58%	32,570	63%	35,790	62%	38,320	62%	41,650	60%	41,980	59%
Off-Road Transportation and Equipment	710	1%	800	2%	950	2%	1,160	2%	2,290	3%	2,420	3%
Solid Waste	5,640	11%	2,170	4%	2,270	4%	2,410	4%	2,760	4%	2,920	4%
Wastewater Treatment	40	0%	50	0.1%	60	0%	60	0%	60	0%	70	0%
Water Conveyance	600	1%	50	0.1%	60	0%	60	0%	80	0%	80	0%
Total	**51,480**	**100%**	**52,060**	**100%**	**57,280**	**100%**	**61,350**	**100%**	**68,980**	**100%**	**70,900**	**100%**
Per-Capita Emissions	**9.0**		**7.2**		**7.7**		**7.9**		**7.8**		**7.5**	

5.2.4 Greenhouse Gas Reduction Goal and Measures

The City of Cotati joins the other Sonoma County communities to support the regional GHG emissions reduction target of 25% below 1990 countywide emissions by 2020 through adoption of 22 local GHG reduction measures. The City's GHG emissions under 2020 BAU conditions (in absence of state, regional, and local reduction measures) would be approximately 61,350 $MTCO_2e$. The City's local GHG reduction measures, in combination with state and regional measures, would reduce the City's GHG emissions in 2020 to 42,010 $MTCO_2e$, which would be a reduction of approximately 32% compared to 2020 BAU conditions. The City will achieve these reductions through a combination of state (71%), regional (21%), and local measures (8%) that are technologically feasible and cost-effective per AB 32. With the reduction measures in CA2020, per-capita emissions in Cotati will be 5.4 MTCO2e per person, a 40% reduction in per capita emissions compared to 1990.

Table 5.2-4. Cotati 2020 GHG BAU Emissions, Reductions, and CAP Emissions

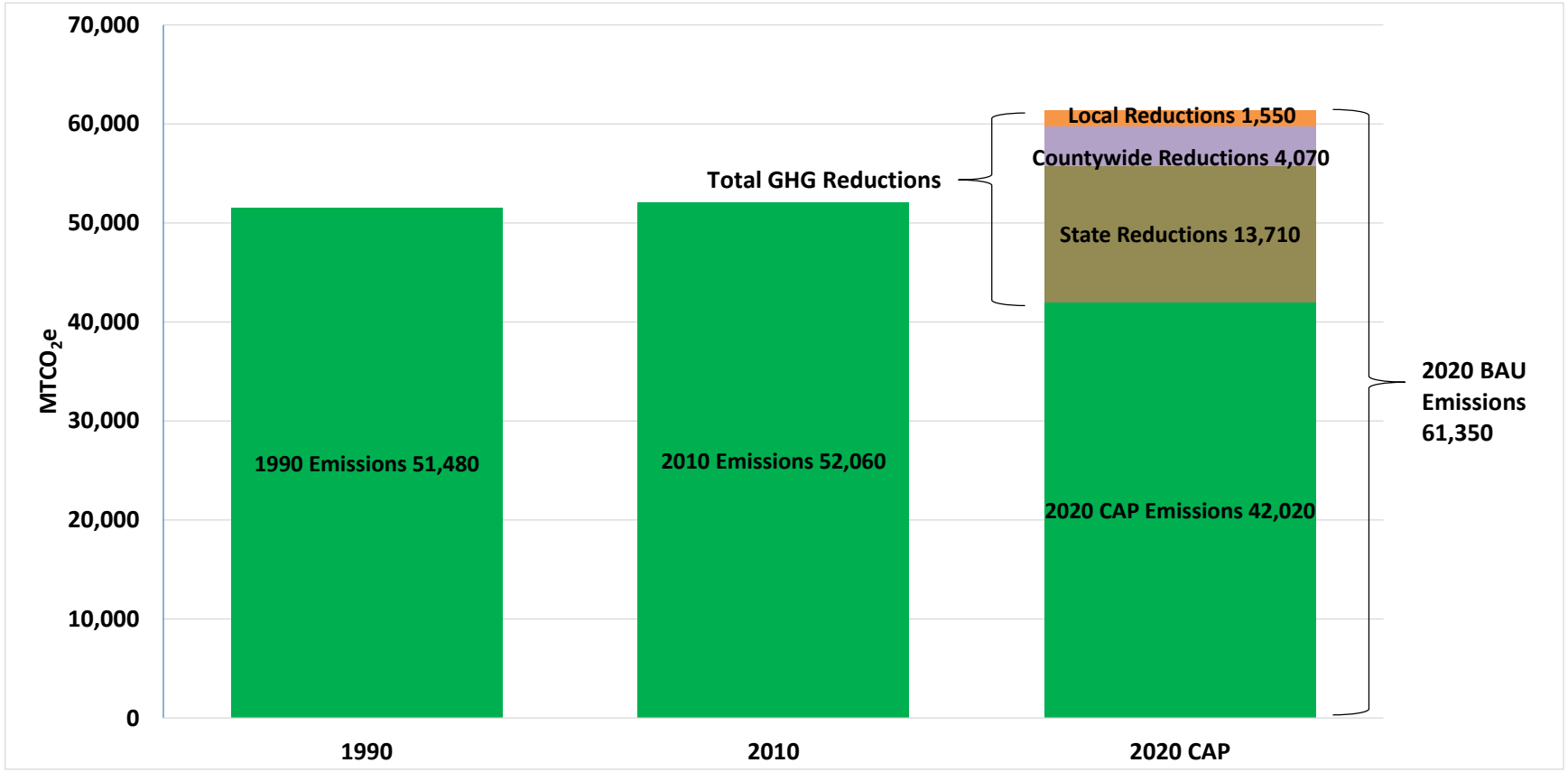
Source	2020 BAU Forecast	Reductions				2020 CAP Emissions	% Reduction From BAU
		State	County-wide	Local	Total		
Building Energy	19,330	4,710	1,380	660	6,740	12,580	35%
On-Road Transportation	38,320	8,900	820	460	10,170	28,150	27%
Off-Road Transportation and Equipment	1,160	100	-	20	130	1,040	11%
Solid Waste	2,410	-	1,820		1,820	590	75%
Water Conveyance	60	-	50	410	460	-[1]	100%
Wastewater Treatment	60	-	10	-	10	50	17%
Total Emissions	**61,350**	**13,710**	**4,070**	**1,550**	**19,330**	**42,010**	**32%**
		71%	**21%**	**8%**			

Values may not sum due to rounding.

[1] The CAP reduction for the water conveyance sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Water conveyance measures reduce improve efficiency, which reduces electricity use within the building energy sector.

Figure 5.2-3 shows Cotati's 1990 and 2010 GHG emissions total, 2020 BAU emission forecast total, and total emissions remaining after implementation of the City's reduction measures. The contribution of state, regional, and local reductions are overlaid on the 2020 BAU emissions forecast total, representing the total emission reductions achieved in 2020. Like the other jurisdictions, Cotati benefits greatly from the work the state and regional entities are committed to implementing on climate action. See Chapter 4 for more information on state and regional actions.

Figure 5.2-3. Cotati 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



Greenhouse Gas Reduction Measures

To help reach the community goals, Cotati will adopt a set of reduction measures through a combination of state, regional, and local measures. State reduction measures are implemented through state law, including some that require action by the City to comply with state mandates (e.g., Title 24 energy efficiency measures). State measure reductions total 13,710 $MTCO_2e$, which include the Pavley vehicle fuel efficiency standards, Title 24 building standards, the state's low carbon fuel standard, and the RPS. These will reduce GHG emissions from Cotati's on-road, off-road, and building energy sources in 2020.

Regional measures will reduce emissions by 4,070 $MTCO_2e$ and will be implemented by regional entities, including the Regional Climate Protection Authority (RCPA), Sonoma County Water Agency (SCWA), County of Sonoma Energy Independence Office (ESD), Sonoma County Transportation Authority (SCTA), and Sonoma Clean Power (SCP).

An additional reduction of 1,550 $MTCO_2e$ will be achieved through locally adopted measures specific to the City of Cotati. The locally adopted measures, although not as high-achieving of GHG reductions as the state and regional measures, are important because they represent actions that local communities can take directly. The communities have local control over their infrastructure and policies and have selected the local measures that best suit the needs of their community.

The three measures that will have the greatest impact in Cotati are, in order of importance, Measure 11-L1 (Senate Bill SB X7-7 - Water Conservation Act of 2009), Measure 2-L4 (Solar in Existing Non-Residential Buildings), and Measure 2-L2 (Solar in Existing Residential Building). These three measures, in addition to reducing GHG emissions, will save energy and conserve natural resources. As the county and state continue to experience a historic drought, water conservation will remain an especially important co-benefit.

On the state level, the RPS and the Pavley measures have the greatest potential to reduce emissions in the City. Of the regional measures, the measures with the greatest impact include the Community Choice Aggregation (CCA) measure and the waste-to-energy measure.

Table 5.2-5 presents the individual GHG reduction measures that Cotati has selected for the CAP. For more information on the specifics of each measure, see Appendix C.

City of Cotati Sustainable Building Program

Since 2004, the City of Cotati has had a sustainable building program that is mandatory for new residential and commercial buildings, and for certain additions and remodels to existing buildings. Though now superseded by the CalGreen program, the City has been requiring more efficient energy and other building standards as well as lower water use.

Table 5.2-5. Cotati 2020 GHG Emissions Reductions by Measure

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
State and Regional Measures		
Goal 1: Increase Building Energy Efficiency	**1,037**	
Measure 1-S1: Title 24 Standards for Commercial and Residential Buildings	308	N/A
Measure 1-S2: Lighting Efficiency and Toxics Reduction Act (AB1109)	442	N/A
Measure 1-S3: Industrial Boiler Efficiency	-	N/A
Measure 1-R1: Community Energy Efficiency Retrofits for Existing Buildings	46	N/A
Measure 1-R2: Expand the Community Energy Efficiency Retrofits Program	240	N/A
Goal 2: Increase Renewable Energy Use	**5,048**	
Measure 2-S1: Renewables Portfolio Standard	3,936	N/A
Measure 2-S2: Solar Water Heaters	22	N/A
Measure 2-R1: Community Choice Aggregation	1,091	N/A
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**537**	
Measure 5-R1: Improve and Increase Transit Service	<1	N/A
Measure 5-R2: Supporting Transit Measures	NQ	N/A
Measure 5-R3: Sonoma-Marin Area Rail Transit	NQ	N/A
Measure 5-R4: Trip Reduction Ordinance	119	N/A
Measure 5-R5: Supporting Measures for the Transportation Demand Management Program	NQ	N/A
Measure 5-R6: Reduced Transit Passes	110	N/A
Measure 5-R7: Alternative Travel Marketing & Optimize Online Service	88	N/A
Measure 5-R8: Safe Routes to School	222	N/A
Measure 5-R9: Car-sharing Program	NQ	N/A
Measure 5-R10: Bike Sharing Program	NQ	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 6: Increase Vehicle and Equipment Fuel Efficiency	**8,901**		
Measure 6-S1: Pavley Emissions Standards for Passenger Vehicles and the Low Carbon Fuel Standard	8,293	N/A	
Measure 6-S2: Advanced Clean Cars	260	N/A	
Measure 6-S3: Assembly Bill 32 Vehicle Efficiency Measures	349	N/A	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**382**	-	
Measure 7-S1: Low Carbon Fuel Standard: Off-Road	103	N/A	
Measure 7-R1: Shift Sonoma County (Electric Vehicles)	279	N/A	
Goal 9: Increase Solid Waste Diversion	**709**		
Measure 9-R1: Waste Diversion Goal	709	N/A	
Goal 10: Increase Capture and Use of Methane from Landfills	**1,111**		
Measure 10-R1: Increase Landfill Methane Capture and Use for Energy	1,111	N/A	
Goal 11: Reduce Water Consumption			
Measure 11-R1: Countywide Water Conservation Support and Incentives	NQ	N/A	
Goal 13: Increase Water and Wastewater Infrastructure Efficiency	**13**	-	
Measure 13-R1: Infrastructure and Water Supply Improvement	3	N/A	
Measure 13-R2: Wastewater Treatment Equipment Efficiency*	10	N/A	
Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems	**45**		
Measure 14-R1: Sonoma County Water Agency Carbon Free Water by 2015	45	N/A	
Local Measures			
Goal 1: Increase Building Energy Efficiency	**48**		
Measure 1-L2: Outdoor Lighting	47	50%	of outdoor lighting to participate

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Measure 1-L3: Shade Tree Planting	1	100	trees planted
Goal 2: Increase Renewable Energy Use	**611**		
Measure 2-L1: Solar in New Residential Development	17	50%	of new houses to participate
Measure 2-L2: Solar in Existing Residential Building	176	15%	of existing homes with solar
Measure 2-L3: Solar in New Non-Residential Developments	12	10%	of new non-residential development to participate
Measure 2-L4: Solar in Existing Non-Residential Buildings	405	15%	of existing non-residential development with solar
Goal 4: Reduce Travel Demand Through Focused Growth	**163**		
Measure 4-L1: Mixed-Use Development in City Centers and Along Transit Corridors	145	70%	of growth to result in mixed use
Measure 4-L2: Increase Transit Accessibility	12	15%	of growth to be 25+ units
Measure 4-L3: Supporting Land Use Measures	NQ	Yes	
Measure 4-L4: Affordable Housing Linked to Transit	6	15%	of new development to be affordable
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**289**		
Measure 5-L1: Local Transportation Demand Management Program	88	38%	of employees eligible
Measure 5-L2: Carpool-Incentives & Ride-Sharing Program	172	78%	of employees eligible
Measure 5-L3: Guaranteed Ride Home	NQ	Yes	
Measure 5-L4: Supporting Bicycle/Pedestrian Measures	NQ	Yes	
Measure 5-L5: Traffic Calming	29	100%	of trips affected
Measure 5-L7: Supporting Parking Policy Measures	NQ	Yes	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**26**		
Measure 7-L1: Electric Vehicle Charging Station Program	3	5	charging stations installed
Measure 7-L2: Electrify Construction Equipment	23	10%	of equipment
Measure 7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	NQ	Yes	

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 8: Reduce Idling			
Measure 8-L1: Idling Ordinance	NQ	2	Minutes below state law
Goal 9: Increase Solid Waste Diversion	**<1**		
Measure 9-L1: Create Construction and Demolition Reuse and Recycling Ordinance	<1	3%	beyond baseline
Goal 11: Reduce Water Consumption	**414**		
Measure 11-L1: Senate Bill SB X7-7 - Water Conservation Act of 2009*	414	20%	Reduction in per capita water use
State Measure Reductions in Cotati	**13,710**		
Regional Measure Reductions in Cotati	**4,070**		
Local Measure Reductions in Cotati	**1,550**		
Grand Total Emissions Reductions in Cotati	**19,330**		

*Measures reduce emissions from multiple sources (i.e. water and energy)
NQ = not quantified

5.2.5 Municipal Greenhouse Gas Reduction Measures

Like the other cities and the county, Cotati has recognized the need to reduce GHG emissions from municipal operations. The City has existing programs in place for green municipal buildings and alternative fuels for its municipal fleet. Although municipal GHG reduction measures are not part of this countywide plan, action by the cities and the County to reduce municipal emissions is still important. Cotati and the other local communities will continue to pursue actions that reduce GHG emissions from municipal operations. Descriptions of potential municipal GHG reduction measures are provided in Appendix E as an informational resource.

Healdsburg

Commitments to meeting community greenhouse gas reduction goals.

5.3 Healdsburg

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

5.3.1 Community Summary

Healdsburg is a historic, small town centered on a 19th-century plaza. Located approximately 22 miles inland and 12 miles north of Santa Rosa, Healdsburg is situated among three important wine-producing regions: Russian River, Dry Creek, and Alexander Valley American Viticultural Areas. Composed of small and globally-recognized businesses, renowned restaurants, local hotels and bed and breakfasts, as well as outdoor recreation; Healdsburg welcomes guests year-round to enjoy small town charm, beautiful natural scenery, and wine country hospitality. Healdsburg has been recognized as one of the top 10 smallest towns in America and was most recently recognized as one of the best towns for the holidays.

Healdsburg, its residents, and community are dedicated to preserving the City's rich history and ensure a healthy future for generations to come. In order to achieve these goals, the City of Healdsburg adopted a 5-year strategic plan called "Pathway to Sustainability." The first strategic initiative of this plan, Quality of Life, identifies Promoting Environmental Sustainability as one of its priorities.

Unique to Healdsburg as a member of the Sonoma County CAP is the City's electric utility. Since 1899, the City of Healdsburg has owned and operated its own Electric Utility. Over the last 100 plus years, the City has moved from a small hydro generation plant in the Black Mountains to owning generation plants throughout northern California, maintaining over 60 miles of high voltage distribution lines with safety and reliability ratings well exceeding statewide averages.

Through the City's ownership of geothermal power plants at the Geysers and hydro-electric plants in Calaveras County, the City provides a high level of renewable and carbon-free energy to its customers. The City regularly surpasses the state's Renewable Portfolio Standard (RPS) requirements (20% by December 31, 2013; 25% by December 31, 2016; and 33% by 2020) and is well positioned to meet new RPS requirements proposed in SB 350 (50% by 2030). In most years, the City's electricity ranges from 50 to 60% carbon free, with over 43% of that energy coming from renewable energy provided by the Geysers. In addition, the City offers a Green Electric Rate, which allows customers to use 100% renewable energy. The City of Healdsburg's commitment to highly renewable and carbon-free sources of power reflect the importance of, and our community's commitment to, environmental stewardship and climate change mitigation.

Demographics

The City of Healdsburg spans 4.5 square miles and had a population of 11,254 as of the 2010 census. In 2020 the population of Healdsburg is expected to be 11,402, an increase of 1.3% over

2010. Employment in the area is expected to increase by 1%. Healdsburg's demographic composition in 2010 was 74% White, 0.5% African American, 2% Native American, 1% Asian, 0.2% Pacific Islander, 19% from other races, and 3% from two or more races. Persons of Hispanic or Latino origin were 34%.

As shown in Table 5.3-1, growth in population, housing, and jobs in the City is expected to occur slowly.

Table 5.3-1. Healdsburg Socioeconomic Data

	Actual		Projected			
	1990	2010	2015	2020	2040	2050
Population	9,469	11,254	11,285	11,402	11,799	12,002
Housing	3,613	4,471	4,483	4,530	4,687	4,768
Employment	6,926	7,351	7,399	7,447	7,447	7,447

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

According to the 2010 Census, most housing in Healdsburg is owner-occupied (58%) with the remaining 42% renter-occupied.

Energy and Water Use

Compared to county averages, Healdsburg households use less electricity but more natural gas and water. Compared to statewide averages, Healdsburg households use less electricity, natural gas, and water.

Table 5.3-2. Healdsburg, County, and State 2010 Average Energy and Water Use (per household, per year)

	Healdsburg	County	State
Electricity (kWh)	6,331	7,042	9,320
Natural Gas (Therms)	500	413	512
Water Use (Gallons)	90,362	75,810	107,869

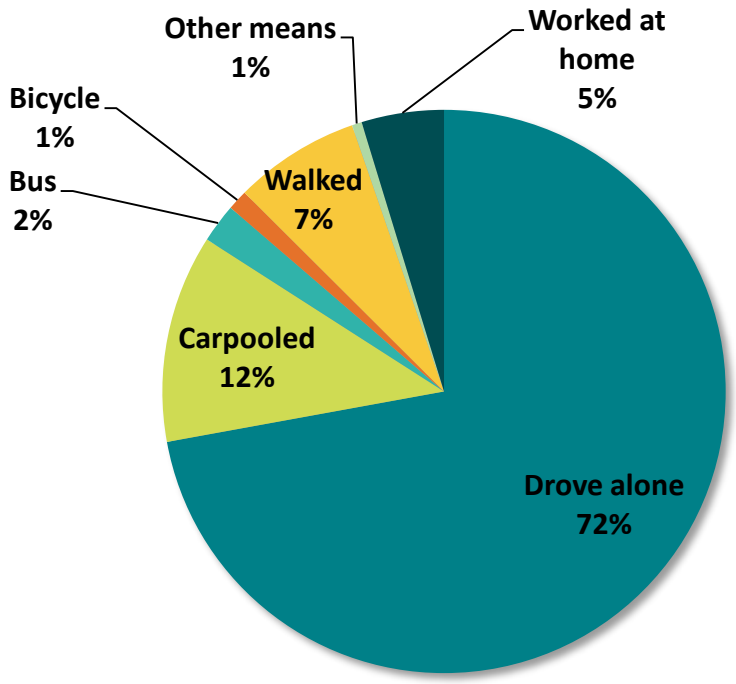
Sources:
City Data: provided by the City of Healdsburg (electricity & water) and by PG&E (natural gas).
County Data: provided by PG&E (energy) and the cities or their Urban Water Management Plans (water).
State Data: U.S. Energy Information Administration 2009, U.S. Geological Survey 2014, California Department of Finance 2015.
kWh = kilowatt hours

Transportation Commute Modes

In the inventory year 2010, Healdsburg had the highest rate in the county of residents walking to work although, in general, most residents drive alone to work. The City is working to increase

alternative options with the transportation measures adopted through this plan. According to 2010 Census data, the average trip to work takes about 20.6 minutes, which is shorter than the county average of 25.3 minutes (U.S. Census Bureau 2014).

Figure 5.3-1. Modes to Work in Healdsburg in 2010



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

5.3.2 Healdsburg's Existing Actions to Reduce GHG Emissions

Healdsburg has already taken a number of steps to reduce energy use, promote renewable energy use, as well as other actions that have been helping to reduce GHG emissions. These actions include ordinances and General Plan policies that will support the implementation of the formal GHG reduction measures in this CAP.

- Building Energy
    - Residential Retrofits: The City's Utility Department offers a free home energy audit to identify retrofit potential.
    - Residential Retrofits – Residential Weatherization & Sealing: Program offering rebates for home insulation, replacement windows and treatments, HVAC repair, duct insulation and sealing, blower-door tests, roof radian barrier, and cool roof.
    - Residential Retrofits - Lighting: Program offering rebates for light-emitting diode (LED) bulbs and holiday light strings.

- Residential Appliance Upgrades: Program offering rebates for Energy Star® refrigerators as well as dishwashers and clothes washers (when the household has an electric hot water heater).
- Residential Appliance Upgrades: Program offering rebates for energy efficient heat pumps, HVAC units, and electric hot water heaters.
- Residential Pool Pumps: Program offering a rebate for upgrading current pool pumps to an energy efficient variable-speed pump.
- Solar Installations at Residences: Per CA SB-1, Healdsburg residents may be eligible to offset part or all of their electric usage with a solar photovoltaic (PV) system. Tax credits may also be available to help with the installation of a PV system.
- Commercial Energy Efficiency Program: The City offers a customizable commercial rebate program that pays customers based on the first year's energy savings and peak demand reduction.
- City Electric Department's commitment to renewable energy: Clean resource mix exceeds state-mandated requirements. Much of energy used from geothermal and hydro.
- Green Building Program: Municipal Code Chapter 15.16 requires California Green Building Code compliance above and beyond the State Building Standards when any of the following are triggered:
  - Reconstruction of residential buildings of any size - Mandatory Measures.
  - New residential construction over 3,000 sqft - Tier 1 Residential.
  - Reconstruction of nonresidential buildings containing 5,000 sqft or more - Mandatory Measures.
  - New nonresidential construction over 10,000 sqft - Tier 1 Nonresidential.
- Compliance with accepted GHG reduction goals: General Plan Policy NR-E-3. The City will comply with California's Publicly Owned Utilities' Principles Addressing Greenhouse Gas Reduction Goals.
- Sustainable building practices: General Plan Policy NR-E-4. The City will support sustainable development and building practices and lead by example in municipal projects.

- Land Use and Transportation
  - Bicycle and Pedestrian Master Plan: Detailed citywide non-motorized transportation plan.
  - Foss Creek Pathway Plan: 4.1 mile bike path running north–south through Healdsburg. Connects to Old Redwood Highway and Windsor.
  - Transit Oriented Development: General Plan Policy NR-F-2. The City will promote land use patterns that support the use of transit systems and pedestrian and bicycle facilities.

- Land use surrounding transit: General Plan Policy LU-F-1. Land uses adjacent to transit facilities should derive maximum benefit from transit facilities and may include retail, office, employment and higher-density residential uses.
- Mixed-use development: General Plan Policy LU-F-2. The City shall encourage mixed use development around the historic railroad depot to support transit use.
- Bicycle-Transit Accommodations: Healdsburg Bicycle and Pedestrian Master Plan Policy 3.3 - Encourage regional transit providers to accommodate bicyclists on transit vehicles and plan for the need for additional bicycle storage capacity.
- Safe-Routes-To-Transit Program: Healdsburg Bicycle and Pedestrian Master Plan Policy 3.1 - Develop and implement a safe-routes-to-transit program that places a high priority on pedestrian and bike access to transit stops and centers.
- Bicycle Detection: Healdsburg Bicycle and Pedestrian Master Plan Policy 2.2. Where feasible, ensure that new and rehabilitated signalized intersections include bicycle detection and are properly marked and operational for use by bicyclists.
- Maintain transit service: General Plan Policy T-E-3 - The City shall encourage Sonoma County Transit (SCT) to maintain, at a minimum, present level of service.
- Coordinate transit infrastructure: General Plan Policy T-E-6 - The City shall work with SCT to coordinate stop locations and bus schedules for easy transfers.
- Multi-modal integration: General Plan Policy T-D-5 - The City shall promote and facilitate the use of bikes with other transportation modes.
- Support alternative transportation: General Plan Policy T-D-1 and T-D-3 - Encourage alternative transportation modes by establishing a bike and pedestrian network interconnecting residential areas with recreation, shopping, employment, commuting and local transportation.
- Traffic calming: General Plan Policy T-B-4 - Traffic calming measures will be considered to maintain reasonable speeds on City streets and improve pedestrian and bicycle safety.
- Support communitywide transit operation: General Plan Policy NR-F-1 - The City will encourage the use of transit systems and other alternatives to automobile use.
- Running of engines while stopped: Municipal Code Chapter 10.28.160 - Emitting vehicles shall be turned off while stopped. Ord. 1005 § 2, 2003. Code 1964 § 12.32.130.
- Trip Reduction Ordinance: All employers within the City of Healdsburg with 100 or more employees at an individual job site shall disseminate trip reduction information regarding transportation alternatives including carpools, vanpools, transit and bicycling, and other methods of reducing trips such as telecommuting, compressed work week, and flexible work hours annually to each employee and to all new employees as they are hired.
- Water and Wastewater Efficiency Resolution No. 58-2013: Stage 1 Voluntary Water Conservation Measures. Seeks a 20% reduction in water consumption from 2012.

- Ordinance No. 1077: Water Shortage Emergency Plan. City adopts Water Conservation Measures to be implemented in times of critical shortage.
- Water Shortage Emergency Declaration Resolution No. 8-2014: Stage 2 Mandatory Water Conservation Measures – Requires implementation of Water Conservation Measures identified in the Water Shortage Emergency Plan.
- Water Efficient Landscape Ordinance No. 1091: The ordinance promotes the efficient design and installation of water-efficient landscapes in Healdsburg associated with new construction and substantial alterations of existing development where landscapes are proposed.

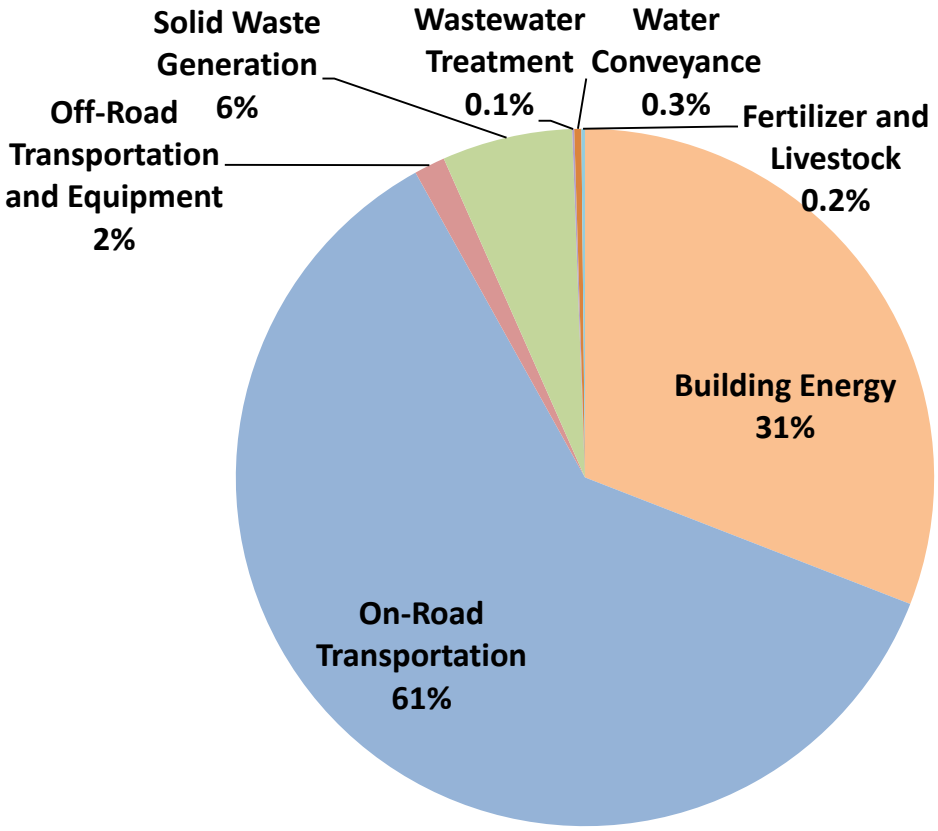
- Agriculture
  - Agricultural uses outside UGB: General Plan Policy NR-D-2 - The City will encourage the County to retain agricultural uses on lands surrounding the Urban Service Area.
  - Sustainable agriculture: General Plan Policy NR-D-4 - The City will promote the sustainability of local agriculture.
- Urban Forestry and Natural Areas
  - Protect natural features: General Plan Policy NR-C-1 - New development shall not be allowed to breach the Urban Growth Boundary except under the exceptional circumstances allowed by this General Plan.
  - Open space acquisition: General Plan Policy NR-B-5 - The City will work with Sonoma County Agricultural Preservation and Open Space District, the Sonoma Land Trust and other non-profit conservation organizations and agencies in acquiring and maintaining key open space and habitat areas where such an arrangement would benefit both the City and the property owner.
  - Maximize tree protection: General Plan Policy NR-B-3 - New development shall be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of native plants, and important wildlife habitat.
  - Encourage tree planting: General Plan Policy NR-E-5 - The City will encourage the use of large-scale trees in new development to lessen heat build-up from solar radiation.
  - Open Space Preservation Growth Control Measures: Municipal Code Chapter 17.24 – limit the construction of new residential units within the incorporated boundaries of the City to an average of 30 units per year.
  - Open Space Preservation: Riparian Setbacks: Municipal Code Title 20 – Article III Chapter 20.24.085. Riparian setbacks have been established to protect rivers, creeks and streams from encroachment by urban uses and to protect riparian habitats.
  - Heritage Tree Protection: Municipal Code Title 20 – Article II Chapter 20.24.035. Protect certain trees in order to improve air quality, assist in abating soil and slope erosion and

preserve and enhance property values, thus promoting the public health, safety and welfare.

- General
  - Reduce GHG emissions: General Plan Policy NR-E-1 - The City will reduce GHG emissions produced communitywide.
  - Municipal GHG emissions: General Plan Policy NR-E-2 - The City will reduce GHG emissions produced by internal municipal operations.
  - Enforce state climate protection goals: General Plan Policy NR-E-6 - The City will comply with state climate protection goals and programs to the maximum extent allowed by the City's jurisdictional authority.

5.3.3 Greenhouse Gas Inventory and Forecast

Figure 5.3-2. Healdsburg 2010 Community GHG Inventory by Source



Healdsburg's inventory is similar to other cities in the county and the region. The majority of GHG emissions are from transportation due mostly to fossil fuel combustion in personal and light-duty vehicles. The next largest source is building energy, which includes emissions related to energy used to heat homes and businesses in Healdsburg. Residential uses account for most (52%) of the

building energy emissions in Healdsburg. Commercial uses account for 44% of building energy emissions. Emissions resulting from energy consumed for industrial purposes are a small fraction (4%) of total energy use emissions in the community. The other categories of emissions are much smaller in comparison to building energy and on-road transportation.

Total GHG emissions generated by community activities in 2010 were 108,760 $MTCO_2e$, which is approximately 3% of countywide GHG emissions in the same year. This is a 16% increase from estimated 1990 emissions, which were 93,500 $MTCO_2e$. Table 5.3-3 shows the 1990 backcast, the 2010 inventory and business-as-usual (BAU) forecasts for 2015, 2020, 2040 and 2050 for the City of Healdsburg.

Table 5.3-3. Healdsburg Community GHG Backcast, Inventory, and Forecasts

Source	1990 Backcast		2010 Inventory		2015 Forecast		2020 Forecast		2040 Forecast		2050 Forecast	
Building Energy	21,310	23%	33,670	31%	33,890	29%	34,150	28%	34,690	28%	34,950	29%
On-Road Transportation	60,180	64%	66,470	61%	74,180	63%	77,630	64%	78,080	63%	75,090	62%
Off-Road Transportation and Equipment	1,570	2%	1,570	1%	1,810	2%	2,100	2%	3,640	3%	3,680	3%
Solid Waste	10,260	11%	6,580	6%	6,620	6%	6,670	6%	6,750	5%	6,790	6%
Wastewater Treatment	90	0%	110	0.1%	110	0%	110	0%	110	0%	110	0%
Water Conveyance	90	0%	350	0.3%	370	0%	400	0%	460	0%	510	0%
Total	**93,500**	**100%**	**108,760**	**100%**	**116,970**	**100%**	**121,040**	**100%**	**123,730**	**100%**	**121,130**	**100%**
Per-Capita Emissions	**9.9**		**9.7**		**10.4**		**10.6**		**10.5**		**10.1**	

5.3.4 Greenhouse Gas Reduction Goal and Measures

The City of Healdsburg joins the other Sonoma County communities to support the regional GHG emissions reduction target of 25% below 1990 countywide emissions by 2020 through adoption of 24 local GHG reduction measures. The City's GHG emissions under 2020 BAU (business as usual) conditions would be approximately 121,040 $MTCO_2e$ (in absence of state, regional, and local reduction measures). The City's local GHG reduction measures, in combination with state and regional measures, would reduce the City's GHG emissions in 2020 to 87,180 $MTCO_2e$, which would be a reduction of approximately 27% compared to 2020 BAU conditions. The City will achieve these reductions through a combination of state (66%), regional (24%), and local (10%) measures that are technologically feasible and cost-effective per AB 32. Per-capita reductions in Healdsburg in 2020 would be 3.0 $MTCO_2e$ per person. With the reduction measures in CA2020, per-capita emissions in Healdsburg will be 7.7 MTCO2e per person, a 22% reduction in per capita emissions compared to 1990.

Table 5.3-4. Healdsburg 2020 GHG BAU Emissions, Reductions, and CAP Emissions

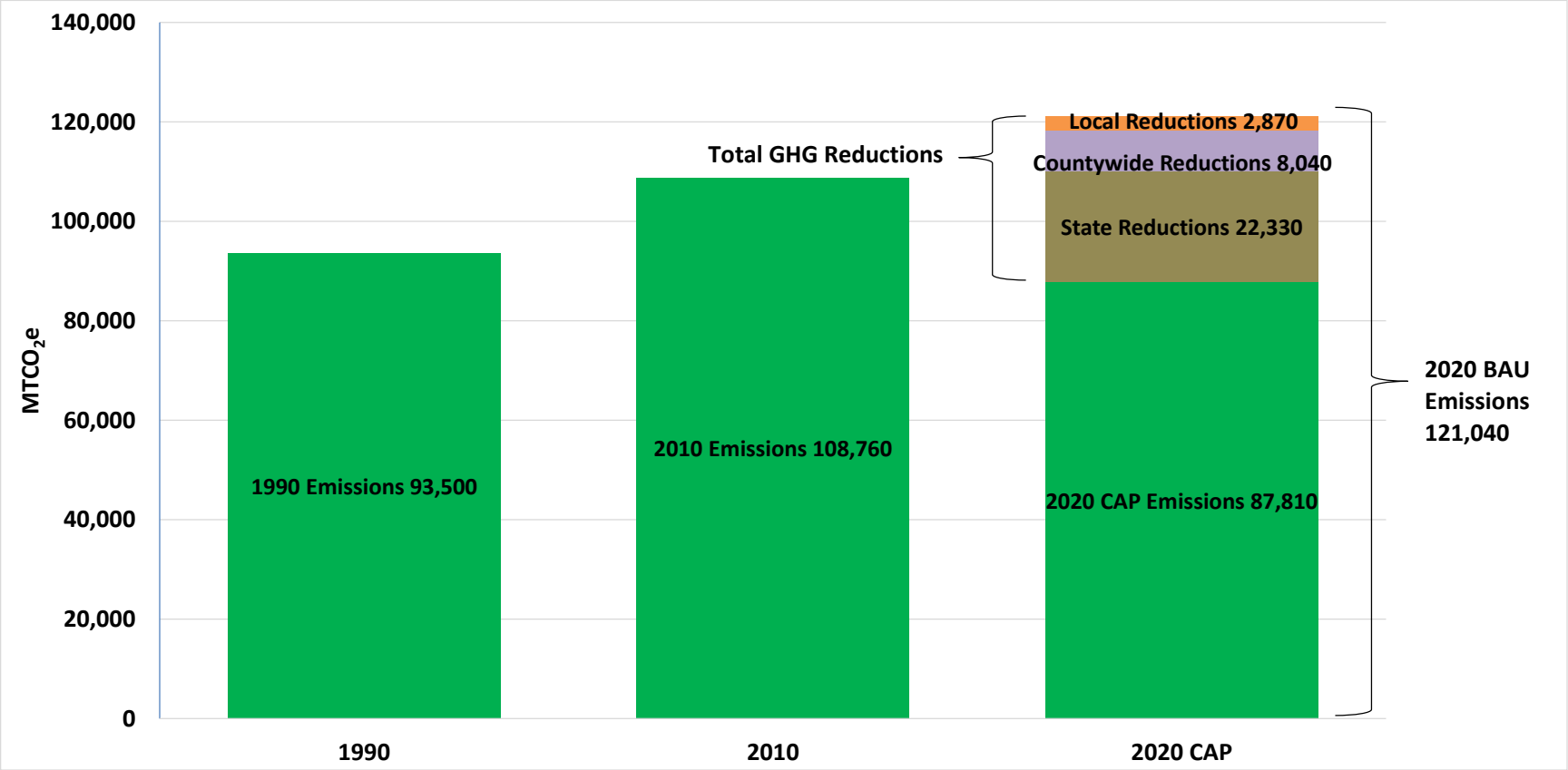
Source	2020 BAU	Reductions					
	Projection	State	County-wide	Local	Total	2020 CAP Emissions	% Reduction from BAU
Building Energy	34,150	3,980	800	360	5,140	29,010	15%
On-Road Transportation	77,630	18,160	2,080	1,220	21,470	56,160	28%
Off-Road Transportation and Equipment	2,100	190	-	50	230	1,860	11%
Solid Waste	6,670	-	5,000	-	5,000	1,670	75%
Water Conveyance	400	-	80	1,240	1,320	-[1]	100%
Wastewater Treatment	110	-	80	-	80	20	79%
Total Emissions	**121,040**	**22,330**	**8,040**	**2,870**	**33,230**	**87,810**	**27%**
		66%	**24%**	**10%**			

Values may not sum due to rounding.

[1] The CAP reduction for the water conveyance sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Water conveyance measures improve efficiency, which reduces electricity use within the building energy sector.

Figure 5.3-3 shows Healdsburg's 1990 and 2010 GHG emissions total, 2020 BAU emissions forecast total, and the total emissions remaining after implementation of the City's reduction measures. The contribution of state, regional, and local reductions are overlaid on the 2020 BAU emissions forecast total, representing the total emissions reductions achieved in 2020. Like the other communities, Healdsburg benefits greatly from the work the state and regional entities are committed to implementing on climate action. See Chapter 4 for more information on state and regional actions.

Figure 5.3-3. Healdsburg 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



Greenhouse Gas Reduction Measures

Green Water Production in the City of Healdsburg

While SCWA has adopted a carbon free water goal, the City of Healdsburg, which is not served by SCWA, has taken its own steps to deliver water supplied by green energy. By 2020, the City expects that 100% of water deliveries will be from green, non emitting energy. The reductions from this action by the City are captured in Measure 11 R2.

As shown in Table 5.3-5, the City of Healdsburg will achieve its reduction goal through a combination of state, regional, and local measures. State reduction measures are implemented through state law, including some that require action by the City to comply with state mandates (e.g., Title 24 energy efficiency measures). State measure reductions total 22,330 $MTCO_2e$, which include the Pavley vehicle fuel efficiency standards, Title 24 building standards, the state's low carbon fuel standard, and the RPS.

Regional measures will reduce emissions by 8,040 $MTCO_2e$ and will be implemented by regional entities, including the Regional Climate Protection Authority (RCPA), Sonoma County Water Agency (SCWA), County of Sonoma Energy Independence Office (ESD), Sonoma County Transportation Authority (SCTA), and Sonoma Clean Power (SCP).

An additional reduction of 2,870 $MTCO_2e$ will be achieved through locally adopted measures. The locally adopted measures, although not as high-achieving of GHG reductions as the state and regional measures, are important because they represent the actions that Healdsburg can take directly. The City of Healdsburg has local control over their infrastructure and policies and have selected the local measures that best suit the needs of their community.

The three measures that will have the greatest impact in Healdsburg are, in order of importance, Measure 11-L1 (Senate Bill SB X7-7 - Water Conservation Act of 2009), Measure 5-L6 (Parking Policies), and Measure 14-L1 (Green Energy for Water Production & Wastewater Processing). These three measures, in addition to reducing GHG emissions, will conserve water and other natural resources and improve air quality and public health in the City. As the county and state continue to experience a historic drought, water conservation will remain an especially important co-benefit.

Emissions sources with the greatest percentage reduction are water conveyance and solid waste. While these sources achieve a large percentage reduction compared to their BAU emission levels, their CO_2e reduction in metric tons is relatively small compared to other sources, especially building energy and on-road transportation.

On the state level, the RPS and the Pavley measures have the greatest potential to reduce emissions in the City. Of the regional measures, the measures with the greatest impact are the waste-to-energy and waste diversion measures.

Table 5.3-5 presents the individual GHG reduction measures that Healdsburg has selected for the CAP. For more information on the specifics of each measure, see Appendix C.

Table 5.3-5. Healdsburg 2020 GHG Emissions Reductions by Measure

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
State and Regional Measures		
Goal 1: Increase Building Energy Efficiency	**1,851**	
Measure 1-S1: Title 24 Standards for Commercial and Residential Buildings	93	N/A
Measure 1-S2: Lighting Efficiency and Toxics Reduction Act (AB1109)	959	N/A
Measure 1-S3: Industrial Boiler Efficiency	-	N/A
Measure 1-R1: Community Energy Efficiency Retrofits for Existing Buildings	28	N/A
Measure 1-R2: Expand the Community Energy Efficiency Retrofits Program	770	N/A
Goal 2: Increase Renewable Energy Use	**2,924**	
Measure 2-S1: Renewables Portfolio Standard	2,894	N/A
Measure 2-S2: Solar Water Heaters	30	N/A
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**1,567**	
Measure 5-R1: Improve and Increase Transit Service	< 1	N/A
Measure 5-R2: Supporting Transit Measures	NQ	N/A
Measure 5-R3: Sonoma-Marin Area Rail Transit	NQ	N/A
Measure 5-R4: Trip Reduction Ordinance	302	N/A
Measure 5-R5: Supporting Measures for the Transportation Demand Management Program	NQ	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
Measure 5-R6: Reduced Transit Passes	280	N/A
Measure 5-R7: Alternative Travel Marketing & Optimize Online Service	224	N/A
Measure 5-R8: Safe Routes to School	761	N/A
Measure 5-R9: Car-sharing Program	NQ	N/A
Measure 5-R10: Bike Sharing Program	NQ	N/A
Goal 6: Increase Vehicle and Equipment Fuel Efficiency	**18,164**	
Measure 6-S1: Pavley Emissions Standards for Passenger Vehicles and the Low Carbon Fuel Standard	16,928	N/A
Measure 6-S2: Advanced Clean Cars	539	N/A
Measure 6-S3: Assembly Bill 32 Vehicle Efficiency Measures	697	N/A
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**703**	
Measure 7-S1: Low Carbon Fuel Standard: Off-Road	186	N/A
Measure 7-R1: Shift Sonoma County (Electric Vehicles)	515	N/A
Measure 7-R2: Alternative Fuel for Transit Vehicles	2	N/A
Goal 9: Increase Solid Waste Diversion	**1,973**	
Measure 9-R1: Waste Diversion Goal	1,973	N/A
Goal 10: Increase Capture and Use of Methane from Landfills	**3,025**	
Measure 10-R1: Increase Landfill Methane Capture and Use for Energy	3,025	N/A
Goal 11: Reduce Water Consumption		
Measure 11-R1: Countywide Water Conservation Support and Incentives	NQ	NQ

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 12: Increase Recycled Water and Greywater Use	**47**		
Measure 12-R1: Recycled Water*	47	N/A	
Goal 13: Increase Water and Wastewater Infrastructure Efficiency	**114**		
Measure 13-R1: Infrastructure and Water Supply Improvement	77	N/A	
Measure 13-R2: Wastewater Treatment Equipment Efficiency*	37	N/A	
Local Measures			
Goal 1: Increase Building Energy Efficiency	**165**		
Measure 1-L2: Outdoor Lighting	163	80%	of outdoor lighting to participate
Measure 1-L3: Shade Tree Planting	1	100	trees planted
Goal 2: Increase Renewable Energy Use	**192**		
Measure 2-L1: Solar in New Residential Development	2	8%	of new houses to participate
Measure 2-L2: Solar in Existing Residential Building	57	2%	of existing homes with solar
Measure 2-L3: Solar in New Non-Residential Developments	1	2%	of new non-residential development to participate
Measure 2-L4: Solar in Existing Non-Residential Buildings	133	2%	of existing non-residential development with solar
Goal 3: Switch Equipment from Fossil Fuel to Electricity	**5**		
Measure 3-L1: Convert to Electric Water Heating	5	1%	of households
Goal 4: Reduce Travel Demand Through Focused Growth	**89**		
Measure 4-L1: Mixed-Use Development in City Centers and Along Transit Corridors	71	20%	of growth to result in mixed use
Measure 4-L2: Increase Transit Accessibility	17	20%	of growth to be 25+ units

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Measure 4-L3: Supporting Land Use Measures	NQ	Yes	
Measure 4-L4: Affordable Housing Linked to Transit	1	15%	of new development to be affordable
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**1,117**		
Measure 5-L1: Local Transportation Demand Management Program	112	20%	of employees eligible
Measure 5-L2: Carpool-Incentives & Ride-Sharing Program	146	25%	of employees eligible
Measure 5-L4: Supporting Bicycle/Pedestrian Measures	NQ	Yes	
Measure 5-L5: Traffic Calming	30	50%	of trips affected
Measure 5-L6: Parking Policies	830	50%	of area affected
Measure 5-L7: Supporting Parking Policy Measures	NQ	Yes	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**58**		
Measure 7-L1: Electric Vehicle Charging Station Program	11	20	charging stations installed
Measure 7-L2: Electrify Construction Equipment	47	10%	of equipment
Measure 7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	NQ	Yes	
Goal 8: Reduce Idling			
Measure 8-L1: Idling Ordinance	NQ	2	Minutes below state law
Goal 11: Reduce Water Consumption	**1,054**		
Measure 11-L1: Senate Bill SB X7-7 - Water Conservation Act of 2009*	1,054	20%	Reduction in per capita water use
Goal 12: Increase Recycled Water and Greywater Use	**< 1**		
Measure 12-L1: Greywater Use	< 1	1%	greywater goal

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems	**185**	
Measure 14-L1: Green Energy for Water Production and Wastewater Processing in Healdsburg and Cloverdale*	185	Yes
State Measure Reductions in Healdsburg	**22,330**	
Regional Measure Reductions in Healdsburg	**8,040**	
Local Measure Reductions in Healdsburg	**2,870**	
Grand Total Emissions Reductions in Healdsburg	**33,230**	

*Measures reduce emissions from multiple sources (i.e. water and energy)
NQ = not quantified

5.3.5 Municipal Greenhouse Gas Reduction Measures

Like the other cities and the county, Healdsburg has recognized the need to reduce GHG emissions from municipal operations. The City has existing programs in place for green municipal buildings and alternative fuels for its municipal fleet. Although municipal GHG reduction measures are not part of this countywide plan, action by the cities and the County to reduce municipal emissions is still important. Healdsburg and the other local communities will continue to pursue actions that reduce GHG emissions from municipal operations. Descriptions of potential municipal GHG reduction measures are provided in Appendix E as an informational resource.

Petaluma

Commitments to meeting community greenhouse gas reduction goals.

5.4 Petaluma

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

5.4.1 Community Summary

Petaluma serves as the southern gateway to Sonoma County, located 3 miles north of the Marin County-Sonoma County border and less than 20 miles south of Santa Rosa. Petaluma is known for its thriving historic downtown district, rich agricultural heritage, and as a growing hub for food and beverage processing, information communications technology, green services and construction, diversified manufacturing, consumer products, health & wellness, tourism, and recreation. Home to a diverse range of housing types, award-winning schools, and over 40 annual events and festivals, Petaluma is a family-oriented community with a strong sense of place with easy access to wine country, the coast, and San Francisco.

Demographics

Petaluma spans 14.5 square miles and had a population of 57,941 as of the 2010 census. In 2020 the population of Petaluma is expected to be 61,122, an increase of 5% over 2010. Employment in the area is expected to increase by 13%. Petaluma's demographic composition in 2010 was 81% White, 1% African American, 0.6% Native American, 5% Asian, 0.2% Pacific Islander, 9% from other races, and 4% from two or more races. Persons of Hispanic or Latino origin were 22%.

As shown in Table 5.4-1, the City is expected to experience steady growth in population, housing, and jobs in the future.

Table 5.4-1. Petaluma Socioeconomic Data

	Actual		Projected			
	1990	2010	2015	2020	2040	2050
Population	43,184	57,941	59,440	61,122	68,542	71,980
Housing	16,062	22,198	22,862	23,508	26,362	27,670
Employment	26,145	31,537	33,644	35,738	38,488	39,897

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

According to the 2010 Census data, Petaluma housing is majority owner-occupied with 65% of all housing units owned and 35% rented.

Energy and Water Use

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

Table 5.4-2. Petaluma, County, and State 2010 Average Energy and Water Use (per household, per year)

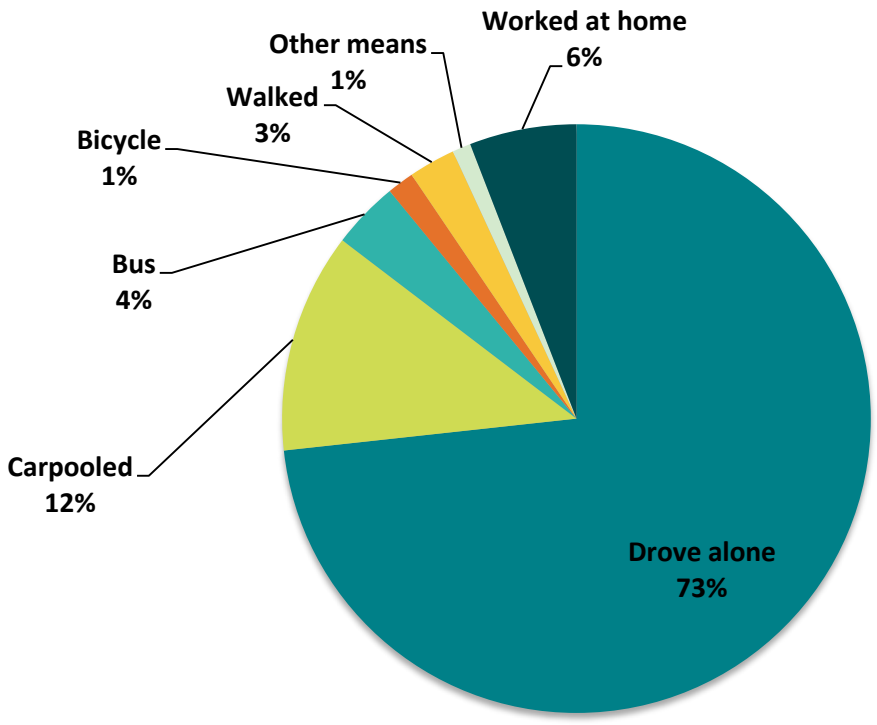
	Petaluma	County	State
Electricity (kWh)	6,000	7,042	9,320
Natural Gas (Therms)	493	413	512
Water Use (Gallons)	73,268	75,810	107,869

Sources:
City Data: provided by PG&E (energy) and by the City of Petaluma Urban Water Management Plan.
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 Petaluma residents (73%) drove alone to work. The average work trip for a resident of Petaluma is 29.3 minutes, higher than the county average of 25.3 minutes (U.S. Census Bureau 2014).

Figure 5.4-1. Modes to Work in Petaluma in 2010



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

5.4.2 Petaluma's Existing Actions to Reduce GHG Emissions

Petaluma has already taken a number of steps to reduce energy use, promote renewable energy use, and other actions that have already been helping to reduce GHG emissions. The City has adopted the following programs, ordinances, and General Plan policies that help to reduce GHG emissions and will support the implementation of the formal GHG reduction measures in this CAP.

- Building Energy
    - Residential Retrofits: Energy Upgrade California in Sonoma County – Whole House Upgrade Program.
    - Residential Appliance Upgrades: Programs through PG&E and other agencies.
    - Solar Installations at Residences: Energy Upgrade California in Sonoma County – Whole House Upgrade Program.
    - Solar Sonoma County program.
    - Community Choice Aggregation – General Plan Policy: Chapter 4 – Policy 4-P-28. Prepare a feasibility report for the City of Petaluma forming a Community Choice Aggregation as a way of supplying renewable energy to the community. (Petaluma joined SCP in 2014).
    - Solar Subsidy – General Plan Policy: Chapter 4 – Policy 4-P-32. Investigate the feasibility of developing a City sponsored program to subsidize or assist homeowners in purchasing

solar water heating or passive solar systems, or other forms of renewable energy, through low-interest loans or property tax assessments. (Petaluma participates in the Sonoma County Energy Independence Program and Property Assessed Clean Energy [PACE] Financing Marketplace).

- Green Building Guidelines – General Plan Policy: Chapter 2 – Policy 2-P-118B. Prepare and adopt green street standards, and incorporate these practices in design of City streets.
- Green Building Guidelines – General Plan Policy: Chapter 2 – Policy 2-P-118C. Prepare a salvage ordinance that requires an inventory of usable materials prior to demolition.
- Incorporation – General Plan Policy: Chapter 2 – Policy 2-P-119. Incorporate green building principles and practices into the planning, design, construction, management, renovation, operations, and demolition of all facilities that are constructed, owned, managed or financed by the City.
- Evaluation and Implementation – General Plan Policy: Chapter 2 – Policy 2-P-121. Evaluate the success of the voluntary green program and develop and implement a mandatory program for new residential, commercial and municipal development and remodels.
- CALGreen Building Standards Code: Municipal Code Chapter 17.04.010 – Part 11. CALGreen Tier 1 adopted as mandatory for residential and non-residential buildings.
- Energy Standards – General Plan Policy: Chapter 4 – Policy 4-P-18. Develop and adopt local energy standards that would result in less energy consumption than standards set by the California Energy Commission's (CEC) Title 24 or updates thereto.

- Land Use and Transportation
  - Bicycle and Pedestrian Master Plan adopted May 2008.
  - Multiple Modes – General plan Policy: Chapter 5 – Policy 5-P-1. Develop an interconnected mobility system that allows travel on multiple routes by multiple modes.
  - Increased Transit Service – General Plan Policy: Chapter 5 – Policy 5-G-42. Expand the bus transit system so that it is convenient and provides frequent, regular service along major City corridors serving education, shopping, and employment destinations, and SMART park-and-ride lots.
  - Subsidized Fares – General Plan Policy: Chapter 5 – Policy 5-P-44. Maintain a transit system of nominal cost, or no cost, to riders.
  - Support Transit Oriented Development – General Plan Policy: Chapter 5 – Policy 5-P-43. Support efforts for transit oriented development around the Petaluma Depot and along the Washington Street, Petaluma Boulevard, McDowell Boulevard, Lakeville Street, and other transit corridors. (Petaluma SMART Rail Station Areas: TOD Master Plan adopted June 2013)

- Transportation Demand Management – General Plan Policy: Chapter 5 – Policy 5-P-13. Encourage existing major employers to develop and implement Transportation Demand Management programs to reduce peak period trip generation.
- Alternative Fuel Stations – General Plan Policy: Chapter 4 – Policy 4-P-9. Require a percentage of parking spaces in large parking lots or garages to provide electrical vehicle charging facilities.
- Charging Stations – General Plan Policy: Chapter 4 – Policy 4-P-10. Require electric vehicle charging and alternative fuel facilities at all new and remodeled gas stations.
- Ride Sharing – General Plan Policy: Chapter 4 -Policy 4-P-11. Promote ride-sharing and car-sharing programs.
- Drive-Through Prohibition – General Plan Policy: Chapter 4 – Policy 4-P-12. Prohibit new drive-thru food and service facilities with the exception of vehicle serving businesses, such as car wash and oil/lube, and limit expansion of the drive-thru components of existing facilities which increase idling vehicles.
- Traffic Calming – General Plan Policy: Chapter 4 – Policy 4-P-13. Require development of traffic roundabouts, where feasible, as an alternative to a traffic signal, to reduce idling vehicles.
- Transportation Tech – General Plan Policy: Chapter 4 – Policy 4-P-14. Develop and integrate Intelligent Transportation Technologies, as applicable, into Petaluma's transportation system.
- Trip Reduction Ordinance: Municipal Code Chapter 11.90. Requirements for employers with 100+ employees at a given work site to distribute information on the benefits of alternative transportation, designate a transportation coordinator, and perform annual surveys and reports on employee transportation use.

- Waste Minimization and Recycling
  - Construction Phase Recycling Plan – General Plan Policy: Chapter 2 – Policy 2-P-121. Require development projects to prepare a Construction Phase Recycling Plan that would address the reuse and recycling of major waste materials (soil, vegetation, concrete, lumber, metal scraps, cardboard packaging, etc.) generated by any demolition activities and construction of the project.
  - Plastic Bottles – General Plan Policy: Chapter 4 – Policy 4-P-21G. Investigate and replace bottled water in City offices with alternate source of drinking water.
  - Compost – General Plan Policy: Chapter 4 – Policy 4-P-21D. Develop a residential and commercial food waste composting program.
  - Environmental Purchasing – General Plan Policy: Chapter 4 – Policy 4-P-32. Develop and implement a municipal Environmentally Preferable Purchasing Program.

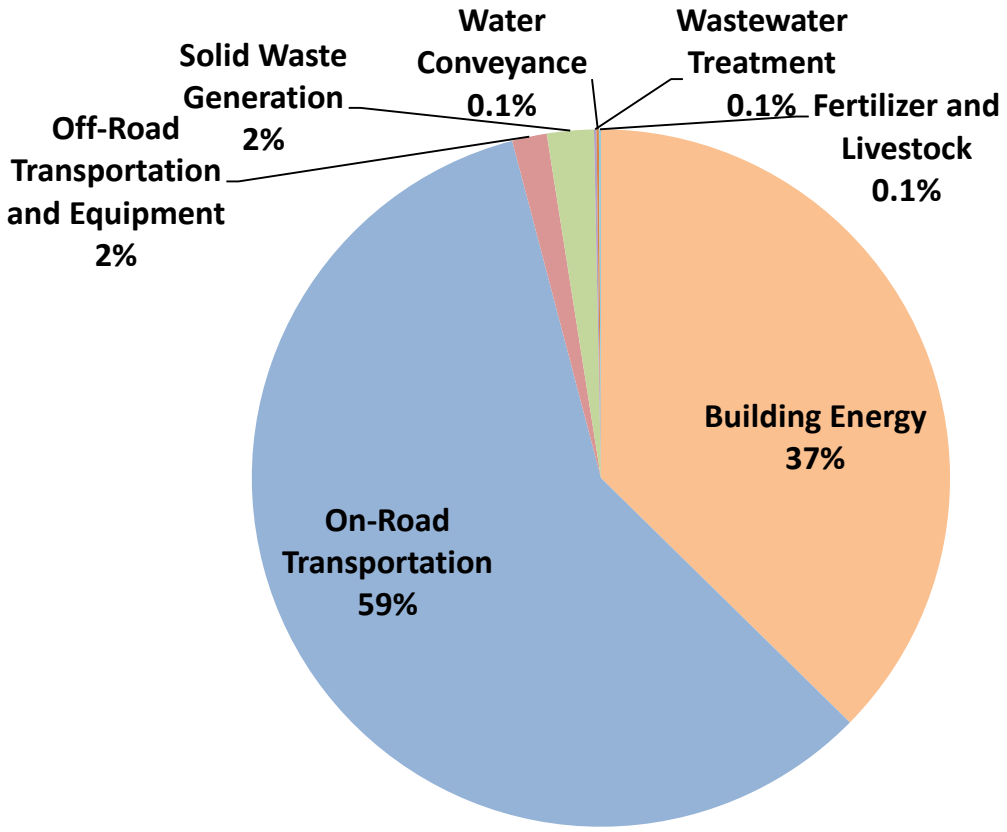
- Green Purchasing – General Plan Policy: Chapter 4 – Policy 4-p-21D. Purchase goods containing recycled materials for City use.

- Urban Forestry and Natural Areas
  - Required Tree Planting – General Plan Policy: Chapter 4 – Policy 4-P-6A. Require planting of trees for every significant tree removed at a project site. Replacement planting may occur on the project site or on a publicly owned area, with long-term maintenance assured. Encourage the use of trees which provide biogenic benefits to air quality and are suitable to the local environment.
- Water and Wastewater Efficiency
  - Petaluma's water treatment facility currently supplies 846 acre feet per year of recycled water for outdoor turf irrigation. This is projected to increase to over 1,100 acre feet per year by 2020.
  - Sewer Lateral Replacement Grant Program: provides financial assistance to property owners for the replacement of their private sewer lateral, which is often a source of infiltration and inflow to the sewer collection system.
  - High Efficiency Toilet Rebate: Up to $150 rebate for each high-efficiency toilet installed.
  - High Efficiency Clothes Washer Rebate: Up to $125.00 rebates for high efficiency clothes washing machines.
  - Mulch Madness: Offers free mulch, compost, cardboard, an irrigation conversion kit and free native plants from a local native plant nursery to those customers who wish to sheet mulch their existing turf. Free volunteer labor for those that are unable to install measures themselves.
  - Smart Yard: improves landscape water use efficiency by assessing and installing water-use efficiency irrigation and landscape systems. The cost of the systems and labor is added to a monthly water bill. The charges are added to the water bill for 5 years, after which the customer officially owns the system.
- Multi-sector
  - The City of Petaluma's Biomass-to-Biofuel Project will leverage highly optimized anaerobic digestion technology and state-of-the-art biogas scrubbing technology to produce more than 150,000 gallons gas equivalent of compressed natural gas (CNG) annually. The biogas will be produced primarily from high strength waste, food waste and fats, oils and grease, and wastewater solids. This renewable fuel will replace high carbon intensity fuels with CNG that has a net negative carbon intensity for Petaluma's transit fleet and its waste hauler's collection fleet. This project could serve as a model for a local renewable fuel program. The project combines several features for reducing carbon emissions:

    - Efficiently producing and utilizing a very low carbon intensity, renewable vehicle fuel as a replacement for high carbon intensity fuels, like diesel.
    - Substantially reducing truck traffic and fuel consumption by keeping and treating commercial food waste, FOG and food processing waste within the community
    - Discontinuing the disposal of readily biodegradable waste in situations and landfills where aggressive greenhouse gases are produced and difficult to contain.
- Greenhouse Gas Emissions
    - General Plan Policy: Chapter 4 – Policy 4-P-15. Improve air quality by reducing emissions from stationary point sources of air pollution (e.g., equipment at commercial and industrial facilities) and stationary area sources (e.g., wood-burning fireplaces & gas powered lawn mowers) which cumulatively emit large quantities of emissions.
    - Climate Action Plan – General Plan Policy: Chapter 4 – Policy 4-P-27. The City shall prepare a Community Climate Action Plan to identify and prioritize programs, projects, and procedural policies that will help the City achieve the community greenhouse gas emission goals of Resolution 2005-118 (25% below 1990 levels by 2015).

5.4.3 Greenhouse Gas Inventory and Forecast

Figure 5.4-2. Petaluma 2010 Community GHG Inventory by Source



Petaluma's inventory is similar to other cities in the county and state. The majority of the GHG emissions are from transportation due to fossil fuel combustion in personal and light-duty vehicles. The next largest source is building energy, which includes emissions related to energy used to heat the homes and businesses in Petaluma. Residential uses account for most (54%) of the building energy emissions in Petaluma. Commercial uses account for 46% of building energy emissions. The other categories of emissions are much smaller in comparison to building energy and on-road transportation.

In Petaluma, total GHG emissions generated by community activities in 2010 were 441,880 $MTCO_2e$, which is approximately 12% of countywide GHG emissions in the same year. This is a 14% increase from estimated 1990 emissions, which were 387,020 $MTCO_2e$. Table 5.4-3 shows the 1990 backcast, the 2010 inventory and business-as-usual (BAU) forecasts for 2015, 2020, 2040 and 2050 for the City of Petaluma.

Table 5.4-3. Petaluma Community GHG Backcast, Inventory, and Forecasts

Source	1990 Backcast		2010 Inventory		2015 Forecast		2020 Forecast		2040 Forecast		2050 Forecast	
Building Energy	134,720	35%	165,260	37%	182,020	36%	190,180	35%	209,020	36%	218,060	37%
On-Road Transportation	228,530	59%	258,940	59%	303,090	60%	330,670	61%	339,440	58%	336,690	57%
Off-Road Transportation and Equipment	5,980	2%	7,110	2%	8,550	2%	10,290	2%	19,370	3%	20,210	3%
Solid Waste	11,960	3%	9,580	2%	10,050	2%	10,530	2%	11,530	2%	12,020	2%
Wastewater Treatment	390	0%	520	0.1%	540	0%	550	0%	620	0%	650	0%
Water Conveyance	5,440	1%	470	0.1%	720	0%	750	0%	880	0%	930	0%
Total	**387,020**	**100%**	441,880	**100%**	504,970	**100%**	542,970	**100%**	580,870	**100%**	588,560	**100%**
Per-Capita Emissions	**9.0**		**7.6**		**8.5**		**8.9**		**8.5**		**8.2**	

5.4.4 Greenhouse Gas Reduction Goal and Measures

The City of Petaluma joins the other Sonoma County communities to support the regional GHG emissions reduction target of 25% below 1990 countywide emissions by 2020 through adoption of 24 local GHG reduction measures. The City's GHG emissions under 2020 BAU conditions (in absence of state, regional, and local measures) would be approximately 542,970 $MTCO_2e$. The City's local GHG reduction measures, in combination with state and regional measures, would reduce the City's GHG emissions in 2020 to 376,630 $MTCO_2e$, which would be a reduction of approximately 31% compared to 2020 BAU conditions. The City will achieve these reductions through reduction measures that are technologically feasible and cost-effective per AB 32 through a combination of state (72%), regional (17%), and local (11%) efforts. With the reduction measures in CA2020, per-capita emissions in Petaluma will be 6.2 MTCO2e per person, a 31% reduction in per capita emissions compared to 1990.

Table 5.4-4. Petaluma 2020 GHG BAU Emissions, Reductions, and CAP Emissions

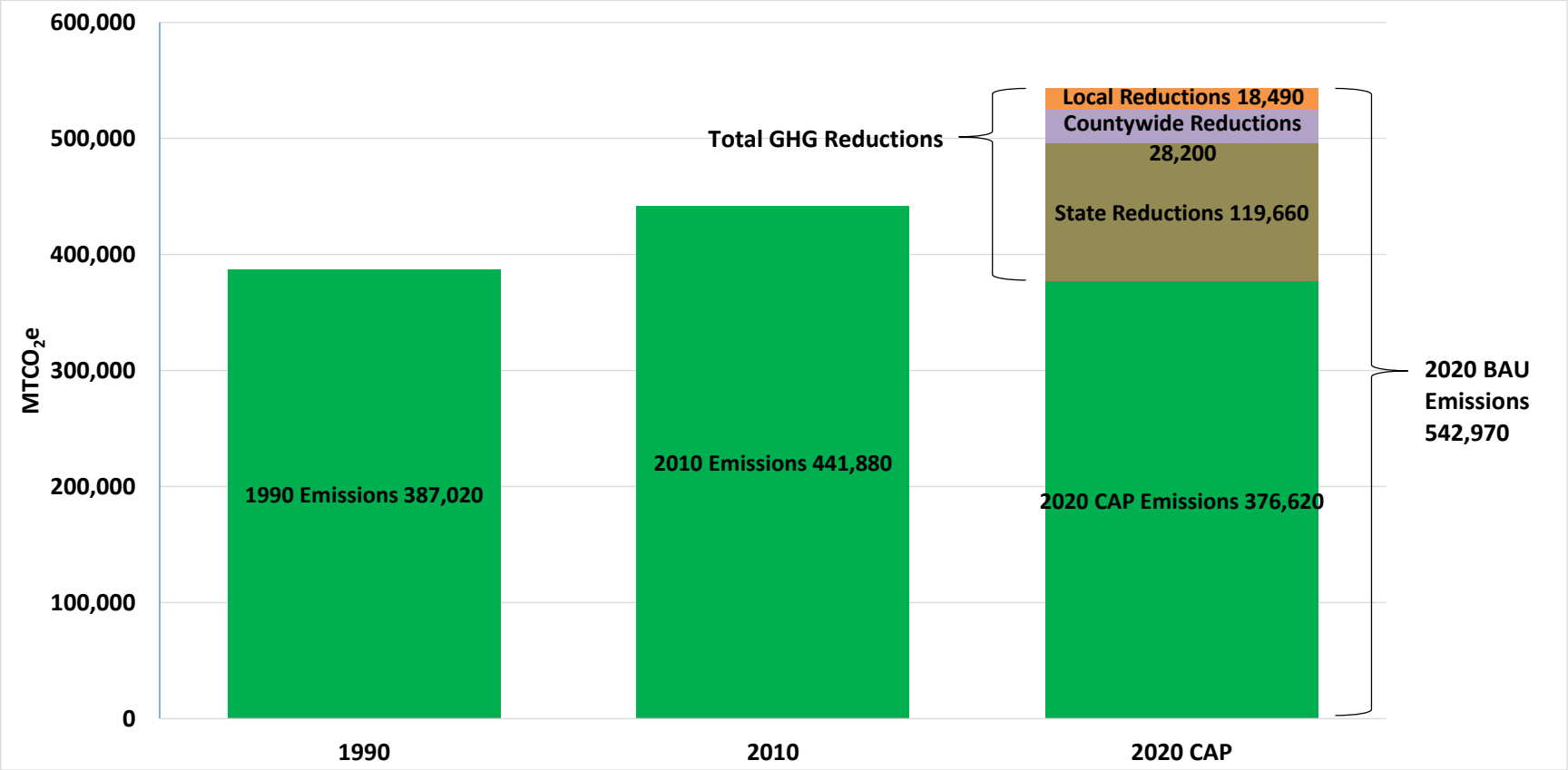
Source	2020 BAU Forecast	Reductions				2020 CAP Emissions	% Reduction from BAU
		State	County-wide	Local	Total		
Building Energy	190,180	43,440	11,900	9,160	64,500	125,680	34%
On-Road Transportation	330,670	75,300	8,540	1,640	85,470	245,200	26%
Off-Road Transportation and Equipment	10,290	910	-	2,670	3,580	6,710	35%
Solid Waste	10,530	-	6,950	-	6,950	3,590	66%
Water Conveyance	750	-	680	5,020	5,710	- [1]	100%
Wastewater Treatment	550	-	140	-	140	420	25%
Total Emissions	**542,970**	**119,660**	**28,200**	**18,490**	**166,350**	**376,630**	**31%**
		72%	**17%**	**11%**			

Values may not sum due to rounding.

[1] The CAP reduction for the water conveyance sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Water conveyance measures reduce improve efficiency, which reduces electricity use within the building energy sector.

Figure 5.4-3 shows Petaluma's 1990 and 2010 GHG emissions total, 2020 BAU emissions forecast total, and the total emissions remaining after implementation of the City's reduction measures. The contribution of state, regional, and local reductions are overlaid on the 2020 BAU emissions forecast total, representing the total emissions reductions achieved in 2020. Like the other communities, Petaluma benefits greatly from the work the state and other regional entities are committed to implementing on climate action. See Chapter 4 for more information on state and regional actions.

Figure 5.4-3. Petaluma 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



Greenhouse Gas Reduction Measures by Source

As shown in Table 5.4-5, the City of Petaluma will achieve its reduction goal through a combination of state, regional, and local measures. State reduction measures are implemented through state law, including some that require action by the City to comply with state mandates (e.g., Title 24 energy efficiency measures). State measure reductions total 119,660 $MTCO_2e$, including the Pavley vehicle fuel efficiency standards, Title 24 building standards, the state's low carbon fuel standard, and the RPS.

Regional measures will reduce emissions by 28,200 $MTCO_2e$ and will be implemented by regional entities, including the Regional Climate Protection Authority (RCPA), Sonoma County Water Agency (SCWA), County of Sonoma Energy Independence Office (ESD), Sonoma County Transportation Authority (SCTA), and Sonoma Clean Power (SCP).

An additional reduction of 18,490 $MTCO_2e$ will be achieved primarily through locally adopted measures relevant to the City of Petaluma. The locally adopted measures, although not as high-achieving of GHG reductions as the state and regional measures, are important because they represent the actions that local communities can take directly. The communities have local control over their infrastructure and policies and have selected the local measures that best suit the needs of their community.

The three measures that will have the greatest impact in Petaluma are, in order of importance, Measure 2-L4 (Solar in Existing Non-Residential Buildings), Measure 11-L1 (Senate Bill SB X7-7 - Water Conservation Act of 2009), and Measure 7-L3 (Reduce Fossil fuel Use in Equipment). These three measures, in addition to reducing GHG emissions, will save energy, improve air quality and public health in the region, and conserve water and other natural resources. As the county and state continue to experience a historic drought, water conservation will remain an especially important co-benefit.

On the state level, the RPS and the Pavley measures have the greatest potential to reduce emissions in the City. Of the regional measures, the measures with the greatest impact include the Community Choice Aggregation (CCA) measure, the waste-to-energy measure, and the waste diversion measure.

Table 5.4-5 presents the individual GHG reduction measures that Petaluma has selected for the CAP. For more information on the specifics of the measures, see Appendix C.

City of Petaluma Biomass to Biofuel Project

The City of Petaluma is partnering with the California Energy Commission in a pilot project to capture the gas released naturally by food waste generated in the City and reuse it for fuel for the City's municipal vehicle fleet. The Biomass to Biofuel project will use state of the art technology to capture the gas from food waste and wastewater solids. The gas will then be used for the City's transit fleet and the waste collection vehicle fleet. The project will be an excellent example of how wastewater utilities and the food processing industry can reduce the carbon intensity of transportation.

Table 5.4-5. Petaluma 2020 GHG Emissions Reductions by Measure

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
State and Regional Measures		
Goal 1: Increase Building Energy Efficiency	**9,236**	
Measure 1-S1: Title 24 Standards for Commercial and Residential Buildings	2,686	N/A
Measure 1-S2: Lighting Efficiency and Toxics Reduction Act (AB1109)	4,135	N/A
Measure 1-S3: Industrial Boiler Efficiency	-	N/A
Measure 1-R1: Community Energy Efficiency Retrofits for Existing Buildings	155	N/A
Measure 1-R2: Expand the Community Energy Efficiency Retrofits Program	2,259	N/A
Goal 2: Increase Renewable Energy Use	**46,104**	
Measure 2-S1: Renewables Portfolio Standard	36,470	N/A
Measure 2-S2: Solar Water Heaters	153	N/A
Measure 2-R1: Community Choice Aggregation	9,481	N/A
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**6,161**	
Measure 5-R1: Improve and Increase Transit Service	49	N/A
Measure 5-R2: Supporting Transit Measures	NQ	N/A
Measure 5-R3: Sonoma-Marin Area Rail Transit	NQ	N/A
Measure 5-R4: Trip Reduction Ordinance	1,294	N/A
Measure 5-R5: Supporting Measures for the Transportation Demand Management Program	NQ	N/A
Measure 5-R6: Reduced Transit Passes	1,198	N/A
Measure 5-R7: Alternative Travel Marketing & Optimize Online Service	959	N/A
Measure 5-R8: Safe Routes to School	2,662	N/A
Measure 5-R9: Car-sharing Program	NQ	N/A
Measure 5-R10: Bike Sharing Program	NQ	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
Goal 6: Increase Vehicle and Equipment Fuel Efficiency	**75,303**	
Measure 6-S1: Pavley Emissions Standards for Passenger Vehicles and the Low Carbon Fuel Standard	70,043	N/A
Measure 6-S2: Advanced Clean Cars	2,140	N/A
Measure 6-S3: Assembly Bill 32 Vehicle Efficiency Measures	3,119	N/A
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**3,286**	
Measure 7-S1: Low Carbon Fuel Standard: Off-Road	911	N/A
Measure 7-R1: Shift Sonoma County (Electric Vehicles)	2,338	N/A
Measure 7-R2: Alternative Fuel for Transit Vehicles	38	N/A
Goal 9: Increase Solid Waste Diversion	**3,106**	
Measure 9-R1: Waste Diversion Goal	3,106	N/A
Goal 10: Increase Capture and Use of Methane from Landfills	**3,841**	
Measure 10-R1: Increase Landfill Methane Capture and Use for Energy	3,841	N/A
Goal 11: Reduce Water Consumption		
Measure 11-R1: Countywide Water Conservation Support and Incentives	NQ	N/A
Goal 13: Increase Water and Wastewater Infrastructure Efficiency	**141**	
Measure 13-R1: Infrastructure and Water Supply Improvement	6	N/A
Measure 13-R2: Wastewater Treatment Equipment Efficiency*	136	N/A
Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems	**678**	
Measure 14-R1: Sonoma County Water Agency Carbon Free Water by 2015	678	N/A
Local Measures		
Goal 1: Increase Building Energy Efficiency	**414**	

State, Regional, and Local Measures	2020 GHG Reductions		Participation Rate
Measure 1-L2: Outdoor Lighting	403	50%	of outdoor lighting to participate
Measure 1-L3: Shade Tree Planting	11	1,000	trees planted
Goal 2: Increase Renewable Energy Use	**8,407**		
Measure 2-L1: Solar in New Residential Development	106	50%	of new houses to participate
Measure 2-L2: Solar in Existing Residential Building	1,889	15%	of existing homes with solar
Measure 2-L3: Solar in New Non-Residential Developments	97	10%	of new non-residential development to participate
Measure 2-L4: Solar in Existing Non-Residential Buildings	6,315	20%	of existing non-residential development with solar
Goal 3: Switch Equipment from Fossil Fuel to Electricity	**340**		
Measure 3-L1: Convert to Electric Water Heating	340	10%	of households
Goal 4: Reduce Travel Demand Through Focused Growth	**1,378**		
Measure 4-L1: Mixed-Use Development in City Centers and Along Transit Corridors	1,201	60%	of growth to result in mixed use
Measure 4-L2: Increase Transit Accessibility	130	15%	of growth to be 25+ units
Measure 4-L3: Supporting Land Use Measures	NQ	Yes	
Measure 4-L4: Affordable Housing Linked to Transit	47	15%	of new development to be affordable
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**255**		
Measure 5-L4: Supporting Bicycle/Pedestrian Measures	NQ	Yes	
Measure 5-L5: Traffic Calming	255	100%	of trips affected
Measure 5-L7: Supporting Parking Policy Measures	NQ	Yes	
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**2,619**		
Measure 7-L1: Electric Vehicle Charging Station Program	3	5	charging stations installed
Measure 7-L2: Electrify Construction Equipment	224	10%	of equipment
Measure 7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	2,392	Yes	

State, Regional, and Local Measures	2020 GHG Reductions		Participation Rate
Goal 8: Reduce Idling	**53**		
Measure 8-L1: Idling Ordinance	NQ	2	minutes below state law
Measure 8-L2: Idling Ordinance for Construction Equipment	53	2	minutes below state law
Goal 9: Increase Solid Waste Diversion	**< 1**		
Measure 9-L1: Create Construction and Demolition Reuse and Recycling Ordinance	< 1	3%	beyond baseline
Goal 11: Reduce Water Consumption	**5,024**		
Measure 11-L1: Senate Bill SB X7-7 - Water Conservation Act of 2009*	3,755	20%	Reduction in per capita water use
Measure 11-L2: Water Conservation for New Construction*	130	100% /50%	% of new residential/ nonresidential development
Measure 11-L3: Water Conservation for Existing Buildings*	1,139	25%/ 50%	% of new residential/ nonresidential development
Goal 12: Increase Recycled Water and Greywater Use	**< 1**		
Measure 12-L1: Greywater Use	< 1	2%	greywater goal
State Measure Reductions in Petaluma	**119,660**		
Regional Measure Reductions in Petaluma	**28,200**		
Local Measure Reductions in Petaluma	**18,490**		
Grand Total Emissions Reductions in Petaluma	**166,350**		

*Measures reduce emissions from multiple sources (i.e. water and energy)

NQ = not quantified

5.4.5 Municipal Greenhouse Gas Reduction Measures

Like the other cities and the county, Petaluma has recognized the need to reduce GHG emissions from municipal operations. Petaluma completed the "City of Petaluma Greenhouse Gas Emissions Reduction Action Plan Analysis" in October 2009. This municipal climate action plan outlines GHG reduction initiatives that the City can pursue for its facilities. The analysis and resulting GHG emissions reductions include opportunities for improved municipal building efficiency, fleet composition, street light retrofits, water/wastewater system improvements, and PV system installations.

Although municipal GHG reduction measures are not part of this countywide plan, action by the cities and the County to reduce municipal emissions is still important. Petaluma and the other local communities will continue to pursue actions that reduce GHG emissions from municipal operations. Descriptions of potential municipal GHG reduction measures are provided in Appendix E as an informational resource.

Rohnert Park

Commitments to meeting community greenhouse gas reduction goals.

5.5 Rohnert Park

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

5.5.1 Community Summary

Rohnert Park is located approximately 50 miles north of San Francisco and is bordered by the cities of Cotati to the southwest and Santa Rosa to the north. By automobile, Rohnert Park is accessed regionally from U.S. 101 and State Route (SR) 116. U.S. 101 travels north-south through Rohnert Park, connecting the City to Mendocino County on the north and the San Francisco Bay Area to the south. SR 116 is connected to U.S. 101 and to cities and destinations including Sebastopol, the Sonoma Coast, and the Russian River to the west; Petaluma to the south; and the Sonoma Valley to the east.

Modeled on the neighborhood unit concept, Rohnert Park was established in 1956 as a master-planned city. The neighborhood unit concept emphasized the development of cities as a series of neighborhood units, with single-family residences organized around a centrally located school and park. Commercial areas were planned at the periphery of each neighborhood unit.

Rohnert Park has a designated stop on the SMART commuter rail line, which is expected to start service in late 2016. The SMART line will connect the major cities of Sonoma and Marin Counties along U.S. 101, from Cloverdale to the Larkspur Ferry Terminal. Rohnert Park is located approximately midway on the planned SMART rail system and is one of 10 SMART stations planned in Sonoma County, which also include neighboring Cotati, Santa Rosa, and Petaluma. In 2013, the City received the Priority Development Area (PDA) planning grant from the Metropolitan Transportation Commission to prepare a PDA Plan to leverage the coming SMART station and Multi-Use Path (MUP) to support creation of a transit-oriented, pedestrian-friendly downtown for Rohnert Park. The PDA Plan also promotes infill growth supporting development of Central Rohnert Park as a complete community, with a mix of uses and greater range of transit, bicycle, and pedestrian circulation options.

Both the SMART commuter train and the MUP are intended to provide alternative forms of transportation, potentially reducing vehicular congestion on U.S. 101 and related GHG emissions.

Demographics

Rohnert Park spans 7 square miles and had a population of 40,971 as of the 2010 census. In 2020 the population of Rohnert Park is expected to be 47,232, an increase of 15% over 2010. Employment in the area is expected to increase by 43%. Rohnert Park's demographic composition in 2010 was 76% White, 2% African American, 1% Native American, 5% Asian, 0.4% Pacific Islander, 10% from other races, and 6% from two or more races. Persons of Hispanic or Latino origin were 22%.

As shown in Table 5.5-1, growth in population, housing, and jobs in the City is expected to occur moderately over the planning period.

Table 5.5-1. Rohnert Park Socioeconomic Data

	Actual		Projected			
	1990	2010	2015	2020	2040	2050
Population	36,326	40,971	42,590	47,232	50,804	54,581
Housing	13,404	16,143	16,941	18,787	20,208	21,710
Employment	15,288	15,038	17,393	21,460	21,460	21,460

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

According to the 2010 Census data, the City of Rohnert Park is majority owner-occupied with 54% of housing units owned and 46% rented.

Energy and Water Use

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

Table 5.5-2. Rohnert Park, County, and State 2010 Average Energy and Water Use (per household, per year)

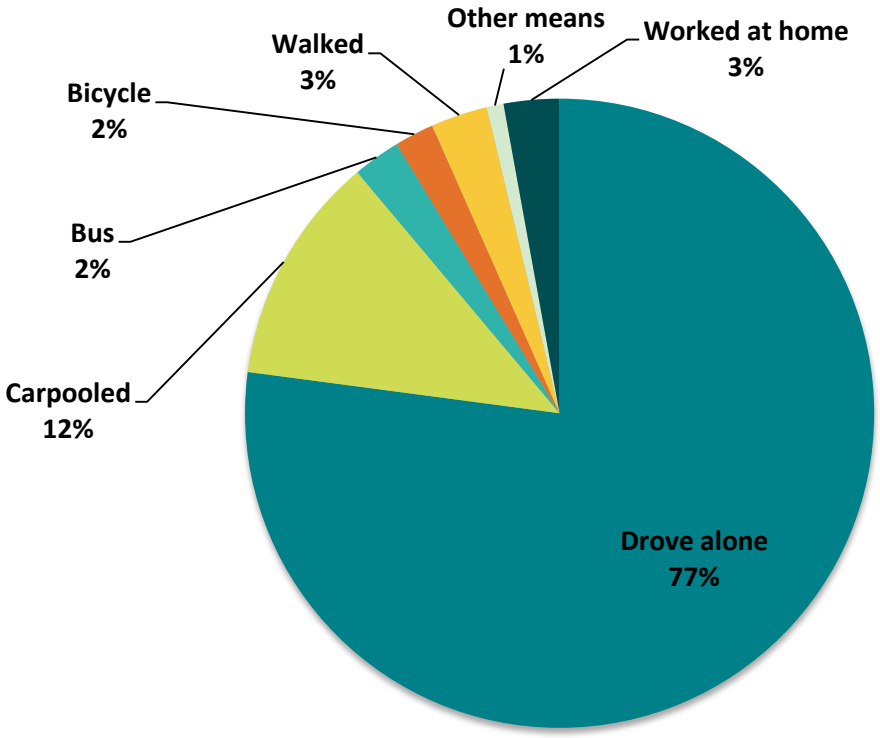
	Rohnert Park	County	State
Electricity (kWh)	6,039	7,042	9,320
Natural Gas (Therms)	392	413	512
Water Use (Gallons)	62,733	75,810	107,869

Sources:
City Data: provided by PG&E (energy) and by the City of Rohnert Park Urban Water Management Plan.
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 inventory year 2010, most Rohnert Park residents (77%) drove to work, with 12% carpooling. According to Census data, it takes residents of Rohnert Park an average of 27.7 minutes to get to work (U.S. Census Bureau 2014).

Figure 5.5-1. Modes to Work in Rohnert Park in 2010



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

5.5.2 Rohnert Park's Existing Actions to Reduce GHG Emissions

Rohnert Park has already taken a number of steps to reduce energy use, promote renewable energy use, and other actions that have been helping to reduce GHG emissions. The City has adopted the following ordinances and General Plan policies that help to reduce GHG emissions and will support the implementation of the formal GHG reduction measures in this CAP.

- Building Energy
    - Green Building Ordinance: Municipal Code Chapter 15.16.020. Adoption of CALGreen Tier 1 residential and non-residential voluntary measures as mandatory.
    - Residential Retrofits: Energy Upgrade California in Sonoma County – Whole House Upgrade Program.
    - Residential Appliance Upgrades: Programs through PG&E and other agencies.
    - Solar Installations at Residences: Energy Upgrade California in Sonoma County – Whole House Upgrade Program.
    - Solar Sonoma County program.
    - Climate Action Projects Completed for energy efficiency:
        - Lighting Retrofit (2001)

        - APS Measures (2006)
        - PV APS Package (2006)
        - Computer Network Controls (2009)
        - PV-New City Hall (2009)
        - LED Christmas Light Replacement (2009)
        - Staff Energy Efficiency Coordinator (2010)
        - HPS to LED A – Park Lights Project (2010)
        - Countywide Building Retrofit Program (2011)
    - Energy Efficiency Conservation Block Grant Program: Develop, promote, implement, and manage energy efficiency and conservation programs.
- Land Use and Transportation
    - Bicycle and Pedestrian Master Plan.
    - Zero Emission Mobility Program: Initiate a fleet of zero emissions vehicles.
    - AB 118 Alternative Fuel Vehicle Grant.
    - Urban Growth Boundary – General Plan Goal: Chapter 2.4 – Goal LU-A. Maintain a compact urban form with a defined UGB. Ensure land surrounding the City is maintained for open space.
    - Rail Service and Transit Center – General Plan Policy: Chapter 4 – Policies TR-33 through TR-34. Continue efforts to develop commuter rail service along Northwestern Pacific right-of-way and evaluate and implement a multi-hub transit corridor along Rohnert Park Expressway that incorporates a rail station, bus transfer station, frequent shuttles to Sonoma State, and parking.
    - Increased Bus Stops and Shelters – General Plan Policy: Chapter 4 – Policies TR-30 through TR-32. Determine locations of new bus stops in conjunction with increased transit service routes, require stops and shelter in conjunction with new development, and ensure stops and shelters comply with standards set in TR-32.
    - Increased Transit Service – General Plan Policy: Chapter 4 – Policies TR-28 through TR-29. Work with Sonoma County Transit and Golden gate transit to increase bus service, expand bus system for newly developed areas, explore the feasibility of a Sonoma State University campus shuttle and student discounts for transit.
    - Trip Reduction Ordinance: Municipal Code Chapter 10.80. All employers within the City of Rohnert Park with 100 or more employees at an individual job site shall disseminate trip reduction information regarding transportation alternatives including carpools, vanpools, transit and bicycling, and other methods of reducing trips such as telecommuting,

compressed work week, and flexible work hours annually to each employee and to all new employees as they are hired.

- Transportation Demand Management for Carpools – General Plan Policy: Chapter 4 – Policy TR-22. Adoption of a non-mandatory employer-based transportation demand management program for Rohnert Park businesses. Intended to reduce the use of single-occupancy vehicles for the commute to work.
- Alternative Transportation: General Plan Goal TR-F – Chapter 4. Encourage alternative modes of travel including transit, bicycle, and walking.
- Parking Policies: reduced auto parking requirement for commercial to increase bike parking/storage. Also recognize compact car, preferential parking for EVs, hybrids.
- New Parking Standards for Mixed Use Development – General Plan Policy: Chapter 4 – Policy TR-25. Reduce parking requirements for mixed used development, allow shared parking facilities, and cash-in-lie payments for required parking in mixed use areas.
- Idling Ordinance: Limited number of drive-through with "general" prohibition.
- Bicycle Circulation – General Plan Policy: Chapter 4 – Policies TR-39 through TR-43. Update Bicycle Master Plan to incorporate Class I bikeways, implement design standards for bikeways, ensure continuous and interconnected bikeways, and establish bike parking requirements in the Zoning Ordinance.
- Pedestrian Circulation – General Plan Policy: Chapter 4 – Policies TR-37 and TR-38. Provide continuous sidewalks along all existing and future streets, and establish pedestrian-friendly amenities along streets running through mixed use, high residential, public, or park areas.

- Water and Wastewater Efficiency
  - Water Waste Regulations: Municipal Code Chapter 13.62. Promotes the efficient use of the entire water supply provided by the City; to eliminate the intentional or unintentional waste of water when a reasonable alternative solution is available; and to prohibit the use of equipment that is wasteful.
  - Water Shortage Emergency Plan: Municipal Code Chapter 13.66. Voluntary Conservation. Achieve an overall system-wide reduction goal of 10%.
  - Conservation Devices – General Plan Policy: Chapter 5 – Policy PF-15. Continue to require water-conserving devices for all new development.
  - Non-Residential Development – General Plan Policy: Chapter 5 – Policy PF-16. Require non-residential uses to implement water conservation practices as a condition of development
  - Rebates – General Plan Policy: Chapter 5 – Policy PF-18. Work with SCWA to offer rebates on non-residential water usage.

- Water Audits for Businesses – General Plan Policy: Chapter 5 – Policy PF-20. At the request of businesses, conduct water audits and work with them to develop plans for reducing wastewater and discharge.
- Water Conservation Program – General Plan Policy: Chapter 5 -Policy PF-22. Adopt a comprehensive water conservation program for City employees.
- Best Management Practices – General Plan Policy: Chapter 5 – PF-23. Continue to implement water conservation BMPs.
- Water Conservation Rate – General Plan Policy: Chapter 5 – Policy PF-25. Adopt a tiered water rate schedule that increases cost as the quantity of water used increases; and/or provides seasonal rates or excess-use surcharges.
- Climate Action Projects Completed for water conservation:
  - Pool Covers (2006)
  - Decommission Community Center Fountain (2010)
  - Pump Measures (2006)
  - Tank Booster Station Improvement Projects (2008)
  - Pool Pump Measures
  - Pump Measures – Savings Criteria $1,500 (2010)
  - Closure of 1 Community Pool (2010)
- Mandatory Conservation: System-wide reduction of 20% by making all voluntary measures mandatory.

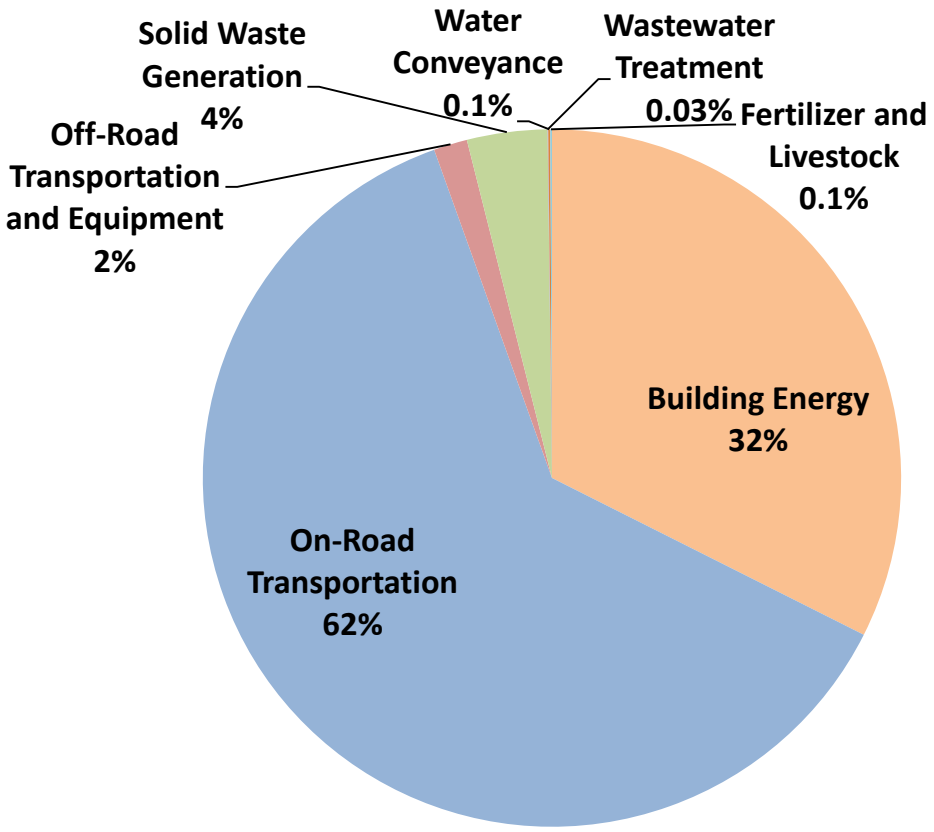
- Urban Forestry and Natural Areas
  - Open Space Protection – General Plan Policy: Chapter 2.4 – Policy 2.4.2. Adjust UGB to protect agricultural or open spaces.
  - Open Space Designation – General Plan Policy: Chapter 5 – Policy OS-1. Ensure that land in the Planning Area designated as Open Space in the General Plan is maintained.
  - Specific Open Space Buffers – General Plan Policy: Chapter 5 – Policy OS – 2. Dedicate open space buffers along Petaluma Hill Road as part of the University District and Northeast Specific Plans.
  - Northwest Community Separator – General Plan Policy: Chapter 5 – Policy OS-4 through OS-4B: Requires 180 acres of land to be preserved in the Northwest Community Separator.
  - Acquisition of Open Space Land – General Plan Policy: Chapter 5 – Policy OS-4D. Adopt a mechanism to ensure open space protection from development either through mitigation or payment of a fee in lieu of acquisition.

- Open Space Aggregation – General Plan Policy: Chapter 5 – Policy OS-5. Ensure open space parcels are aggregated to the maximum extent feasible to avoid piecemeal acquisition.
- Creek Protection – General Plan Policy: Chapter 5 – Policy OS-7. Use creek protection zones for permanent public open space and compatible conservation purposes.
- Wetlands Potential – General Plan Policy: Chapter 5 – Policy OS-8. Explore the feasibility of integrating wetlands and vernal pool areas with new development or open space areas.
- Parks, Recreation, Open Space Plan – General Plan Policy: Chapter 5 – Policy OS-10. Prepare a Parks, Recreation, and Open Space Master Plan.
- Natural Resource Protection – General Plan Policy: Chapter 2.4 – Policy 2.43. Add lands to the UGB to exclusively protect natural resources.
- Wetland Conservation – General Plan Policy: Chapter 7 – Policy EC-5. Requires delineation of wetland and biological habitats in areas where development is set to occur.
- Wetland and Restoration Funding – General Plan Policy: Chapter 7 – Policy EC-6.
- Tree Planting Ordinance: replacement of trees if the ones removed are not sick/unsafe, or pay an in-lieu fee for trees to be planted by the City.

- General
  - Resolution No. 2007-164 and Plan C. Adoption of GHG Emissions Reduction Action Plan Analysis.
  - Approval of the GHG Emissions Reduction Action Plan Analysis. Adoption of “Plan C.” Approval of the GHG Emissions Reduction Action Plan Analysis.

5.5.3 Greenhouse Gas Inventory and Forecast

Figure 5.5-2. Rohnert Park 2010 Community GHG Inventory by Source



Rohnert Park's inventory follows a similar trend to the other communities in Sonoma County and the state. The majority of GHG emissions are from on-road transportation (62%) due to fossil fuel combustion. The next largest source is building energy (32%), which is due to the fossil fuel used to make electricity and natural gas used in homes, schools, businesses, and industrial practices. Residential uses account for most (65%) of the building energy emissions in Rohnert Park. Commercial uses account for 35% of building energy emissions. The other categories of emissions are much smaller in comparison to building energy and on-road transportation.

In Rohnert Park, total GHG emissions generated by community activities in 2010 were 264,260 $MTCO_2e$, which is approximately 7% of countywide GHG emissions in the same year. This is a 9% decrease from estimated 1990 emissions, which were 291,320 $MTCO_2e$. Table 5.5-3 shows the 1990 backcast, the 2010 inventory and business-as-usual (BAU) forecasts for 2015, 2020, 2040 and 2050 for the City of Rohnert Park.

Table 5.5-3. Rohnert Park Community GHG Backcast, Inventory, and Forecasts

Source	1990 Backcast		2010 Inventory		2015 Forecast		2020 Forecast		2040 Forecast		2050 Forecast	
Building Energy	84,930	29%	85,750	32%	98,490	31%	113,990	31%	119,030	32%	124,360	33%
On-road Transportation	158,100	54%	164,230	62%	202,600	64%	238,700	64%	226,890	61%	227,460	60%
Off-road Transportation and Equipment	4,020	1%	4,120	2%	5,130	2%	6,860	2%	12,220	3%	12,660	3%
Solid Waste	40,830	14%	9,840	4%	10,810	3%	12,710	3%	13,130	4%	13,580	4%
Wastewater Treatment	70	0%	80	0.0%	80	0%	90	0%	100	0%	110	0%
Water Conveyance	3,370	1%	250	0.1%	320	0%	370	0%	400	0%	430	0%
Total	**291,320**	**100%**	**264,260**	**100%**	**317,430**	**100%**	**372,730**	**100%**	**371,780**	**100%**	**378,610**	**100%**
Per-Capita Emissions	**8.0**		**6.4**		**7.5**		**7.9**		**7.3**		**6.9**	

5.5.4 Greenhouse Gas Reduction Goal and Measures

The City of Rohnert Park joins the other Sonoma County communities to support the regional GHG emissions reduction target of 25% below 1990 countywide emissions by 2020 through adoption of 22 local GHG reduction measures. The City's GHG emissions under 2020 BAU conditions (in absence of state, regional, and local reduction measures) would be approximately 372,730 $MTCO_2e$. The City's local GHG reduction measures, in combination with state and regional measures, would reduce the City's GHG emissions in 2020 to 251,970 $MTCO_2e$, which would be a reduction of approximately 32% compared to 2020 BAU conditions. The City will achieve these reductions through reduction measures that are technologically feasible and cost-effective per AB 32 through a combination of state (70%), regional (20%), and local (10%) efforts. Per-capita reductions in Rohnert Park in 2020 would be 2.6 $MTCO_2e$ per person. With the reduction measures in CA2020, per-capita emissions in Rohnert Park will be 5.3 MTCO2e per person, a 33% reduction in per capita emissions compared to 1990.

Table 5.5-4. Rohnert Park 2020 GHG BAU Emissions, Reductions, and CAP Emissions

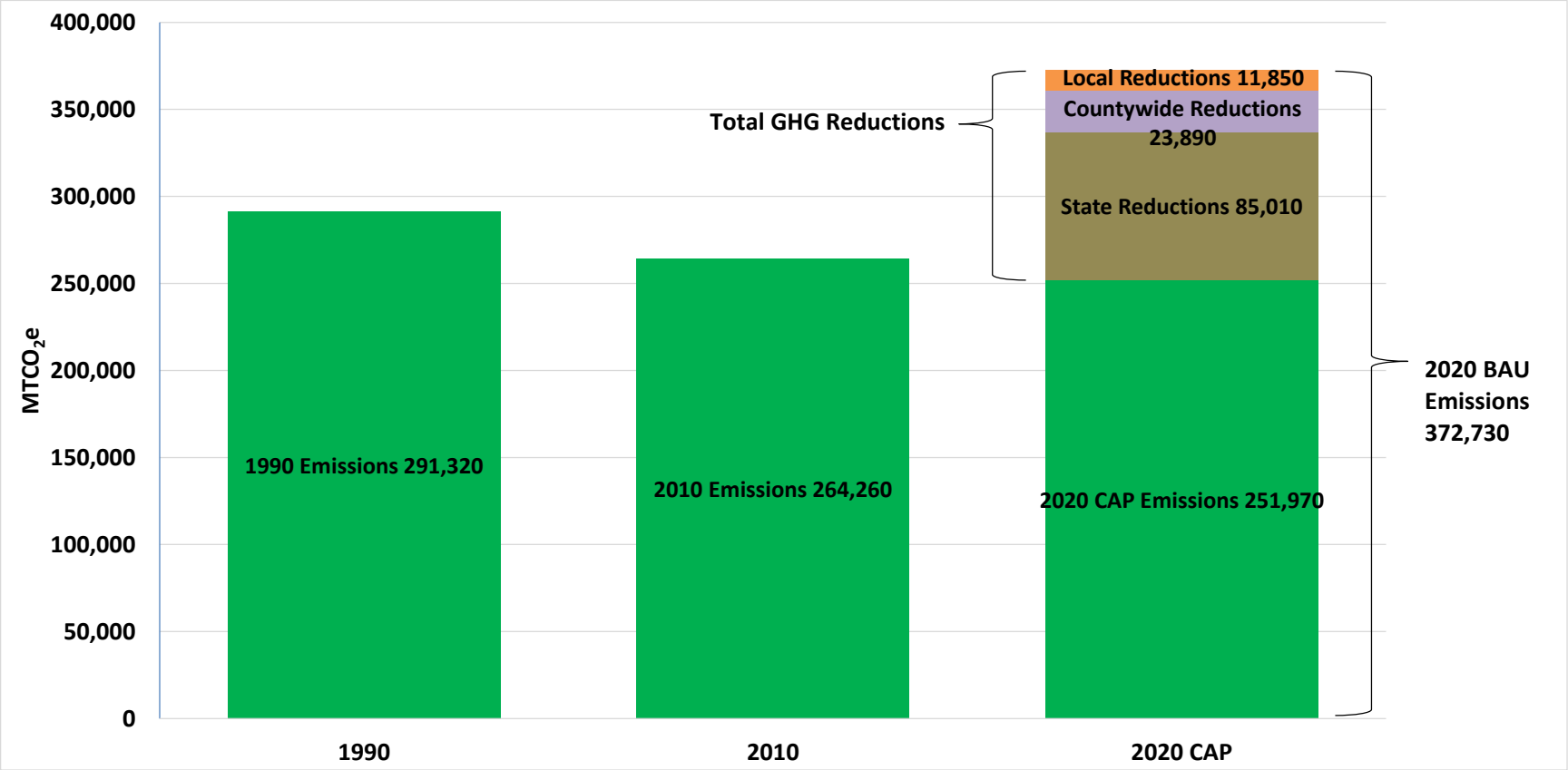
Source	2020 BAU Forecast	Reductions				2020 CAP Emissions	% Reduction From BAU
		State	County-wide	Local	Total		
Building Energy	113,990	29,510	7,910	3,140	40,560	73,440	36%
On-Road Transportation	238,700	54,890	6,020	3,820	64,730	173,980	27%
Off-Road Transportation and Equipment	6,860	610	-	30	640	6,220	9%
Solid Waste	12,710	-	9,570	-	9,570	3,130	75%
Water Conveyance	370	-	300	4,860	5,160	- [1]	100%
Wastewater Treatment	90	-	90	-	90	-	100%
Total Emissions	**372,730**	**85,010**	**23,890**	**11,850**	**120,760**	**251,970**	**32%**
		70%	**20%**	**10%**			

Values may not sum due to rounding.

[1] The CAP reduction for the water conveyance sector is greater than 2020 BAU emissions because it contains emission reductions from multiple sectors. Water conveyance measures reduce improve efficiency, which reduces electricity use within the building energy sector.

Figure 5.5-3 shows Rohnert Park's 1990 and 2010 GHG emissions total, 2020 BAU emissions forecast total, and the total emissions remaining after implementation of the City's reduction measures. The contribution of state, regional, and local reductions are overlaid on the 2020 BAU emissions forecast total, representing the total emissions reductions achieved in 2020. Like the other communities, Rohnert Park benefits greatly from the work the state and regional entities are committed to implementing on climate action. See Chapter 4 for more information on state and regional actions.

Figure 5.5-3. Rohnert Park 1990, 2010, and 2020 GHG Emissions; 2020 State and Local Reductions



Greenhouse Gas Reduction Measures

As shown in Table 5.5-5, the City of Rohnert Park will achieve its reduction goal through a combination of state, regional, and local measures. State reduction measures are implemented through state law, including some that require action by the City to comply with state mandates (e.g., Title 24 energy efficiency measures). State measure reductions total 85,010 $MTCO_2e$, which include the Pavley vehicle fuel efficiency standards, Title 24 building standards, the state's low carbon fuel standard, and the RPS, which will reduce GHG emissions from Rohnert Park's on-road and off-road transportation, and building energy use in 2020.

Regional measures will reduce emissions by 23,890 $MTCO_2e$ and will be implemented by regional entities, including the Regional Climate Protection Authority (RCPA), Sonoma County Water Agency (SCWA), County of Sonoma Energy Independence Office (ESD), Sonoma County Transportation Authority (SCTA), and Sonoma Clean Power (SCP).

An additional reduction of 11,850 $MTCO_2e$ will be achieved through locally adopted measures, relevant to the City of Rohnert Park. The locally adopted measures, although not as high-achieving of GHG reductions as the state and regional measures, are important because they represent the actions that local communities can take directly. The communities have local control over their infrastructure and policies and have selected the local measures that best suit the needs of their community.

The three measures that will have the greatest impact in Rohnert Park are, in order of importance, Measure 2-L4 (Solar in Existing Non-Residential Buildings), Measure 2-L2 (Solar in Existing Residential Buildings), and Measure 11-L1 (Senate Bill SB X7-7 - Water Conservation Act of 2009). These three measures, in addition to reducing GHG emissions, will save energy, improve air quality and public health in the City, and conserve natural resources. As the county and state continue to experience a historic drought, water conservation will remain an especially important co-benefit.

On the state level, the RPS and the Pavley measures have the greatest potential to reduce emissions in the City. Of the regional measures, the measures with the greatest impact are the Community Choice Aggregation (CCA) measure, the waste-to-energy measure, and the waste diversion measure.

City of Rohnert Park Electric Municipal Vehicle Fleet

Along with the other communities in the county, the City of Rohnert Park joined the Sonoma County Local Government Electric Vehicle (EV) Partnership to collaborate as a region on the implementation of EVs and EV charging infrastructure. Purchasing electric vehicles for the City's municipal vehicle fleet, and constructing vehicle charging infrastructure will help the City reduce its municipal operations GHG emissions.

Table 5.5-5 presents the individual GHG reduction measures that Rohnert Park has selected for the CAP. For more information on the specifics of each measure, see Appendix C.

Table 5.5-5. Rohnert Park 2020 GHG Emissions Reductions by Measure

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
State and Regional Measures		
Goal 1: Increase Building Energy Efficiency	**7,341**	
Measure 1-S1: Title 24 Standards for Commercial and Residential Buildings	3,634	N/A
Measure 1-S2: Lighting Efficiency and Toxics Reduction Act (AB1109)	2,291	N/A
Measure 1-S3: Industrial Boiler Efficiency	-	N/A
Measure 1-R1: Community Energy Efficiency Retrofits for Existing Buildings	103	N/A
Measure 1-R2: Expand the Community Energy Efficiency Retrofits Program	1,313	N/A
Goal 2: Increase Renewable Energy Use	**30,072**	
Measure 2-S1: Renewables Portfolio Standard	23,461	N/A
Measure 2-S2: Solar Water Heaters	122	N/A
Measure 2-R1: Community Choice Aggregation	6,489	N/A
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	4,142	
Measure 5-R1: Improve and Increase Transit Service	71	N/A
Measure 5-R2: Supporting Transit Measures	NQ	N/A
Measure 5-R3: Sonoma-Marin Area Rail Transit	NQ	N/A
Measure 5-R4: Trip Reduction Ordinance	851	N/A
Measure 5-R5: Supporting Measures for the Transportation Demand Management Program	NQ	N/A
Measure 5-R6: Reduced Transit Passes	788	N/A
Measure 5-R7: Alternative Travel Marketing & Optimize Online Service	630	N/A
Measure 5-R8: Safe Routes to School	1,803	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate
Measure 5-R9: Car-sharing Program	NQ	N/A
Measure 5-R10: Bike Sharing Program	NQ	N/A
Goal 6: Increase Vehicle and Equipment Fuel Efficiency	**54,894**	
Measure 6-S1: Pavley Emissions Standards for Passenger Vehicles and the Low Carbon Fuel Standard	51,165	N/A
Measure 6-S2: Advanced Clean Cars	1,524	N/A
Measure 6-S3: Assembly Bill 32 Vehicle Efficiency Measures	2,205	N/A
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**2,482**	
Measure 7-S1: Low Carbon Fuel Standard: Off-Road	608	N/A
Measure 7-R1: Shift Sonoma County (Electric Vehicles)	1,874	N/A
Goal 9: Increase Solid Waste Diversion	**3,760**	
Measure 9-R1: Waste Diversion Goal	3,760	N/A
Goal 10: Increase Capture and Use of Methane from Landfills	**5,814**	
Measure 10-R1: Increase Landfill Methane Capture and Use for Energy	5,814	N/A
Goal 11: Reduce Water Consumption		
Measure 11-R1: Countywide Water Conservation Support and Incentives	NQ	N/A
Goal 12: Increase Recycled Water and Greywater Use	**1**	
Measure 12-R1: Recycled Water*	1	N/A
Goal 13: Increase Water and Wastewater Infrastructure Efficiency	**113**	
Measure 13-R1: Infrastructure and Water Supply Improvement	20	N/A
Measure 13-R2: Wastewater Treatment Equipment Efficiency*	93	N/A

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Goal 14: Increase Use of Renewable Energy in Water and Wastewater Systems	**282**		
Measure 14-R1: Sonoma County Water Agency Carbon Free Water by 2015	282	N/A	
Local Measures			
Goal 1: Increase Building Energy Efficiency	**287**		
Measure 1-L2: Outdoor Lighting	276	50%	of outdoor lighting to participate
Measure 1-L3: Shade Tree Planting	11	1,000	trees planted
Goal 2: Increase Renewable Energy Use	**2,792**		
Measure 2-L1: Solar in New Residential Development	59	15%	of new houses to participate
Measure 2-L2: Solar in Existing Residential Building	949	15%	of existing homes with solar
Measure 2-L3: Solar in New Non-Residential Developments	185	10%	of new non-residential development to participate
Measure 2-L4: Solar in Existing Non-Residential Buildings	1,599	10%	of existing non-residential development with solar
Goal 3: Switch Equipment from Fossil Fuel to Electricity	**63**		
Measure 3-L1: Convert to Electric Water Heating	63	5%	of households
Goal 4: Reduce Travel Demand Through Focused Growth	**1,773**		
Measure 4-L1: Mixed-Use Development in City Centers and Along Transit Corridors	862	20%	of growth to result in mixed use
Measure 4-L2: Increase Transit Accessibility	846	75%	of growth to be 25+ units
Measure 4-L3: Supporting Land Use Measures	NQ	Yes	
Measure 4-L4: Affordable Housing Linked to Transit	64	15%	of new development to be affordable
Goal 5: Encourage a Shift Toward Low-Carbon Transportation Options	**2,042**		

State, Regional, and Local Measures	2020 GHG Reductions	Participation Rate	
Measure 5-L1: Local Transportation Demand Management Program	630	38%	of employees eligible
Measure 5-L2: Carpool-Incentives & Ride-Sharing Program	1,229	78%	of employees eligible
Measure 5-L4: Supporting Bicycle/Pedestrian Measures	NQ	Yes	
Measure 5-L5: Traffic Calming	183	100%	of trips affected
Goal 7: Encourage a Shift Toward Low-Carbon Fuels in Vehicles and Equipment	**3**		
Measure 7-L1: Electric Vehicle Charging Station Program	3	5	charging stations installed
Measure 7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching	NQ	Yes	
Goal 8: Reduce Idling	**32**		
Measure 8-L1: Idling Ordinance	NQ	2	minutes below state law
Measure 8-L2: Idling Ordinance for Construction Equipment	32	2	minutes below state law
Goal 11: Reduce Water Consumption	**4,862**		
Measure 11-L1: Senate Bill SB X7-7 - Water Conservation Act of 2009*	4,441	37%	Reduction in per capita water use
Measure 11-L2: Water Conservation for New Construction* [1]	-	100%/50%	% of new residential/ nonresidential development
Measure 11-L3: Water Conservation for Existing Buildings*	421	25%/50%	% of new residential/ nonresidential development
State Measure Reductions in Rohnert Park	**85,010**		
Regional Measure Reductions in Rohnert Park	**23,890**		
Local Measure Reductions in Rohnert Park	**11,850**		
Grand Total Emissions Reductions in Rohnert Park	**120,760**		

*Measures reduce emissions from multiple sources (i.e. water and energy)

NQ = not quantified

[1] Rohnert Park chose to participate in this measure, but there would be no reductions from this measure due to overlapping reductions with other water measures

5.5.5 Municipal Greenhouse Gas Reduction Measures

Like the other cities and the county, Rohnert Park has recognized the need to reduce GHG emissions from municipal operations. In 2007, the City adopted the "City of Rohnert Park Greenhouse Gas Emissions Reduction Action Plan Analysis." The City has completed 19 climate action projects aimed at reducing municipal GHG emissions, including lighting and equipment retrofits, fleet improvements, and installing solar electricity generation on City Hall. The City also plans to implement even more ambitious climate action projects in the future, including more PV installations and lower carbon fuels for the municipal fleet.

Although municipal GHG reduction measures are not part of this countywide plan, action by the cities and the County to reduce municipal emissions is still important. Rohnert Park and the other local communities will continue to pursue actions that reduce GHG emissions from municipal operations. Descriptions of potential municipal GHG reduction measures are provided in Appendix E as an informational resource.

Santa Rosa

Commitments to meeting community greenhouse gas reduction goals.

5.6 Santa Rosa

The Santa Rosa City Council adopted a Climate Action Plan in June 2012 and a Municipal Climate Action Plan in 2013. This section provides information about Santa Rosa's greenhouse gas emissions profile and measures the City of Santa Rosa has adopted as well as how Santa Rosa's CAP works with CA 2020 and contributes to regional greenhouse gas emissions reductions to help meet state, regional, and local reduction targets.

5.6.1 Community Summary

Located in central Sonoma County, Santa Rosa is the county seat and the heart of Sonoma County. The largest city between Portland and San Francisco, Santa Rosa serves a four county region as the hub for technology and entrepreneurial businesses, retail, banking, and employment. It is a center of governmental services, home to the region's state and federal offices. Santa Rosa has a dynamic and well-balanced economy, anchored by strengths in tourism, high-tech manufacturing, and retail. Residents enjoy a superb quality of life. The city has a vibrant and active downtown with shops, restaurants, and events.

Demographics

The city encompasses about 42 square miles and has a population of just over 173,000 in 2015. In 2010, the city's demographic composition was 29% Latino, 60% white, 2% black, 0.9% American Indian or Alaska Native, 5% Asian, 0.4% Native Hawaiian or other Pacific Islander, and 3% some other race or two or more races.

Table 5.6-1 Santa Rosa Socioeconomic Data

	Actual			Projected
	1990	2010	2015	2035
Population	113,313	167,815	173,031	237,000
Housing	47,711	67,396	68,551	96,295
Employment	58,761	72,513	85,000	132,100

Sources: California State Department of Finance, U.S. Census, California Employment Development Department, Santa Rosa General Plan 2035

Energy and Water Use

Compared to households in the county as a whole, Santa Rosa households use less electricity and water but more natural gas. Additionally, they use less electricity, natural gas, and water than households statewide.

Table 5.6-2. Santa Rosa, County, and State 2010 Average Energy and Water Use (per household, per year)

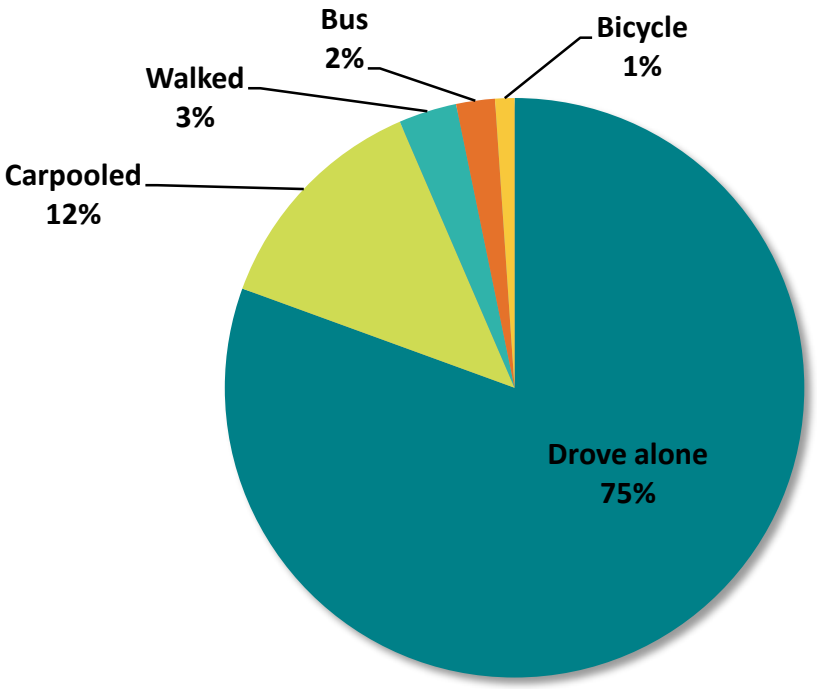
	Santa Rosa	County	State
Electricity (kWh)	5,959	7,042	9,320
Natural Gas (Therms)	453	413	512
Water Use (Gallons)	65,530	75,810	107,869

Sources:
City Data: provided by PG&E (energy) and by the City of Santa Rosa (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 2010, 74.6% of Santa Rosans drove alone to work while 11.9% carpooled. Slightly more than 2% used public transportation, 2.7% walked, and 1.4% bicycled. The mean travel time to work was 22.8 minutes. (U.S. Census Bureau 2014)

Figure 5.6-1. Modes to Work in Santa Rosa in 2010



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

5.6.2 Santa Rosa's Existing Actions to Reduce GHG Emissions

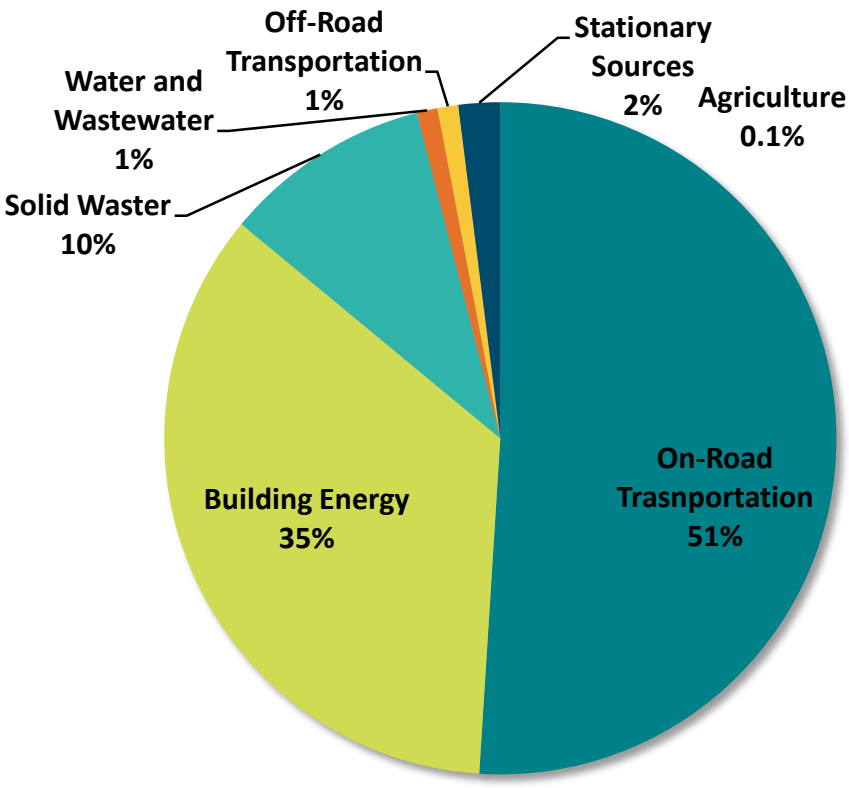
Santa Rosa continues to implement its Climate Action Plans to reduce energy use, promote renewable energy use, along with other actions to help reduce greenhouse gas emissions. The following highlights actions Santa Rosa has taken, or is implementing.

- Building Energy and Energy Efficiency
    - Santa Rosa's Build it Green voluntary program has evolved into a mandatory Tier 1 CalGreen program for residential and non-residential structures.
    - For over two decades, the City has installed energy efficient features in City facilities, including energy efficient lighting and heating, ventilation, and air conditioning units.
    - Cool roofs have been installed on several City buildings.
    - The City has partnered with the Sonoma County Energy Independence Program which offers low interest financing and technical assistance to property owners for energy efficiency retrofits.
    - Lighting in parks and on streets have been retrofit to improve efficiency.
    - General Plan Housing Element goal H-G-2 requires, as allowed by CalGreen Tier 1 standards, energy efficiency through site planning and building design by assisting residential developers in identifying energy conservation and efficiency measures appropriate to the Santa Rosa area. The Housing Element contains policies to implement this goal which address fuel efficient heating and cooling equipment, supporting partnerships for energy efficiency retrofits, and reducing use of water.
- Renewable Energy
    - Solar installations on City properties produce about 710,000 kilowatt hours of green energy annually as of 2016.
    - The City is planning to install solar panels on the rooftops of four parking garages.
    - Santa Rosa partnered with Sonoma State University to develop a biomass to energy program at the Laguna Treatment Plan, which included constructing wetlands and growing energy rich, non-food biomass in wastewater.
    - Santa Rosa pipes treated wastewater to the Geysers steam fields, which generates electricity for more than 100,000 households in Sonoma and other North Bay counties.
    - The City plants and issues permits for new trees annually (230 in 2015).
    - The City's municipal electricity accounts were enrolled in Sonoma Clean Power's "Clean Start" program.
    - The City of Santa Rosa was designated an Early Adopter through the Solar Powering America by Recognizing Communities, a program which will promote solar installations in the city.

- Land Use and Transportation
    - Santa Rosa has General Plan policies and a Bicycle and Pedestrian Master Plan which promote the addition of bicycle and pedestrian facilities. Such facilities are added each year through City's Capital Improvement Program.
    - The City has adopted the Downtown and North Station Area Specific Plans, illustrating support for higher density and greater intensity development surrounding Sonoma-Marin Area Rail Transit stations. In 2016, the City is in the process of completing the Roseland Area / Sebastopol Road Specific Plan, which is focused around the bus transfer center on Hearn Avenue.
    - The Reimagining CityBus process has resulted in a new service plan for bus transit in Santa Rosa, with improved headways.
    - Real-time transit information is available through the "My Santa Rosa CityBus Real-time Transit Information Program" via the web, smartphone app, and text.
    - The Santa Rosa Free Ride Trip Reduction Incentive Program provides incentives to encourage people to use a community alternative to travel to and from work.
    - The City has 10 electric vehicle charging stations at City facilities and plans to expand.
    - Electric and renewable diesel buses are being evaluated for addition to the fleet.
    - The City is developing progressive parking strategies throughout downtown, including demand responsive rates.
    - The City fleet includes hybrid, compressed natural gas, and electric vehicles.
- Water and Wastewater Efficiency
    - The City has sponsored "Drought Drive-Thru" events providing residents, free of charge, items such as water efficient shower fixtures, shower timers, spray nozzles, leak detectors, and buckets.
    - The "Take if from the Tap" program provides students with educational information about water use, along with a water bottle to encourage use of tap water rather than bottled water.
    - Water Department staff table at community events such as the Wednesday Night Market, to highlight water saving techniques and water-use efficiency to local residents.
    - Water Department staff hosts Graywater Workshops to provide residents information on how to design, install, use and maintain a laundry to landscape graywater irrigation system.
    - Free water saving toilets, shower heads, and faucet aerators are provided by Santa Rosa Water from time to time, including in 2015.
    - The City has expanded use of recycled water, sending about half of the Subregional System's to the Geysers, with other uses to irrigate public places, such as parks.

5.6.3 Greenhouse Gas Inventory and Forecast – 2007

Figure 5.6-2. Santa Rosa Community GHG Inventory by Source



Source: Santa Rosa Climate Action Plan, 2012

Since Santa Rosa previously developed a Climate Action Plan, its GHG inventory is from 2007 rather than 2010. As with other Sonoma County communities, the majority of emissions are from transportation due mostly to fossil fuel combustion in motor vehicles. The next largest source is building energy, which includes emissions related to energy used to heat homes and businesses in Santa Rosa.

Residential uses account for 55% of building energy emissions in Santa Rosa, with non-residential uses accounting for 45%. The other categories of emissions are smaller in comparison to transportation and building energy.

Table 5.6-3. Santa Rosa Community GHG Inventory and Forecast

Source	2007 Inventory		2015 Forecast		2020 Forecast		2035 Forecast	
Building Energy	469,520	36%	477,910	36%	492,020	35%	624,280	35%
On-Road Transportation	684,280	52%	691,190	52%	728,820	52%	959,470	53%
Off-Road Transportation	17,670	1%	17,990	1%	18,810	1%	23,580	1%
Solid Waste	139,770	11%	141,340	11%	146,860	11%	185,340	10%
Wastewater and Water	9,840	1%	9,950	1%	10,340	1%	13,040	1%
Total	**1,321,080**		**1,338,380**		**1,396,850**		**1,805,710**	
Total with state reductions			**1,254,100**		**1.235,180**		**1,418,670**	

Source: Santa Rosa Climate Action Plan, 2012
Notes: Forecasts are Business as Usual
Santa Rosa CAP includes agricultural emissions, which are not included in this chart.

The Business as Usual Forecast identifies how emissions would grow if consumption trends and efficiencies were to remain at 2007 levels. The forecasts are based on growth projected in the Santa Rosa General Plan. Since the General Plan horizon year is 2035, these projections do not match those for other communities in Climate Action 2020, which include 2040 and 2050.

When emissions are adjusted to account for state actions such as the Renewable Portfolio Standard, vehicle standards, and CalGreen building standards, the emissions forecasts are reduced, as shown in Table 5.6-3.

5.6.4 Greenhouse Gas Reduction Goal and Measures

The Santa Rosa CAP includes measures which will allow Santa Rosa to achieve the reduction target of 25% below 1990 emission levels by 2020. GHG reduction strategies aim to reduce GHG emissions from each source to avoid reliance on any one strategy or emissions source to achieve the target. In total, existing actions, state programs, and GHG measures identified by Santa Rosa will reduce emissions by 558,080 MTCO2e by 2020. Regional efforts to reduce GHGs are included in Santa Rosa's local measures (see Table 5.6-5), which is different than how they were addressed for the other communities in CA 2020, where they were separated out as regional strategies.

Table 5.6-4. Total Santa Rosa GHG Reduction Summary by Topic

Source	2020 GHG Reductions MTCO2e
State and local programs	189,400
Energy Efficiency and Conservation	117,690
Renewable Energy	76,830
Parking and Land Use Management	32,680
Improved Transport Options	13,130
Optimized Vehicular Travel	59,850
Waste Reduction, Recycling	64,370
Water and Wastewater	3,750
Off-Road Vehicles	380
Total	**558,080**

Greenhouse Gas Reduction Measures

Table 5.6.5 illustrates GHG reduction measures adopted in Santa Rosa's CAP.

Table 5.6-5. Santa Rosa GHG Emissions Reductions by Measure

Santa Rosa Measure Number	Similar to CA2020 Measure Number	Santa Rosa Measure Name	2020 GHG Reductions MTCO2e
1	**Goal 1, Goal 3**	**ENERGY EFFICIENCY**	
1.1	**1-L1**	**Continue to enforce CALGreen requirements[1]**	-
1.1.1	1-L1	New development compliance with Cal Green standards	
1.1.2	1-L1	Continue Tier 1 standards for new development	
1.1.3	1-S1	New development built with net zero electricity in 2020	
1.1.4	1-S1	Evaluate incentives to net zero electricity prior to 2020	
1.2	**1-L1, 1-L2, 1-L4**	**Facilitate energy efficiency in existing buildings**	103,390
1.2.1	1-R1	Provide information on free or low cost energy audits	
1.2.2	1-R1	Work with SCEIP to offer assistance, financing for retrofits	
1.2.3	1-R1	Create informational brochure/website for renters	
1.2.4	1-R1	Create informational brochure/website for historic buildings	

Santa Rosa Measure Number	Similar to CA2020 Measure Number	Santa Rosa Measure Name	2020 GHG Reductions MTCO2e
1.2.5	1-R1	Seek funding to retrofit affordable housing units	
1.2.6	1-R1	Identify neighborhoods appropriate for retrofit pilot program	
1.2.7	1-R1, 1-L2	Reduce energy use in all City facilities	
1.2.8	1-R1	Reduce energy use in city schools and at SR Junior College	
1.2.9	1-R1	Reduce energy use in all existing buildings	
1.3	**1-R1**	**Smart Meter Utilization**	7,650
1.3.1	N/A	Require real-time energy monitors to track energy use	
1.3.2	N/A	Inform community regarding metering options	
1.3.3	1-R1	Provide information on appliance rebates	
1.4	**1-L3**	**Plant and maintain trees**	1,640
1.4.1	1-L3	Develop a tree inventory	
1.4.2	1-L3	Implement the City tree preservation ordinance	
1.4.3	1-L3	Require new development to provide public & private trees	
1.4.4	1-L3	Create an Urban Greening Policy	
1.4.5	1-L3	Develop a web application to provide updated tree information	
1.5	**N/A**	**Require new sidewalks, paving to have high solar reflectivity**	250
1.5.1	N/A	Adopt ordinance requiring use of cool paving materials	
1.5.2	N/A	Allow for green roofs and address historic structures.	
1.5.3	N/A	Create a Green Streets policy.	
1.6	**1-R2**	**Facilitate use of energy efficient appliances**	520
1.6.1	1-R2	Find funds to develop rebate program for appliances	
1.7	**3-L1**	**Switch natural gas appliances to electricity**	4,240
1.7.1	3-L1	Utilize appliance rebate program for replacement	
1.7.2	3-L1	Identify programs to facilitate replacement	
2	**Goal 2**	**RENEWABLE ENERGY**	
2.1	**2-R1, 2-L1, 2-L2, 2-L3, 2-L4**	**Support small-scale renewable energy systems**	Supportive

Santa Rosa Measure Number	Similar to CA2020 Measure Number	Santa Rosa Measure Name	2020 GHG Reductions MTCO2e
2.1.1	2-L1, 2-L2, 2-L3, 2-L4	Update zoning code to remove barriers to these systems	
2.1.2	2-L1, 2-L2, 2-L3, 2-L4	Implement a solar policy	
2.1.3	2-L1, 2-L2, 2-L3, 2-L4	Consider pre-wiring and plumbing for these systems	
2.1.4	2-L1, 2-L2, 2-L3, 2-L4	Create municipal projects which include renewable energy	
2.2	**2-R1, 2-L1, 2-L2, 2-L3, 2-L4**	**Low interest financing for renewable energy installations**	20,790
2.2.1	2-L1, 2-L2, 2-L3, 2-L4	Partner with SCEIP to provide financing for solar	
2.2.2	2-R1	Explore feed-in-tariff to spur renewable energy installation	
2.3	**2-R1, 2-L1, 2-L2, 2-L3, 2-L4**	**Establish a comprehensive renewable energy program**	56,040
2.3.1	2-R1	Set renewable power generation goal by council resolution	
2.3.2	2-R1	Work with PG&E to increase use of renewable energy sources	
2.3.3	2-R1	Explore cost of Community Choice Aggregation	
2.3.4	2-L1, 2-L2, 2-L3, 2-L4	Evaluate feasibility of mid-size renewable projects in City	
3	**Goal 4, Goal 5**	**Parking and Land Use**	
3.1	**4-L1, 4-L2, 4-L3, 4-L4**	**Increase jobs and housing density downtown & near transit**	11,680
3.1.1	4-L3	Support Urban Growth Boundary	
3.1.2	4-L1, 4-L2, 4-L3, 4-L4	Implement station plans and corridor plans	
3.2	**4-L1, 4-L3**	**Complementary land uses to decrease need for vehicle travel**	6,270
3.2.1	N/A	Work with employers to provide on-site services	
3.2.2	5-R7, 5-R8, 5-R10, 5-L4, 5-L5	Improve non-vehicular network to promote walking, biking	
3.2.3	4-L1	Support mixed use, higher density development near services	
3.3	**4-L4**	**Support development of affordable housing**	960