CITY OF CHARLOTTE

Strategic Energy Action Plan – SEAP+

TRANSPORTATION, PLANNING, & DEVELOPMENT COMMITTEE

MARCH 3, 2025

SEAP+ TPD Meeting Purpose

Council Priority Alignment

- **Well-Managed Government**
  - Ensuring the city demonstrates inclusivity through a **commitment to and focusing on equity and safeguarding the environment**; leadership in financial stewardship; reviewing best practices; and maintaining consistency in approach with an emphasis on effective and efficient services that are accountable, customer focused, and inclusive.
- **2040 Plan and Unified Development Ordinance**
  - Includes **Strategic Energy Action Plan (SEAP+)**

Purpose

- Review and discuss Focus Areas and associated strategies and actions.
- Answer questions and receive feedback
- Request to approve advancing SEAP+ from committee to full Council for next month's TPD meeting.

Key Takeaways

- Focus areas align with the areas of biggest impact on emissions
- Strategies and actions function as a roadmap toward achieving Charlotte's proposed revised goals.
- Update builds on current efforts and success.
- Direct connections are made between the full range of benefits these actions achieve such as climate justice, equity, emissions reductions, resiliency and workforce development.

SEAP+ Council Communication

Previous Council Communication

- **February, 2025:** TPD Council Committee
- **October, 2024:** TPD Council Committee
- **January, 2024:** TPD Council Committee

Future Council Action

- **April 7, 2025: TPD Council Committee -** Request to approve advancing SEAP+ from committee to full Council
- **April 7/14, 2025: Full Council -** Review of SEAP+
- **April 28, 2025: Full Council –** Proposed SEAP+ adoption

Meeting Agenda

Agenda

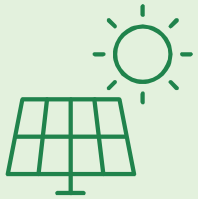
- Confirm SEAP+ draft goals
- Review community feedback to date and how that has influenced SEAP+
- Review focus areas, strategies, and actions – highlighting key components
- Discuss additional considerations
- Review timeline

Reminder: Charlotte's draft updated goals in the SEAP+

Charlotte is proposing to update three of its goals and set one new goal. These goals are either 'community-wide' and apply to the city as a whole, or 'municipal' and apply only to local government operations.

Community-wide goals

Charlotte will reduce community-wide greenhouse gas emissions 72% (to 3.56 mt CO2e per capita) by 2035 and reach net-zero by 2050.



600 MW of distributed renewable energy generation will be installed in Charlotte by 2035.

Municipal goals

The city will source 100% of its electricity use in municipal buildings from zero carbon sources by 2030 and reach net zero emissions in municipal buildings by 2050.

The city will reach net zero emissions in its light-duty fleet by 2035 and in its entire fleet by 2050.

Community Feedback

Public Engagement Objectives

Public engagement during the SEAP+ development process encompassed multiple objectives ranging from providing information to gathering actionable input to inform the plan.

Provide stakeholders with information about the current SEAP, relevant technical information, and key trends.

Explain the overall SEAP update process, roles, and expectations, including how stakeholders can shape decisions.

Reach out to and meaningfully engage a spectrum of key stakeholders for this project.

Gather input from key stakeholders on goals, actions, indicators of success, barriers and tradeoffs, and the community's essential role in successfully advancing this plan.

Create opportunities for people to respectfully listen to and learn from each other.

Use stakeholder input along with current science, trends, and policies to shape the draft SEAP, then gather feedback on that draft.

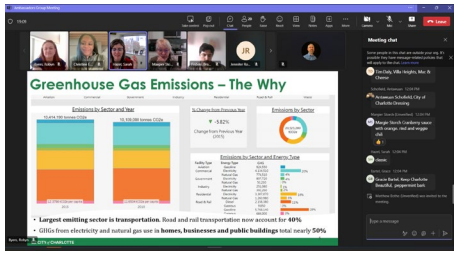
Transparently explain how stakeholder input and feedback is shaping the plan as it progresses.

60+ connections through SEAP+ Public Meetings

319 connections through CAP

Engagement Summary:

- 17 pop-up and other community events (e.g. CAP meetings)
- 2 public SEAP+ meetings
- 6 Technical Advisory Committee meetings
- 3 SEAP+ Operations Team meetings (City Leaders)
- 1 Fleet-focused workshop with City Leaders
- 2 SEAP+ Ambassadors meetings
- 353 SEAP+ Survey participants
- 4 monthly SEAP+ Update newsletters
- 2 previous TPD Updates
- 1 Civic Leadership Academy session



40 connections through Biketoberfest

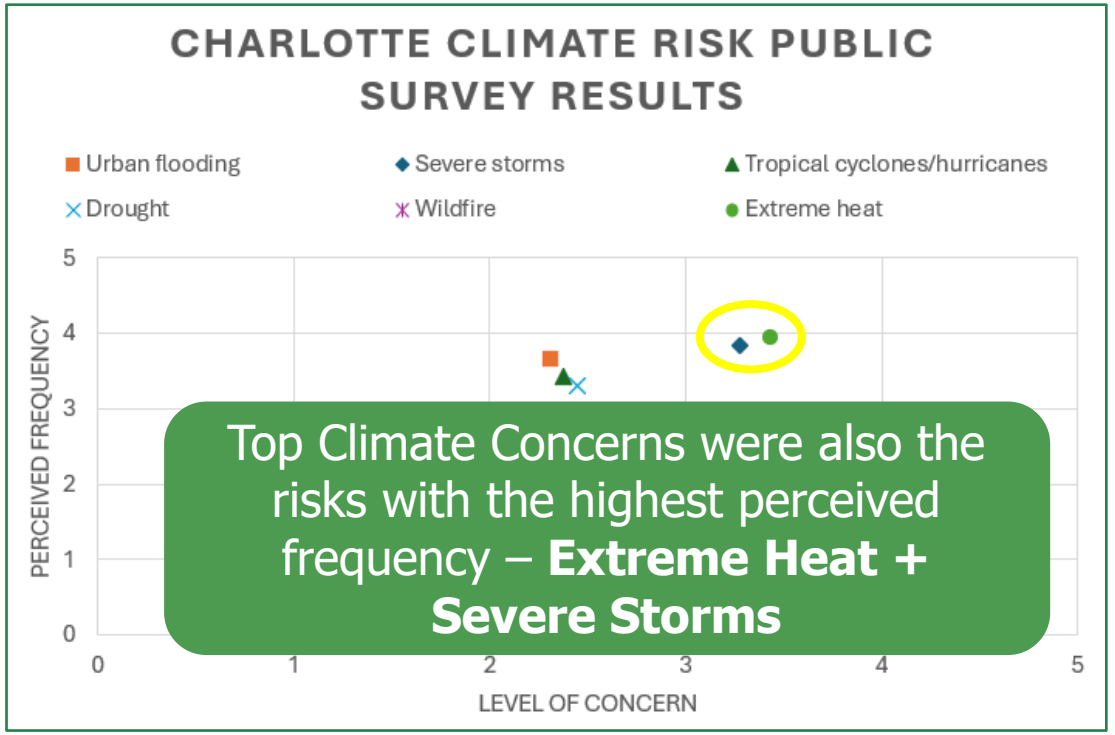
SEAP Awareness Survey

464 comments provided

Feedback in the SEAP+

Public engagement feedback informs the SEAP+ in a variety of ways:

- Residents' top priorities:
  - Improving access to sustainable modes of **transportation**
  - Creating equitable access to **new, energy-efficient technologies, programs, and initiatives**, and
  - Improving overall quality of life and **ensuring climate resiliency** through both technology and nature-based solutions.



- 76% of participants stated that they believe their individual actions contribute to Charlotte's ability to reach its goals.
- 91% of participants stated they agree with this statement **"The City of Charlotte has a role to play to promote sustainability for all residents."**

SEAP+

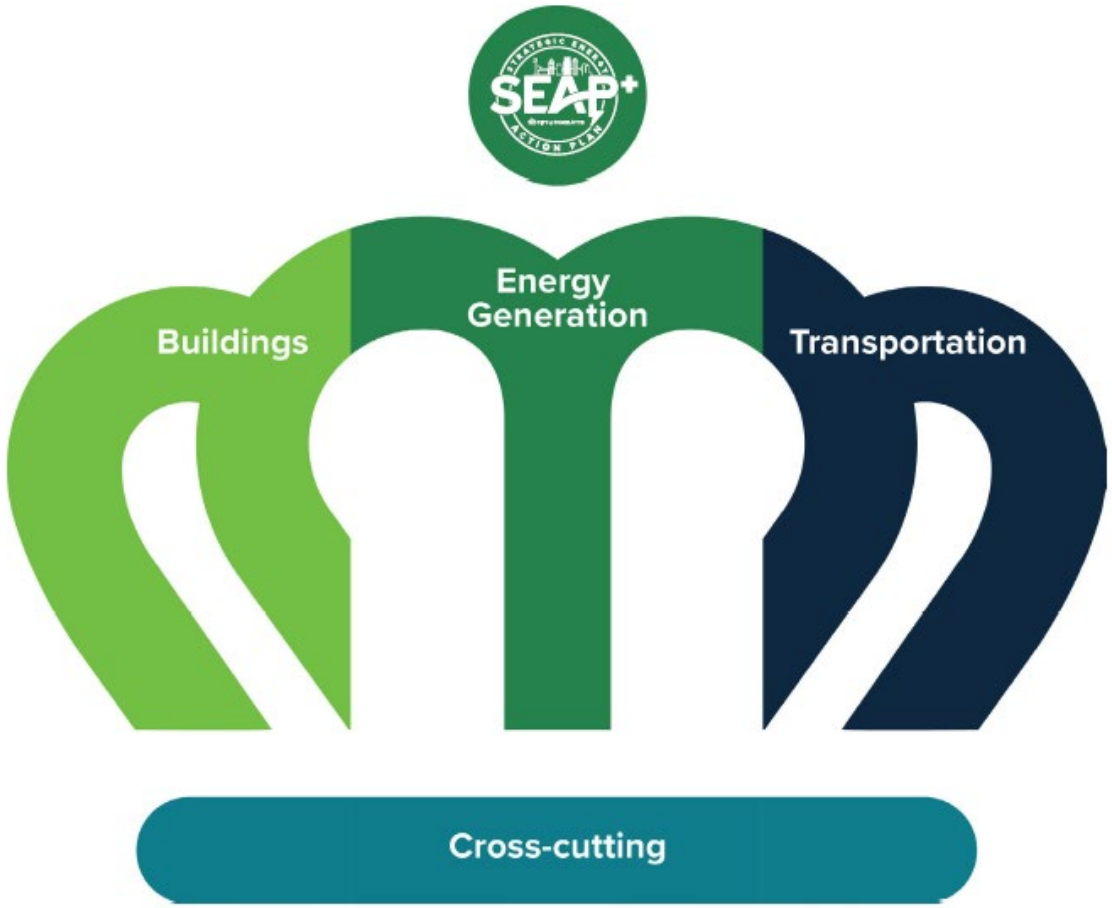
Focus Areas, Strategies, & Actions

Contd. Approaches: Stages to Zero Carbon Energy

5 Stages to Zero Carbon Energy:

- Committed to the 5 stages approach originally shared in 2018.
  - Shifting Energy Demand,
  - Reducing Energy Consumption,
  - Changing the Energy Consumed (Sources),
  - Generating Energy On-site, and
  - Purchasing the Remainder

Focus Areas



Focus Areas:

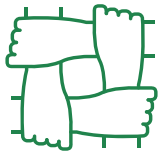
- **Buildings** – with a focus on what we can do to build and power our residential and commercial buildings,
- **Energy Generation** – with a focus on where our energy comes from,
- **Transportation** – with a focus on supporting the SMP's mode share goal and access to sustainable modes of transportation,

*__New:__ All three focus areas will have **workforce development** embedded

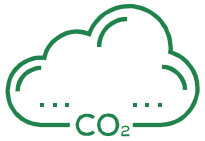
- ***New: Cross-Cutting** – with a focus on strategies that are essential to achieving our goals, but do not fall directly within the other focus areas, such as **tree canopy support, waste diversion and reduction, climate resiliency**, etc.

Co-benefits: Demonstrating the Full Range of Opportunities

Having climate actions with varying levels of co-benefits across climate justice and equity, emissions reduction potential, resilience and adaptation, and workforce development is essential for creating a well-rounded approach. Not every action will excel in all areas, but together, they can complement each other to cover the full range of co-benefits needed for meaningful change.

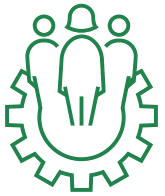


Climate justice and equity



Emissions reduction potential

Resilience and adaptation



Workforce development

Key Points

- Actions that have a high-level for any specific co-benefit will drive progress.
- Actions that have a medium- and low-level for a co-benefit(s) fill critical gaps, support long-term implementation, and ensure all priorities are addressed.
- Some actions, while high-level for some co-benefits, may also be medium- or low-level for other co-benefits.

Buildings Draft Strategies & Actions

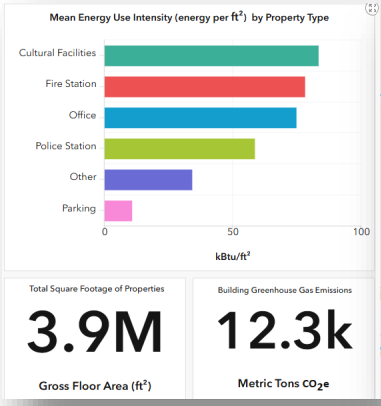
Strategy 1: Source 100% of electricity use in municipal buildings from zero carbon sources by 2030 and reach net zero emissions by 2050.
1.1: Continue implementation of the Sustainable Facilities Policy and revise as needed to accomplish the SEAP+ goal.
1.2 Identify specific buildings to target for action.
1.3 Continue annual benchmarking of city facilities and rehabilitation for those buildings in the bottom quartile.
1.4 Continue to demonstrate leadership by seeking opportunities to innovate towards net zero buildings.
Strategy 2: Transition Residential Buildings to be Zero Carbon by 2050
2.1 Develop an ongoing educational program on residential zero carbon opportunities.
2.2 Develop deep retrofitting demonstration sites illustrating net-zero energy levels.
2.3 Expand weatherization and efficiency programs for residential buildings.
2.4 Promote electrification of high-emissions appliances.
2.5 Influence the energy requirements of new residential buildings to be zero-carbon
2.6 Facilitate the development of a workforce pipeline of qualified workers trained in deep energy retrofits.
2.7 Support and promote utility, other governmental, non-profit, and/or community-based organization programs that provide energy efficiency and renewable energy assistance, particularly for income qualified customers.
Strategy 3: Transition Non-Residential (Commercial & Industrial) Buildings to be Zero Carbon by 2050
3.1 Support and incentivize new non-residential buildings to be built to net zero carbon standards.
3.2 Incorporate best energy practices, including financing options for energy efficiency and renewable energy projects, into developer outreach and communication.
3.3 Expand and incentivize the voluntary Power Down the Crown benchmarking program
3.4 Support or incentivize the installation of renewables on commercial and industrial buildings.
3.5 Enable fast tracking of development projects which include clean energy measures, especially alongside affordable housing.
3.6 Facilitate the use of renewables and alternative fuels as sources for backup energy generation
3.7 Support and promote utility, other governmental, non-profit, and/or community-based organization programs that provide energy efficiency and renewable energy assistance.

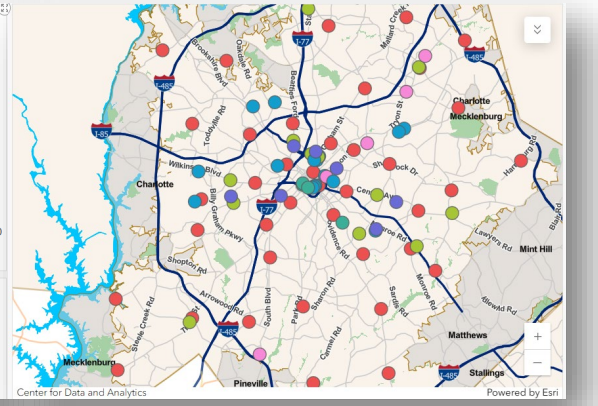
Buildings Draft Strategies & Actions

Existing:
1.4 Continue to demonstrate leadership by seeking opportunities to innovate towards net zero buildings.

New:
2.3 Expand weatherization and efficiency programs for residential buildings

New:
3.3 Expand and incentivize the voluntary Power Down the Crown benchmarking program





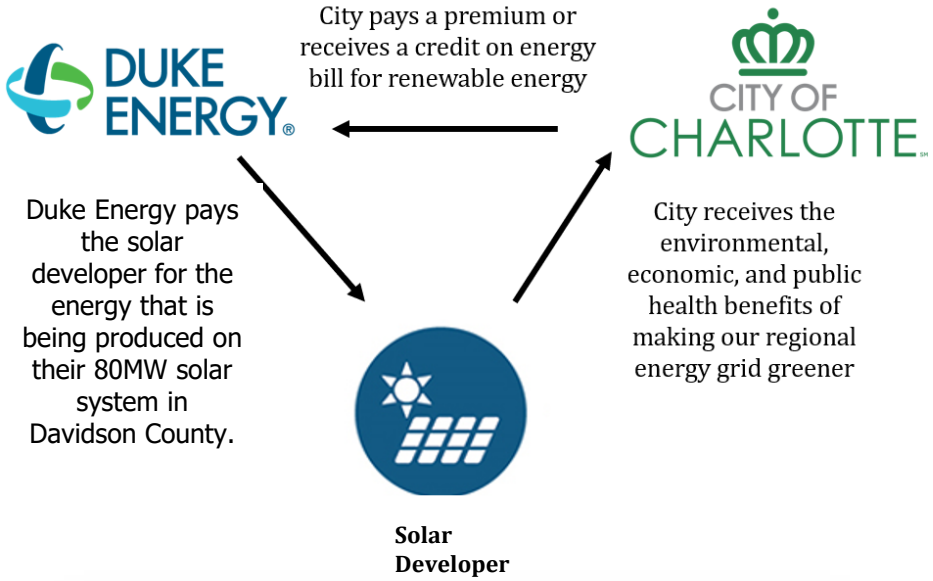
Energy Generation Draft Strategies & Actions

Strategy 4: Reach Net-Zero Emissions from Electricity Generation by 2050.
4.1 Advocate for renewable energy tariffs for different customer types and levels of renewable integration.
4.2 Tariff for 100% zero-carbon energy for Charlotte government in place before 2030.
4.3 Develop approaches to using biogas from landfills and wastewater.
4.4 Support other carbon free forms of energy generation in Charlotte.
4.5 Continue working with Duke Energy, the NC Utilities Commission, and other regional partners to support, and advocate for, the timely transition to net-zero carbon electricity generation.
Strategy 5: Strive toward 600MW of Distributed Renewable Energy Generation in Charlotte.
5.1 Incentivize residential and commercial solar.
5.2 Continue to integrate renewables at all municipal buildings in alignment with the Sustainable Facilities Policy.
5.3 Identify new zero carbon energy technologies/processes/opportunities.

Strategy 6: Develop a suite of educational tools.
6.1 Develop tools for residents and businesses to understand carbon emissions resulting from their utility use
6.2 Work to educate the public on when electricity is cleaner and the benefits of shifting use to when CO_2e is lower.
6.3 Connect to resources, and encourage training, on demand-side management.
6.4 Create demonstration site(s).
6.5 Provide and support training and events on alternative technologies.
6.6 Facilitate the development of a workforce pipeline of qualified workers trained in distributed renewables installation.
6.7 Work to develop a suite of educational tools for commercial and industrial properties on the financial benefits of renewable energy.

Energy Generation Draft Strategies & Actions

Existing:
4.5 Continue working with Duke Energy, the NC Utilities Commission, and other regional partners to support, and advocate for, the timely transition to net-zero carbon electricity generation.



New:
6.5 Provide and support training and events on alternative technologies.

New:
5.1 Incentivize residential and commercial solar.

Transportation Draft Strategies & Actions

Strategy 7: Reach net zero emissions in municipal light-duty fleet by 2035 and in the entire fleet by 2050.
7.1 Continue implementing and updating the Sustainable & Resilient Fleet Policy to align with the goals of the SEAP+.
7.2 Develop a decision matrix to inform right-sizing and typing of the fleet.
7.3 Complete installation of a standardized telematics system across the city's entire vehicle fleet.
7.4 Educate and train staff on new technology and eco-driving.
7.5 Develop a Fleet Transition Plan.
7.6 Seek to pilot zero carbon vehicles when new technologies become available.
Strategy 8: Support reaching a 50-50 mode share by 2040, per the Strategic Mobility Plan (SMP).
8.1 Support driving collaborative implementation of the SMP and the intersection, of sustainability, mobility, and other critical areas like affordable housing.
8.2 Continue to implement Place Type policies that support sustainable modes of transportation.
8.3 Develop platform for one-step purchase of tickets for all modes of shared mobility available in Charlotte.
8.4 Support campaigns to promote the use of public transit.
8.5 Advance sustainable, accessible and equitable mobility options.
8.6 Support continued communication and engagement on mutual goals of the Strategic Mobility Plan and SEAP+ and communicate emissions reduction benefits of actions that impact health and well-being.
Strategy 9: Facilitate rapid uptake of zero-carbon mobility options
9.1 Develop a promotion and awareness campaign around zero-carbon modes of transportation.
9.2 Support development of a clean fueling plan for Charlotte, including different ways of fueling (e.g. EV charging, renewable fuel sources, etc.).
9.3 Identify resilience to ensure access to zero carbon charging and fueling including the potential for on-site energy generation.
9.4 Support the development of a workforce pipeline of qualified workers trained in zero-carbon mobility infrastructure.
9.5 Advance mobility planning and infrastructure design that increases multi-modal and zero-carbon mobility options, minimizes vehicle miles traveled and strengthens the environmental quality of our infrastructure.
9.6 Expand efforts to provide car, scooter, and bike share options communitywide.
9.7 Support and promote utility, other governmental, non-profit, and/or community-based organization that provide assistance for customers to install zero-carbon transportation infrastructure (e.g. Duke's EV Charger Prep Credit).

Transportation Draft Strategies & Actions

Existing:
9.2 Support development of a clean fueling plan for Charlotte, including different ways of fueling (e.g. EV charging, renewable fuel sources, etc.).

New:
8.1 Support driving collaborative implementation of the SMP and the intersection, of sustainability, mobility, and other critical areas like affordable housing..

CHARLOTTE STRATEGIC MOBILITY PLAN

New:
9.6 Expand efforts to provide car, scooter, and bike share options communitywide.

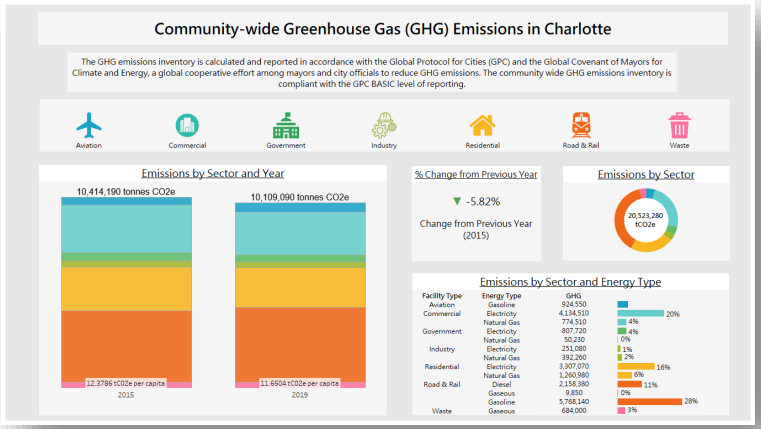
Cross-Cutting Draft Strategies & Actions

Strategy 10: Continue to Develop a Smart Data Approach.
10.1 Monitor and submit environmental data annually to recognized reporting agencies (e.g. CDP)
10.2 Continue to build out SEAP Dashboards to measure and communicate progress of SEAP+
Strategy 11: Promote Waste Reduction and Diversion throughout Charlotte.
11.1 Reduce waste generation and increase waste diverted from landfills (e.g. recycling, composting, etc.) from municipal facilities.
11.2 Reduce waste generation and increase waste diverted from landfills (e.g. recycling, composting, reusing etc.) across the community.
11.3 Implement new technologies, as appropriate, to aid with education and waste diversion (e.g. cameras on collection vehicles to identify non-acceptable materials).
Strategy 12: Establish Public-Private-Plus Partnerships.
12.1 Identify, build, and formalize relevant partnerships.
Strategy 13: Coordinate and Support Tree Canopy Action Plan.
13.1 Support a healthy Charlotte tree canopy.
13.2 Align efforts to support a 'right tree, right place' concept, emphasizing tree shade for impervious surfaces to help combat urban heat.
13.3 Ensure equitable street tree planting with systematic tree care.

14: Promote climate resilience throughout Charlotte.
14.1 To better measure and monitor environmental justice impacts, update the Equitable Growth Framework to include Land Surface Temperature as the sixth measure of the Environmental Justice metric representing urban heat.
14.2 Collaborate with partners to support heat action planning.
14.3 Develop a promotion and awareness campaign around the eco-benefits of planted areas to combat urban heat (e.g. urban meadows, pollinator gardens, trees, etc.).
14.4 Evaluate and align efforts to use green infrastructure to combat urban heat.
Strategy 15: Support efforts to Optimize Water Usage.
15.1 Support the development of a plan to increase water use efficiency.
15.2 Coordinate and support an educational campaign on water conservation measures including information on the water-energy nexus and the benefits of water conservation.
15.3 Support existing programs to incentivize water conservation and explore additional program opportunities.
15.4 Support implementation of technologies to better maximize water resource efficiency.
15.5 Support expansion of reclaimed water system and usage

Cross-Cutting Draft Strategies & Actions

New:
10.2 Continue to build out SEAP Dashboards to measure and communicate progress of SEAP+



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New:
11.3 Implement new technologies, as appropriate, to aid with education and waste diversion (e.g. cameras on collection vehicles to identify non-acceptable materials).

Additional Considerations

Financial considerations for achieving SEAP+ municipal goals

Municipal goals

Municipal

The costs and savings associated with achieving Charlotte's municipal targets is through the city's direct investments, over time, in its facilities and fleet aligned with the Sustainable Facilities Policy and Sustainable and Resilient Fleet Policy.

Many investments have higher upfront costs that will likely save money over time, for example:

- Buildings designed to LEED and ENERGY STAR certification.
- Substantive focus on building performance benchmarking, reporting, and goal tracking.
- Lower total cost of ownership possible for electric vehicles.

Where policy elements have absolute costs, these are often balanced with additional co-benefits, for example:

- GSA program for 100% renewable electricity usage demonstrates near-term leadership opportunity.

*The policies allow for exemptions if compliance with one or more policies is demonstrated as uniquely cost prohibitive.

Community Considerations

The City of Charlotte will leverage City initiatives, programs, priorities, and indirect support to achieve its community-wide goals. For many initiatives, there may be long-term costs savings and other benefits for residents.

The city can use its influence, programs, and outreach to progress its goals while realizing savings for residents:

- Outreach and collaboration opportunities to help residents save on energy (thereby reducing emissions), like with Duke Energy for the High Energy Use Pilot Program.
- Promote workforce programs, like RENEW, that bring economic development to bear on achieving long-term goals

- **New costs come in the form of creating additional city incentive programs to advance specific initiatives.*

Fiscal Impact of Energy Savings Measures

Efficiency measures at FH-30 and FH-46 include: high efficiency heat pumps for space conditioning, Dedicated Outdoor Air System (DOAS) with heat recovery, increased levels of insulation, occupancy sensors, and more efficient window glazing

Fire House 30 Year 1 metrics:

- Reduced annual electricity usage by 27%.
- Savings of $107,300+ based on ↓ of electricity usage.
- Carbon savings of 62,000+ lbs. of CO_2e.

Fire House 46 Year 1 metrics:

- Reduced annual electricity usage by 42%.
- Savings of $129,500+ based on ↓ of electricity usage.
- Carbon savings of 71,000+ lbs. of CO_2e.

Additional energy efficiency measures included at these facilities will have paid for themselves in 10 years.

Next Steps

Next Steps

March 2025

- Finalizing draft SEAP+.
- Public review of draft SEAP+.

March 6th
Public Meeting
5:30 – 8pm
Belmont Center

April 2025

- **Request to approve advancing SEAP+ from committee to full Council.**
- Review SEAP+ with Council.
- SEAP+ final review & adoption.

Thank You!