City of Santa Barbara
Transportation and Circulation Committee

Staff Report

DATE: June 27, 2024

TO: Transportation and Circulation Committee

FROM: Jefferson Litten, Energy and Climate Division Manager
Jessica W. Grant, Supervising Transportation Planner

SUBJECT: 2024 Climate Action Plan – Proposed Transportation Measures and Actions

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RECOMMENDATION:

That the Transportation and Circulation Committee find the transportation measures and actions incorporated in the draft 2024 Climate Action Plan consistent with the *General Plan - Circulation Element, 2006 Pedestrian Master Plan, 2016/2022 Bicycle Master Plan*, and *2018 Vision Zero Strategy*.

BACKGROUND:

In 2012, the City of Santa Barbara (City) became one of the first communities in California to adopt a Climate Action Plan (CAP). In 2020, City Council adopted the climate action goal of carbon neutrality by 2035. Since 2020, City staff has worked with Rincon Consultants to draft a 2024 CAP, *Together to Zero*, with a roadmap of specific actions to reduce Green House Gas (GHG) emissions and achieve the City's emission targets while ensuring community equity, including priority actions and measures for the next two years. The 2024 CAP comprehensively analyzes the City's GHG impacts for the purpose of meeting the requirements of the California Environmental Quality Act (CEQA), provides programmatic means of addressing GHG emissions, and effectively streamlines environmental review for future development in the City.

The 2024 CAP uses the 2019 GHG inventory (622,110 metric tons of carbon dioxide equivalent (MT CO_2e)) as the baseline from which emission scenarios are calculated, targets are set, and projected emission reductions in the 2024 CAP are calculated. The 2024 CAP sets an initial goal of reducing municipal and community-wide GHG emissions by 378,507 MT CO_2e by 2030, which is consistent with the targets specified on Senate Bill 32 (SB 32), California Global Warming Solutions Act of 2016. The City also has a goal of carbon neutrality (0 MT CO_2e) by 2035, which is significantly more aggressive than the State's reduction targets of 40% below 1990 levels by 2030 (SB 32) and carbon neutrality by 2045 (AB 1279). The 2024 CAP strategizes this goal through emission reductions in five sectors: building energy; transportation; water, solid waste, and wastewater; carbon sequestration; and community climate potential.

The 2024 CAP went before the Planning Commission on May 16, 2024, where the Planning Commission unanimously voted to move the CAP, Master Environmental Assessment Guidelines, and Negative Declaration to City Council.

This staff report focuses on the CAP's transportation measures and actions, and consistency with the City's *General Plan - Circulation Element, 2006 Pedestrian Master Plan, 2016/2022 Bicycle Master Plan*, and *2018 Vision Zero Strategy*.

DISCUSSION:

2024 Climate Action Plan – Transportation Measures and Actions

In the 2019 GHG Inventory, the transportation sector accounted for 42% of the City's total emissions and is the sector with the greatest potential for emission reduction (Attachment 1).

The City's transportation strategy in the 2024 CAP consists of a multi-pronged approach for incentivizing alternatives to fossil fuel-powered vehicle trips, including shifting transportation mode share to active transportation and public transit options, electrifying passenger and commercial vehicle trips, and decarbonizing off-road equipment. The 2024 CAP prioritizes reducing vehicle miles travelled (VMT) by improving active and public transportation mode share, supporting regional programs reducing the use of single occupancy vehicles, and shifting the remaining VMT to Zero-Emission Vehicles.

The table below lists ten Transportation Measures in the 2024 CAP (Attachments 1 and 2):

Measure Number	GHG Emissions Reduction Measures
T-1 (Municipal)	Continue to develop and implement the municipal Transportation Demand Management (TDM) program
T-2 (Municipal)	Electrify or otherwise decarbonize the municipal fleet by 2035
T-3	Implement programs that enhance access to safe active transportation, such as walking and biking, to increase active transportation mode share to 6% by 2030 and to 10% by 2035
T-4	Implement programs to encourage public transportation to increase public transportation mode share to 7% by 2030 and to 8% by 2035.
T-5	Support and promote regional programs that reduce the use of single occupancy vehicles
T-6	Increase zero-emission passenger vehicle use and adoption to 30% by 2030 and 55% by 2035
T-7	Accelerate zero-emission commercial vehicle use and adoption to 26% by 2030 and 45% by 2035
T-8	Electrify or otherwise decarbonize 6% of off-road equipment by 2030 and 20% by 2035

Each measure is broken down into four to twelve actions to achieve the measure target. Attachment 2 provides a full list of the measures and actions.

CAP Policy Consistency with Other Council-Adopted Transportation Policy Documents

The 2024 CAP's Transportation Measures and Actions are consistent with the City's *2011 General Plan - Circulation Element, 2006 Pedestrian Master Plan, 2016/2022 Bicycle Master Plan,* and *2018 Vision Zero Strategy*.

The City's *General Plan - Circulation Element's* comprehensive goal and vision states, "While sustaining or increasing economic vitality and quality of life, Santa Barbara should be a city in which alternative forms of transportation and mobility are so available and attractive that the use of an automobile is a choice and not a necessity." The 2024 CAP Measures T-1, T-3, T-4, and T-5 specifically relate to increasing active transportation and transit to lessen reliance on single use vehicles to reduce emissions. 2024 CAP Measures T-2, T-6, T-7, and T-8 are consistent with the Circulation Element policies to ensure that adequate electrical systems are provided to meet the needs of Santa Barbara residents, industrial uses, and businesses.

2024 CAP Measure T-3 are synergistic with the Pedestrian and Bicycle Master Plans and Vision Zero Strategy to create a safe active transportation network. Active Transportation will only be a viable option for residents and visitors if users of the network feel safe getting to and from their destinations. The City will continue to pursue funding for safe and complete streets infrastructure projects and working with regional partners for funding, education, and evaluation.

Beyond our local policy documents, the 2024 CAP is also consistent with goals and policies in the Santa Barbara County of Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy, Central Coast Zero-Emission Vehicle Strategy, and Central Coast Broadband Plan.

NEXT STEPS:

The 2024 CAP is scheduled to go before the City Council for final review and approval on July 2, 2024. Once the 2024 CAP is approved, City staff will begin staffing and budgeting for 2024 CAP implementation as part of the Fiscal Years 2026-2027, two-year budget process going before City Council in June of 2025.

ATTACHMENTS:

1. Together to Zero - 2024 Climate Acton Plan (introduction and transportation related measures only)
2. CAP Transportation Measures and Actions

TOGETHER

TO ZERO

REACHING CARBON NEUTRALITY IN THE CITY OF SANTA BARBARA

TOGETHER TO ZERO
Santa Barbara
JUNTOS A CERO

City of Santa Barbara
SUSTAINABILITY & RESILIENCE DEPARTMENT

TABLE OF CONTENTS

Attachment 1 only contains the items highlighted in the red boxes

A Letter to the Community

from the Santa Barbara City Council

Dear Santa Barbara,

As members of the Santa Barbara City Council, we are committed to creating a sustainable and resilient community for all. Our goal of reaching carbon neutrality by 2035 is a critical step towards achieving that vision. We know that the road ahead will not be easy, but we are up for the challenge. We believe that together, we can build a future that is equitable, prosperous, and sustainable.

By working towards carbon neutrality, we are not only reducing our impact on the environment, but also investing in a better future for generations to come. We are creating new opportunities for innovation, job creation, and resilience that will strengthen our local economy by promoting renewable energy and sustainable practices. We are pursuing a resilient and healthy community for all residents.

The task before us is not just about reducing emissions. It is about setting the cornerstones for a resilient, prosperous, and sustainable community that is rooted in social, economic, and environmental justice. It is about creating a community that can evolve with and adapt to our changing climate.

We are excited about the opportunities that lie ahead, and we hope that you will join us in this critical work. We encourage you to get involved, to share your ideas, and to help us build a more sustainable and resilient Santa Barbara.

Together, we can create a future that we can all be proud of.
Sincerely,

TOGETHER TO ZERO
Santa Barbara
JUNTOS A CERO

Definitions

Building Performance Standard – Policies that require commercial or multi-family buildings to meet certain performance levels for energy use or GHG emissions.

Carbon Neutrality – Any CO_2 released into the atmosphere from an entity (building, City, company) is balanced by an equivalent amount being removed.

Carbon Sequestration – The capturing, removal, and storage of carbon dioxide (CO_2) from the earth's atmosphere through either biological, chemical, or mechanical processes.

Circular Economy – A model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible.

Climate Adaptation – Taking action to prepare for and adjust to the current and projected impacts of climate change, such as sea level rise and increased storm intensity, in order to avoid or moderate harm.

Community Choice Aggregator (CCA) – Also known as municipal aggregation, CCAs allow local governments to procure power on behalf of their residents and businesses, providing more local control over electricity sources, more green power than offered by the default utility, and/or lower electricity prices.

Decarbonization (Decarbonize) – Reduction of carbon dioxide emissions through either the use of low- or no-carbon power sources (e.g. solar, hydroelectric power, wind) or by completely forgoing consumption (e.g. riding a bike).

Demand Response – Programs that ask consumers to reduce or shift their energy usage during periods of peak demand, either voluntarily or in exchange for compensation.

Direct Installation – Programs that offer the installation of energy efficiency measures to reduce energy use for no or little up-front cost. Costs are recouped by installation service either through on-bill financing or demand response.

Distributed Energy Resources – Small scale energy sources, usually situated near the site where electricity is used (e.g. rooftop solar panels).

Electrification – Converting appliances and transportation modes to all-electric versions.

Energy Assurance – Assessing risk and planning for natural disasters or disruptions to the energy grid in order to ensure reliable power supply.

Feed-In-Tariff – Policy designed to support the development of renewable energy sources by providing a guaranteed, above-market price for producers.

Greenhouse Gas – A gas that contributes to the greenhouse effect by absorbing infrared radiation and trapping heat in the atmosphere (e.g., carbon dioxide, methane, and chlorofluorocarbons).

Definitions

Greenhouse Gas Emissions (GHG) – Emissions of carbon dioxide, methane, nitrous oxide, or chlorofluorocarbons.

Library of Things – A collection of items you might not expect to find at a library, like museum passes, induction cooktops, microscopes, guitars, and more. Most of these items check out for three weeks, although some check out for only one week. Available at Santa Barbara's Central Library.

Micro Transit – Shared transportation service that typically operates with smaller vehicles, such as vans or mini-buses, and offers flexible routes and schedules. Usually on-demand or shorter, fixed routes.

Microgrid – Small-scale power grid coupled with generation sources (e.g. solar) that can operate independently or collaboratively with the larger power grid.

Mode Shift – To change from one form of transportation to another, usually from a vehicle trip to a more sustainable mode such as e-bike or bus.

MTe – Metric tons equivalent for carbon dioxide (or other GHG). Generally used as unit of measurement to quantify the global warming potential of one unit of carbon dioxide, CO2.

Off-Road Equipment – Construction and landscaping equipment and off-road vehicles (e.g. leaf blowers, lawn mowers, ATVs).

Resilience Hub – Community-serving facility designed to support residents and coordinate resource distribution and services before, during, or after a natural hazard event.

ReSource Center – The County-run facility that takes, sorts, and harvests resources from the commercial and residential waste streams and ultimately stores remaining waste.

Santa Barbara Clean Energy (SBCE) – The City of Santa Barbara's locally controlled electricity provider. SBCE is a community choice aggregator.

Under Resourced Community – Low-income area, typically with a higher population density and poverty level. Under resourced communities often have limited access to community amenities such as high-quality schools, grocery stores, parks, health care facilities, or public transportation. (Defined in California as community identified pursuant to Section 39711 of the Health and Safety Code, subdivision (d) of Section 39713 of the Health and Safety Code, or subdivision (g) of Section 75005).

Zero Emission Vehicle – An electric vehicle or hydrogen fuel cell vehicle that does not emit tailpipe emissions.

Zero Emission Vehicle Acquisition Policy – An internal policy prioritizing zero emission vehicle purchases for all City fleet vehicle replacements or purchases.

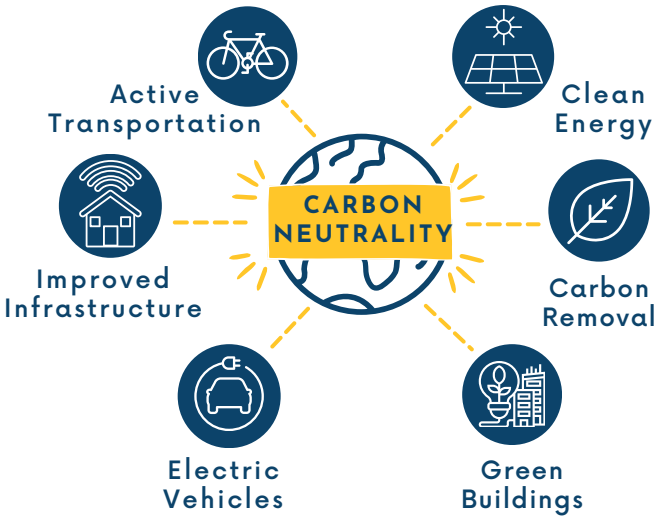
TOGETHER TO ZERO
Santa Barbara
JUNTOS A CERO

Welcome to the Together to Zero initiative, a community-wide effort to achieve carbon neutrality by 2035.

Together to Zero is a call to action for all members of our community to take steps towards reducing our carbon footprint and protecting our environment. We are all part of the solution. With your help, Santa Barbara will continue its legacy of environmental and climate leadership and provide replicable examples for others to follow.

The City is aiming to be Carbon Neutral by 2035!

Here's what it will take:

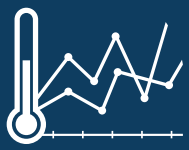


We hope that all individuals, businesses, and organizations commit to reducing their carbon emissions and support initiatives that promote sustainable practices. This might include investment in renewable energy sources like solar power, choosing sustainable transportation options like electric vehicles, transitioning to energy efficient and all-electric buildings and public transit, and increased conservation of water and other resources.

We believe that achieving carbon neutrality is not just about reducing our impact on the environment. It's also about creating a more equitable and just community for all residents, and building resilient communities through programs and infrastructure to overcome the challenges of climate change.

What is Climate Change?

Greenhouse gases (GHG) trap radiation from leaving Earth's atmosphere. Burning fossil fuels and other human activities release GHG, causing Earth's temperature to warm. This results in rising sea levels, changes in weather patterns, and climate conditions that can make life as we know it more difficult.



Climate Change impacts your family's health and future.

Climate Change increases the severity and frequency of natural disasters and extreme weather events.

Drought | Flooding and debris flows | Wildfires | Sea level rise

Building on a Strong Foundation

The City of Santa Barbara is not starting from scratch on its quest for carbon neutrality. Many policies, programs, and projects have been implemented that have set the Santa Barbara community up for success. Below are just a few examples of recent efforts that this plan uses as catalysts for real, transformative change. Many of these efforts are found in our full list of strategies under the "Foundational" classification in the Technical Appendix.

2018 Strategic Energy Plan

Resilience Hubs / Energy Assurance Programs

Low Emitting Buildings

Santa Barbara Clean Energy (SBCE) provides Santa Barbara with 100% carbon-free electricity

Bike Share & Bicycle Master Plan

Electric Vehicle Infrastructure Citywide, & Zero Emission Vehicle Acquisition Policy

Green Business Program, Community Engagement, & Public Education

The ReSource Center @ the Tajiguas Landfill converts waste into recycled landscaping and energy resources

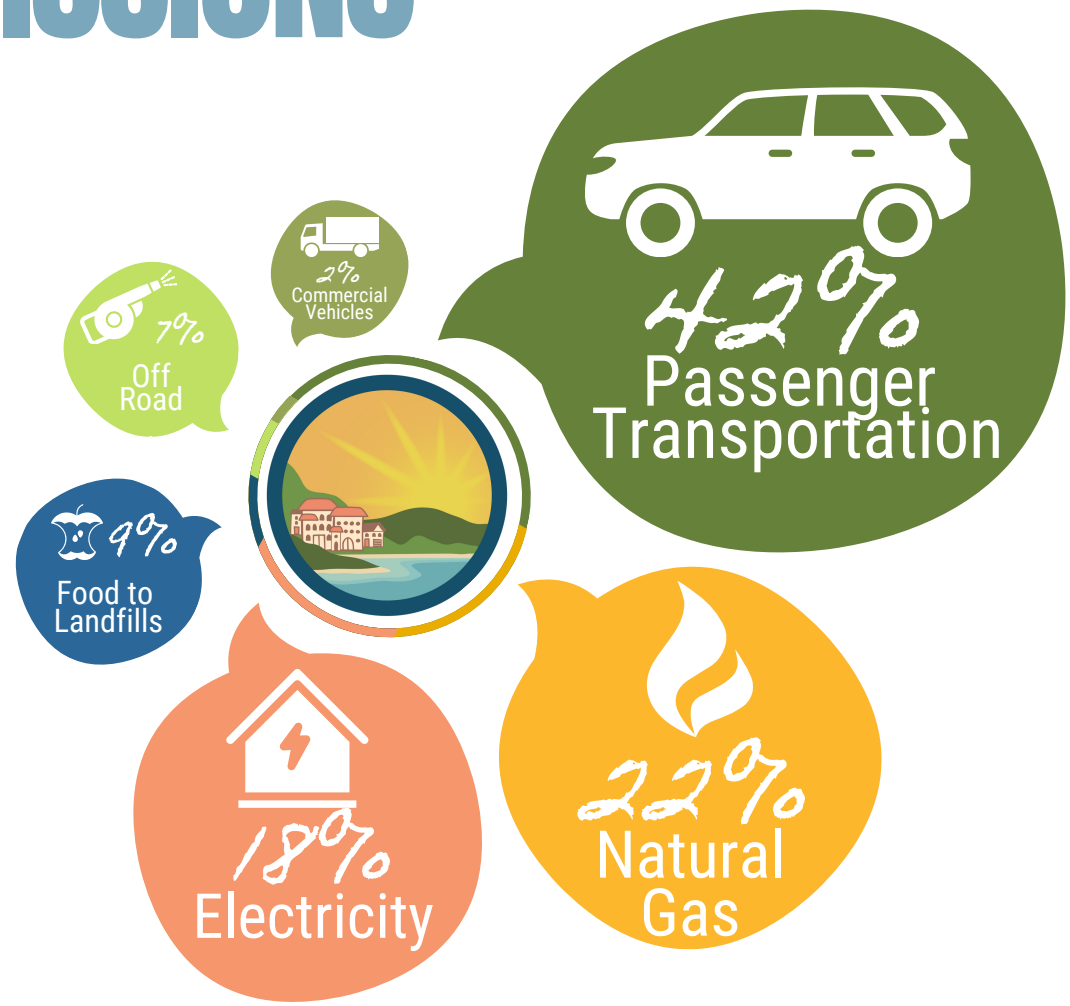
WHERE DO SANTA BARBARA'S GHG EMISSIONS COME FROM?

This data covers Santa Barbara's emissions from 2019 (the year of the most recent inventory data). Emissions from the electricity sector have mostly been eliminated due to the launch of Santa Barbara Clean Energy in 2021.

A Greenhouse gas (GHG) emissions inventory is the way that we understand and account for the sources and quantities of GHG emissions within our City.

Inventories like this are an important tool for understanding the sources and drivers of climate change so that we can develop effective strategies to reduce emissions and mitigate the impacts of climate change.

By tracking emissions over time, it is possible to identify trends and areas for improvement, set emissions reduction targets, and evaluate the success of climate policies and measures.



STATE AND LOCAL TARGETS:

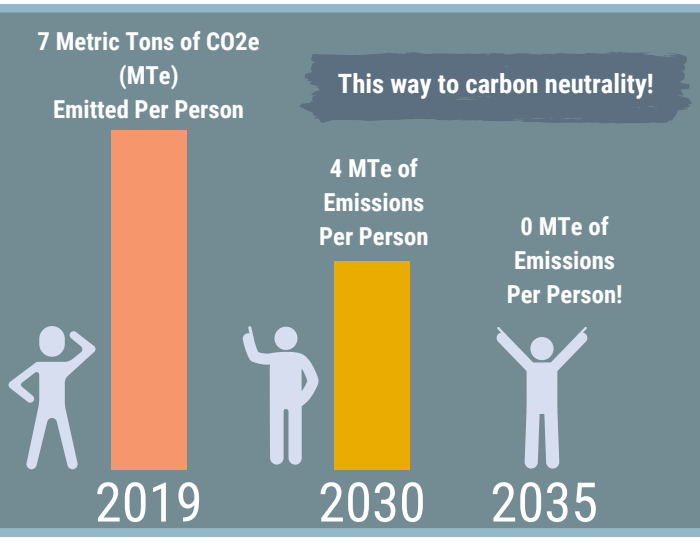
Santa Barbara isn't in this alone. The State has also set ambitious targets that will help propel Santa Barbara toward carbon neutrality. The most significant are highlighted below:

Santa Barbara City Council Goal (2019): Sets local goal of carbon neutrality by 2035

Assembly Bill 32 (2006): Sets statewide goal to reduce GHG emissions to 1990 levels by 2020

Senate Bill 32 (2006): Built upon AB32 and sets statewide goal to reduce GHG emissions 40% below 1990 levels

Executive Order B-55-18 (2018): Sets statewide goal to achieve carbon neutrality by 2045



TOGETHER TO ZERO

Strategies

FOR GREENHOUSE GAS EMISSIONS REDUCTION

GETTING TO ZERO
THIS PLAN IS JUST THE START

In order to get to zero we must continually measure our progress toward carbon neutrality and remain nimble in our ability to leverage new opportunities, legislative changes, and technologies as they emerge. The graph below shows the substantial jump start in reducing GHG emissions we have already achieved by launching Santa Barbara Clean Energy, which provides our community with 100% carbon free electricity, and by partnering with Santa Barbara County on the ReSource Center, which converts waste to valuable resources. Another factor is how effective broad statewide legislative actions have been and can continue to be on emissions reductions.

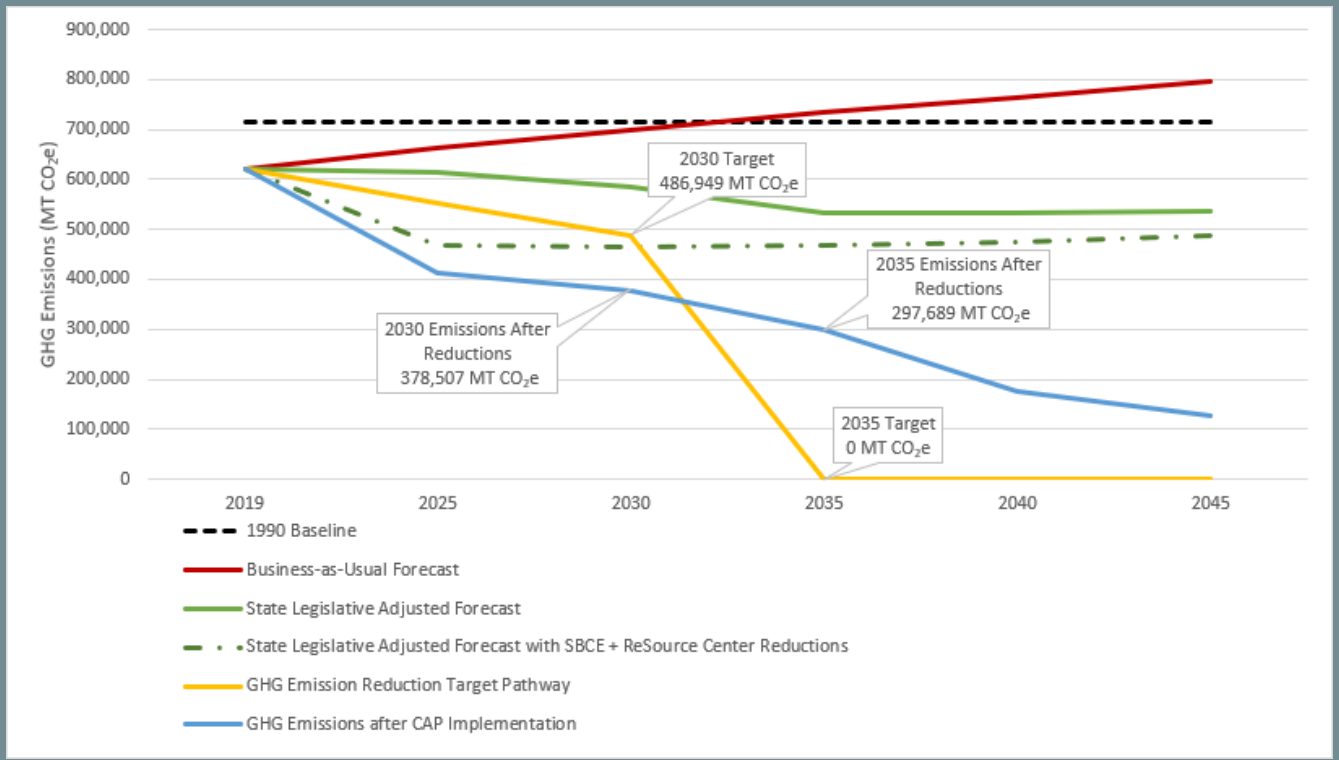
You can see in the graph below that while the measures in this Climate Adaptation Plan (CAP) do not get us all the way to carbon neutrality by 2035, they represent a huge start and the most ambitious and significant GHG reductions in the history of the City. This plan creates the inflection point on our journey to zero and lays the groundwork for future GHG reductions.

As we move together to zero, achieving carbon neutrality will be a complex and multifaceted challenge that involves transforming various aspects of energy generation, infrastructure, transportation, AND behavior, while also relying on the State and Federal governments to remain bold and ambitious.

"Go as far as you can see, and when you get there, you'll be able to see further." -Thomas Carlyle

In the pages ahead you will see we've broken the plan into a "10-year plan" outlining the strategies we intend undertake over the next decade given the best information we have today, and the "next two years" detailing the strategies either in process or quickly planned, for which funding and capacity currently exists. Over the next decade, these plans will evolve and adapt as we progress together to zero.

Santa Barbara local goal of carbon neutrality by 2035



THE TEN-YEAR PLAN:
HOW TO READ THIS SECTION

★ The stars indicate an action that will be pursued by ~~the~~ City in the next two years

BUILDING ENERGY USE
HIGH IMPACT ACTIONS

These actions represent the most critical community climate potential strategies to implement in this plan in order to achieve our goals. Additional supportive actions are found in Appendix A

Measure / Action	IMPACT · READINESS · COST
Debarbonize 50% of Municipal Buildings by 2030; 100% by 2035	
★ BE 1.1 Develop a plan to decarbonize municipal buildings, including an inventory of fossil fuel-powered equipment, replacement technologies, and short and long-term schedule for construction.	
★ BE 1.3 Implement the municipal building decarbonization plan to decarbonize 100% of municipal buildings by 2035.	
Increase solar generation & energy storage capabilities around the City	
★ BE 1.2 Develop ordinance requiring the installation of solar and/or energy storage backup power instead of diesel generators, where feasible, by 2031.	
★ BE 3.1 Implement all feasible microgrid projects at municipal facilities as identified by the 2017 Zero Net Energy study and re-evaluate viability of additional facilities.	
BE 3.2 Identify barriers to installation of distributed energy resources at municipal facilities. Establish a funding plan and direct municipal efforts to source space for energy storage and microgrids.	
BE 7.3 Develop targeted electrical rate structures and incentives for customers, including demand response.	
BE 5.17 Create innovative pilots through SBCE and local partnerships to address technical, low-income, market, and policy barriers limiting progress toward the City's climate goals.	
BE 5.18 /6.10 Implement direct installation and/or incentive programs that facilitate the installation of combined solar and battery energy storage system installations on buildings. Target 120 residential and 35 commercial installations by 2035.	
Offer incentives, programs, and incubators to innovate, reduce costs, and remove barriers	
BE 6.12 Create a residential building electrification accelerator program to increase building electrification through economic, technical, and educational support. Mechanics such as incentives, time of sale rebates, construction support, permit streamlining, and special rate design should be used. Special focus to be placed on underserved residents	
BE 6.11 Pilot an emergency hot water appliance loaner program to provide a free loaner natural gas hot water heaters within 24 hours of a request, with an agreement that the borrower will replace the gas powered hot water heater within 6 months with an electric heat pump water heater.	

Climate Action Plan strategy

High Impact Strategy Section

Design new ordinances and programs to electrify existing buildings

Complete a low-income and affordable housing electrification pilot project to provide proof of concept of all-electric buildings. Pilot will ensure no increase in energy bills due to project for participants.

Proposed action to be taken to make strategy happen

Estimated level of impact on GHG reductions

How quickly we can get to implementation

Level of investment needed to implement

Evaluating Actions

The following pages provide a brief overview of the action, estimated cost to implement, and how soon we can get started.

Climate Impact

High-Impact
Actions that result in the highest amount of GHG reductions and get the City the furthest along on the road to carbon neutrality

Medium-Impact
Provides less GHG reductions per dollar than high impact actions, but are still necessary to achieve the City's carbon neutrality goal

Low-Impact
Actions expected to result in relatively low emissions reductions, but provide co-benefits significant enough for inclusion in the plan

Supporting Action
Doesn't provide a direct reduction in GHG emissions, but is critical to implementing other actions in the plan

Readiness

Short-Term
Actions that are ready to be implemented today

Medium-Term
Actions that require more planning, study, funding, staff capacity, or other resources in order to begin

Long-Term
Actions requiring long lead times, not currently programmed in the City's workplans, or lower priority due to evaluative criteria

Ongoing
Actions that will require continuous iterations throughout the journey to carbon neutrality

Cost

No Cost
Actions that are expected to have no cost to the City or to the community

Low Cost
Actions that require relatively low upfront cost or staff time

Moderate Cost
Moderate level of costs such as for consultants, moderate infrastructure changes, retrofitting existing infrastructure, or certain low-cost programs

High Cost
Actions requiring significant investments or budget such as major infrastructure, large-scale incentive programs, or significant investment in technology

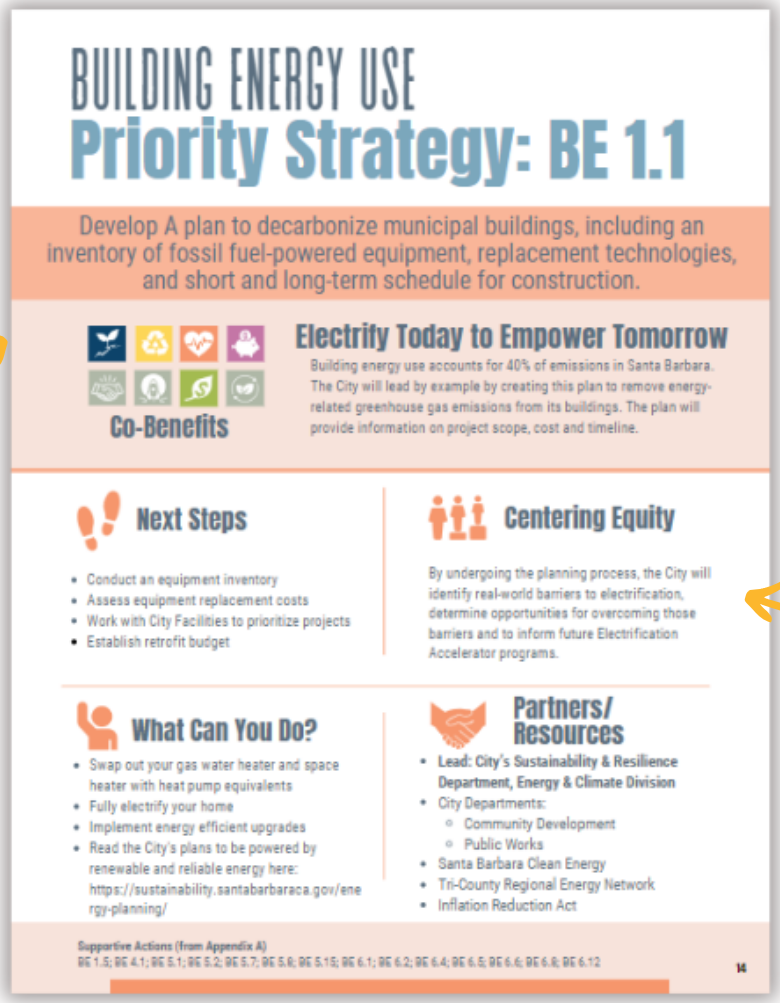
GETTING TO WORK: THE NEXT TWO YEARS

HOW TO READ THIS SECTION

Co-benefits refer to additional positive outcomes gained as a result of implementing the strategy.

These are the immediate next steps the City will take to implement that action.

Everyone is part of the solution. These are a few suggestions of things you can do at home or work to reduce emissions.



BUILDING ENERGY USE

Priority Strategy: BE 1.1

Develop A plan to decarbonize municipal buildings, including an inventory of fossil fuel-powered equipment, replacement technologies, and short and long-term schedule for construction.

Co-Benefits

Electrify Today to Empower Tomorrow

Building energy use accounts for 40% of emissions in Santa Barbara. The City will lead by example by creating this plan to remove energy-related greenhouse gas emissions from its buildings. The plan will provide information on project scope, cost and timeline.

Next Steps

- Conduct an equipment inventory
- Assess equipment replacement costs
- Work with City Facilities to prioritize projects
- Establish retrofit budget

Centering Equity

By undergoing the planning process, the City will identify real-world barriers to electrification, determine opportunities for overcoming those barriers and to inform future Electrification Accelerator programs.

What Can You Do?

- Swap out your gas water heater and space heater with heat pump equivalents
- Fully electrify your home
- Implement energy efficient upgrades
- Read the City's plans to be powered by renewable and reliable energy here: https://sustainability.santabarbaraca.gov/energy-planning/

Partners/ Resources

- **Lead: City's Sustainability & Resilience Department, Energy & Climate Division**
- City Departments:
  - Community Development
  - Public Works
- Santa Barbara Clean Energy
- Tri-County Regional Energy Network
- Inflation Reduction Act

Supportive Actions (From Appendix A)

BE 1.5; BE 4.1; BE 5.1; BE 5.2; BE 5.7; BE 5.8; BE 5.15; BE 6.1; BE 6.2; BE 6.4; BE 6.5; BE 6.6; BE 6.8; BE 6.12

14

Equity is absolutely central to this plan. These are the ways in which we are protecting and prioritizing our under resourced community members.

We aren't in this alone. The City will work with its robust network of partners and look to leverage resources on the state and national scale in order to achieve its goals.

This lists the other strategies in the full plan (see Appendix A) that relate to this particular effort.

Co-Benefits

Resilience
Protects against current and future impacts of climate change, such as sea level rise, energy assurance, wildfires, and food insecurity.

Public Health
Creates a cleaner and healthier community by improving air and water quality, wellness, and/or protecting against extreme heat and weather events.

Conserving Resources
Conserves finite natural resources such as water, raw materials, and fossil fuels.

Community Connectivity
Promotes a strong sense of community by connecting residents to each other and the City, connecting historically underserved communities with resources, and by creating neighborhoods that are accessible by multiple modes of travel.

Protecting Biodiversity and Natural Lands
Protects biodiversity and natural ecosystems by restoring natural spaces and protecting air and water quality.

Green Economy
Creating local job opportunities in green technology sectors such as solar installation and battery storage installation.

Cost Savings
May result in a cost savings to the consumer in the immediate term or over the life cycle of the measure.

Innovation (Moonshots)
The City is an innovator in creating new approaches to fighting climate change, creating resilience, and engaging the community.

Transportation Emissions

THE GOAL

Promote use of safe, equitable, zero emission transportation options to reduce pollution and urban congestion today and for future generations.

CENTERING EQUITY

Provide incentives, programs, pathways, and infrastructure to promote adoption of sustainable transportation options for ALL members of our community.

CITY LEADERSHIP

The City adopted a "Zero Emission Vehicle First" purchasing policy for City fleet vehicles.

The City manages an electric bike share program (BCycle).

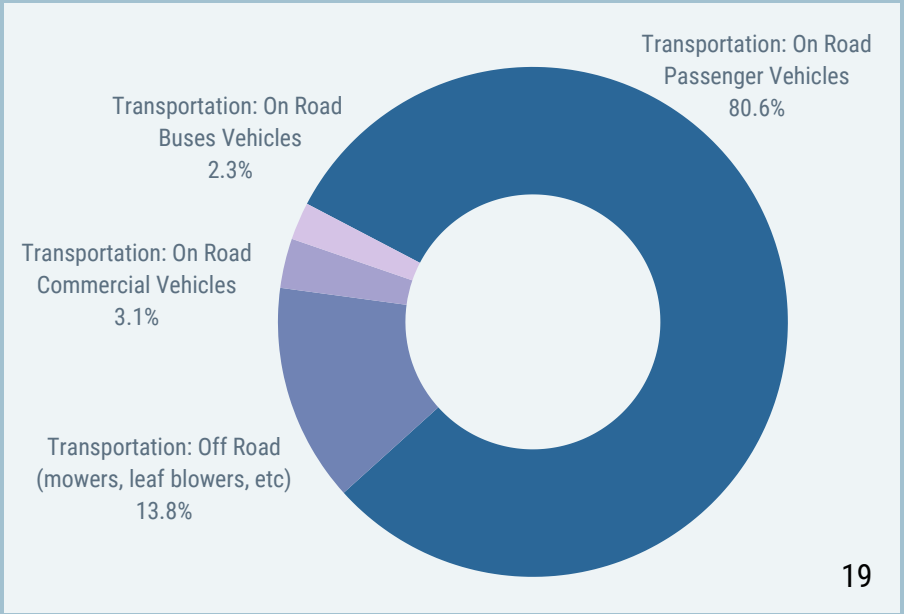
The City employee WorkTRIP Program encourages carpooling, mass-transit, and active modes of commuting.

THE STRATEGY

Innovate and collaborate with residents, businesses, workforce, and stakeholders to build a more climate-centric transportation system. Improve infrastructure for active transportation modes such as biking and walking, strengthen electric vehicle charging network, and promote conversion to zero emission vehicles.

IMPLEMENTING THIS PLAN WILL **REDUCE** TRANSPORTATION EMISSIONS BY 40%!

The breakdown of transportation emissions by source type:



TRANSPORTATION
HIGH IMPACT ACTIONS

These actions represent the most critical community climate potential strategies to implement in this plan in order to achieve our goals. Additional supportive actions are found in **Appendix A.**

Measure / Action	IMPACT • READINESS • COST

Electrify (or otherwise decarbonize) the City's Municipal Fleet by 2035

★	**T 2.1**	Implement the City's Zero Emission Vehicle Acquisition Policy, transitioning fossil fuel municipal vehicles to zero emission alternatives by 2035. Prepare a short- and long-term schedule and explore regional bulk procurement.		
★	**T 2.4**	Adopt an emissions-free equipment purchasing policy for smaller equipment (e.g., landscaping equipment) for all City departments.		
	T 2.2	Install additional electric vehicle chargers in municipal parking lots for fleet and employee use.		

Increase active transportation mode share to 6% by 2030 and to 10% by 2035

★	**T 3.1**	Implement the City's Bicycle Master Plan and Pedestrian Master Plan goals and policies to create bike and pedestrian infrastructure that is safer, easier to use, and widely accessible for all community members.		
	T 3.6	Build new infrastructure to ensure there is equitable access to safe bike and pedestrian routes in all areas of the City. Focus on under resourced communities.		
	T 3.8	Implement the recommended bike facilities outlined in the Santa Barbara Bicycle Master Plan to add 30 miles of bikeways to the City by 2030.		

Develop programs to reduce vehicle miles traveled (VMTs)

	T 3.10	Leverage technology to track mode shifts to active transportation. Conduct an annual review of implementation progress, data quality, and potential barriers to implementation. Once an effective tracking method is developed, the City shall aim to achieve 6% increase in active transportation mode share by 2030 and 10% by 2035.		
	T 3.12	Accelerate the production and availability of affordable housing near urban centers by updating and adopting the Housing Element and Zoning Code to reduce VMTs; explore alternative housing options and streamline processes.		
	T 4.1	Facilitate alternative forms of public transit, such as micro transit and electric shuttle routes, in areas with higher congestion and population densities. Micro transit is shared transportation in smaller vehicles with flexible routes and schedules.		

TRANSPORTATION
HIGH IMPACT ACTIONS CONT.

Measure / Action	IMPACT • READINESS • COST

Increase adoption of Zero Emission Vehicles, Equipment, and Charging Network

★ **T 6.1**	Amend municipal code to require an increased number of EV chargers at new construction and major remodels.	
T 6.2	Revisit commercial and multi-family building ordinances to be updated and require large commercial and large multi-family building owners that provide parking to install EV chargers in 20% of parking spaces when undergoing major remodeling.	
T 6.3	Add new publicly accessible EV charging stations through the City and City-owned facilities.	
T 6.4	Support private development of EV charger installations by streamlining City processes such as expediting permitting, easing onerous regulations, develop a permitting design guide.	
★ **T 8.1**	Align or exceed state legislation (AB 1346) and expand enforcement of the ordinance that bans the sale of gas powered small off-road engines by 2024. Provide incentives or buyback programs for burdened residents.	
T 8.4	Partner with Santa Barbara County Air Pollution Control District to expand rebate and incentive programs for upgrading off-road equipment to hybrids, biofuels, or fully electric.	

TRANSPORTATION
Priority Strategy: T 2.1

Implement the City's Zero Emission Vehicle Acquisition Policy, transitioning fossil fuel municipal vehicles to zero emission alternatives by 2035. Prepare a short and long-term schedule for completion and explore regional bulk procurement.

Co-Benefits

Charged with Purpose

The City will lead by example in creating a plan to convert its entire fleet to zero emission vehicles.

Next Steps

- Create procurement plan for zero emission vehicles
- Enhance EV Charging network
- Adjust budgets for reduced maintenance and increased upfront costs associated with EVs

Centering Equity

The City will identify real-world barriers to vehicle electrification and determine opportunities for overcoming those barriers to inform future Electrification Accelerator programs.

What Can You Do?

- Choose an electric car
- Reduce single occupancy vehicle trips
- Explore alternative modes of travel
- Take the train or bus, or use BCycle, our electric bicycle share program

Partners/Resources

- **Lead: City's Public Works Fleet Division**
- Santa Barbara County Air Pollution Control District
- California Energy Commission
- California Air Resources Board
- Southern California Edison

Supportive Actions (from Appendix A)
T2.2; T5.1; T 5.10; T6.1; T 6.2; T6.3; T7.1; T 7.2;

TRANSPORTATION
Priority Strategy: T 2.4

Adopt an emissions-free equipment purchasing policy for smaller equipment (e.g., landscaping equipment) for all City departments.

Co-Benefits

Sustain the Beauty, Trim the Emissions

The City will lead by example by converting all landscaping equipment to electric.

Next Steps

- Conduct equipment inventory
- Assess equipment replacement costs
- Work with City Facilities and the Parks and Recreation Department to create budget and identify incentives

Centering Equity

Eliminating emissions from landscape equipment improves air quality and public health in City Parks and Recreation Facilities and other public spaces.

What Can You Do?

- Switch to electric equipment such as mowers and leaf blowers
- Check out rarely used tools and equipment from the City's Library of Things

Partners/Resources

- **Lead: City's Parks and Recreation Department**
- City Departments:
  - Sustainability and Resilience
  - Public Works Facilities
- Santa Barbara County Air Pollution Control District
- California Air Resources Board

Supportive Actions (from Appendix A)
T 8.1; T 8.2; T 8.3; T 8.4; T 8.5; T 8.6

TRANSPORTATION
Priority Strategy: T 3.1

Implement the City's Bicycle Master Plan and Pedestrian Master Plan goals and policies to create bike and pedestrian infrastructure that is safer, easier to use, and widely accessible for all community members.

Co-Benefits

Move Freely, Live Actively

The City has secured over $100 million in grant funding for bike and pedestrian infrastructure. This measure further solidifies the City's commitment to alternative transportation.

Next Steps

- Continue the City's successful track record of securing state funding for new active transportation infrastructure
- Conduct community outreach to develop priorities and design
- Maintain existing infrastructure

Centering Equity

Improving bicycle and pedestrian infrastructure increases safe and healthy transportation options for all SB communities. The City prioritizes historically underserved communities.

What Can You Do?

- Explore the City's bike paths
- Take advantage of bikeshare
- Explore alternative transportation incentives from Santa Barbara Clean Energy
- Attend public meetings on new proposed projects

Partners/Resources

- **Lead: Public Works Transportation Planning**
- Santa Barbara County Air Pollution Control District
- California Air Resources Board
- SB County Associated Governments
- Move SBC

Supportive Actions (from Appendix A)
T 1.1; T 1.3; T 1.4; T 1.5; T 3.2; T 3.3; T 3.4; T 3.5; T3.6; T 3.7; T 3.8; T 3.9; T 3.10; T 3.11; T 5.7

TRANSPORTATION
Priority Strategy: T 6.1

Amend municipal code to require an increased number of EV chargers for new construction and major remodels.

Co-Benefits

Fueling Future Mobility

Through amendments to City codes, the City is preparing for the state-led transition away from internal combustion engine vehicles.

Next Steps

- Conduct stakeholder meetings
- Survey similar codes from other cities
- Adopt the new code

Centering Equity

Requiring EV chargers during new construction or remodel accelerates the transition to emission free vehicles, improving air quality and public health.

What Can You Do?

- Size your electrical panel for an EV charger
- Design your home to be EV Ready
- Choose to drive electric

Partners/Resources

- **Lead: City's Sustainability & Resilience Department, Energy & Climate Division**
- City Departments:
  - Community Development, Building and Safety Division
- Tri-County Regional Energy Network
- Central Coast Clean Cities Coalition

Supportive Actions (from Appendix A)
T 2.2; T 6.2; T6.3; T6.4; T 6.5; T 7.1; T 7.2; T7.3

TRANSPORTATION
Priority Strategy: T 8.1

Align with or exceed state legislation (AB 1346) and expand enforcement of the ordinance that bans gas powered small off-road engines by 2024. Provide incentives or buyback programs for local small businesses.

Co-Benefits

Cultivating a Gas-Free Landscape

By offering incentive and buyback programs though this measure, the City will help residents comply with state regulations and improve air quality across the City.

Next Steps

- Work with California Air Resources Board and SB County Air Pollution Control District to identify and develop incentives and programs
- Conduct robust stakeholder outreach

Centering Equity

Transitioning away from gas powered landscape equipment improves air quality and public health.

What Can You Do?

- Choose electric tools such as mowers or leaf blowers
- Reduce natural gas and propane use
- Check out lesser used items from the City's Library of Things

Partners/Resources

- **Lead: City's Sustainability & Resilience Department, Energy & Climate Division**
- Santa Barbara County Air Pollution Control District
- California Air Resources Board

Supportive Actions (from Appendix A)
T 2.4; T 8.2; T 8.3; T 8.4; T 8.5; T 8.6

Climate Action Plan Update

GHG Emissions Reductions Technical Evidence

prepared by

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March 11, 2024

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3 Transportation Measures

The City has many existing programs to support all modes of transportation in Santa Barbara. In order to meet its carbon neutrality target, the City must further reduce transportation emissions as passenger vehicles accounted for 41% of GHG emissions in Santa Barbara in 2019. Reducing these emissions is complicated as it requires reducing each individual's number of miles driven by fossil fuel-powered vehicles.

The City's transportation strategy consists of a multi-pronged approach for incentivizing alternatives to fossil fuel-powered vehicle trips, including shifting transportation mode share to active transportation and public transit options, electrifying passenger and commercial vehicle trips, and decarbonizing off-road equipment. [36] This CAP prioritizes reducing vehicle miles travelled (VMT) by improving active and public transportation mode share, supporting regional programs that reduce the use of single occupancy vehicles, and shifting the remaining VMT to Zero Emission Vehicles. While, in theory, 100% electrification of all vehicles in Santa Barbara could achieve zero-emissions in the transportation sector without reducing VMT, the City recognizes that cars and roadways carry huge amounts of embodied emissions (emissions associated with the construction of cars and roads) that are not accounted for in the inventory .[37, 38]

Reducing VMT carries additional potential benefits outside of GHG emissions reductions as well, including reduced congestion, reduced space needed for roadways and parking, local economic revitalization, and lifestyle improvements.[39] Based on this strategy, the CAP's transportation measures are shown in Table 10 below.

[36] Mode share in this context is used to refer to percentage of passenger trips that can be attributed to one transportation mode or another. For example, 5% active transit mode share means that 5% of all passenger trips are taken using active transit modes (walking, biking, scootering, etc.). Importantly, mode share does not refer to percentage of passenger VMT that can be attributed to a specific transportation mode, since not all trips are the same length. To convert from mode share to percent of VMT, some assumption about the length of trip in each type of mode must be applied.

[37] Mark Mills. August 2021. The tough calculus of emissions and the future of EVs. Accessed at: https://techcrunch.com/2021/08/22/the-tough-calculus-of-emissions-and-the-future-of-evs/

[38] Embodied emissions are associated with energy used in the extraction, processing, and transportation of materials.

[39] Richard Campbell and Margaret Wittgens. March 2004. The Business Case for Active Transportation. Accessed at: http://thirdwavecycling.com/pdfs/at_business_case.pdf

Table 10 Transportation Measures

Measure Number	GHG Emissions Reduction Measures	Anticipated Reduction/ Sequestration (MT CO_2e)
T-1 (Municipal)	Continue to develop and implement the municipal Transportation Demand Management (TDM) program	Supportive
T-2 (Municipal)	Electrify or otherwise decarbonize the municipal fleet by 2035	Supportive
T-3	Implement programs that enhance access to safe active transportation, such as walking and biking, to increase active transportation mode share to 6% by 2030 and to 10% by 2035	2030: 952 2035: 2,757
T-4	Implement programs to encourage public transportation to increase public transportation mode share to 7% by 2030 and to 8% by 2035.	2030: 3,547 2035: 4,641
T-5	Support and promote regional programs that reduce the use of single occupancy vehicles	Supportive
T-6	Increase zero-emission passenger vehicle use and adoption to 30% by 2030 and 55% by 2035	2030: 53,948 2035: 107,774
T-7	Accelerate zero-emission commercial vehicle use and adoption to 26% by 2030 and 45% by 2035	2030: 1,777 2035: 2,140
T-8	Electrify or otherwise decarbonize 6% of off-road equipment by 2030 and 20% by 2035	2030: 2,857 2035: 9,859

These Measures and associated actions will build off existing City programs to provide incentivized options and infrastructure to increase active transportation, public transportation, Zero Emission Vehicle (ZEV) use and reduce the use of single occupancy vehicles. Measure T-3 aims to achieve greater mode-shifts to active transportation as well as low-stress and convenient infrastructure. To increase safe access to bicycle and pedestrian facilities, infrastructure improvements are needed in order to remove existing barriers to active transportation. With safer, more accessible active transportation opportunities, more people will choose active transportation modes.[40].

To achieve greater reliability in public transit (Measure T-4), MTD and the City will continue to develop and improve public transit programs and services. This measure prioritizes shared and public transit in the city, makes transit more convenient, and reduces the time it takes to reach a destination via transit—important determining factors for shared and public transit mode share. Measure T-5 provides the supportive framework for the goals in Measures T-3 and T-4 by creating programs and policies that both incentivize use of the active transportation and transit network, while also disincentivizing driving a single-occupancy vehicle, such as limited parking options. Reduction in single-occupancy vehicle VMT is largely based on behavior change which can be influenced with a combination of infrastructure that provides the alternative network to use and incentives/disincentives to single-occupancy vehicles. While the City cannot require its residents or businesses to buy ZEVs, Measures T-6 and T-7 will ensure that the ZEV infrastructure and incentives are available throughout the City to continue to remove barriers to passenger and commercial ZEV adoption. Lastly, Measure T-8 directs City efforts and activity in decarbonizing off-road equipment.[41]

[40] Smith, M., Hosking, J., Woodward, A. et al. Systematic literature review of built environment effects on physical activity and active transport – an update and new findings on health equity. Int J Behav Nutr Phys Act 14, 158 (2017). https://doi.org/10.1186/s12966-017-0613-9

[41] Off road equipment includes vehicles and equipment that operates not on traditional roadways https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad_booklet.pdf

Measure T-1 (Municipal) Continue to Develop and Implement the Municipal Transportation Demand Management (TDM) Program

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-1.1	Structural Change, Foundational, Funding	Provide free or discounted access to public transit passes and the electric bicycle share program for all municipal employees and expand the WorkTRIP program to offer additional carbon-free or carbon-reduced modes of travel incentives.	Supportive
T-1.2	Structural Change	Develop a hybrid remote work program policy that supports municipal office employees to work from home as feasible (including alternative work schedules where feasible). City to provide financial assistance to help offset costs associated with home office needs.	Supportive
T-1.3	Structural Change, Funding	Provide cash incentives or paid time off for City employees to bike, walk, and carpool to work.	Supportive
T-1.4	Feasibility Studies	Conduct a detailed survey of City staff commute data annually including employee feedback to identify both major emission sources and potential gaps in planning.	Supportive
T-1.5	Feasibility Study, Structural Change	Identify opportunities for accessing bike lockers and showers at municipal office buildings.	Supportive

All actions of Measure T-1 work together to reduce the emissions associated with City staff commutes. Action T-1.2 allows for staff to work from home and eliminate commuter emissions on those days. Actions T-1.1 and T-1.3 provides incentives to carpool, use transit, or use alternative transportation when commuting and Actions T-1.4 and T-1.5 addresses challenges associated with these modes of transportation. The development and implementation of a successful TDM program will act as a case-study for other agencies, organizations, and businesses in the city to learn from and implement accordingly. This measure is not quantified to avoid double counting. Municipal emissions are a subset of community emissions and are already quantified under the community actions.

Measure T-2 (Municipal) Electrify or Otherwise Decarbonize the Municipal Fleet by 2035

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-2.1	Foundational	Complete and implement the City's Zero Emission Vehicle Acquisition Policy to convert fossil fuel municipal fleet vehicles, where feasible, to electric or otherwise decarbonize the fleet by 2035, including a short and long-term schedule for completion as well as potential for regional bulk procurement. Gain approval from City Council to allow discretionary electric vehicle purchases from different vendors.	Supportive
T-2.2	Structural Change	Install additional zero emission vehicle chargers in municipal parking lots for fleet and employee use.	Supportive
T-2.3	Foundational, Feasibility Studies	Procure biofuels (renewable diesel and biogas) to operate municipally owned on and off-road equipment with no existing opportunities for decarbonization. Re-evaluate decarbonization opportunities regularly to ensure biofuels are not being used for equipment that could otherwise be decarbonized.	Supportive
T-2.4	Structural Change	Develop and adopt a purchasing policy for smaller equipment (e.g., landscaping equipment) that includes reviews and prioritization of emissions-free equipment each time equipment is purchased.	Supportive

Actions in Measure T-2 build from existing work the City has done doing to reduce emissions associated with electrification and decarbonization of the municipal fleet. Action T-2.1 will implement the City's existing zero-emission vehicle first purchasing policy for all municipal vehicles and Action T-2.4 will adopt a new policy for smaller equipment. Actions T-2.2 and Actions T-2.3 involves the provision of additional infrastructure and resources to support electric and biofuel vehicles. Municipal emissions are a subset of community emissions and are already quantified under the community actions.

Measure T-3 Implement Programs that Enhance Access to Safe Active Transportation, such as Walking and Biking, to Increase Active Transportation Mode Share to 6% by 2030 and to 10% by 2035

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-3.1	Foundational, Funding	Implement the City's Bicycle Master Plan and Pedestrian Master Plan goals and policies to enhance community access to safe active transportation options. Using these guiding documents, identify, design and procure funding for projects that can forward the goals of the BMP and PMP, and create bike and pedestrian infrastructure that is safer, easier to use, and widely accessible for all community members.	2030: 952 2035: 2,757
T-3.2	Foundational, Funding	Pursue funding and coordinate with existing streets maintenance programs to close gaps in the pedestrian and bike network, as identified in the Bicycle Master Plan, Pedestrian Master Plan, and Capital Improvement Program.	Supportive
T-3.3	Feasibility Studies, Structural Change	Evaluate existing bike parking facilities and identify what improvements can be made to increase parking supply, reduce theft, and increase rider attraction. Include analysis of last mile limitations and hurdles and add bike parking near transit stops accordingly. Consider AB 2097 and expanding bike parking with private facilities when vehicle parking is limited.	Supportive

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-3.4	Structural Change, Equity	Adopt the State's Slow Streets Program and expand the City's existing neighborhood traffic calming efforts with a focus on equity considerations for additional locations.	Supportive
T-3.5	Partnerships, Education	Engage MOVE SBC, SBCAG, MTD, Santa Barbara County Public Health Department, Cottage Hospital, school districts, local law enforcement, bike advocates, and community stakeholders to continue to identify and implement additional short-term and long-term bikeway and pedestrian infrastructure improvements, Vision Zero messaging and efforts, and general education regarding the safe utilization of our public active infrastructure.	Supportive
T-3.6	Equity, Foundational	Build new infrastructure to ensure there is equitable access to safe bike and pedestrian infrastructure in all areas of the city. Focus planning, development, and construction of active transportation infrastructure in regionally defined disadvantaged communities.	Supportive
T-3.7	Structural Change	Evaluate amending the zoning ordinance to increase bike parking and types of bike parking facilities for land development projects.	Supportive
T-3.8	Foundational	Implement the recommended bike facilities outlined in the Santa Barbara Bicycle Master Plan to add 30 miles of bike ways to the City by 2030.	
T-3.9	Foundational, Equity	Implement Santa Barbara's Vision Zero Strategy to eliminate serious injuries and fatalities on City streets.	Supportive
T-3.10	Feasibility Studies	Leverage technology to track mode shifts to active transportation. Conduct an annual review of progress on implementation progress, data quality, and potential barriers to implementation. Once an effective tracking method is developed, the City shall aim to achieve 6% increase in active transportation mode share by 2030 and 10% by 2035.	Supportive
T-3.11	Structural Change, Equity	Increase bike parking in nonresidential places like populated areas, City Parks, beaches, etc.	Supportive
T-3.12	Structural Change	Accelerate the production and availability of affordable housing near urban centers by updating and adopting the Housing Element and Zoning Code to reduce VMTs; by exploring alternative strategies to create and preserve affordable housing, such as co-ops, housing or land trusts; and by streamlining project review with objective design standards.	Supportive

Santa Barbara is ranked 3rd in the nation for the percentage of bicycle commute trips for cities of its size (65,000 to 100,000 people), and 8th overall.[42] A complete description of the goals, strategy, policy, and implementation framework for expanding and improving Santa Barbara's bikeway network is included in the Bicycle Master Plan (BMP) that was adopted in 2016. The BMP will continue to be updated as needed to identify new projects for implementation, and to ensure that improvement projects are correctly prioritized and meet the plan's guiding principles. The most recent update occurred in 2022.

The overall goal of the City's BMP is to provide a long-term vision for improving the active transportation network in Santa Barbara and enhance connections to residential areas, transit facilities, employment, retail and commercial centers, and public facilities. The community-driven

[42] 2016 Bicycle Master Plan – Chapter 1: Introduction https://santabarbaraca.gov/sites/default/files/documents/Public%20Works/Bicycle%20Master%20Plan/2016%20Bicycle%20Master%20Plan%20-%20Introduction.pdf

2016 BMP identified bikeway projects to help create a continuous bicycle network and enhance safety with a goal to increase commuting bicycle mode share by 6.9% by 2025 compared with 2016 bicycle mode share.[43] These projects were prioritized across three phases with milestone implementation years of 2020, 2025, and 2030. Implementing the BMP will consist of coordinating City departments with stakeholders (e.g., MOVE SBC, and underserved communities) to accomplish bikeway projects. The 2016 BMP documented 61 miles of bicycle routes. As of 2019, there were approximately 76 miles of bicycle routes in the city. As of the most recent BMP update in 2022, there were 84.6 miles of bike ways in the city and the overall goal of the BMP is to add an additional 30 miles by 2030, for which the City is on track to accomplish.[44]

Improving active transportation networks is an important part of building complete streets, which are streets that accommodate bikes, cars, shared transit, and pedestrians in an accessible way. Santa Barbara's Bicycle Master Plan and Pedestrian Master Plan implements the City's Complete Streets Policy.[45] Nationally, 48% of all vehicle trips were three miles or less in 2019, a distance easily travelled by foot, bicycle, or other micro mobility platforms.[46] An improved and expanded pedestrian network is the most effective and direct approach for shifting those shorter vehicle trips to walking, and studies show that distance to destinations is one of the strongest predictors of walking as a mode choice. However, little research has been conducted to determine quantitatively how improving the pedestrian network (rather than shortening the distance) translates to increased pedestrian mode share. This is further complicated by the fact that while improved pedestrian networks almost always have a positive correlation with increased walking, that does not always translate to decreased VMT. In other words, increased walking does not mean that walking trips are replacing driving trips. Therefore, while Santa Barbara will implement many projects to increase its active transportation network, the mode shift associated with this was estimated more conservatively and does not include reductions associated with increased walking. Lastly, the actions included in Measure T-5, which support and promote regional programs that reduce the use of the single occupancy vehicles, will also work to support Measure T-3 by encouraging programs that enhance the need for safe active transportation.

In order to estimate the mode shift potential associated with Measure T-3, other cities with similar buildouts (bike network mileage versus city land square footage) were compared. Results from significant investment in bicycle infrastructure in California suggest that bicycle mode share can be increased on par with leading bicycle cities in the state. The City of Davis leads the state with a 20% bicycle mode share[47] and 9.2 miles of bike lane per square mile of the city.[48] City of Berkely has a 9.7% bicycle mode [49] with approximately 4.8 miles of bike land per square mile of the city.[50] Santa Barbara's bicycle mode share in 2019 was 3.9% according to Census data[51] and had 3.6 miles of bike

[43] https://santabarbaraca.gov/government/departments/public-works/public-works-downtown-team/transportation-policy#:~:text=The%20community%2Ddriven%20Santa%20Barbara,the%20City%20of%20Santa%20Barbara.
[44] Communications with Samuel Furtner, City of Santa Barbara Mobility Coordinator and Associate Transportation Planner via email on June 8, 2023.
[45] 2016 Bicycle Master Plan – Goal 3: Complete Streets & Multi-modal Access. https://santabarbaraca.gov/sites/default/files/documents/Public%20Works/Bicycle%20Master%20Plan/2016%20Bicycle%20Master%20Plan%20-%20Goal%203%3A%20Complete%20Streets%20%26%20Multi-modal%20Access.pdf
[46] https://inrix.com/blog/2019/09/managing-micromobilty-to-success/
[47] https://www.theguardian.com/cities/2015/aug/03/davis-california-the-american-city-which-fell-in-love-with-the-bicycle
[48] https://www.cityofdavis.org/city-hall/public-works-engineering-and-transportation/bike-pedestrian-program/davis-bike-and-pedestrian-infrastructure#:~:text=4%20miles%20of%20buffered%20bike,and%20twenty%2Done%20underpass%20crossings.
[49] City of Berkeley. May 2017. City of Berkeley Bicycle Plan. Accessed at: https://www.cityofberkeley.info/uploadedFiles/Public_Works/Level_3_-_Transportation/Berkeley-Bicycle-Plan-2017-Executive%20Summary.pdf
[50] https://www.visitberkeley.com/media-press/press-kit/fact-sheet/
[51] 5-year estimate of bicycle mode share in 2019 according to census data obtained from: https://data.census.gov/table?t=Commuting&g=160XX00US0669070&tid=ACSST1Y2019.S0801

lane per square mile of the city.[52,53] With the City on track to add an additional 30 miles of bike lane by 2030[54] there would be approximately 5.4 miles of bike lane per square mile of city. Based on other similar cities it would seem that this increase in bicycle lane miles would lead to a bicycle mode share of approximately 10%. However, Census data has shown that bicycle mode share in the city has been slowly decreasing over time despite an increase in bicycle lanes, with 2021 Census data showing a 2.9% bicycle mode share.[55] This may be due in part to commuting characteristics of the community and spread out structure of the city compared with Berkely and Davis that are significantly more condensed. As Measure T-3 includes programs and policies to not just increase the quantity of bicycle lanes, but also the quality and safety of bicycle infrastructure and include programs to enhance affordable housing and equitable access to bicycle infrastructure, it is anticipated that there will be an increase in bicycle mode shift compared with current levels. As such, to remain conservative Measure T-3 sets a goal of increasing bicycle mode share to 6% by 2030 and 10 % by 2035.

The methods and assumptions used to calculate the GHG emissions reductions associated with these actions are shown in Table 11 below. EMFAC data for Santa Barbara County was utilized to determine the average trips per vehicle mile traveled and this is the best available data for the City. This factor was then used to convert City passenger VMT to the number of trips. The number of trips was multiplied by the bicycle mode share percentage to determine the number of trips that would be substituted by bicycle travel rather than passenger vehicle with the implementation of Measure T-3. It was assumed the average bike trip length was 1.5 miles[56] and therefore for every vehicle trip replaced by bicycle trip, 1.5 vehicle miles traveled would be reduced. Emission reductions were calculated by multiplying the replaced VMT by the emission factor for internal combustion engine passenger vehicles in the target year obtained from EMFAC.

[52] Based on information from the City of Santa Barbara Mobility Coordinator and Associate Transportation Planner, there was 76 miles of bike lanes completed in the city in 2019.
[53] City of Santa Barbara includes 21 square miles of land obtained from: https://santabarbaraca.gov/getting-around/maps-santa-barbara/area-city-explained#:~:text=The%20total%20area%20of%20the,total%20of%2043.09%20square%20miles.
[54] Communications with Samuel Furtner, City of Santa Barbara Mobility Coordinator and Associate Transportation Planner via email on June 8, 2023.
[55] https://data.census.gov/table?t=Commuting&g=160XX00US0669070&tid=ACSST5Y2021.S0801
[56] Caltrans California Household Travel Survey (2013)/CARB Bike Path Reductions Technical Documentation (2019)

Table 11 Measure T-3 Calculations

	2030	2035
Mode share target	6%	10%
Mode share increase beyond baseline[1]	2.1%	6.1%
Passenger VMT[2]	841,131,670	904,613,570
Passenger trips per mile[3]	0.1261	0.1258
Estimated passenger vehicle trips	106,090,611	113,832,239
New bike trips substituted for vehicle trips[4]	2,227,903	6,943,767
Passenger VMT reduced with bike trips (miles)[5]	3,341,854	10,415,650
Passenger Vehicle Emission Factor ($MTCO_2e$/mile) (EMFAC)[3]	0.00028494	0.00026472
Total reductions (MT CO_2e)	**952**	**2,757**

[1] Santa Barbara 5-year estimate from 2019 is at 3.9% bicycle mode share. https://data.census.gov/table?t=Commuting&g=1600000US0669070&tid=ACSST1Y2019.S0801

[2] Values from forecast. See City of Santa Barbara 2019 Greenhouse Gas Emissions Inventory, Forecast, and Targets Technical Memorandum

[3] Derived from EMFAC model output for Santa Barbara County 2030 and 2035; note that EMFAC generates data at the County level, and this is the best available data for the City.

[4] Determined by multiplying estimated passenger trips by the mode share increase beyond baseline.

[5] Assume the average bicycle trip is 1.5 miles. Caltrans California Household Travel Survey (2013)/CARB Bike Path Reductions Technical Documentation (2019)

Providing education on the benefits of active transportation as well as technical information such as trip planning, safety best practices, incentives and other programs will help generate momentum around active transportation and support the overall strategy. The City continues to work with MOVE SBC, SBCAG, MTD, Santa Barbara County Public Health Department, Cottage Hospital, school districts, local law enforcement, bike advocates, and community stakeholders to identify and implement additional short-term and long-term bikeway and pedestrian infrastructure improvements, Vision Zero messaging and efforts, and general education regarding the safe utilization of our public active infrastructure. The additional promotional activities identified under this measure, including leveraging technology to track mode shifts in active transportation, would involve conducting an annual review of progress on implementation progress, data quality, and potential barriers to implementation.

Measure T-4 Implement Programs to Encourage Public Transportation to Increase Public Transportation Mode Share to 7% by 2030 and to 8% by 2035

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-4.1	Structural Change, Feasibility Studies	Explore alternative forms of public transit, such as micro transit and/or new electric shuttle routes, in areas with higher congestion and population densities. Micro transit is a type of on-demand, shared transportation service that typically operates with smaller vehicles, such as vans or mini-buses, and offers flexible routes and schedules.	2030: 3,547 2035: 4,641
T-4.2	Education, Foundational	Market and publicize public transportation improvements as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use and success of improvement.	
T-4.3	Partnerships, Feasibility Studies	Partner with Santa Barbara MTD to determine transit priority projects and determine best potential locations for expansion and increased service.	
T-4.4	Partnerships, Foundational	Work with nonprofit and community stakeholders to enhance public transit opportunities.	
T-4.5	Equity, Foundational	Work with Santa Barbara MTD to ensure public transportation access and improvements are prioritized in low-income and high population density areas of the City.	
T-4.6	Partnerships	Work with MTD to identify and implement pilot projects and infrastructure updates to make transit safer, more consistent, and more convenient.	

In general, increases and improvements to public transportation systems reduce a city's dependence on fossil fuels and reduce VMT. To further support a transition to shared transit, the City has identified six actions which work together to improve transit adoption. In order to estimate the mode shift potential associated with Actions T-4.1 through T-4.6, other cities with similar levels and types of public transportation investment were compared. Success in other cities suggests that significant investment in public transportation can increase public transportation mode share on par with those cities. The City of San Francisco leads the state with 26% public transportation mode share in 2017 (pre-COVID). The City of Seattle has documented significant increases in public transportation mode share to 48% in 2017 (pre-COVID). Key strategies employed by these cities include significant expansions of public transportation service lines, designated streets or lanes for bus lines to decrease headways, implementation of taxes to support transit, and reduced parking availability (Measure T-5.6). Santa Barbara is following the lead of San Francisco and Seattle by implementing Actions T-4.1, T- 4.3, T-4.4. T-4.5, and T-4.6. Most of these actions involve the City working with Santa Barbara Metropolitan Transit District (MTD), a public transit agency providing bus service in the southern portion of Santa Barbara County, California. It serves the surrounding local communities (i.e., Carpinteria, Goleta, Summerland, Isla Vista, and Montecito) which often commute to Santa Barbara for work, travel, or recreation. The City will work with MTD to determine transit priority projects and determine best potential locations for expansion and increased service, which will be prioritized in low-income and high population density areas of the City. The best ways to improve a transit system and reduce driving is to expand its geographical reach and increase the frequency and reliability of transit service. Approximately 1% increase in transit frequency saves 0.5% in VMT. Bus Rapid Transit can also yield a corridor-level VMT reduction of 1-2%.[57]

[57] https://www.smartgrowthamerica.org/app/legacy/documents/smartgrowthclimatepolicies.pdf

Action T-4.1 involves the City exploring alternative forms of transit, such as providing micro-transit and/or new electric shuttle routes. These will be alternative means of shifting mode share to transit with the goal of increasing the convenience of transit by reducing the time it takes to reach a destination via transit as well as reducing wait times (headways) for transit. One recent study modeled automated shuttles in Santa Clara County that would result in several benefits: a decrease in gasoline-based trips, an overall increase in transit usage, and additional first- and last-mile connections to transit, proving a higher accessibility of transit, especially during night hours.[58] Many cities in California and throughout the Country have been conducting micro-transit projects for several years and the number of projects is continuing to grow.[59], [60] Action T-4.2 directs the City to improve communication of the transportation improvements with the local community. Effective communication, especially communication that takes advantage of new and emerging technologies to accurately and easily disseminate trip planning and real-time status information, is a strong factor in helping customers decide to use transit for business or leisure trips.[61] Further, improving transit access has the potential to shift trips from cars to transit, which may reduce vehicle trips, VMT, and GHG emissions, with time spent getting to a transit stop being the key indicator of transit access.[62]

Santa Barbara's baseline public transit mode share of 3.9% was calculated from 2019 Census data.[63] Based on T-4.1 through T-4.6 Actions, which includes strategies similar to San Francisco (26% public transit mode share) and Seattle (48% public transit mode share), it is reasonable to assume that Santa Barbara can achieve a 4% increase in transit mode share (reaching a 7% public transit mode share) in 2030. Lastly, the actions included in Measure T-5, which support and promote regional programs that reduce the use of the single occupancy vehicles will also support Measure T-4.

The methods and assumptions used to calculate the GHG emissions reductions associated with these actions are shown in Table 12 below. To avoid double-counting of VMT reduction, passenger VMT reduced due to mode shift to bicycle trips calculated as part of Measure T-3 were subtracted from total passenger VMT in the target year. The adjusted passenger VMT was converted to trips using passenger trips per mile from EMFAC, similar to the calculations described in Measure T-3. The number of trips was multiplied by the transit mode share percentage to determine the number of trips that would be substituted by transit rather than passenger vehicle with the implementation of Measure T-4. It was assumed the average transit trip length on a bus was 3.8 miles[64] and therefore for every vehicle trip replaced by a bus trip, 3.8 vehicle miles traveled would be reduced. Emission reductions were calculated by multiplying the replaced VMT by the emission factor for internal combustion engine passenger vehicles in the target year obtained from EMFAC.

[58] Poliziani C, Hsueh G, Czerwinski D, Wenzel T, Needell Z, Laarabi H, Schweizer J, Rupi F. Micro Transit Simulation of On-Demand Shuttles Based on Transit Data for First- and Last-Mile Connection. ISPRS International Journal of Geo-Information. 2023; 12(4):177. https://doi.org/10.3390/ijgi12040177
[59] https://www.apta.com/research-technical-resources/mobility-innovation-hub/microtransit/
[60] https://transweb.sjsu.edu/research/2249-Demand-Responsive-Transportation-Shared-Mobility
[61] https://transitleadership.org/docs/TLS-WP-Improving-the-Customer-Experience.pdf
[62] https://ww3.arb.ca.gov/cc/sb375/policies/transitaccess/transit_access_brief120313.pdf
[63] 5-year estimate obtained from: https://data.census.gov/table?t=Commuting&g=160XX00US0669070&tid=ACSST1Y2019.S0801
[64] American Public Transportation Association. December 2018. 2018 Public Transportation Fact Book. Accessed at: https://www.apta.com/wp-content/uploads/Resources/resources/statistics/Documents/FactBook/2018-APTA-Fact-Book.pdf

Table 12 Measure T-4 Calculations

	2030	2035
Mode share increase from baseline	7%	8%
Mode share increase beyond baseline[1]	3.1%	4.1%
Passenger miles (VMT)[2]	837,789,816	894,197,921
Passenger trips per mile[3]	0.1261	0.1258
Passenger trips	105,669,109	112,521,584
New transit trips substituted for vehicle trips[4]	3,275,742	4,613,385
VMT reduced with transit trips[5]	12,447,821	17,530,863
Passenger emission factor[3]	0.00028494	0.00026472
Emission reductions from VMT avoided (MT CO_2e)	**3,547**	**4,641**

[1] Santa Barbara 5-year estimate from 2019 is at 3.9% public transportation mode share. https://data.census.gov/table?t=Commuting&g=1600000US0669070&tid=ACSST1Y2019.S0801

[2] Values from forecast less VMT reduced with bicycle trips calculated in Measure T-3 (Table 17). See City of Santa Barbara 2019 Greenhouse Gas Emissions Inventory, Forecast, and Targets Technical Memorandum.

[3] Derived from EMFAC model output for Santa Barbara County 2030 and 2035; note that EMFAC generates data at the County level, and it is assumed that this is the best available data for the City.

[4] Determined by multiplying estimated passenger trips by the mode share increase beyond baseline.

[5] Assume that the majority of public transit in the City is bus. The average bus trip is 3.8 miles. 2018 Public Transportation Fact Book

Measure T-5 Support and Promote Regional Programs that Reduce the Use of Single Occupancy Vehicles

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-5.1	Structural Change, Partnerships, Education, Foundational	Continue to work with SBCAG to encourage employers to develop Transportation Demand Management (TDM) Plans for their employees. TDM plans should include incentives for employees to bike, walk, carpool, or take the bus to work and should be publicized on a website.	Supportive
T-5.2	Feasibility Studies, Partnerships, Equity	To enhance the Santa Barbara community's ability to telecommute, implement SBCAG's Broadband Regional Study to identify areas of the City that have limited access to broadband service due to infrastructure and financial limitations.	Supportive
T-5.3	Funding, Equity	To enable telecommuting, leverage the grant writer position(s) in strategy A-2.2 to identify funding opportunities to bridge the broadband access gap in the City by helping to fund installation of infrastructure or subsidize broadband service for low-income households.	Supportive
T-5.4	Funding, Equity	Provide active and alternative transportation resources across all businesses in the city prioritizing small, women owned, and minority owned businesses regardless of Transportation Demand Management Plan (TDM) membership.	Supportive
T-5.5	Foundational	Implement AB 2097 which prohibits the City from imposing minimum parking requirements on residential and commercial development, if located with ½ mile of public transit that is consistent with AB 2097.	Supportive

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-5.6	Structural Change, Funding	In line with the General Plan, develop and implement a program to manage parking of single-occupancy vehicles. Utilize on street parking pricing for all downtown parking locations and use revenue to fund active transportation, public transportation projects, and neighborhood improvements. The program should address parking issues citywide and consider measures to prevent impacts to surrounding areas and coastal access. This analysis may include citywide use of parking permit programs and other measures.	Supportive
T-5.7	Structural Change	Develop the Pilot Bike Share Program into a permanent and dependable bike share network that provides access to key destinations throughout the City, and work with regional partners to assess potential for a regional bike share system.	Supportive
T-5.8	Education, Foundational	Coordinate with SBCAG and regional partners to update regional active transportation maps. Distribute active transportation maps and educational materials to various stakeholders. Prioritize education regarding digital mapping that is available on regularly used platforms like Google Maps.	Supportive
T-5.9	Partnerships	Partner with the tourism and business sectors of the greater Santa Barbara County region to identify pathways to increase active transportation by tourists and employees.	Supportive
T-5.10	Equity, Education	Reduce driving of single occupancy vehicles through public education and engagement. Examine equity concerns around reducing single occupancy vehicles and ensure there are adequate resources available for alternative forms of transportation.	Supportive
T-5.11	Structural Change, Feasibility Study	Explore options to address long distance commuter parking. For example, add a parking lot outside of the downtown area for long distance commuters and use mode share to bring these employees into the downtown area from the new parking lot, reducing parking congestion.	Supportive

Measure T-5 supports a transition to alternative modes of transportation besides single occupancy vehicles and therefore, is supportive of both Measure T-3 and T-4. The Actions included under Measure T-5 have been shown to be effective in changing community choices around transportation. The impacts of incentive-based policies and programs improving infrastructure for safe and convenient active transportation (Measure T-3) and transit use (Measure T-4) increase when coupled with disincentives for less favorable choices, such as making it less convenient to drive a gasoline-fueled single passenger vehicle. However, disincentive-based policies can be unpopular and place a burden on the community if not implemented carefully. Measure T-5 includes both incentives and disincentives to support the infrastructure changes and programs developed in Measure T-3 and T-4. Measure T-5 includes several actions focused on developing incentives and programs to promote active transportation (Action T-5.7, Action T-5.8, Action T-5.9), alternative transportation (Action T-5.4), and teleworking (Action T-5.2, Action T-5.3). By leveraging the grant writing position through Action T-5.3), the City will work to identify funding for telework efforts and ensure low-income and disadvantage communities also have access to telework options where possible. Under Action T-5.1, the City will work with SBCAG to encourage employers to develop and implement Transportation Demand Management (TDM) Plans that incentivize alternative modes of commute for their employees.

Reduced parking supply, when combined with other VMT reduction measures such as efficient public transit, land use policies, and urban parking pricing can reduce VMT.[65] Reduced parking supply makes driving single-passenger vehicles less attractive and can shift traveler choice to other options. Parking supply can be reduced by decreasing parking requirements for new development when near public transit (Action T-5.5) and eliminating parking spots for single-occupancy vehicles (Action T-5.6). Additionally, studies have indicated that implementing a paid parking program can lead to a 1 to 2.8 percent decrease in regional VMT.[66] However, potential VMT reduction is variable and highly dependent on the specific community design, supporting programs, and how parking limits interact with other efforts to reduce VMT such as public transit and active transportation infrastructure. Structural change actions limiting single-occupancy vehicle parking and developing a street parking price for all downtown parking (Action T-5.6) should be supported by feasibility planning and engagement efforts. Action T-5.6 will generate the additional analysis needed to better understand the scale of GHG reductions that might be achieved.

Actions T-5.10 and T-5.11 provide the engagement efforts and feasibility planning needed to make structural changes limiting single-occupancy vehicle parking and developing a street parking price for all downtown parking (Action T-5.6) successful. These actions, as well as part of Action T-5.6 are also focused on identifying equity concerns so that they may be addressed in the implementation of such programs. Measure T-5 supports Measure T-3 and Measure T-4 in reducing communitywide VMT and therefore, the GHG emission reductions are not quantified.

[65] Lee Provost. Caltrans Division of Research, Innovation and System Information. March 2018. Pricing and Parking Management to Reduce Vehicle Miles Travelled (VMT). Accessed at: https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/preliminary-investigations/final-pricing-parking-management-to-reduce-vehicles-miles-traveled-pi-a11y.pdf

[66] Steven Spears, Marlon G. Boarnet, Susan Handy. California Environmental Protection Agency Aire Resources Board, Policy Brief. September 2014. Impact of Parking Pricing and Parking Management on Passenger Vehicle Use and Greenhouse Gas Emissions. Accessed at: https://ww2.arb.ca.gov/sites/default/files/2020 06/Impacts_of_Parking_Pricing_Based_on_a_Review_of_the_Empirical_Literature_Policy_Brief.pdf

Measure T-6 Increase Zero-Emission Passenger Vehicle Use and Adoption to 30% by 2030 and 55% by 2035

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-6.1	Structural Change	In 2025 and every 3-years thereafter, amend the Municipal Code to require increased number of electric vehicle capable charging spaces in new construction and major redevelopment for commercial, mixed-use, and multi-family development.	2030: 53,948 2035: 107,774
T-6.2	Structural Change	In 2025 and every 3-years thereafter, revisit commercial and multi- family building ordinances to be updated and require large commercial (more than 10,000 square feet) and large multi-family (more than 20 units) building owners that are providing parking to install working electric vehicle chargers in 20% of parking spaces for existing buildings when undergoing a major remodel (over 50% of building effected or an addition of over 50% of gross floor space).	Supportive
T-6.3	Foundational	Add 1,788 (by 2030) and 3,536 (by 2035) new publicly accessible electric vehicle charging stations throughout the City and at City-owned facilities to support community EV charger access.	Supportive
T-6.4	Foundational	Support private development of EV charger installations by effectively streamlining City processes, such as expediting permitting, easing onerous regulations, develop a permitting design guide.	Supportive
T-6.5	Equity, Partnerships	Identify private sector partnerships and develop affordable, zero- emission vehicle car share programs to serve affordable housing and/or multi-unit developments with a priority to target under- resourced populations.	Supportive

Measure T-7 Accelerate Zero-Emission Commercial Vehicle Use and Adoption to 26% by 2030 and 45% by 2035

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-7.1	Feasibility Studies	Develop and implement a City Zero Emission Vehicle Action Plan (ZEVAP) to identify policies to accelerate ZEV adoption community wide.	2030: 1,777 2035: 2,140
T-7.2	Funding, Education, Equity	Identify and connect commercial vehicle owners, particularly those serving under-resourced communities, to resources that can incentivize vehicle electrification. This could include local tax breaks	Supportive
T-7.3	Education, Partnerships	Provide information to the public on low-carbon fuel standards (LCSF) and how businesses can develop LCSF credits or other state and federal programs to help fund conversion of commercial fleets to zero emissions vehicles.	Supportive
T-7.4	Funding	Create a small business truck buyback program to buyback trucks from local small businesses to upgrade to electric.	Supportive
T-7.5	Moonshot	Consider establishing a licensing fee for commercial delivery vehicles operating on fossil fuels (such as Amazon and FedEx) to provide funding for new active transportation and EV charging/ZEV fueling infrastructure and discounting the fee for the proportion of electric vehicles the delivery company uses.	Supportive

Together the Actions within Measures T-6 and T-7 will encourage electric vehicle (EV) adoption within the community. The state has established a goal of putting 5 million EVs on the road by 2030.[67] However, the recent passing of executive order N-79-20 calls for 100% of passenger vehicles sold to be all electric by 2035.[68] This new executive order puts the total number of EVs on the road by 2035 at approximately 15 million.[69] Based on the current number of vehicles registered in California and a 2% growth rate per year, 15 million EVs accounts for 35% of total vehicles in 2035. Interpolating between today's EV percentage at the state level (5%) and this projected growth yields an expected EV adoption rate of 25% by 2030. As a part of this CAP, the City has established its own goal in line with this and aims to reach 30% passenger EV adoption by 2030 and 55% by 2035. As of 2020, Santa Barbara has 8,408 electric vehicles, fuel cell, and plug-in hybrid vehicles out of 116,101 vehicles currently registered, together accounting for 7% of the vehicles registered within the City.[70]

The City has also adopted commercial EV adoption goals, with 26% by 2030 and 45% by 2035. This is backed by new regulations that CARB adopted in June 2020, requiring truck manufacturers to transition from diesel trucks and vans to electric zero-emission trucks beginning in 2024, and establishing a target for every new truck sold in California to be zero-emission by 2045.[71] CARB recently adopted the Advanced Clean Fleets rule requiring private services, federal fleets, state and local government fleets to begin their transition toward zero emission vehicles starting in 2024 with the goal of achieving a zero-emission truck and bus California fleet by 2045.[72] The Advanced Clean Fleets rule also includes an end of combustion truck sales in 2036. Companies in the commercial sector are already moving to electrify their fleets, with Amazon planning to have 100,000 electric delivery vehicles on the road by 2030.[73] If both passenger and commercial EV adoption rates are outpacing EV charging infrastructure, adjustments can be made over time to reflect total EVs as well as charging technologies and consumer behaviors.

While the City cannot require residents or businesses to buy and use EVs rather than gas-powered vehicles, the City will take actions to incentivize this behavior change and support this level of EV adoption. As a part of this strategy, the City's primary target will be to provide one public EV charger for every 20 EVs and ensure as many privately owned chargers are installed in new development as practicable, in line with the leading cities in California (San Francisco, Los Angeles, and San Jose) and recent charging infrastructure studies. Since the City of Santa Barbara already has 132 existing public charging stations [74], there is currently one public EV charger for every 64 EVs, and the City will need to have 1,788 new public chargers installed to meet the forecasted demand from passenger vehicles by 2030. The actual number and ideal locations for these EV charging stations would need to be further investigated through a Zero Emission Vehicle Action Plan including analysis of greater fast charging infrastructure needed to power the 19 zero-emission commercial truck models set to come to the North American market over the next three years (Action T-7.1).[75] Increasing the amount of EV charging infrastructure overall will support these vehicles operating in Santa Barbara. As the need for charging infrastructure changes over time depending on new technologies such as smart chargers, megawatt-scale charging systems tailored specifically to medium- and heavy-duty

[67] https://www.cpuc.ca.gov/zev/
[68] https://ww2.arb.ca.gov/resources/fact-sheets/governor-newsoms-zero-emission-2035-executive-order-n-79-20
[69] https://spectrumnews1.com/ca/la-west/transportation/2020/10/05/what-it-will-take-to-sell-100--evs-in-california
[70] https://www.dmv.ca.gov/portal/uploads/2020/09/MotorVehicleFuelTypes_City_01012020.pdf
[71] https://ww2.arb.ca.gov/news/california-takes-bold-step-reduce-truck-pollution#:~:text=SACRAMENTO%20%E2%80%93%20Today%2C%20the%20California%20Air,California%20will%20be%20zero%2Demission.
[72] https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/about
[73] https://www.businessinsider.com/amazon-creating-fleet-of-electric-delivery-vehicles-rivian-2020-2
[74] https://www.plugshare.com/directory/us/california/santa-barbara
[75] https://www.greenbiz.com/article/we-should-be-talking-about-charging-infrastructure-heavy-duty-trucks

electric trucks, and trends in personal EV adoption, it will be important for the City to continue updating its long-term goals as necessary.[76]

T-6.1 through T-6.3 will account for the majority of the targeted number of EV chargers in 2030 and 2035. A 2015 report by Idaho National Laboratory, *Plugged In: How Americans Charge Their Electric Vehicles*, found that nearly 98% of all EV charging events occurred at home or work.[77] In support of these findings, and to address the challenges faced by those who may not be able to install their own home chargers, amendment of the Municipal Code (Action T-6-1) to require increased number of electric vehicle capable charging spaces would support increased infrastructure at new and existing commercial and multi-family residential developments. EV-ready building codes are one of the most effective and low-cost strategies for states and local governments to encourage consumers to buy or lease electric vehicles and can save consumers thousands of dollars in installation costs.[78]

Title 24, Part 11, Chapter 5 of the California Green Building Standards Code requires non-residential new construction to provide some parking spaces with electrical infrastructure sufficient to support future installation of electric vehicle supply equipment/system (EVSE).[79] This strategy ensures that Santa Barbara will have clear guidelines and standards in place for installing EVSE infrastructure. It also calls for creating a streamlined permitting and inspection procedure for EVSE to ensure reduced wait times and costs for new EV owners. Applying for a permit and waiting for an inspector can be time intensive and costly – as many as three separate visits by the installer may be required to apply for the permit, perform the work, and complete the inspection, and a fourth visit may be needed if the utility requires a separate inspection. To avoid this, the City will implement Action T-6.4 and streamline the EVSE permitting and inspection process to further ease the burden on new EV owners and support Measure T-6. The next phase for EVSE expansion will provide additional publicly accessible charging (Action T-6.3).

Establishing a licensing fee for commercial delivery vehicles will also help support Measure T-7 and decrease emissions from the commercial transportation sector. This would provide additional funding for the City to install additional EV charging infrastructure. The retail delivery sector is already trending in this direction, with Amazon revealing its first electric vehicle delivery van in 2020, which began making deliveries in 2021. The company has ordered 100,000 electric delivery vehicles already from electric vehicle maker Rivian.[80]

The methods and assumptions used to calculate the GHG emissions reductions associated with these actions are shown in the table below. The number of new public chargers needed to support Santa Barbara's passenger EV adoption goals were also calculated, shown below in Table 13. This was based on 2020 vehicle registration data from the DMV and the assumption that one public charger should be available for every 20 EVs. The existing 6.83% of passenger EVs and 6.57% of commercial EVs[81] in the City were also taken into account. Total registered vehicles were forecasted based on the 2020 ratio of registered vehicles to population. Emission reductions from the actions in Measure T-6 and T-7 were calculated together as emissions saved by meeting EV adoption goals in 2030 and 2035. Emission reduction calculations are shown below in Table 14.

[76] https://www.nrel.gov/transportation/medium-heavy-duty-vehicle-charging.html
[77] https://www.osti.gov/biblio/1369632-plugged-how-americans-charge-electric-vehicles
[78] https://www.swenergy.org/cracking-the-code-on-ev-ready-building-codes
[79] https://codes.iccsafe.org/content/CAGBSC2016/chapter-5-nonresidential-mandatory-strategys
[80] https://www.businessinsider.com/amazon-creating-fleet-of-electric-delivery-vehicles-rivian-2020-2
[81] EMFAC, 2021

Table 13 EV Charger Count for Passenger Vehicles Calculations

	2030	2035
Population[1]	96,637	100,713
Total registered vehicles[2]	127,976	133,374
Registered EV goal[3]	38,393	73,356
EVs per charger[4]	20	20
New publicly available EV chargers needed[5]	1,788	3,536

[1] Values from forecast. See Appendix A.

[2] Based on a calculated value for cars for capita (1.321) derived by dividing the total number of registered vehicles in Santa Barbara in 2020 (https://www.dmv.ca.gov/portal/uploads/2020/09/MotorVehicleFuelTypes_City_01012020.pdf) by the 2020 population of Santa Barbara as established in Appendix A.

[3] Calculated as total registered vehicles multiplied by EV adoption percentage in above table

[4] https://theicct.org/sites/default/files/publications/US_charging_Gap_20190124.pdf

[5] Based on the assumption that approximately one public EV charger is needed per 20 EVs, taking into account the existing 132 EV chargers already in Santa Barbara. This assumption may change over time due to better technology, changes to consumer behavior, or both. The total number of chargers especially in 2035 will need to be revisited to ensure the numbers reflect the current EV landscape. https://theicct.org/sites/default/files/publications/US_charging_Gap_20190124.pdf

Table 14 GHG Emissions Reductions from Measure T-6 and T-7

	2030	2035
Passenger Vehicles		
Passenger VMT after alternate transit VMT reductions	825,341,995	876,667,058
EV adoption beyond baseline[2]	23%	47%
Passenger Vehicle Emission Factor ($MTCO_2e$/mile) (EMFAC)[3]	0.000284942	0.000264718
Emissions Reductions from EV Passenger VMT (MT CO_2e)[4]	54,489	108,063
EV electricity usage (kWh/EV-mile)	0.369	0.369
EV electricity usage from increased EV adoption (kWh)	70,470,365	150,621,912
Electricity EF (lbs CO_2e/MWh)[5]	16.91	4.23
Emissions from electricity usage for EVs	541	289
Total Passenger Vehicle Emission Reductions	**53,948**	**107,774**
Commercial Vehicles		
Commercial VMT after mode shift to bikes and transit (VMT)[1]	8,797,048	8,998,020
EV adoption beyond baseline[2]	19%	27%
Commercial Vehicle Emission Factor ($MTCO_2e$/mile) (EMFAC)[3]	0.00104733	0.00089524
Emissions reduced from EV adoption (MT CO_2e)[4]	1,790	2,144
EV electricity usage (kWh/EV-mile)	1.02	1.00
Additional kWh from new EV miles	1,736,036	2,389,197
Electricity EF (lbs CO_2e/MWh)[5]	16.91	4.23
Emissions from electricity usage for EVs	13	5
Total Commercial Vehicle Emission Reductions	1,777	2,140
Total reductions (MT CO_2e)	**55,725**	**109,914**

[1] VMT from forecast (see Appendix A) minus VMT avoided from mode shift to bikes in Strategy T-1

[2] Baseline EV penetration rates for Santa Barbara County obtained from EMFAC2021. EV adoption beyond the baseline is based on executive order N-79-20 100% of passenger vehicle sales will be electric by 2035. Assuming 15 million EVs by 2035 due to N-79-20 and a 2% growth rate from current vehicle registrations (32,000,000) and a 5% current share of EVs California would be projected to have 25%

	2030	2035

EVs by 2030. 25% is in line with State goals. (https://spectrumnews1.com/ca/la-west/transportation/2020/10/05/what-it-will- take-to-sell-100--evs-in-california)

[3] Derived from EMFAC model output for Santa Barbara County 2030 and 2045; note that EMFAC generates data at the County level, and it is assumed that this is the best available data for the City.

[4] Emissions reduced from EV adoption is calculated as the VMT after mode shift, multiplied by the EV adoption beyond baseline percentage multiplied by the weighted vehicle emission factor in that year.

[5] The residential electricity emission factor was calculated based on opt-out rates for Santa Barbara according to EMFAC.

Measure T-8 Electrify or Otherwise Decarbonize 6% of Off-Road Equipment by 2030 and 20% by 2035[1]

Action Number	Strategic Theme	Action	Anticipated Reduction (MT CO_2e)
T-8.1	Structural Change, Funding	Align with or exceed AB 1346 and expand enforcement of the ordinance that bans gas powered small off-road engines by 2024 (e.g., lawn and garden equipment). Provide income tiered incentives or buyback programs for burdened residents and businesses. Identify staffing needs for an enforcement and implementation tracking program run by the relevant City department.	2030: 2,857 2035: 9,859
T-8.2	Education	Inform, educate, and support the transition of local employers to zero emission off-road equipment, including major construction companies, manufacturers, landscapers, and warehouse companies.	Supportive
T-8.3	Feasibility Studies	Investigate off-road equipment fleets in the City of Santa Barbara, identify fleets with highest decarbonization potential, and conduct engagement to under-resourced communities to understand how to support conversion.	Supportive
T-8.4	Partnerships, Funding	Partner with Santa Barbara County Air Pollution Control District to expand rebate and incentive programs for upgrading off-road equipment to hybrids, biofuels, or fully electric.	Supportive
T-8.5	Funding	Leverage the grant writer position(s) in strategy A-2.2 to source state funding to decarbonize off-road equipment as a result of Executive Order N-79-20 and State Climate Funding Package.	Supportive
T-8.6	Education	Develop a landscape equipment education and incentive program incentivizing motorized landscape equipment electrification (electric leaf blowers already required, but can get rolled into an education campaign) for hedge trimmers, etc.	Supportive

[1] This would not apply to recreational or commercial marine vessels. The California Air Resources Board currently has regulations in place to develop a performance standard program for commercial marine vessels. This requires zero- emission options where feasible, and cleaner combustion Tier 3 and 4 engines on all other vessels. Implementation of these regulations will occur in 2023 through the end of 2032.

Off-road equipment in Santa Barbara accounts for 7% of the community's GHG emissions. While only a small part of GHG emissions in the city, achieving carbon neutrality will involve decarbonizing all of the off-road equipment, which currently runs on gasoline, diesel, and natural gas. To support a gasoline and diesel phase-out ordinance for off-road equipment, Action T-8.1 commits the City to enforcing a ban on the operation of gasoline and diesel-powered small off-road equipment by 2024 (in compliance with AB 1346). The City expects that this action will be further supported by future CARB regulations for off-road equipment that may ban their sale in the region by 2035.[82] While some off-road equipment does not have market-ready zero-emissions alternatives, lawn and garden equipment, light-duty off-road equipment, and portable off-road equipment can generally be

[82] See: https://ww2.arb.ca.gov/rulemaking/2021/sore2021

electrified or use biodiesel today. In 2030, it is forecasted that portable and lawn and garden equipment would make up 16% total off-road equipment.[83] Therefore, a 6% reduction in overall off-road emissions is feasible through the enforcement of an off-road electrification ordinance that bans gasoline and diesel-powered portable and lawn and garden equipment.

Action T-8.3 commits the City to investigating the feasibility of reducing emission from major off-road equipment fleets in the City. The study will help the City better understand what types of commercial off-road equipment exists, how old it is, how much potential there is, and how the City can support electrification or decarbonization.

Actions T-8.2, T-8.4, T-8.5, and T-8.6 support implementation through increased education, funding, and equity considerations. These partnerships can ensure that vulnerable communities receive needed resources as well as funding to make the switch.

The methods and assumptions used to calculate the GHG emissions reductions associated with this metric are explained further here and shown in Table 15 below. The GHG reductions were quantified based on a reduction in fuel use by 6 percent and 40 percent from the forecasted fuel consumption in 2030 and 2035, respectively. Forecasted fuel use was obtained from California Air Resources Board's off-road emissions inventory tool, OFFROAD2021. This model provides annual fuel consumption from various types of off-road equipment operating in Santa Barbara County. The OFFROAD results were allocated to the City of Santa Barbara using population (i.e., recreational equipment, lawn and garden equipment) and employment (i.e., construction and mining equipment, industrial equipment, light commercial equipment, other portable equipment, and transportation refrigeration units) as compared to the county totals.[84] Off-road diesel, gasoline, and natural gas emissions were acquired through EMFAC fuel usage data and multiplied by respective emissions factors.[85]

Table 15 GHG Emissions Reductions from Measure T-8

	2030	2035
Decarbonized Percentage	6%	20%
Diesel Fuel Use (gal)	2,707,729	2,798,265
Gasoline Fuel Use (gal)	1,866,281	1,946,720
Natural Gas Fuel Use (gal)	399,675	400,051
Weighted Emission Factor[1]	0.009574	0.009581
Fuel Use Reduction (gal)	298,421	1,029,007
Total Reductions (MT CO_2e)[2]	**2,857**	**9,859**

[1] A weighted emission factor for all fuel is based on the forecasted fuel consumption by fuel type and the specific fuel type emission factor.

[2] Total reductions do not account for the emissions associated with electric to biofuel usage because these emissions would be minimal due to Santa Barbara's carbon-free electricity.

[83] City of Santa Barbara 2019 Greenhouse Gas Emissions Inventory, Forecast, and Targets Technical Memorandum (utilizes CARB's OFFROAD 2021 Santa Barbara County off-road emissions and attributes them to Santa Barbara).
[84] City of Santa Barbara 2019 Greenhouse Gas Emissions Inventory, Forecast, and Targets Technical Memorandum
[85] See: https://arb.ca.gov/emfac/emissions-inventory/c58cfe3d0072dfc3ea8eae4234049042e52ed4df