



CHARLOTTESVILLE

Acting on Climate Together

charlottesville.gov/climate
4/18/2022 City Council Work Session

Today's Presentation

1. Current & Ongoing Activities
 - what we have done and are doing
2. Climate Plan - Preliminary Content
 - where we are in the planning process
3. Upcoming Activities
 - what we are going to do

Current & Ongoing Activities

Climate & Emission Reduction Commitments

- 2006 – US Mayors Climate Protection Agreement
 - Comprehensive Plan (2007; 2013; 2018; 2021)
 - Charlottesville City Council Vision 2025: A Green City (2009)
- 2017 – Global Covenant of Mayors Commitment

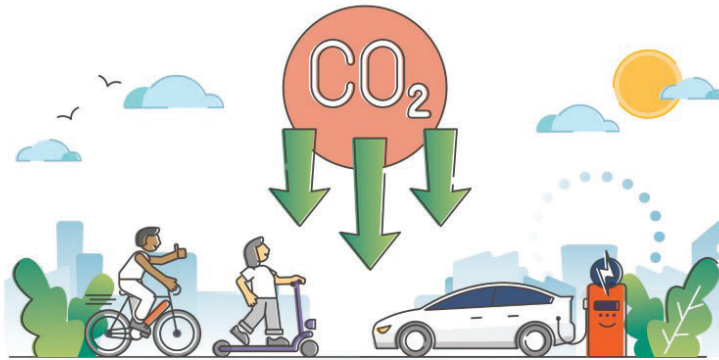
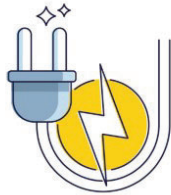




City of Charlottesville's Climate Protection Program

THE CITY'S CLIMATE PROGRAM INCLUDES:

- Planning for GHG emission reductions and climate adaptation
- Advancing energy improvements and renewable energy use in buildings throughout our community
- Encouraging use of fuel-efficient and carbon-free ways of getting around town
- Supporting public options for electric vehicle charging stations
- Reducing emissions from waste through composting and landfill diversion






OUR COMMITMENT: By connecting our community with resources and programs that are available, accessible, and affordable, the City's Climate Program aims to support individual action to reduce the impacts of climate change and to help our community thrive.

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Climate & Emission Reduction Commitments

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 PHASE 1: Inventory	Measure city-wide GHG emissions	Identify climate hazards
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 PHASE 3: Plan	Develop climate action plans to deliver on target	Develop climate adaptation plan

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Charlottesville's Greenhouse Gas Emissions are approximately:

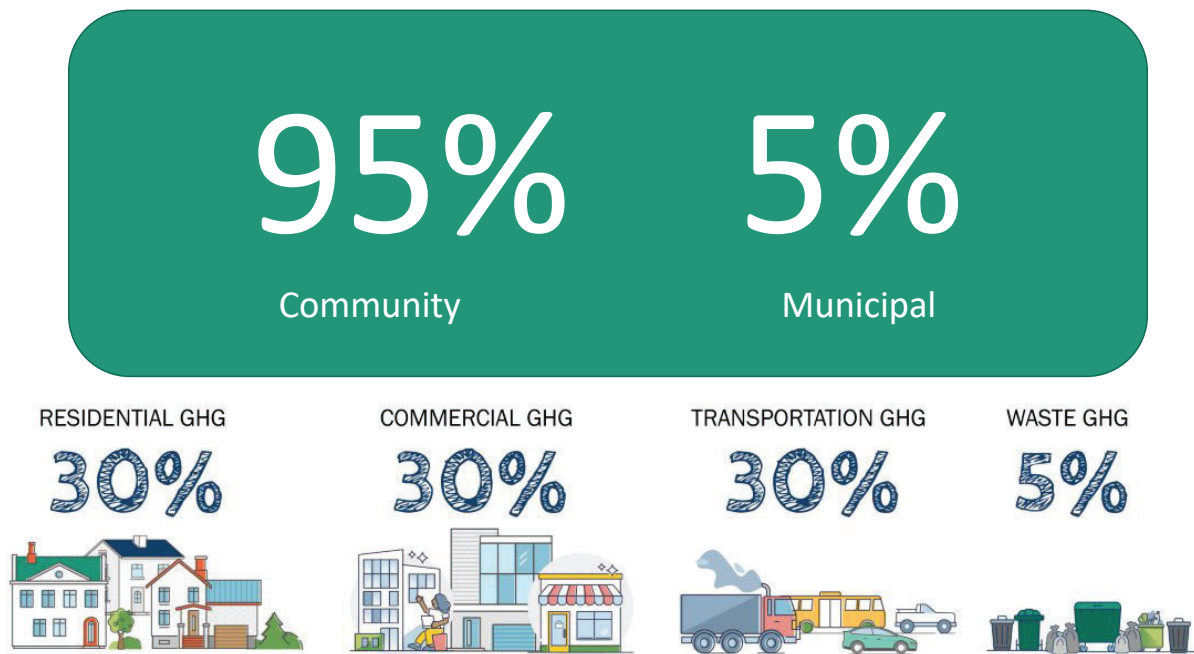
95%

Community

5%


Municipal

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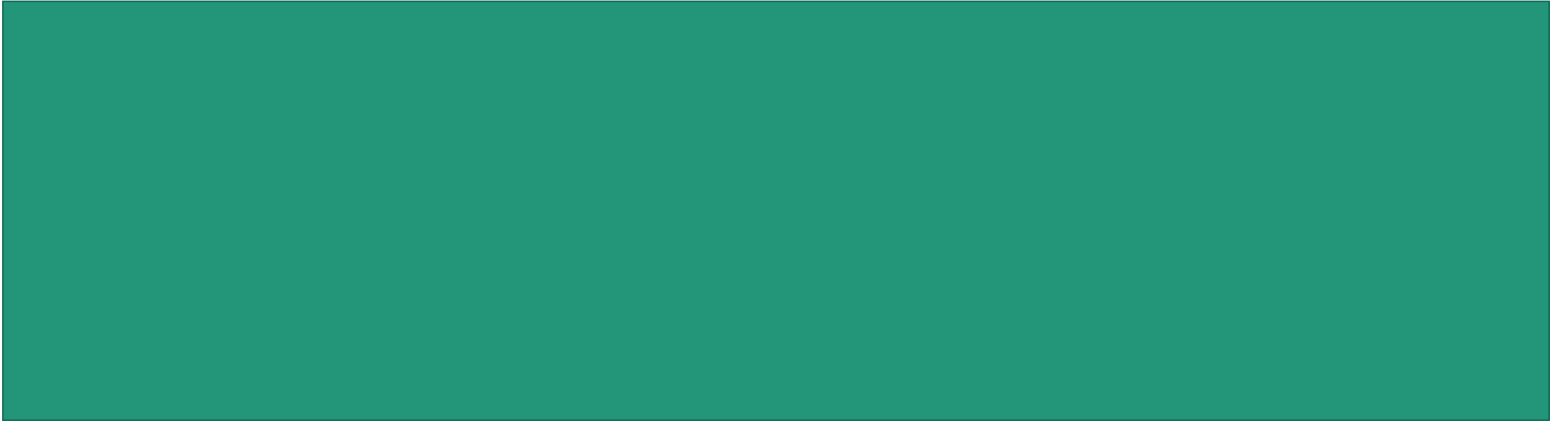


Informed By...

- GHG Inventory Data & Areas of Impact
- Progress on GHG Emission Reduction Goals
- Council Guidance (Resolutions & Commitments)
- Past Planning & Projects (ex. LCAPP Report)
- Comprehensive Plan
- Community & Staff Input
- Peer Localities & Professional Networks
- Policy Guidance
- Best Practices
- State & Federal Activities
- GCoM Annual Reporting Requirements



Increasing Availability, Affordability, Accessibility, and Awareness

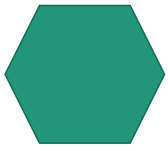


Energy Efficiency Improvements*

- Home Energy Assessments
- Gap-fill measures
- Energy Smart Home Rebates
- Commercial Clean Energy Loan Fund

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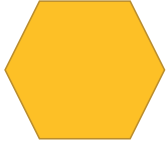
* Local Energy Alliance Program (LEAP)



Energy Efficiency Improvements*

Home Energy Assessments

Gap-fill measures



Energy Smart Home Rebates

Commercial Clean Energy Loan Fund

Solarize Charlottesville*

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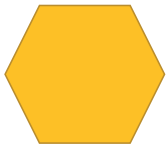
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Energy Efficiency Improvements*

Home Energy Assessments

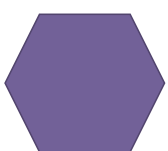
Gap-fill measures



Energy Smart Home Rebates

Commercial Clean Energy Loan Fund

Solarize Charlottesville*



Engagement Programs**

Home Energy Challenge

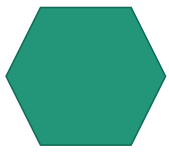
Better Business Challenge

School Climate Kits

Provided through:

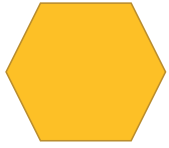
* Local Energy Alliance Program (LEAP)

** Community Climate Collaborative (C3)

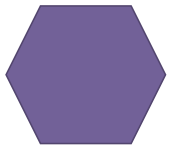


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Solarize Charlottesville*



Engagement Programs**

- Home Energy Challenge
- Better Business Challenge
- School Climate Kits



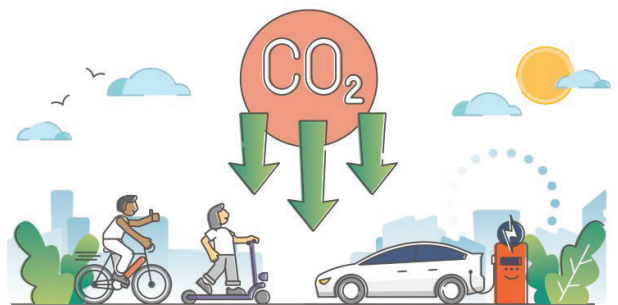
Targeted Community Engagement Initiative**

Provided through:

* Local Energy Alliance Program (LEAP)

** Community Climate Collaborative (C3)

- Resources & Resource Development
- Informing Policy
- Supporting other City-led Programs & Efforts
- Regional Coordination & Community Engagement



- Municipal Action

- Energy Savings Performance Contract – technical audits stage
- Energy and Water Management Program
- Solar on School & Government Buildings
- Support EV integration within City Fleet
- Transit Alternative Fuels Transition Study – inclusion of a climate addendum
- LEDs for Streetlights & Traffic Signals

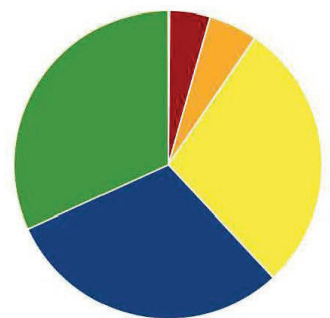


Emissions Outcomes

Charlottesville Community GHG Emissions by Year

Sector	CO ₂ e (MT)				
	2011	2016	2017	2018	2019
Transportation & Mobile Sources	128,835	92,648	92,218	90,938	91,205
Solid Waste	24,694	16,302	16,687	16,721	16,425
Water & Wastewater	-	271	271	271	271
Commercial Energy *	170,003	123,838	117,652	115,046	101,688
Industrial Energy	372	195	190	208	200
Residential Energy	135,405	108,393	100,986	107,699	96,389
Process & Fugitive Emissions	-	13,556	12,857	15,078	
Total	459,309	355,203	340,861	345,961	
% change from 2011		-23%	-26%	-25%	

* The Commercial Energy Sector includes Municipal and Non-Municipal Government energy consumption







30%
Reduction

Charlottesville's Greenhouse Gas (GHG) Emission Goals:

- Reduce GHG emissions 45% by 2030
- Achieve carbon neutrality by 2050

Planning Status

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Engagement

Completed

- City Council Briefings
- Community Workshops
- Facilitated Community Stakeholder Sessions
- Climate Liaison Committee Meetings
- City Internal Briefings

Engagement

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To Be Completed

- Community Survey ★
- City Council Work Session (4/18) ★

Engagement

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- City Council Briefings
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To Be Completed

- Community Survey ★
- City Council Work Session (4/18) ★
- Town Hall
- Staff Engagement
- Draft Plan
- Planning Commission & City Council
- Revisions
- Final Proposed Plan

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What Informs a Climate Action Plan?



Charlottesville's Greenhouse Gas Emissions are approximately:



Sector	Activity Data	Primary Sources
Residential Commercial Non-Municipal Government Industrial	Amount of Energy Use Municipal Buildings & Lighting	Electricity Natural Gas
Transportation	Vehicle Miles Traveled & Average Fuel Efficiency by Vehicle Class Municipal Fleet >> Fuel Consumption	Gasoline Diesel
Waste	Tons of Waste to Landfill Average Material Types for Municipal Solid Waste	Organics (Food / Yard Waste)

Action & Investment Scale for 2030

	Scenario 1	Scenario 2	Scenario 3
Grid Reductions (Dominion by 2030)	30%	30%	30%
Energy Efficiency Retrofits (% of emissions reduction)	10%	20%	0%
Onsite Renewables (% of electricity emission reduction)	20%	15%	30%
Transport Emission Reductions	5%	5%	0%
Energy Efficiency Retrofits (# of all buildings)	1/5 of all buildings (~2,500)	1/4 of all buildings (~3,200)	0 buildings (0)
Renewables (# of buildings)	~1,200 rooftops (9%)	~450 rooftops (3%)	~4,700 rooftops (37%)
Yearly # of Projects (EE / RE)	300 / 150	400 / 56	0 / 592
Modeled Yearly Cost (EE / RE)	\$1.3M / \$22M	\$3.2M / \$17M	\$0 / \$34M

CIP Budget (unfunded)	5 Year Total	Emissions from...
Energy Savings Performance Contract	\$ 5,000,000	Municipal
Meadow Creek Trail Connection	\$ 750,000	Community
LED Streetlight Conversion	\$ 600,000	Municipal
Bicycle Infrastructure	\$ 400,000	Community
Park Trails and Land Acquisitions	\$ 375,000	Community
Parkland Acquisition Underserved Area	\$ 180,000	Community
Green Infrastructure Opportunities	\$ 300,000	Community

Questions Pause

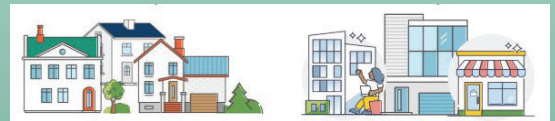
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Climate Action Plan Preliminary Content



Buildings and Energy



Represents ~60% of Charlottesville's GHG Emissions Profile. GHG emissions come from the energy used to power our buildings. Primary energy fuel sources are electricity and natural gas.

Strategy: Move New Construction closer to Net-Zero through increased levels of energy efficiency, incorporation of onsite renewable energy and solar-ready building standards

- Key Action: Education/Encouragement
- Key Action: Integration with zoning code and zoning incentives
- Key Action: Connecting with City-provided funding for buildings/construction
- Key Action: Higher efficiency standards in state's building code update cycle

Strategy: Increase energy efficiency and onsite renewable energy use in existing buildings

- Key Action: Education/Encouragement
- Key Action: Usage of fully-funded programs in low-income households
- Key Action: Funding assistance programs designed for mid-income households
- Key Action: Support for commercial buildings

Buildings and Energy



Strategy: Support increased energy efficiency and renewable energy through innovative financing mechanisms that enable and leverage private action and investment

- Key Action: Commercial PACE program
- Key Action: State-level Green Bank program
- Key Action: Financing program models that can address rental property challenges (residential)
- Key Action: Continued support of Virginia's participation in the Regional Greenhouse Gas Initiative

Strategy: Support transition to carbon-free sources and carbon-neutrality for building energy supply

- Key Action: Continued support of the Virginia Clean Economy Act, ensuring renewable sources for grid-supplied electricity in Charlottesville
- Key Action: Prioritize transition of non-electric and non-natural gas heating sources to electric
- Key Action: Options for Charlottesville Gas and carbon neutrality of natural gas supply

Transportation



Represents ~30% of Charlottesville's GHG Emissions Profile. GHG emissions come from the fuels used to power our automotive vehicles. Primary fuel sources are gasoline and diesel.

Strategy: Increase Travel by Walking, Biking, and Transit

- Key Action: Leverage interconnections of pedestrian, bicycle, transit, parking and commuter networks
- Key Action: Create walkable, bikeable, and transit-served neighborhoods
- Key Action: Transportation Demand Management Planning
- Key Action: Integrate land use and transportation planning, as well as supportive zoning requirements
- Key Action: Continue planning and investment in well-connected network of trails, shared use paths, sidewalks, and bike lanes

Strategy: Support Use of High-Efficiency Vehicles

- Key Action: Support Federal and Virginia adoption of high fuel efficiency vehicle standards
- Key Action: Education/Engagement
- Key Action: Financial Incentives for purchase of electric or other alternatively fueled vehicles

Transportation



Strategy: Develop a community electric vehicle charging network

- Key Action: Develop a network of publicly-accessible EV charging stations (visitors, commuters, & renters)
- Key Action: Increase EV Charging at workplace & commuter parking locations
- Key Action: Identify EV-ready code standards for integration with zoning and city-funding processes
- Key Action: Include EV charging site standards in the Standards and Design Manual
- Key Action: Options for at-home charging when on-site parking is not available
- Key Action: Ensure emergency response protocols and training for EV charging equipment are in place

Strategy: Encourage alternative travel behaviors

- Key Action: Expand availability and access to regional trails and shared use paths for recreation and commuting
- Key Action: Encourage behaviors such as daisy-chaining trips, remote work, anti-idling, and 5-min walk approach

Waste



Represents ~5% of Charlottesville's GHG Emissions Profile. Waste emissions come from organics decomposing in the landfill. Primary sources of organics are yard waste, food waste, some paper or packaging materials.

Strategy: Apply a Sustainable Materials Management approach to Charlottesville's Waste System

- Key Action: Adopt a Sustainable Materials Management policy
- Key Action: Scope Charlottesville's full waste system, including key partners and actors
- Key Action: Education/Engagement (waste reduction, preferred materials, landfill alternatives)

Strategy: Divert Organics from the Landfill

- Key Action: Organics within the City-provided curbside services
- Key Action: Organics for non-City-Curbside clients
- Key Action: Organics from Municipal Facilities (government and schools)

Strategy: Reduce Amount of Food and other Organics-based material waste

- Key Action: Diversion to glean/donation

Natural Resources



Natural Resources offer benefits to both GHG emission reductions and climate adaptation. Tree canopy cover can reduce building energy demand, improve air quality, and shade bikeable, walkable, and transit access routes

Strategy: Maintain a Robust Urban Forest on City-owned Lands

- Key Action: A robust Urban Forest Management Plan
- Key Action: Integrate shade to increase comfort of high-priority walkable, bikeable, and transit corridors

Strategy: Encourage Healthy and Increased Tree Canopy on Privately Owned Properties

- Key Action: Education/Engagement on tree maintenance and care, selection and placement
- Key Action: Consideration of code standards for new developments

Strategy: Non-Tree Canopy Actions

- Key Action: Soil Amendments (biochar)

Municipal Sector

Represents ~5% of Charlottesville's GHG Emissions Profile. GHG emissions come from energy used to power our government and school buildings, our streetlights and traffic signals, and the fuels for City fleet, transit, and school buses. Primary energy and fuel sources are electricity, natural gas, gasoline and diesel.

Buildings and Energy

Strategy: Reduce Energy Demand in Existing Buildings

- Key Action: Pursue Energy Retrofits Holistically across the City's Building Portfolio
- Key Action: Adopt Operations Procedures to Maintain and Increase Efficient Energy Performance
- Key Action: Behaviors & Policy Actions
- Key Action: Develop and adopt supportive policies

Strategy: Reduce Energy Demand for New Construction

- Key Action: Develop and adopt energy-based (EUI) design standards for new construction
- Key Action: Integrate new building standards into the City's Green Building Policy
- Key Action: Develop a process to screen new construction projects for net zero potential
- Key Action: Evaluate cost, operations, and energy analysis comparison of adopted EUI standard vs. net zero construction for at least one project by 2024 to inform future project planning

Municipal Sector

Buildings and Energy

Strategy: *Achieve carbon neutrality for electricity use at City facilities by 2030*

- Key Action: Integrate renewable energy systems – or solar-ready standards – into all new construction projects. If solar-ready standards, ensure solar PV will be added within 2 years
- Key Action: Establish a coordinated schedule for roof replacement and installation of rooftop solar energy systems
- Key Action: Implement Power Purchase Agreements (PPAs) to install solar energy systems at City facilities at scale and with reduced dependency on CIP funding
- Key Action: Through energy efficiency improvements, building energy standards, and energy storage, maximize the percentage of total electricity use that is provided by onsite renewable energy
- Key Action: Assess and track offsite options for achieving carbon neutral electricity, such as RECs, carbon sequestration offsets, Dominion's Green Power Program

Municipal Sector

Buildings and Energy

Strategy: *Incorporate internal process adjustments to improve coordination effectiveness and collaboration*

- Key Action: Increase awareness of facility energy performance in project planning
- Key Action: Introduce opportunities for holistic consideration of facility improvements in CIP project planning
- Key Action: Integrate climate and energy projects along with CIP-funded projects into annual workplans
- Key Action: Involve Finance, Procurement, Risk, and Budget earlier than normal in capital improvement planning when pursuing energy procurement and energy service contracting structures
- Key Action: Provide training resources as needed and identified for project teams, first responders, and maintenance personnel

Municipal Sector

Buildings and Energy

Strategy: Convert Streetlights & Traffic Signals to LEDs

- Key Action: Compile comprehensive lighting inventory across departments
- Key Action: Establish a conversion plan for Dominion-owned lighting to LEDs
- Key Action: Develop conversion plan and LED alternatives for City-owned lighting
- Key Action: Develop conversion plan to LEDs for remaining non-LED Traffic Signals

Municipal Sector

Transportation & Mobile Assets

Strategy: Plan and Support Transition to Zero-Carbon and Carbon-Neutral Fuel Sources for Mobile Assets

- Key Action: Alternative Fuels Transition Study, including a GHG emissions assessment (Transit)
- Key Action: Pathways to Carbon Neutrality by 2050 Assessment (Transit)
- Key Action: Evaluate and integrate EV School Buses (School Buses)
- Key Action: Green fleet policy (Fleet: fuel efficiency, EV transition, behavior/training, remote work options)
- Key Action: Develop site standards for EV charging installations to meet accessibility, safety, and energy management, and data tracking needs (Fleet, School Buses, & Transit)

To be further discussed...

Charlottesville's Natural Gas Utility

Transition of Transit Vehicles to Alternative Fuels & Carbon-Neutrality

Carbon Offsets & Credits

Guidelines for Implementation:

- Ensure that the transition to a low carbon future is effective, affordable, equitable and inclusive
- Prioritize actions that increase financial stability of Charlottesville households and businesses
- Prioritize actions that also have climate resilience and climate adaptation benefits
- Develop pathways of meaningful (impactful & attainable) action in both owner-occupied properties and rental properties
- Prioritize financial incentives and assistance to support low-income and mid-income households
- Take actions that front-load reductions to accelerate reaching adopted climate goals
- Direct resources and programs to address racial inequities and drive outcomes

Upcoming Activities



Upcoming Next Steps



Plan Drafting

Plan Outline

- Introduction
 - Directive
 - Plan Development Process
 - Climate Emissions and Goals
 - Relation to Other Plans
- Strategies and Actions
 - Buildings & Stationary Energy
 - Transportation
 - Waste
 - Municipal – Buildings, Energy and Fleet
 - Non-GHG Inventory Activity Areas
- Next Steps
 - Guidelines for Implementation

Strategies and Actions Chapter Outline

- Introduction/Background
 - % of Emissions
 - Primary Fuel/Emission Sources
 - Identified Priority Focuses
- Applicable Sub-Goals
- Strategies & Key Actions
- Relevant Equity Considerations
- Connections to Climate Adaptation

Upcoming Next Steps

Climate Program Milestones

- Increased Staff Capacity – July 2022
 - Climate Vulnerability Assessment – Anticipated completion, Sept. 2022
 - Climate Action Plan – Anticipated completion, before end of 2022
 - Climate Adaptation Plan – Anticipated completion in 2023
-
- Ongoing delivery of Climate Action work
 - Plan Progress & Updates to City Council

Questions?

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