CITY OF SANTA ROSA COMMUNITY-WIDE GREENHOUSE GAS (GHG) REDUCTION STRATEGY

Climate Action Subcommittee (CAS)
June 5, 2024

City of Santa Rosa

SantaRosaForward.com/Greenhouse-Gas-Reduction-Strategy

Agenda

1. Overview of the GHG Reduction Strategy	Nancy Woltering, Senior Planner, PED
2. Development of Emissions Inventories and Reductions to Date	Eli Krispi, Senior Associate, PlaceWorks
3. The Path to Carbon Neutrality – GHG Emissions Reductions and Programs	Tammy Seale, Principal, PlaceWorks
4. Q & A, Next Steps	Project Team

1. Overview of the GHG Reduction Strategy

Nancy Woltering, AICP CEP
Senior Planner, PED

Background

- ***The City of Santa Rosa has been a Climate Leader –*** Since the mid-1990s, the City has been working on making its municipal operations more efficient through energy-efficiency upgrades. It has also implemented water conservation programs such as the 'cash to grass' program and created a series of GHG inventories.

- ***Global Warming Solutions Act of 2006 –*** AB 32 created a target for jurisdictions Statewide to reduce GHG emissions by 15% below 1990 levels by 2020. Through implementation of a series of programs, including use of Sonoma Clean Power's cleaner energy sources, and the State's greater vehicle efficiency standards, by 2020 the City had reduced its GHG emissions by 29%, nearly double the State target.

- ***California Climate Crisis Act of 2022 –*** The State now mandates that jurisdictions reduce GHG emissions by 40% below 1990 levels by 2030, by 85% below 1990 levels by 2045, and achieve *carbon neutrality* on this timeline.

Carbon Neutrality

- ***Carbon Neutrality*** refers to balancing of emissions, so that emissions from all sectors identified in GHG Inventories are less than or equal to the emissions that are being sequestered (removed from the atmosphere) through programs such as tree planting and agricultural practices that enhance the soil and/or landscape's ability to store carbon.

- ***Achieving carbon neutrality*** requires both significantly reducing community GHG emissions and supporting the ecosystems that sequester carbon.

Project Description – GHG Reduction Strategy

- ***The GHG Reduction Strategy –*** Establishes a program to reduce GHG emissions to 40% below 1990 levels by 2030 and to 85% below 1990 levels by 2045. The GHG Reduction Strategy is also designed to achieve Carbon Neutrality by 2045.

- ***Integration with the General Plan –*** Creates a cross-sector approach to reducing greenhouse gases. It is woven into all parts of the General Plan, including goals, policies and actions in all chapters of the General Plan, so that implementing the General Plan will support the City in reaching climate mandates.

- ***Reviewed as part of the Program EIR*** – The GHG Reduction Strategy will be included as an Appendix to the General Plan and will be evaluated as part of the General Plan Program EIR.

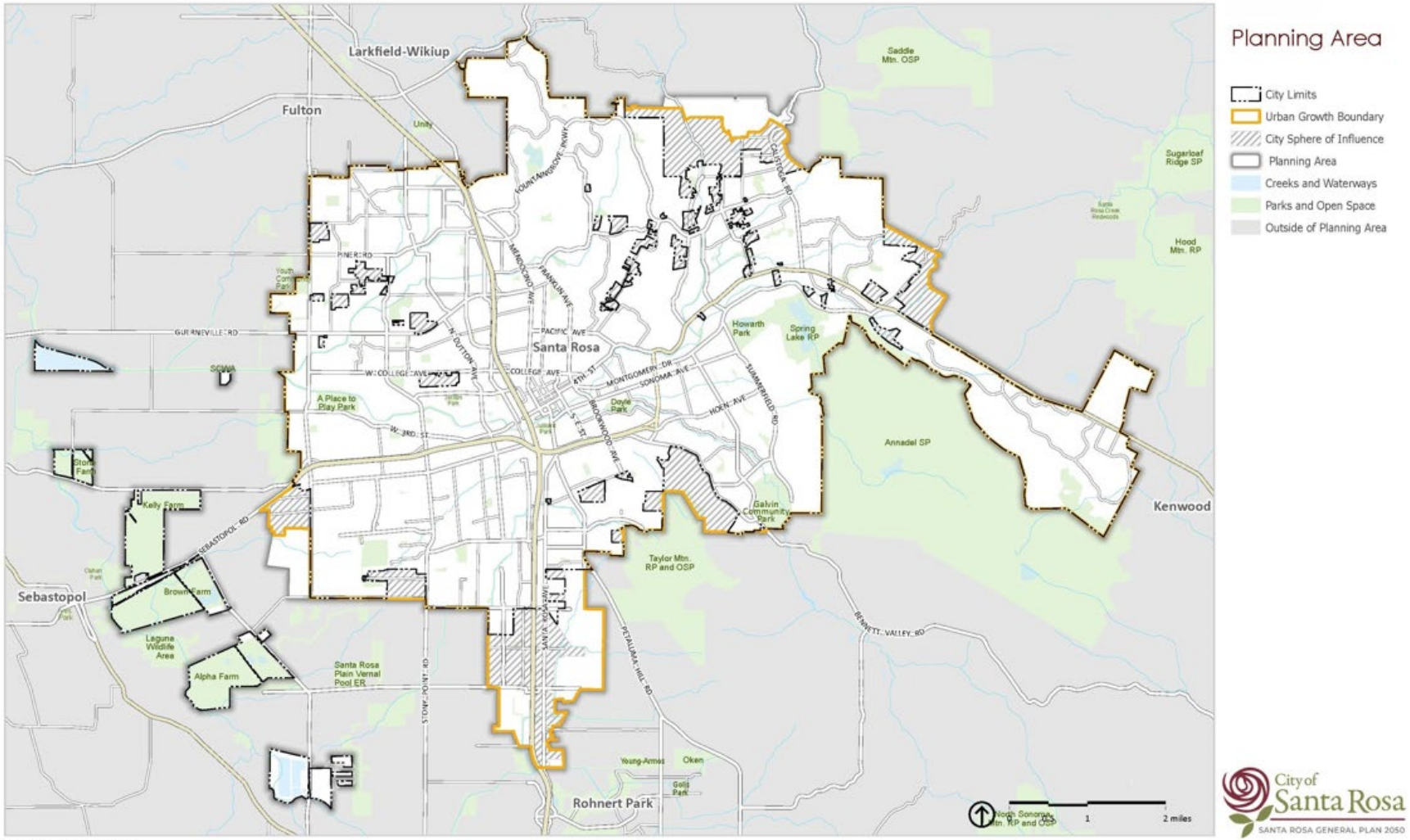
Project Description (Con't)

- ***MTCO$_2$e –*** The GHG Strategy follows Protocols, including quantifying emissions based on metric tons of carbon dioxide equivalent (MTCO$_2$e), since different GHGs have different potentials for warming the atmosphere.

- ***Project Baseline –*** The base year for the General Plan, General Plan EIR, and the GHG Reduction Strategy is 2019, when emissions were considered more representative of the City's emissions than during the pandemic when many people worked from home, and activity of different sectors varied from what was typical.

- ***Relationship to Existing CCAP and MCAP –*** The GHG Reduction Strategy fully replaces the Community Climate Action Plan (2012) and incorporates some measures but does not fully replace the Municipal Climate Action plan (2013).

Project Location – City Limits and Planning Area



Source: City of Santa Rosa 2023

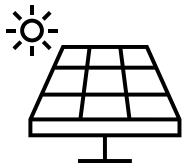
CEQA Qualified Plan

- ***Consistency with CEQA Guidelines:*** The GHG Reduction Strategy is consistent with the requirements of both the State CEQA Guidelines, Section 15183.5, and Bay Area Air Quality Management District's (BAAQMD) CEQA Guidelines.

- ***Consistency Checklist for Subsequent Projects:*** Subsequent projects that rely on the GHG Reduction Strategy for its cumulative impact analysis must show consistency with the Reduction Strategy by preparing a Consistency Checklist which allows the applicant to identify specific GHG reduction measures that are applicable to the project and demonstrate how the project will implement these measures.

- ***Binding Mitigation:*** If applicable strategies are not otherwise binding and enforceable, they must be incorporated as mitigation measures and/or conditions of approval.

Benefits





- ***Path to Carbon Neutrality:*** The GHG Reduction Strategy outlines measures for the City to implement and incentivize to achieve GHG emissions (85 percent below 1990 levels with carbon sequestration projects designed to capture an additional 15% of carbon to reach carbon neutrality).

- ***Multiple Benefits:*** These measures not only reduce GHGs but also have multiple health benefits that result from:
  - greater and more equitable bicycle and pedestrian access to services, parks and employment centers;
  - improved air quality, reducing conditions such as asthma;
  - reducing the City's heat island effect and associated risks from heat related illnesses; and,
  - reducing vulnerability and enhancing resilience in relation to wildfires, floods, droughts and other extreme weather events.

2. Development of Emissions Inventories and Reductions to Date

Eli Krispi, Senior Associate
PlaceWorks

Sectors resulting in GHG Emissions

- ***Consistent with the U.S. Community Protocol, the Inventory assesses the following sectors:***

  - ***Transportation***
  - ***Residential Energy***
  - ***Nonresidential Energy***
  - ***Solid Waste***
  - ***Off-road Equipment***
  - ***Agriculture***
  - ***Water and Wastewater***
  - ***Land Use and Sequestration***
  - ***Stationary Sources***
  - ***Wildfire and Controlled Burns***

Refinements in the Analysis of Sectors

- ***Global Warming Potentials:*** The City updated these values to be consistent with the Sixth Intergovernmental Panel on Climate Change (IPCC) Assessment.

Gas	Second Assessment Report GWP	Sixth Assessment Report GWP
Carbon dioxide (CO_2)	1	1
Methane (CH_4) (fossil origin)	21	29.8
Methane (CH_4) (non-fossil origin)	21	27.2
Nitrous oxide (N_2O)	310	273

- ***Sectors and Subsectors:*** The City added emissions from "land use" (a carbon source) and "sequestration" (a carbon sink or something that removes GHG from the atmosphere) activities to the 2007 inventory.

- ***Sector-Specific Methods:*** The City updated activity and emissions data for the on-road transportation and off-road equipment sectors, updated agricultural acreage, and updated emissions factors for solid waste sector using the State databases or models.

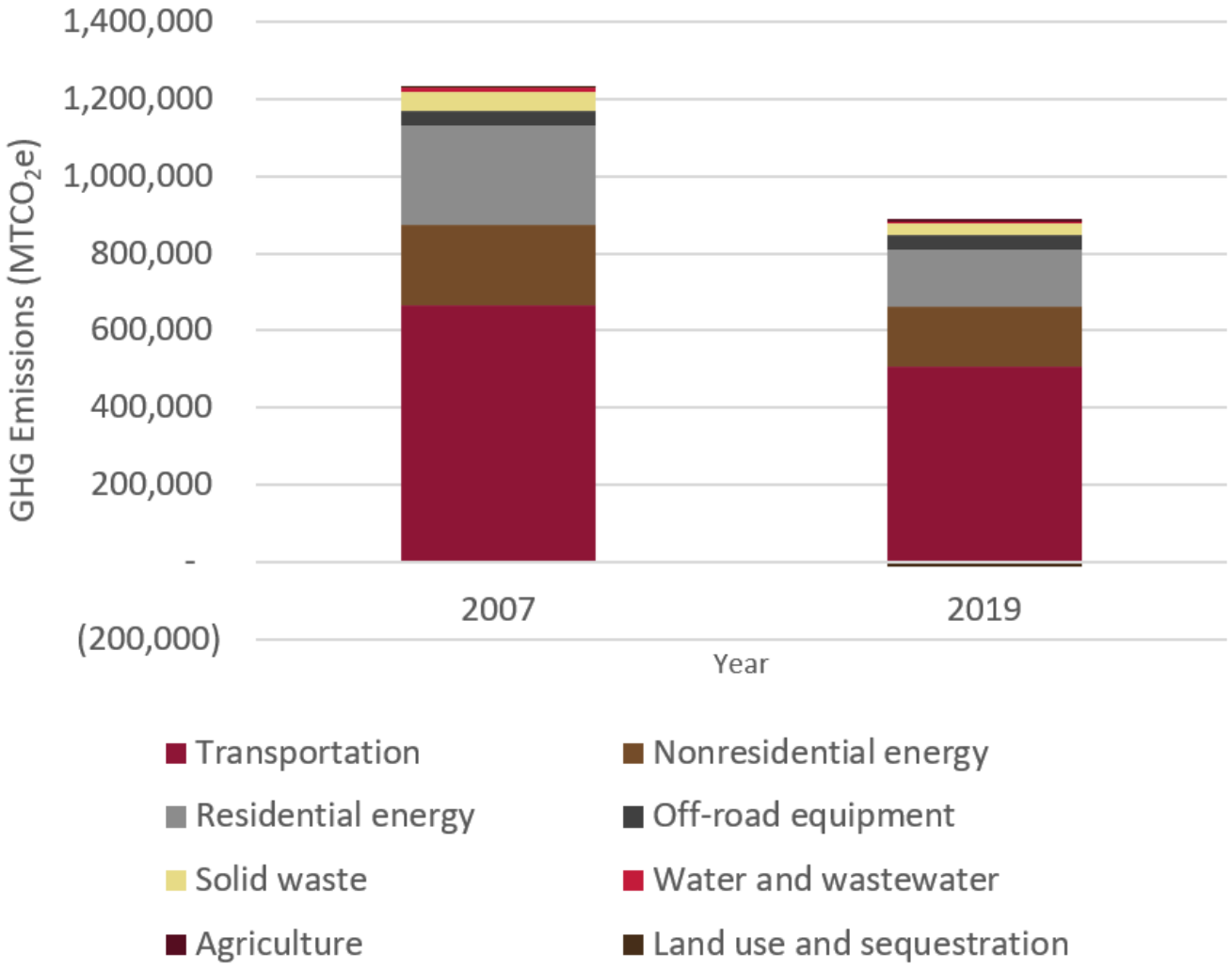
GHG Reductions from 2007-2019

- Between 2007 and 2019, Santa Rosa's city-wide GHG emissions decreased by 29%. Reductions occurred in all sectors except the off-road sector.

Sector	2007	2019	Percentage Change
Transportation	666,720	507,810	-24%
Nonresidential energy	209,610	153,200	-27%
Residential energy	257,150	148,280	-42%
Off-road equipment	34,960	37,930	8%
Solid waste	52,800	31,560	-40%
Water and wastewater	8,070	5,170	-36%
Agriculture	220	200	-9%
Land use and sequestration	3,200	-11,850	-470%
Total Annual $MTCO_2e$	**1,232,730**	**872,300**	**-29%**

Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.

Comparison of Emissions between 2007 and 2019



- Reduced vehicle emissions largely due to greater vehicle fuel efficiency.
- Reduced energy emissions from cleaner electricity and the creation of SCP.
- Lower solid waste emissions from less waste being sent to landfills.
- Increased sequestration on natural and working lands from less greenfield development.

Projecting Future Emissions

- The GHG Reduction Strategy projects emissions for future years, out to 2050.
  - How emissions will change with population growth if no action is taken.
  - How emissions will change with existing and planned programs, but no new actions.
- Shows level of GHG reductions needed to achieve the City's targets.

	2007 $MTCO_2e$	2019 $MTCO_2e$	2030 MT CO_2e	2045 MTC O_2e	2050 $MTCO_2e$
Emissions without state actions	**1,232,730**	**872,300**	**914,530**	**972,240**	**991,510**
Reductions from state actions	-	-	-140,520	-315,350	-333,850
Emissions with state actions	**1,232,730**	**872,300**	**774,010**	**656,890**	**657,660**
Reductions from local actions	-	-	-23,180	-11,280	-11,220
Emissions with state and local actions	**1,232,730**	**872,300**	**750,830**	**645,610**	**646,440**

Existing Programs that have Achieved Reductions

- Participating in Sonoma Clean Power to increase the renewable electricity supply to the community and allow for greater control over electricity service.
- Increasing solar photovoltaic (PV) capacity.
- Launching scooter-share programs.
- Installing publicly available electric vehicle (EV) chargers.
- Customers installing greywater systems.
- Operating the Cash for Grass and WaterSmart Checkup programs.
- Installing new and expanding existing bike lanes.
- Requiring new residential development of three stories or less to be all-electric.

Santa Rosa's Emission Targets to Meet State Mandates

- State targets:
  - Reduce emissions to 1990 levels (15% below 2007 levels) by 2020. City has met.
  - Reduce emissions 40% below 1990 levels by 2040 (SB 32, 2015)
  - Reduce emissions 85% below 1990 levels and achieve net-carbon neutrality by 2045 (AB 1279, 2022)

Target	$MTCO_2e$
1990 Emissions (15% below 2007 Baseline)	1,047,820
2007 Baseline	1,232,730
2030 Target (40% below 1990 levels)	628,690
2045 Target (85% below 1990 levels and net carbon neutrality)	157,170

* Neither the City nor State have adopted a quantitative GHG emissions reduction target for 2050. However, the City, like the State, aspires to continue to reduce GHG emissions below 2045 levels to achieve net carbon neutrality.

3. The Path to Carbon Neutrality – GHG Emissions Reduction Measures and Programs

Tammy Seale, Principal
PlaceWorks

Community-wide GHG Emissions

- The GHG Reduction Strategy breaks down community-wide emissions by sectors. The sectors where the City produces the most GHGs include:
  - **Transportation (58%)**
  - **Non-Residential Energy (18%)**
  - **Residential Energy (17%)**

  Together, these sectors result in 93% of the City's GHG emissions.

GHG Reduction Measures

- GHG Reduction Strategy presents 17 new climate action measures organized by 5 objectives.
- Staff developed these GHG reduction measures following current best practices and guidance, the lessons learned through implementation of the 2012 CCAP, and input and feedback from residents and key stakeholders who represent many different community organizations and businesses.
- Each measure is enacted through a series of implementing programs, some of which are policies or actions from the General Plan.

GHG Reduction Measures

- Each measure includes
  - Narrative text to describe the measure
  - Projected GHG emissions savings within city limits (if applicable)
  - Implementing programs
  - Supportive General Plan policies
  - Measure performance indicators performance standards
  - Applicability
  - Measure type
  - Timeframe
  - Lead department(s) and Supporting department(s)
  - Supporting partners
  - Expected Funding Sources

Objectives of GHG Reduction Strategy

1. *Decrease Community-Wide Vehicle Miles Traveled (VMT) and Increase the Use of Zero-Emission Vehicles and Equipment.*

2. *Reduce Community-Wide Energy Use and Transition To Carbon-Free Energy Sources.*

3. *Achieve a Zero-Waste Future for Santa Rosa.*

4. *Use Water Efficiently and Enhance Drought Resilience.*

5. *Enhance Sustainable and Carbon-Free Practices Community-wide.*

1. Decrease Community-wide Vehicle Miles Traveled (VMT) and Increase the use of Zero Emission Vehicles and Equipment

Measure 1
Locate and design development to minimize vehicle dependence

Measure 2
Improve the frequency, coverage, and effectiveness of local and regional transit and rail networks

Measure 3
Develop and expand transportation demand management programs to reduce VMT and dependence on single-occupancy vehicles

Measure 4
Enhance active transportation and micro-mobility systems

Measure 5
Accelerate the adoption of zero-emission, light-duty, and heavy-duty vehicles

Measure 6
Transition to zero-emission motorized equipment, including construction and landscaping

2. Reduce Community-Wide Energy Use and Transition To Carbon-Free Energy Sources

Measure 7

Reduce community-wide energy use, increase energy efficiency, and advance electrification in existing buildings, including municipal buildings

Measure 8

Transition to carbon neutral new buildings

Measure 9

Increase local renewable energy generation and the use of renewable, carbon free, and distributed energy systems including energy storage throughout the city

3. Achieve a Zero-Waste Future for Santa Rosa

Measure 10

Reduce the amount of recyclable and compostable material sent to landfills

Measure 11

Reduce total waste generation

4. Use Water Efficiently And Enhance Drought Resilience

Measure 12

Improve indoor and outdoor water-use efficiency

Measure 13

Expand water catchment and reuse opportunities

5. Enhance Sustainable And Carbon-Free Practices Community-wide

Measure 14
Increase local natural carbon sequestration opportunities

Measure 15
Reduce embedded carbon in goods and services used by the City and community members

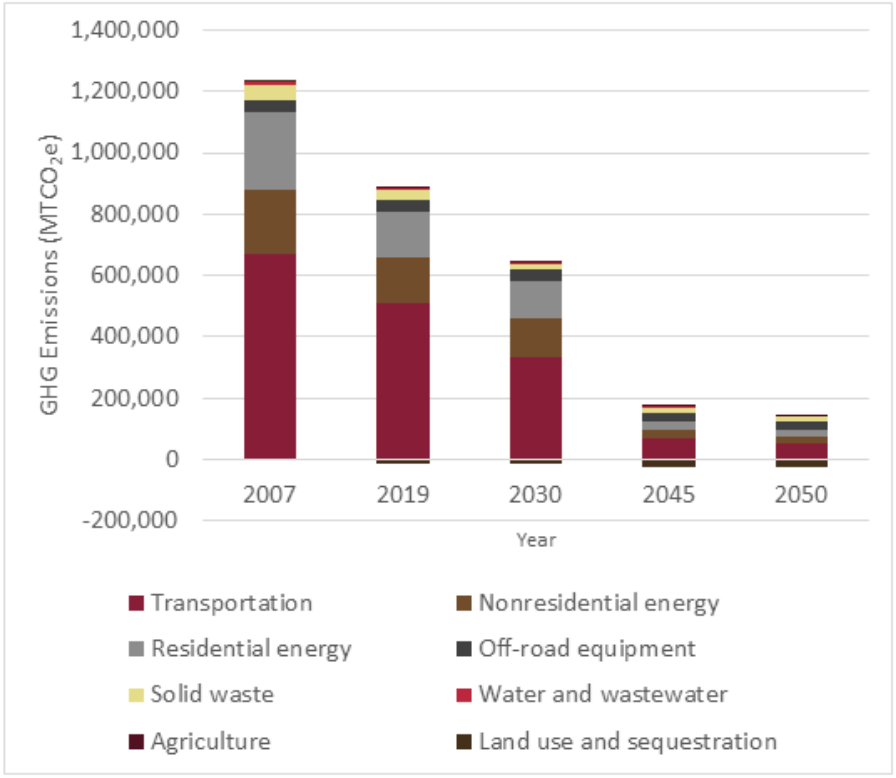
Measure 16
Maximize opportunities for local food production

Measure 17
Integrate climate action across all City depts. and programs

Reaching the State Mandates by 2030 and 2045, and Reaching Carbon Neutrality

- Implementation of the GHG Reduction Strategy will reduce emissions by 41% below 1990 levels by 2023, and by 86% below 1990 levels by 2045, thereby meeting the 2030 and 2045 State mandates.

Figure 6 GHG Emissions by Sector in City Boundary with the GHG Reduction Strategy, 2007 to 2050



The Reduction Strategy paves the way for a sustainable Santa Rosa by dramatically reducing natural gas use, solid waste, and VMT compared to the 2007 baseline. With implementation of the Reduction Strategy, transportation emissions are expected to decline by 92 percent between 2007 and 2050; nonresidential energy emissions are projected to decline by 91 percent, and residential energy emissions are projected to decline by 89 percent.

Reaching the State Mandates by 2030 and 2045, and Reaching Carbon Neutrality

Figure 5 Santa Rosa Emissions Reductions with the GHG Reduction Strategy, 2007 to 2050

Conclusions

- Implementation of the GHG Reduction Strategy enables the City of Santa Rosa to meet the State's 2030 and 2045 GHG reduction mandates.

- Implementation of the GHG Reduction Strategy incorporates strategies such as planting trees and enhancing ecosystems that result in sequestration of CO_2, thereby enabling the City achieve carbon neutrality on this timeline.

GHG Reduction Strategy

Questions?

Next Steps

- ***August 2024 – Public Review (revised) Draft General Plan 2050 and Program EIR***
  The GHG Reduction Strategy will be included in the revised Draft General Plan 2050 that will be circulated mid summer, 2024, along with the draft Program EIR on the project.

- ***September 2024 – Planning Commission Review***
  The Planning Commission will conduct a public hearing on the revised Draft General Plan 2050 and Program EIR.

- ***February/March 2025 – EIR Certification and General Plan Adoption Hearings***
  The revised General Plan 2050, including the GHG Reduction Strategy, and the final General Plan 2050 Program EIR will be reviewed, considered, and acted upon by the Planning Commission and City Council.

Thank you!!

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