Raleigh Community Climate Action Plan

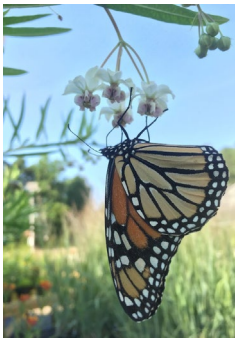
Implementation Report

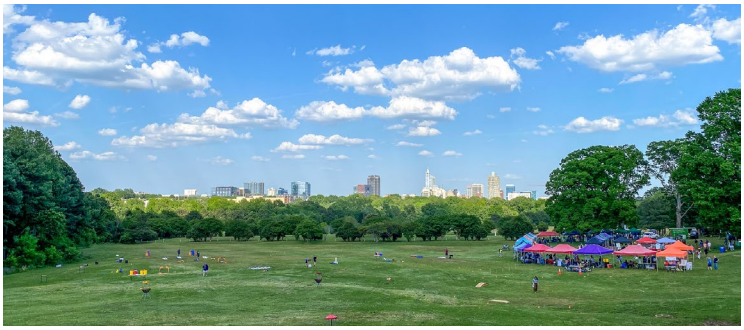
August 2024

Raleigh


CLEAN ENERGY ▸ ZERO EMISSIONS ▸ 100% ELECTRIC
GO Raleigh
Connecting the Capital Area
GO Raleigh


RALEIGH





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Director's Message

I am so honored to share **Raleigh's second Community Climate Action Plan Implementation Report** with you.

Almost nine years ago, I found my dream job: to lead sustainability at the City of Raleigh, which allows me to work on complex issues that have positive impact and can change people's lives for the better. I feel eternally grateful to call Raleigh my community and home. Before joining the City, I lived in various cities across the United States; and spent many years working in communities across Asia, Africa and Australia on sustainable development projects in local villages. Admittedly, when I returned to the U.S., I had a hard time readjusting. My time spent with communities across the globe helped me realize that **the issues people face across the world - climate change, equity, resilience and other social, environmental, health and economic impacts - are all connected, and impact can be felt and learned across cultures and continents.** Being a part of the Raleigh community and tackling these issues collaboratively further ignites my drive to this work.

Raleigh is often rated in the "top places" lists, which brings with it great responsibility to both lead by example, using resources wisely, equitably, and innovatively; while also creating innovative solutions that can have a big impact on climate change issues felt locally and globally. There are many great challenges our community faces; and as it is often the case with equity issues, **those communities that contribute the least to climate change are those that are most affected by the impacts**. This rings true in our own backyard and across the globe. **We have to work together. We have a great challenge and an even greater opportunity to impact climate change** and to continue to build on the successes of the Raleigh community.

I am so proud of the climate leadership Raleigh shows across North Carolina and throughout the U.S. and of the support that leaders across the community demonstrate. **Raleigh's Community Climate Action plan is one of the first of its kind** to not only integrate greenhouse gas (GHG) emission reductions; but to also include the vital components of **addressing equity across the community and building community resilience to the impacts of climate change**.

The Raleigh community proves again and again that we are innovative and can work together to tackle a challenge. Just a few exciting recent updates include:

1) In 2024, we completed a **Greenhouse Gas (GHG) inventory** to capture community emissions for 2022. From our first inventory in 2007 to 2022, per person GHG emissions dropped by 21%. The inventory highlights **transportation** as well as **buildings and energy** as the top sectors for emissions, which guides our work.
2) Raleigh was named a **Bloomberg American Sustainable City** which provides many resources for Raleigh to address climate change and the racial wealth gap.
3) Raleigh was awarded $440,000 from the Environmental Literacy Program by the National Oceanic and Atmospheric Administration to **build Raleigh residents' climate resilience** through education, engagement, and resources.
4) The **Bus Rapid Transit system in Raleigh broke ground** which will connect people to jobs, education, resources, and other opportunities; support walkable places that support both housing and commercial destinations; and improve air quality by reducing the number of vehicles on the road.
5) We **launched affordable housing pilots for solar**, working to embed clean energy and access for all residents.

These are just a few of the innovative equity and resilience-driven projects you'll get to read about in this report.

As mentioned, we have both a great challenge and an even bigger opportunity, and **there is great momentum both locally and beyond to tackle climate change**. Raleigh and leaders across North Carolina have been joining forces. The State of N.C. created the first N.C. Clean Energy Plan and efforts to address equity, environmental justice, GHG emissions and a clean energy economy. The City of Raleigh's leadership worked to embed equity, environmental justice, climate action and resilience into Raleigh's Strategic Plan and the 2030 Comprehensive Plan, addressing both short and long-term community priorities.

The majority of Raleigh's GHG emissions come from the decisions we make in our daily lives – how we get around, how we live in our homes, work and environment; and **the solutions lie in how we work together to impact positive change**. The City of Raleigh's GHG emissions are less than two percent of community emissions, even considering all the services we provide across the region. The City will continue to innovate, lead by example, find ways to break down barriers, and create foundational opportunities that lead to high impact climate actions. However, to make a meaningful impact, we need the collective power of the community. I am continually inspired by the innovation, leadership and collaborative action of the community.

Please share this report with your neighbors, family, friends, and anyone who will listen; and **please take a moment to pause and celebrate – to wonder in – and feel proud of the great accomplishments and leadership Raleigh has achieved**. Then please join me and the many others on our shared journey to tackle, innovate, empower, and lead the charge to a brighter, cleaner, more resilient, and equitable Raleigh. Thank you for your contributions in taking climate action!

Megan Anderson

Introduction

The **Community Climate Action Plan Implementation Report** documents implementation of projects and policy changes in each strategy area showing how the community's work has contributed to Raleigh's overall portfolio of climate action successes. Climate action work is taking place in many areas of the City of Raleigh government, as well as by many partners across the Raleigh community.

In May 2019, Raleigh's City Council set a goal to reduce community-wide greenhouse gas (GHG) emissions 80% by the year 2050. In 2021, City Council adopted Raleigh's Community Climate Action Plan (CCAP). CCAP was one of the first community-focused climate plans in the nation to focus not only on reducing community-wide GHG emissions; but to also address climate equity, environmental justice, community health, and to build community resilience to the impacts of climate change. This is the second annual report of CCAP implementation progress.

The City of Raleigh has been addressing climate change for many years, even prior to the adoption of CCAP. Since the mid 2000's Raleigh has been adopting energy efficient technologies, building solar installations, promoting climate resilient development, and expanding multi-modal transportation options. In this Implementation Report, information related to past and present projects are provided as examples to demonstrate the foundation upon which Raleigh's current actions are being taken, and to convey the breadth of work happening across the City and community.

Since the creation of CCAP, staff have been actively working to advance the strategies and actions in CCAP both with internal departmental partners and externally with businesses, non-profits, and community partners. Staff have also been working with stakeholders to access resources and funding for high impact implementation actions, including the use of federal funds for renewable energy, electric vehicles and charging infrastructure; and various pilots to address equity by creating opportunities for low-income residents to access to clean energy and transportation, and resources to further build resilience to the impacts of climate change. CCAP focuses on equity and resilience within the implementation of all strategies, which includes addressing Raleigh's top climate impacts: heat and flooding, as high impact priority areas.

The City also continues to identify actions that create opportunities for the community to take action by:

- **Removing barriers for residents, community groups, and businesses**
  The City of Raleigh is enabling the community to take climate action through various initiatives. One example includes making it easier, faster and cheaper to obtain permits for projects such as renewable energy installations, green stormwater infrastructure, and energy efficiency improvements.
- **Enabling and facilitating action**
  The City has identified opportunities to provide support and resources to community members for climate action through creating foundational projects to empower action in the community; piloting innovative ideas and technologies; continuing to grow partnerships and collaboration; and by leveraging and providing grant funding, education and outreach and other resources.
- **Leading by example**
  The City showcases climate action in public projects and outreach efforts to demonstrate leadership, effectiveness and feasibility with the hope that all people, organizations and businesses in Raleigh will take actions themselves. The CCAP strategies are designed so that anyone in Raleigh can identify a path that makes sense for them and find a way to contribute to the various opportunities to take climate action.

Considering that less than 2% of community GHG emissions come from the City of Raleigh government operations, even including all the services the City provides throughout the community, the importance of everyone in the community taking action is vital to tackling climate change. This is Raleigh's second CCAP Annual Report, and over time, we will continue to provide updates and seek new opportunities to build partnerships in our community and throughout the Region.

Tracking our Progress into the Future

Performance data related to the various CCAP strategies is included throughout this report and further measures continue to be developed. The City of Raleigh is also a member of the North Carolina Sustainable Energy Association (NCSEA). The Office of Sustainability has partnered with NCSEA to provide data specific to clean energy and transportation so that we can showcase climate action metrics in these high impact areas of CCAP implementation. Data from NCSEA is showcased in this Implementation Report and is also used to develop maps and other visuals for education and outreach, and future decision making for implementation.

Greenhouse Gas Reduction Progress

Greenhouse gas (GHG) emissions inventories are performed on a five to seven-year cycle. GHG projections are a high-level measure to demonstrate progress toward reaching Raleigh's GHG goal, and do not shift greatly from year to year. Metrics tied to high impact strategy areas demonstrate progress on actions and measure yearly progress. The newest results of Raleigh's latest GHG emissions inventory were just released, and the results are highlighted below and throughout this report. The chart below shows the percentages of total emissions by category, with transportation making up slightly more than half of the total.

Figure 1. GHG Emissions by Sector

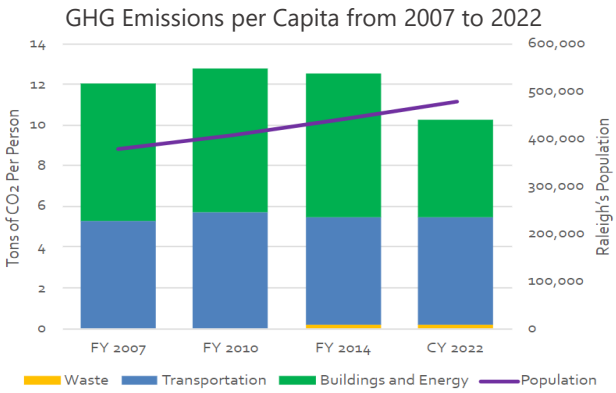


Figure 2. GHG Emissions Per Capita

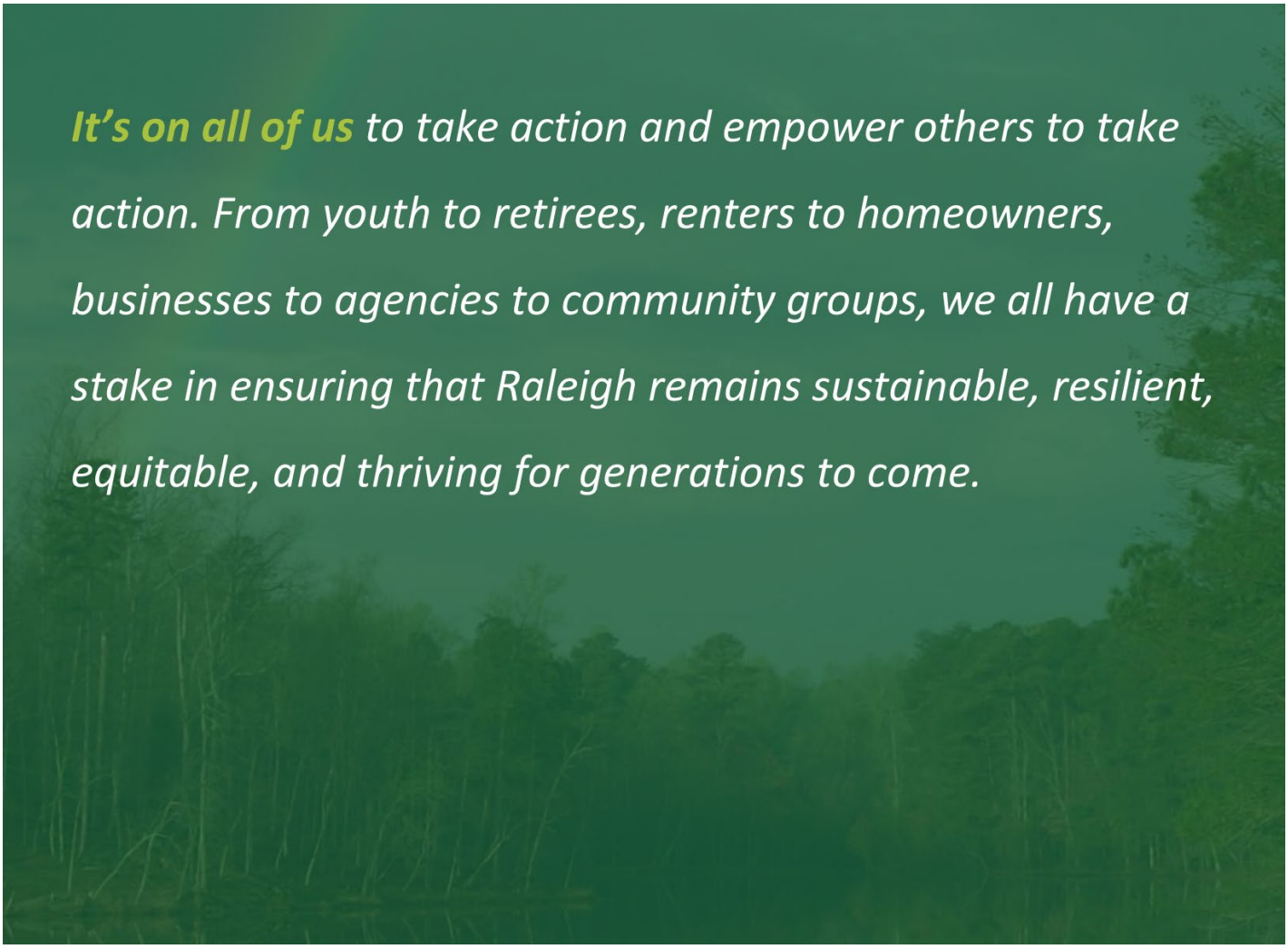
Though Raleigh's population has increased significantly since we started tracking GHG emissions in 2007, emissions per person have decreased significantly. From 2014 to 2022, overall emissions dropped by 11% and per capita GHG emissions decreased by 18%. In the buildings and energy sector, per capita electricity use in buildings dropped by 7%, though total electricity use rose by 1%. Due to a cleaner energy grid and more energy efficiency, primarily with lighting and HVAC, per capita building related GHGs dropped by 32%. Per capita GHG emissions stayed flat from 2014-2022 in the transportation sector, while total emissions increased by 8%. Vehicle miles traveled (VMT) continues to increase in Raleigh and though the number of electric vehicles is also rising, the growing number of larger vehicles cancel out those gains.

Overall, starting at the GHG reduction goal year of 2007, per capita emissions have dropped by 21%.

Climate Action into the Future

This report also contains upcoming plans and projects that will continue to gain impact over time. These plans have been conceptualized and developed over the last few years and they demonstrate the types of new projects that City of Raleigh staff create that set the foundation and enable the community to continue to take climate action.

In future updates, we will continue to identify community partners taking climate action as well as measurements that show our progress on those actions. Please continue to reach out to Sustainable.Raleigh@raleighnc.gov and share your climate action work with us.



Community Climate Action Plan Summary

This section will provide a summary of the Community Climate Action Plan (CCAP) to provide background on the CCAP strategies and their impacts.

The three main objectives of CCAP are:

- to **reduce greenhouse gas emissions** (GHGs) to meet Raleigh's community-wide goal of an 80% reduction in GHG emissions by the year 2050;
- to **build community resilience** to the impacts of climate change; and
- to **address equity, environmental justice and community health** across the Raleigh community

Effective climate action requires the contribution of the entire community, and CCAP identifies high impact strategies to meet the three objectives above.

CCAP actions are organized into three strategy areas:

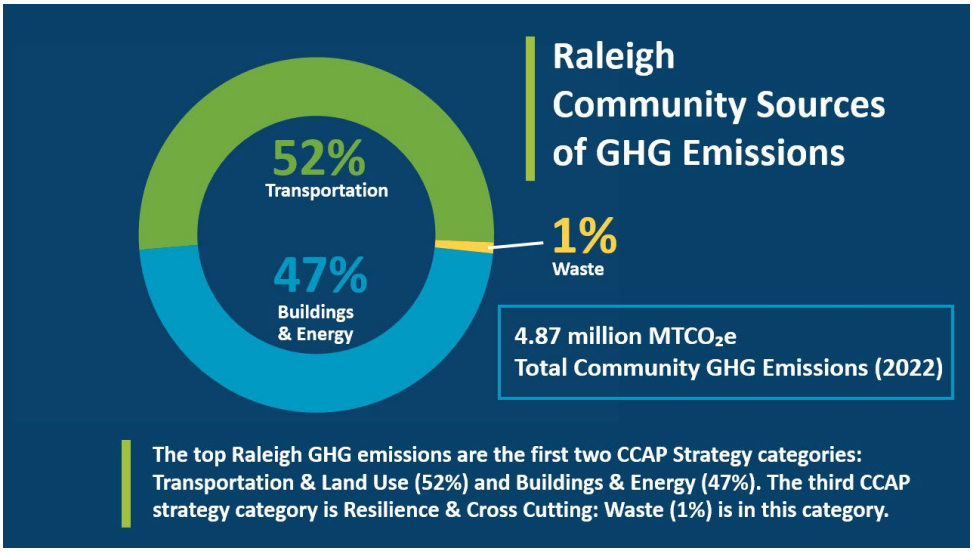
1. **Buildings and Energy**: *how we generate and use energy to power buildings*
2. **Transportation and Land Use**: *how we design our city and how we get around*
3. **Resilience and Cross-Cutting**: *how we prepare our community for climate change; how we deal with waste; and how we embed equity, funding, outreach, and innovation into all CCAP strategies*

The Resilience and Cross-Cutting strategy area of CCAP incorporates 'cross-cutting' approaches that should be embedded throughout the implementation of all CCAP strategies. These high impact approaches include *equity, resilience, funding, education,* and *innovation*. This important cross-cutting work is highlighted throughout the CCAP Implementation Report categories, and further examples are highlighted in the final Resilience & Cross-Cutting section of this report.

Reducing GHG Emissions

The primary sources of community GHG emissions in Raleigh are Transportation (52%), Buildings & Energy (47%), and Waste (1%).

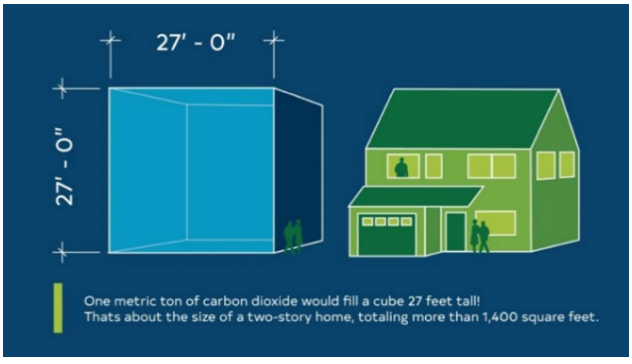
For more specific information about these categories, review Raleigh's Community Climate Action Plan, Chapters 5-7.



Buildings and Energy

This chapter in CCAP includes strategies to reduce energy usage and transition to renewable sources of energy:

- Energy efficiency strategies aim to ensure that buildings conserve energy with efficient systems and building envelopes.
- Energy supply strategies relate to the mix of fuels in the Duke Energy power grid. Strategies to transition to cleaner and more renewable sources of energy at the grid level largely relate to Duke Energy meeting its own climate goals and efforts at the state level.
- Renewable energy strategies encourage increasing access to solar, battery storage, and geothermal projects and uptake of other green energy technologies at the community level.



Transportation and Land Use

This chapter in CCAP includes strategies to address development patterns in Raleigh to create more compact communities which encourage walkability, bikeability, transit use, and clean transportation options:

- Reduction of vehicle miles traveled (VMT) and alternative mobility strategies include efforts to reduce congestion and traffic, encourage non-vehicle transportation, expand public transit and improve freight efficiency.
- Efficient land use strategies promote development supporting walking, biking, transit; and improving access and reducing costs related to where people live.
- Vehicle electrification and alternative fuel strategies look to transition vehicles in Raleigh to low- and zero-emission fuels and to improve fuel economy.

Resilience and Cross Cutting Strategies

This chapter in CCAP includes cross-cutting approaches that should be considered in all CCAP strategies, including addressing equity, environmental justice, building community resilience, funding, innovation, education, and outreach. GHG emissions reduction strategies in this chapter relate to waste and conserving green space to act as carbon sinks:

- Preservation and green space strategies encourage natural spaces to absorb carbon emissions, mitigate climate change impacts like urban heat and flooding, address community health through access to healthy food and green space for physical and mental health, and preserve pollinator habitat.
- Waste reduction and efficiency strategies look to expand knowledge of waste management practices; encourage recycling, composting, and waste reduction; and improve waste collection.

Building Community Resilience

CCAP also includes many strategies to prepare residents, buildings, and infrastructure for the impacts of climate change. For more specific information about resilience, review Raleigh's Community Climate Action Plan, Chapter 4. Examples of building community resilience include:

- Energy efficient buildings cool and heat homes more effectively, maintain comfortable temperatures longer during outages, and can reduce energy burden for residents paying a high percentage of their income on utility bills.
- Renewable energy allows for supply chain resilience to shocks and shortages; and can allow for buildings to function during power outages with the use of renewable energy and battery storage.
- Walkable and "complete streets" provide shaded sidewalks and increase overall green canopy cover to reduce the urban heat island effect and to protect residents from the top climate stressors of heat and flooding.
- Preserving and expanding green space and tree canopy reduces the impacts of extreme heat and absorbs flood waters. Urban agriculture and pollinator gardens also create resilience for people and habitats.
- Some electric vehicle structures enable vehicle batteries to provide power to the grid or buildings during outages.

Addressing Equity and Other Cross Cutting Approaches

Equity is a core component of the implementation of CCAP. Equity and environmental justice implementation updates are provided throughout this report.

As CCAP was developed, staff worked with community stakeholders to create an *Equity Impact Matrix* which provides equity-focused guidance on how to embed equity into the implementation of strategies. For more information on equity, review Raleigh's Community Climate Action Plan, Chapter 3.

Not everyone is affected equally by the impacts of climate change or the implementation of climate action strategies. Many times, the communities most affected by climate change are those that contribute the least to GHG emissions.

When implementing climate action strategies, it's important to consider equity factors, which involve assessing how the strategies will affect:

- cost of living,
- quality of life,
- health,
- economic implications,
- delivery of City services, and
- the experience of the impacts of climate change across lines of difference in Raleigh.

CCAP aims to prepare community members for the impacts of climate change, as well as to plan across all CCAP strategies to embed cross cutting approaches (*equity, outreach and education, innovation,* and *creative funding*). A large part of the City's work on CCAP implementation has included outreach to communities to understand climate action opportunities, climate change impacts, and how the City can continue to integrate climate action into its many services. This work aligns with the City of Raleigh's Equity Statement.

City of Raleigh's Equity Statement

Equity is already embedded in many City of Raleigh processes. As such, the CCAP aligns with and builds upon the citywide approach laid out in the following equity statement, which prioritizes racial equity to dismantle the policies and systems that have created and sustained inequities:

"The City of Raleigh is committed to establishing and advancing an equitable community for all. Because we know that race is the primary predictor of a person's outcomes across all social indicators and societal systems, the City of Raleigh will prioritize racial equity to dismantle the policies and systems that have created and sustained these inequities."

"Inequities in our systems and policies are costly and limit positive outcomes and quality of life for all of us. When we achieve racial equity, all people in Raleigh will benefit from a more just, equitable system. Raleigh aspires to be a model for equity in local government."

City of Raleigh Equity Statement, Adopted in June 2020

Climate action implementation can be challenging as new and complex projects and programs are identified. Fortunately, innovative approaches, outreach and education efforts, and partnerships continue to be developed to address barriers. Examples of barriers to implementation include: high up-front investment costs for construction and technology to build more efficient buildings and expand transportation electrification; new technologies that need piloted to test their feasibility and readiness for larger investment; and prioritizing and aligning climate work among a host of competing priorities, complexity, and timing. To address these barriers, we need continued innovative solutions and partnerships.

CCAP's innovative approach to embed not only GHG mitigation, but also equity and resilience as key objectives, have also allowed for numerous funding and partnership opportunities that you will read about in this Report. CCAP explicitly includes strategies to pursue these various cross cutting needs to support CCAP implementation; and this Report provides updates and examples of where the City and its partners continue to pursue and build these opportunities.

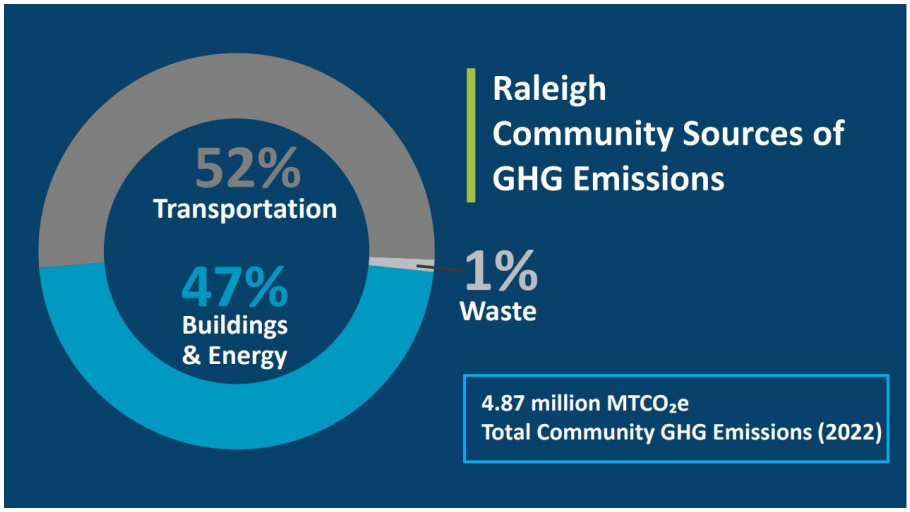
Climate Action Implementation Report

The Climate Action Implementation Report is designed to align with the CCAP strategy area chapters: Buildings & Energy, Transportation & Land Use, and Resilience & Cross Cutting. This Report documents implementation of projects and policy changes in each strategy area showing how the City and community's work has contributed to Raleigh's overall portfolio of climate action successes.

Buildings & Energy

How energy is produced and used in Raleigh's buildings accounts for 47% of community-wide GHG emissions, nearly half of all emissions. This section includes progress on strategies to transition our energy supply away from fossil fuels, increase the energy efficiency of new construction and existing buildings, increase the share of household and community level renewable energy, and identify data sources to demonstrate this progress. These strategies will help to reduce emissions from common energy uses like lighting, heating and cooling Raleigh's homes, offices, warehouses, stores, and factories.

CCAP contains three strategy areas for Buildings and Energy. (For more information about buildings and energy, review Raleigh's Community Climate Action Plan, Chapter 5.)



1. **Energy Efficiency Practices and Standards:** These strategies offer tools and resources to the community to encourage the tracking of energy use, benchmarking and reporting energy use, retro-commissioning of existing facilities, preventive maintenance to ensure that buildings remain efficient throughout their lifecycles, as well as encourage the construction of energy efficient buildings for residential and non-residential facilities.
2. **Energy Supply:** This strategy involves continuing to engage with Duke Energy as it transitions its energy sources away from fossil fuels.
3. **Renewable Energy:** These strategies promote and encourage the adoption of rooftop and household level renewable energy and geothermal installations, as well as community renewable energy facilities.

Energy Efficiency Practices and Standards

Planning for Energy Efficient Housing Options: "More Homes, More Choices"

In the last two years, Raleigh has taken major steps to create opportunities for a broader range of housing types in most of the city. To provide more information about the "More Homes, More Choices" changes and explain their impact to the public, the City held a set of community forums in spring 2023. These provided an opportunity for residents to learn more about housing types and the essential role that zoning changes and transit-oriented development play in helping the City meet its GHG reduction goals.

Per capita carbon emissions in the United States are much higher than most other countries with similar levels of development and population. Differences in land use regulation account for much of this difference. Exclusionary zoning, which bans apartments and townhouses and mandates large lots for single unit homes, was widely adopted in the previous century as a means to perpetuate racial and class separation after more direct means of segregation were outlawed. That has meant that the most energy efficient forms of housing (apartments and townhomes) are illegal to build in the majority of the land area of American cities. The resulting low-density pattern of development has also meant that nearly all transit trips are long and hard to serve the community in bus trips that replace vehicles, which, along with the increasingly large size of personal vehicles, generates the country's very high transportation-related GHG emissions.

Two development code changes that allow "missing middle" housing types – smaller apartments, townhouses, cottage courts, and small-lot detached houses – received approval in 2021 and 2022. These allow new or existing residents to live in more energy-efficient housing types, which also are much less expensive overall than large new detached houses. Because they share walls, ceilings, or both with other units, these homes require much less energy to heat or to cool (the largest sources of energy use in most homes). In fact, an apartment unit uses less than half the energy of a detached house – meaning that a substantial portion of emissions reductions can be met simply by allowing more residents to choose these housing types. The second of the two major changes focused on walkable areas near frequent transit, allowing many more residents to make trips on foot or on transit or simply to have shorter car trips – all of which reduce transportation-related GHG emissions.

Bloomberg Selects Raleigh for the New American Sustainable Cities Initiative

In March 2024, The City of Raleigh announced that it was one of just 25 cities across the US selected to join the new Bloomberg American Sustainable Cities initiative. The initiative is designed to help cities with local solutions to build low-carbon, resilient, and economically thriving communities. Raleigh is leading in piloting solutions that tackle the overlapping crises of climate change and racial wealth inequity and initiative will provide staff and funding support these efforts. The Bloomberg American Sustainable Cities initiative will provide support and a total of $200 million to selected cities to pursue solutions in the buildings and transportation sectors through partnerships. Partners include PolicyLink, Bloomberg Center for Public Innovation at Johns Hopkins University, and Natural Resources Defense Council.

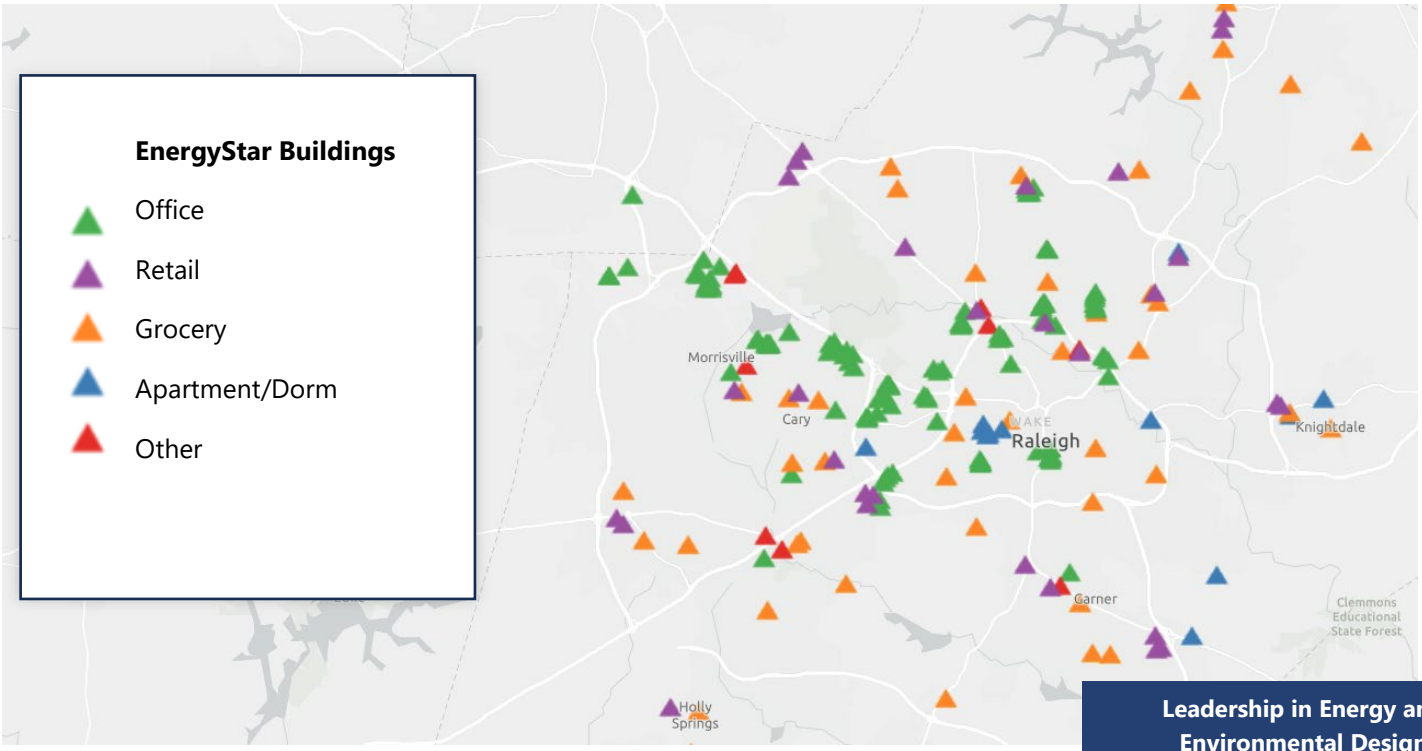
The Bloomberg American Sustainable Cities initiative will help Raleigh build on our leadership in piloting climate change solutions, in areas including:

- Developing affordable, sustainable, and energy-efficient housing
- Increasing equitable access to electric vehicles and infrastructure
- Accelerating the transition and expanding access to clean energy
- Enhancing programs to reach a diversity of entrepreneurs, such as the Impact Partner Grant and the Small Business Toolkit
- Funding new pilots with community-based organizations

Each city will also receive a Bloomberg Philanthropies-funded innovation team with dedicated staff members with expertise in: data analysis, insight development, human-centered design, and project management. These experts will bolster Raleigh's capacity to deliver programs such as residential solar energy to communities where these solutions seem out of reach. This mitigates climate impacts and improves equity. Raleigh will also receive customized policy and technical assistance in collaboration with community organizations to mobilize public, private, and philanthropic investments. Updates on the outcome of Raleigh's participation in the Bloomberg grant will be provided in future implementation reports.

Sustainable Buildings in Raleigh

Sustainable Buildings in Raleigh: There are 150 LEED-Certified Buildings totaling over 13 million square feet and 135 Energy Star Buildings totaling over 17 million square feet in Raleigh.



Map 1: The distribution and category of EnergyStar buildings across Wake County. Data from N.C. Sustainable Energy Association, 2024.

As of February 2024, Raleigh has 135 Energy Star-certified buildings and 150 LEED-certified buildings. This has been an increase of over 3 million square feet since last year. Strategies to encourage energy efficiency in new buildings, including affordable housing and energy efficiency retrofits for existing buildings, are all key aspects of energy efficiency. This includes ensuring building envelopes allow for energy used for heating and cooling to be put to its maximum efficiency, installing efficient building systems, and encouraging growth of housing types that naturally utilize less energy, such as apartments, town homes, and tiny homes as options for Raleigh residents.

Leadership in Energy and Environmental Design

LEED Buildings demonstrate a commitment to sustainable construction and building management through a certification process that requires building design and installed systems to achieve credits in the areas of carbon, energy, water, waste, transportation, materials, health and indoor environmental air quality. LEED Certification levels are: Certified, Silver, Gold and Platinum

Solar, Energy Efficiency and Sustainable Features for Affordable Housing

The City and Advanced Energy have partnered to implement the System Vision program for affordable housing projects to provide for comfortable and energy efficient homes that don't burden the homeowner with high energy costs. The East College Park affordable housing project is one of the most recent City projects to use System Vision energy efficiency standards. The System Vision program includes:

- Building new affordable housing with the highest energy efficiency standards in mind
- Guaranteeing low-cost energy bills for two years for the residents
- Offering homeowners training and support on how to keep homes comfortable and maintain energy efficiency
- Providing workforce training on building high-efficiency homes

Climate Definition: Energy Burden

Energy burden is the percentage of household income spent on energy each year. This percentage is markedly higher for low-income households and can force some people to choose between keeping their homes at a healthy temperature and buying household necessities. Managing energy burden can help to increase climate equity and overall community resilience.

In 2024, The City of Raleigh is piloting several programs related to increasing access to solar for low-income residents, including a program to encourage and incentivize affordable housing developers to include solar in their projects. This program would allow for cleaner energy generation that would reduce energy bills for low-income tenants. Learn more in the sections on solar below. Several City departments also hosted a Green Infrastructure and Sustainability Features for Affordable Housing open house in early 2024 to educate developers about the program. The open house was a huge success with over 40 developers and community members attending to learn about the incentive and the timeline for applying for this funding. We also educated about the opportunity to use federal solar tax credits to generate energy savings for the low-income residents to live in the affordable housing.

Implementing Best Practice Energy Data Tracking

To properly manage energy demand, the City requires energy data to track energy use and efficiency. The City of Raleigh is in the midst of implementing EnergyCAP, a best practice analysis software solution that will track energy and non-energy utility usage, benchmark buildings, capture utility bill data, monitor meter readings, and analyze and spot trends that identify areas for potential energy savings. The energy use data will help identify areas to pursue efficiency. Staff have worked to ensure energy monitoring and bills are accurate and have started training facility managers on energy tracking and efficiency opportunities in City facilities.

Raleigh Sustainable Business and Neighborhood Toolkits Roll Out Climate Action Resources

In 2023 and 2024, the Office of Sustainability expanded outreach across the community to promote the Sustainable Business Toolkit. It also hosted a one-year Strategic Energy Innovation fellowship to build out further resources and connections to the Sustainable Business Toolkit and to create the new Sustainable Neighborhood Toolkit. The Sustainable Business Toolkit is a resource for businesses, non-profits and organizations on various sustainability programs, free resources and assistance, recognition for efforts, opportunities for community engagement, and funding opportunities provided by various City departments, Wake County, the NC Department of Environmental Quality, and community partners.

In early 2024, the City released the Sustainable Neighborhood Toolkit to provide resources for neighborhoods, communities, and individuals to become more sustainable and take climate action. It includes energy programs such as a residential solar permitting guide, sustainable transportation options, access to funding for neighborhood climate action projects, and federal tax credits. These toolkits can help businesses, communities, families, and individuals become more sustainable, save money, be recognized for their efforts, get involved, and support their community by taking action on CCAP.

As a community, Raleigh is using approximately the same amount of water as in 2007—despite rapid population growth. Raleigh Water's community outreach on water conservation and more efficient plumbing fixtures help reduce water use and generate significant energy savings for the City and its customers.

Energy Efficiency in City Buildings – Raleigh Water

Raleigh Water is the City's largest power user, providing water and sanitary sewer services to a service population of over 630,000 people in Raleigh and surrounding areas. Raleigh Water has taken steps to identify and implement energy savings in operation of its water and wastewater treatment facilities. In 2018, a thorough assessment of energy usage at existing Resource Recovery Facilities was conducted, leading to strategies for future energy reduction. By 2023, the Neuse River Resource Recovery Facility was producing 629,000 gallons per day of reuse water, reducing the demand for potable water and preventing the release of approximately 3,000 pounds of nitrogen into the Neuse River.

Sustainable Building Ordinance to Curb Building-Related Emissions and Increase Housing Choice

Raleigh's Office of Sustainability has been partnering with Planning and Development to create a series of development ordinance packages that address high impact CCAP strategies and actions: buildings and energy, transportation, and resilience. These ordinances, integrated into the Raleigh's Unified Development Ordinance which governs standards for new buildings, will create new standards for land use, presenting an opportunity for high impact climate action at a community-wide scale. The first in this series, the Clean Transportation Ordinance package, prioritized walkability, equity, access, and vehicle electrification (more detail in the transportation section of this report). The Sustainable Building Ordinance and Resilience packages are under development.

The purpose of the Sustainable Building Ordinance package is to reduce energy and GHG emissions resulting from buildings in Raleigh and allow more housing types for residents. The ordinance would allow more multi-unit housing types and smaller detached homes to be built, because these types of dwelling use less energy than detached, single-family homes. It could also incentivize solar energy and potentially other sustainable building elements. There is also a long history of staff implementing ordinances that support climate action, and these packages will continue to be developed to address high impact climate action as Raleigh continues to grow and change over time.

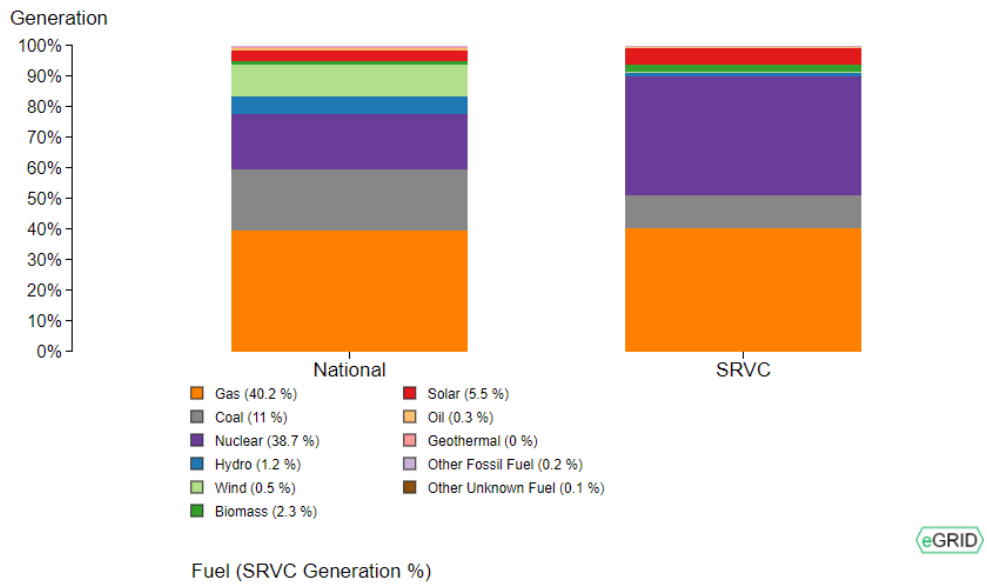
Groundbreaking on the New Civic Tower, the City of Raleigh's "City Hall"

Image 1: A rendering of the new East Civic Tower, which will include many sustainable building features

The new City of Raleigh East Civic Tower will consolidate staff and services from five City buildings in Downtown Raleigh, and it will be LEED Silver-certified. Other sustainability features include building materials with low carbon emissions and low volatile organic compounds (VOC) content, acoustic performance for better indoor climate, green stormwater infrastructure, water bottle fill stations, reduced nighttime lighting to support bird migration, and a recycling and waste management plan. Although the building will be built on a very small plot of land which doesn't allow space for rooftop solar or geothermal energy, the tower will exemplify consolidation of services and people in a dense urban space to increase efficiency and reduce resource usage, freeing up other buildings for community usage. The City is exploring opportunities to add renewable energy features to the Civic Tower. Construction began in 2024 and is projected to be complete in 2026.

Energy Supply

Virginia/Carolina Subregion (SRVC) Fuel Mix Compared to US National Fuel Mix for Energy Generation



Graph 1: Virginia/Carolina Subregion (SRVC) fuel mix (%) compared to national fuel mix. Source: Power Profiler | U.S. EPA. Data source: 2022 data from the Emissions & Generation Resource Integrated Database (eGRID) released January 30, 2024

Climate Definition: Generation Mix or Energy Mix

The generation mix or energy mix is a statistic that shows which sources produce the power supplied by a provider (e.g. some companies predominantly own coal-burning plants and others own wind turbines). Many energy suppliers use multiple sources of energy to supply power to their customers. This mix changes according to provider and region.

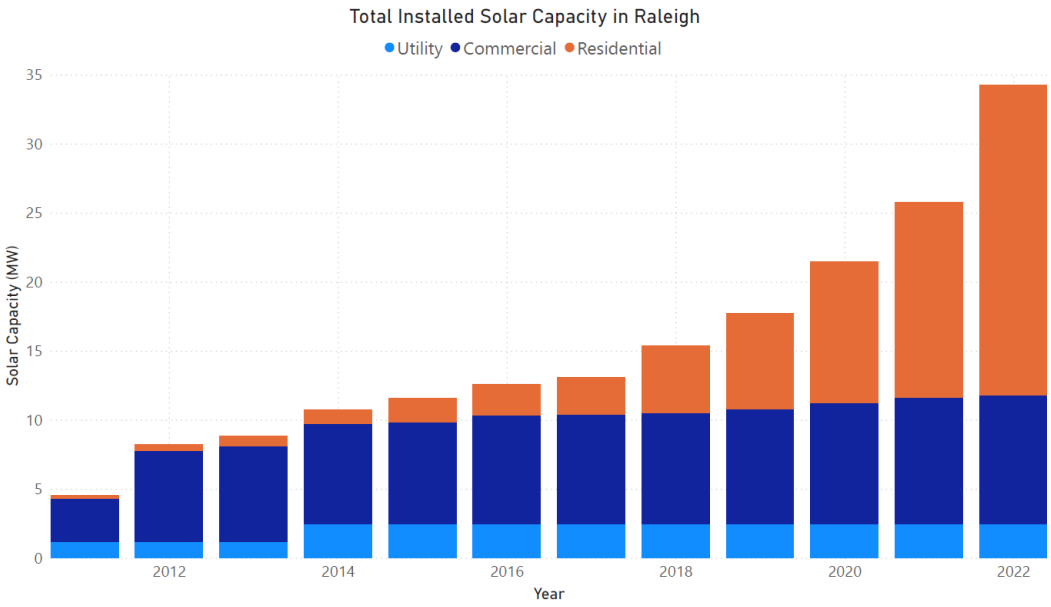
Climate action strategies related to a cleaner energy supply relies heavily on Duke Energy and other local energy providers switching to clean and renewable energy sources. Recent data on the Virginia/Carolina Subregion shows that from 2020 to 2022, solar increased from 3.4% to 5.5% of the fuel mix for energy generation. In that same time frame, coal decreased from 12.6% to 11% of the fuel mix for energy generation. Transitioning to a cleaner energy grid mix is vital to significant GHG reductions and must happen alongside other high impact climate action strategies such as energy efficiency measures for existing building stock to reduce overall energy consumption and transitioning to electric vehicles and clean alternative fuels. Transitioning the energy mix to cleaner technologies is a strategy that includes short- and long-term actions to meaningfully reduce GHG emissions that has various community benefits. For example, as the demand for electricity goes up as the community adopts more electric vehicles, the energy mix will need to continue to be sourced from cleaner sources. The following sections highlight the planning and preparation for the complexity of transitioning to our energy mix and the transportation sectors over time.

Raleigh and Local Governments Provide Feedback to the Duke Energy Integrated Resource Plan

The NC Utilities Commission requires utilities like Duke Energy to file a long-range energy plan, called an Integrated Resource Plan (IRP) every two years. Duke Energy's 2024 IRP maps out the mix of coal, gas, nuclear, renewable energy, energy storage and energy efficiency they'll leverage to meet energy needs over the next 15 years. The City of Raleigh partnered with the Southeast Sustainability Directors Network and several other North Carolina local governments in the 2024 Duke Energy IRP review process to share the City's priorities in reducing GHG emissions in energy production. As significant energy users, cities, towns, and counties play a key role in shaping the state's energy supply. The greening of the energy grid and the Duke Energy transition to a cleaner energy supply will both contribute to a reduction of community greenhouse gas emissions.

Renewable Energy

Renewable energy is energy derived from natural processes that replenish quickly or cannot be depleted. Solar and geothermal are the most viable renewable energy sources in Raleigh. Renewable energy can be used onsite where it is generated or sold back to the utility's electric grid for usage elsewhere. The renewable energy strategies in CCAP refer to building level or community level renewable energy installations, rather than grid-level installations covered in the previous Energy Supply section.



Graph 2: Installed solar generation capacity has grown rapidly in Wake County over the last decade, with total capacity more than quadrupling over that span. Source: N.C. Sustainable Energy Association, March 2024

Solarize Raleigh and Solarize the Triangle break National Records, Win Awards, Increase Access to Clean Energy and Address Energy Burden

The City of Raleigh helped create the Triangle Sustainability Partnership (TSP) as one of 12 local governments and over 25 local community partners. The Solarize the Triangle program was the TSP's first flagship project. The program ended in September 2023, breaking national records as the largest in the country for community participation! The Solarize Program also won the "Cleantech Impact: Local Government" from the Research Triangle Cleantech Cluster in November 2023, and the "Climate Action Award for Energy" Raleigh Environmental Award in 2024.

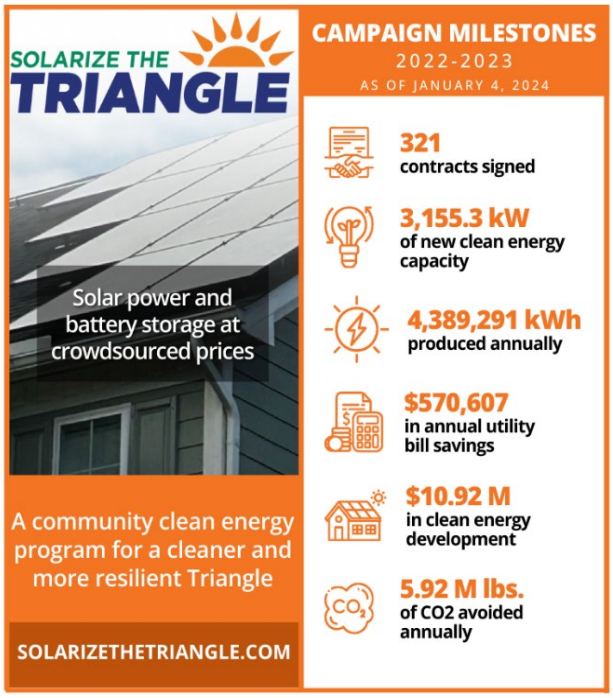
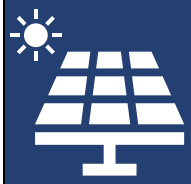


Image 2: Solarize the Triangle regional accomplishments.

The Triangle-wide two-year campaign resulted in 321 contracts signed, 3,155.3 kW of new clean energy capacity, 4,389,291 kWh produced annually, $570,607 in annual utility bill savings, $10.92 million in clean energy development, and 5.92 million pounds of carbon dioxide avoided annually. The City and partners are currently implementing the first of its kind low to middle income solarize program (more information in the section below).

Solarize the Triangle is a community-based group-purchasing program for solar energy, battery storage, and other clean energy technologies. This campaign, active in 2022 and 2023, aimed to enhance climate resilience, cut energy expenses, and lower the cost of renewable energy systems for homeowners, businesses, and nonprofits. By joining the campaign, participants accessed volume discounts on materials and installation services, resulting in more savings on solar energy costs with greater participation.



As of 2024, there were more than 1,500 solar installations in Raleigh. The total installed capacity of these systems is nearly 35 megawatts (MW). That is enough electricity to power more than 3,000 detached houses or more than 8,000 apartments annually.

The Solarize the Triangle campaign broke records as the largest Solarize campaign for community participation across the United States. The campaign led to hundreds of new rooftop solar installations across the Triangle. Raleigh is currently implementing the second phase, utilizing federal funds to subsidize and increase access to solar for low- and moderate-income residents in Raleigh to reduce their energy burden.

Solar Access for Low-Income Households Pilot Programs

The City developed two pilot programs in 2023 with the goals of increasing access to clean and affordable solar energy for low-income households and to reduce their energy burden. Often times, low-to-moderate income households face an energy burden where a high proportion of their income goes to their energy bills. They are often unable to make the upfront investments required for solar installations; however, they could greatly benefit because solar can significantly reduce their energy bills and help them save money to be used for other quality of life needs. Energy burden is an

increasingly concerning issue, and reducing the cost of utility bills can make all the difference in people being able to afford to stay in their homes. CCAP also focuses on strategies to increase access to clean energy options for those in the community that may have experienced previous disinvestment.

By integrating affordable housing and sustainability, Raleigh fosters a high quality of life for its residents. Focusing on equity, environmental justice, community health and resilience is central to this vision, ensuring that everyone in Raleigh, especially those most impacted by climate change and other disinvestments, benefit from the City and community's climate action and sustainability efforts.

City Pilots Solar Incentive Program for Affordable Housing

Image 3: Through Solarize the Triangle program, we are partnering with community groups on a pilot program to install solar on low to middle income homes, aligning with CCAP's aim to expand renewable and solar access for all in our community.

The first program, in collaboration with the Housing and Neighborhoods Department, introduces an incentive for developers to incorporate solar energy into small-scale affordable housing projects on City-owned land. In reviewing applications for funding, the City gives bonus points to developers who include solar in their proposals and will contribute a funding incentive towards solar costs for selected projects. Developers are also encouraged to leverage new federal solar tax credits to minimize installation expenses. The energy savings from the solar would be passed to the residents of the affordable housing. The Office of Sustainability promoted this program at an open house for affordable housing, where developers expressed interest and excitement, and we received responses to the pilot spring 2024. This pilot was the first of its kind, and while no proposals including solar were selected this year, the City is gathering valuable feedback from stakeholders about barriers and opportunities that will inform future pilots as well as other opportunities with partners at the state level to tackle this issue.

City Pilots Program to Increase Access to Solar and Reduce Energy Burden for Low Income Residents

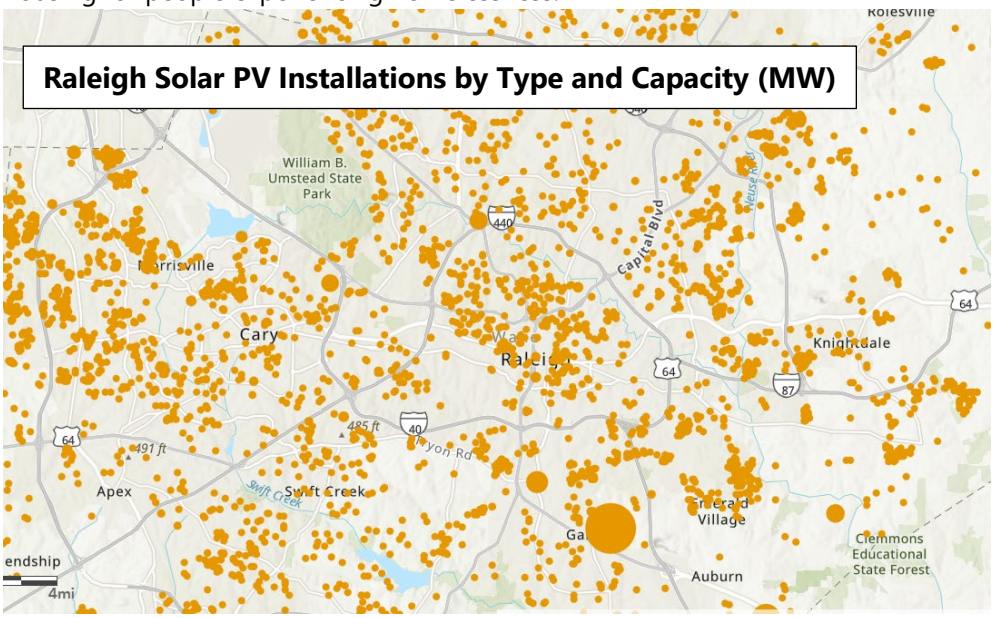
For the second pilot program, staff have utilized funding from the American Rescue Plan Act (ARPA) to subsidize and install solar on low-to-moderate (LMI) Raleigh residents' homes who may not be able to afford the upfront costs to invest in solar and clean energy otherwise. This program reduces their energy burden and is a pilot program as part of the second phase of the Solarize the Triangle program (see above for updates on this program). The pilot incorporates inclusive best practices, including community outreach, addressing energy burden, charitable projects to go back to the local community, alternative options for homes where rooftop solar isn't feasible, minority workforce participation, and workforce development. City staff are actively enrolling Raleigh participants, with several projects underway as of summer 2024.

Community Benefits

These initiatives integrate equity and resilience into climate action, aiming to cut greenhouse gas emissions. Many low-income households struggle to afford upfront costs for clean energy like solar panels, missing out on benefits such as lower bills and contributing to climate change mitigation. Energy-efficient homes with renewables reduce monthly energy burdens which occur when residents must spend a relatively high proportion of their incomes on energy bills. Solar panels also increase resilience by allowing households to generate energy when the power grid goes out. During extreme weather events, solar panels provide power for essentials such as cell phones and medical devices. Solar panels allow longer, more comfortable sheltering in place.

Image 4: Solar House installed through the Solar Pilot Program.

The Office of Sustainability, in partnership with other departments is continuing to plan and explore other opportunities to increase low-income communities' access to renewable energy and sustainability features like EV charging and green stormwater infrastructure. The City is also in the planning phase of including solar on a hotel being refurbished to provide housing for people experiencing homelessness.



Map 2: Solar PV installations in Raleigh and the surrounding area. Size of dot represents megawatt (MW) capacity. Source: N.C. Sustainable Energy Association, 2024

Raleigh working on SolSmart Gold Designation and the Growth of Solar

The SolSmart program certifies cities that address local community barriers to solar energy, develop innovative solutions to promote solar installation, and educate and engage community members on the benefits of solar energy. The City is currently working on the Gold Designation after achieving the SolSmart Silver designation in 2022. The Office of Sustainability and Planning and Development Department partnered to lead City departments and community stakeholders in a process to update the permitting procedures for residential and commercial solar energy installations, making it easier and faster to receive solar installation permits, in addition to updating other resources to promote solar growth in Raleigh. This includes guides and updates on the City website that provide information about the solar

permitting process and related questions. The SolSmart program, along with Solarize the Triangle and similar efforts, is designed to accelerate the pace of solar installations across the community.

City of Raleigh Renewable Energy Achievements

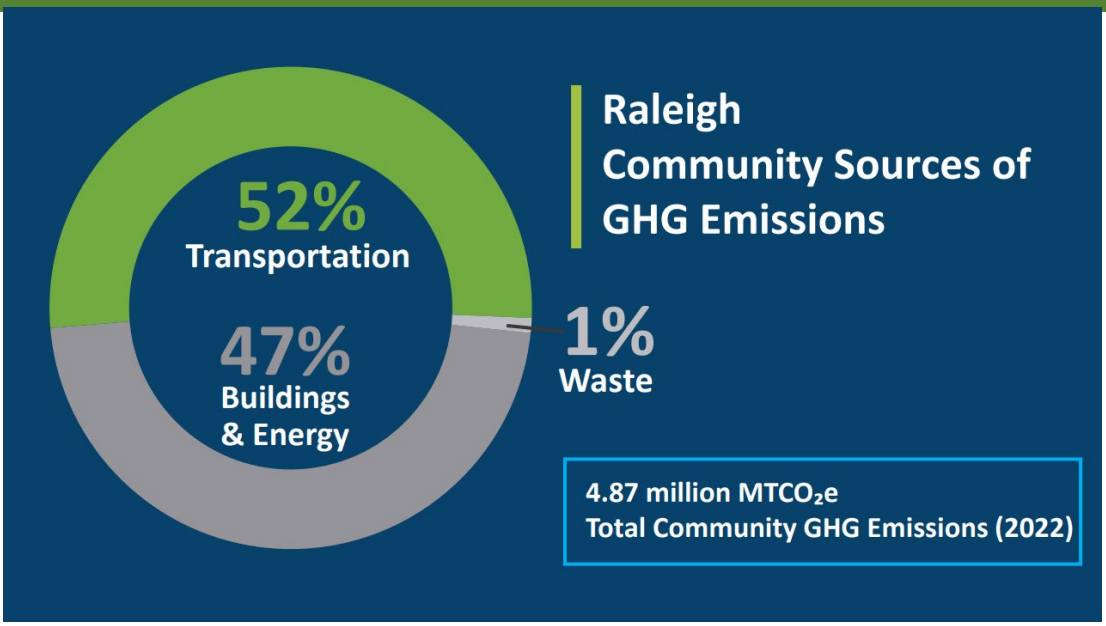
The City of Raleigh has a long history of supporting renewable energy, installing solar energy and geothermal at several facilities, as these are the most viable types of renewable energy in Raleigh. The total capacity of City-owned solar installations is currently at 1.9 Megawatts (MW), with more coming online in the coming year. The new City of Raleigh LEED Gold Certified Law Enforcement Training Center continues to expand the City's renewable energy portfolio by including over 80 wells of geothermal technology for heating and cooling. The City has 291 of total geothermal wells at three locations. To see a complete list of City facilities with renewable energy features, read the 2023 CCAP Implementation Report.

In 2022, Raleigh City Council approved $2 million in American Rescue Plan (ARPA) funds to be used for the evaluation and installation of various solar projects across the City. This includes several solar installations on City facilities, and various other City solar projects and evaluations. Staff is working to identify, evaluate, and implement these projects over the course of the next few years. In addition, the City continues to pilot solar technologies such as solar powered mobile EV stations that provide shade and a resilient power supply for vehicles in addition to installing solar shades at 19 of the new bus stops being planned for the Bus Rapid Transit expansion across Raleigh, which will provide both shading and a power source at these bus stops.

Solar is also being evaluated for buildings at Dorothea Dix Park, starting with the Greg Poole, Jr. All Faiths Chapel. Staff plan to use this as a pilot for future renewable installations by leveraging the new federal solar tax credits to get funding back that can be reinvested into other renewable energy projects. These new federal tax credits also include community benefit criteria such as: projects that use companies focusing on growing the clean energy workforce through apprenticeships, projects that are placed in communities that are historically marginalized and facing environmental injustices, and various other opportunities that align with the City's GHG reduction, equity, and resilience goals. The City's efforts and learnings are being shared with City departments and community groups to highlight opportunities for the community to also use these tax credits to make solar more affordable, especially in historically marginalized areas.

Transportation & Land Use

Transportation-related emissions account for the highest total GHG emissions in Raleigh. These emissions are largely determined by how frequently we need to use cars to get to work, school, shopping, and activities. In areas where necessities and amenities are closer to residential areas, and which have safe and reliable transportation alternatives, people use cars less and produce fewer emissions. Strategies to increase density in Raleigh will create more walkable or bikeable communities and reduce our community's reliance on vehicles. While working to reduce vehicle miles traveled overall, transitioning fleets to electric and clean fuels and supporting the adoption of electric vehicles is one of the highest impact areas to reduce emissions, as well as to ensure equity so that everyone has access to the benefits of clean fuel technologies.



CCAP contains three categories of strategies for Transportation and Land Use. For more specific climate actions in these categories, review Raleigh's Community Climate Action Plan, Chapter 6.

1. **Efficient Land Use** (LU): Strategies to encourage efficient land use will create more compact development patterns and walkable spaces that contain commercial and retail space intermingled with residential units. Working and living in these spaces allows residents to spend fewer resources and less time on travel.
2. **VMT Reduction and Alternative Mobility** (VMT): Vehicle Miles Traveled (VMT) is a measure of vehicle travel made by a private vehicle, regardless of the number of occupants. Strategies to reduce VMT include encouraging alternative modes of transportation, promoting walkability and bikeability.
3. **Transportation Electrification and Alternative Fuels** (EV): These strategies encourage fuel efficiency standards, and a transition to electric vehicles and alternatives to fossil fuels.

Efficient Land Use

The design of a city largely determines how residents and visitors will get around. Shifting towards denser urban areas makes it becomes more possible to walk or bike to work, school, or to go shopping, rather than relying on a vehicle. In 2023, the following actions were taken to move toward more compact development patterns:

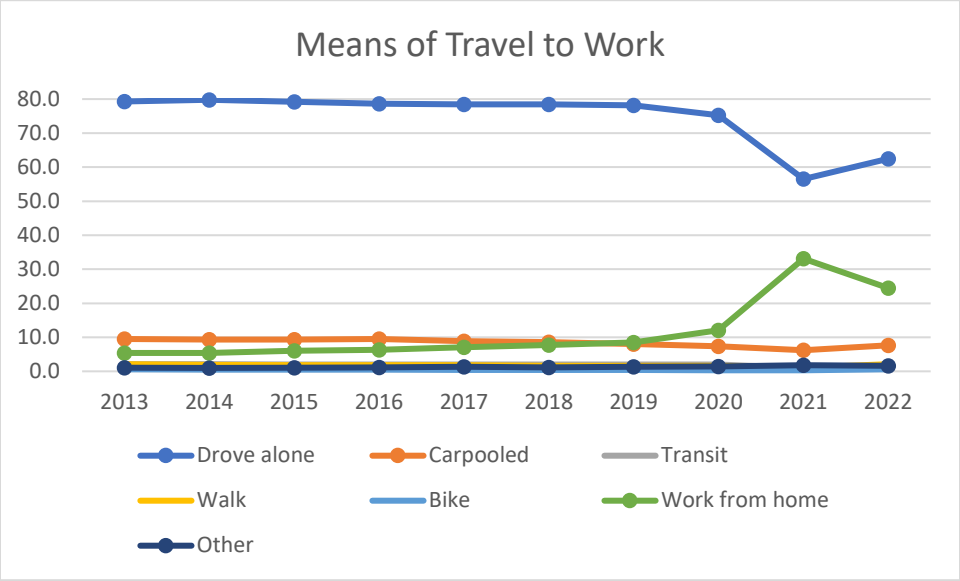
Transit Oriented Development Zoning to Decrease Cars and Increase Sustainable Transportation Options

Allowing people to live and work close to transit increases ridership on bus lines and means more people leave their cars at home when going to work, school or to activities. The City has completed two major efforts to remove zoning barriers to allow additional housing and employment space near transit investments. The first, a change that permits taller buildings and increased residential density near all current or planned frequent transit routes (15 minutes or less between buses), was approved in May 2022. The second, a City-initiated rezoning to apply a Transit Overlay District that will align with Bus Rapid Transit (BRT) lines, has been completed along the Southern and Western BRT corridors and, as of Spring 2024, was pending along the New Bern BRT corridor. That designation allows buildings to be taller if a percentage of housing units are priced below market rate. This will reduce the cost of living and traffic, while encouraging transit use particularly in the areas closest to the BRT lines. It also prohibits new drive-thrus, gas stations, and other land uses that make walking to transit stops or elsewhere feel less safe and comfortable.

Vehicle Miles Traveled (VMT) Reduction and Alternative Mobility

VMT is directly related to the City's greenhouse gas (GHG) reduction goals. Transportation accounts for roughly half of Raleigh's total GHG emissions, and these emissions are directly related to the number of miles traveled by vehicle. Reducing VMT by coordinating land use and transportation planning is a way that local governments can have a high impact on reducing GHG emissions in a city. VMT is closely related to mode share, which refers to the different means of travel used to get from place to place. As the chart below shows, Raleigh is heavily oriented to driving, with the large majority of commuting trips made by people driving alone.

> Climate Definition
>
> ***Vehicle Miles Traveled or VMT***
>
> *A measurement of the total miles driven each year by vehicles on the roads in a specific area.*



Graph 3: Means of travel to work (%) Raleigh, NC. Source: US Census

Compared to other US cities, a high percentage of commute trips in Raleigh consist of one person in a car. This declined from 2020 to 2021 with the rise of working from home during the COVID-19 pandemic, though is now rebounding. As Raleigh continues to grow, VMT is expected to increase barring significant changes to the way we get around and the places we live. VMT reduction strategies combined with strategies for more dense urban forms that enable people to rely less on their cars to get around will reduce VMT on a per person basis. Over time, these strategies can lead to a total VMT decline, even as the city welcomes new residents. For example, recent studies have found that areas such as Midtown Raleigh which have dense mixed-use development see far more walking trips than other parts of Raleigh, with little to no increase in vehicle traffic on nearby streets. The City of Raleigh has adopted the following policies and programs to help to reduce vehicle miles traveled and promote individuals walking, biking, and taking transit.

Bicycle, Micromobility and Pedestrian Programs

Bike and pedestrian system improvements and safety are underway to encourage community members to use alternative modes of transportation and reduce emissions. The City of Raleigh has its own City-run public bikeshare program, Cardinal Bikeshare, and dockless scooters are provided by private operators. Pedestrian improvements include sidewalks and bike lanes help to protect people riding bikes or scooters. Ongoing work is underway to install more bike lanes as identified in the Bike Plan. Between 2021 and 2023, over 900,000 trips were made via the City's E-Scooter Program.

Image 5: The City's Cardinal Bikeshare Program encourages residents to utilize alternative forms of transportation. The program continues to expand with more stations and bikes connected by bike lanes and greenways. Image Credit: Cardinal Bikeshare.

The numbers for scooters:

- In 2023, the 420,640 total miles travelled set a new high and increased by 35% when compared to the total miles travelled in 2021
- The program has had an annual average of more than 300,000 e-scooter trips, with more than 800 trips made daily
- Since 2021, more than 1,060,000 miles have been travelled via the City's E-Scooter Program, with an annual average of 350,000 miles

For bikeshare:

- More than 171,00 trips taken since 2019
- More than 435,700 miles travelled
- More than 116,000 hours travelled by bike

The City continues to build out a network of bicycle and scooter facilities, with two additional miles of bike lanes added in 2023 and five sidewalk projects completed that totaled over a mile of new facilities.

Focusing on Vehicle Miles Traveled when Evaluating Transportation Impact of Land Use Changes

When evaluating the impact of a zoning change or development, cities have traditionally primarily considered how changes will impact the "level of service" of the area, or how convenient it is to get around in a car. The highest scores are given to places where travel by car is the most convenient. This approach leads to ever-wider streets, making walking or other means of non-car travel more dangerous and less likely. It also leads to overall longer trips and more driving.

An alternative way to evaluating the impact of a zoning change or project, which cities are increasingly using, is to assess how this will impact vehicle miles traveled (VMT). This reflects the fact that the transportation impact of a project varies by context. For example, a large number of new homes in a rural area would lead to a significant increase in vehicle miles traveled, as all trips must be made by car and will be long. The same number of homes in an urban area will have a smaller VMT impact, because many trips can be made without a car and those made with a car will be shorter.

The City of Raleigh's Transportation department has developed a methodology for using VMT in rezoning analysis, as described above. They are working to incorporate this into the rezoning process to support a long-term decrease in VMT.

Traffic Calming to Improve Safety and Emissions for People Walking and Biking

The Neighborhood Traffic Management Policy updates provide a policy for traffic calming or to slow the speed of traffic on particular streets. Community members are more likely to walk and bike in areas that feel and are safer for traveling outside of a vehicle. An example would be students walking in an area to school instead of being driven and picked up from school in a vehicle that is idling and emitting emissions. Transportation has made changes in the project delivery process to increase the volume of traffic calming interventions completed. In 2023, progress included:

- A record 19 traffic calming projects covering 12 miles of neighborhood streets were constructed.
- 186 neighborhood street speed limit reductions covering more than 44 miles of streets.
- 17 intersections converted to multi-way stops.

Complete Streets Implementation Program

The goal of the City of Raleigh's Complete Streets Implementation Program is to construct projects that improve safety, access, mobility, and connectivity of existing streets for all users. These streets are designed through community engagement to accommodate all modes of transportation, allowing bicyclists, pedestrians, transit users, vehicles, as well as commercial and emergency vehicles. The more community members feel safe navigating streets on bikes, scooters, and walking, the more likely they are to get out of their vehicles, thus reducing the emissions associated with their travel.

Image 6: Hillsborough Street roadway design to serve the needs of people walking safely and to calm vehicle traffic.

Vision Zero Improving Safety on Raleigh Streets, Making Non-Car Options More Attractive

Vision Zero is an approach to transportation that states that no traffic fatalities are acceptable (the vision is zero fatalities). In 2023, Raleigh secured a $1 million grant to craft a Vision Zero safety plan, slated for completion in 2025. The City also is continually making improvements to streets and intersections and has received more than $2 million in the last year for nine safety improvement projects across the city.

Clean Transportation Ordinance

The Office of Sustainability and Planning & Development department have partnered to develop an ordinance that will both reduce VMT and support the transition to electric vehicles (EVs). The ordinance, which was adopted in 2024, includes the following provisions:

- Prohibits new drive-thrus in walkable and emerging walkable areas such as downtown, Hillsborough Street, and parts of Midtown;
- Requires pedestrian connections between new developments and greenways and other destinations; and
- Requires EV infrastructure in new apartments, hotels, standalone parking lots, and gas stations.

The ordinance is the first of a set of potential changes to the Raleigh's Unified Development Ordinance (UDO) that will help implement the CCAP.

Raleigh Traffic goSmart Project

This effort, a collaboration between Transportation and IT, utilizes traffic cameras to analyze vehicle movements and transportation patterns. This information can then be used for a range of transportation projects like signal timing and street designs that contribute to safer streets for pedestrians. This makes walking trips more likely and decreases transportation-related GHG emissions. The project received an award from the Smart Cities North America Awards in 2023.

Greenway Projects Focus on Trails as Transportation

Raleigh currently has over 100 miles of greenways for the community to explore. On April 19, 2022, the Raleigh City Council unanimously adopted the Capital Area Greenway Master Plan. The new greenways plan emphasizes the greenway system's role as an important zero-emissions transportation network, not just as a recreational amenity. Accordingly, it focuses on better connecting the existing network with neighborhoods and destinations. It also includes major new projects, such as the Big Branch Greenway Connector in Midtown, which will connect North Raleigh neighborhoods to the North Hills area and provide a safe crossing of the 440 Beltline.

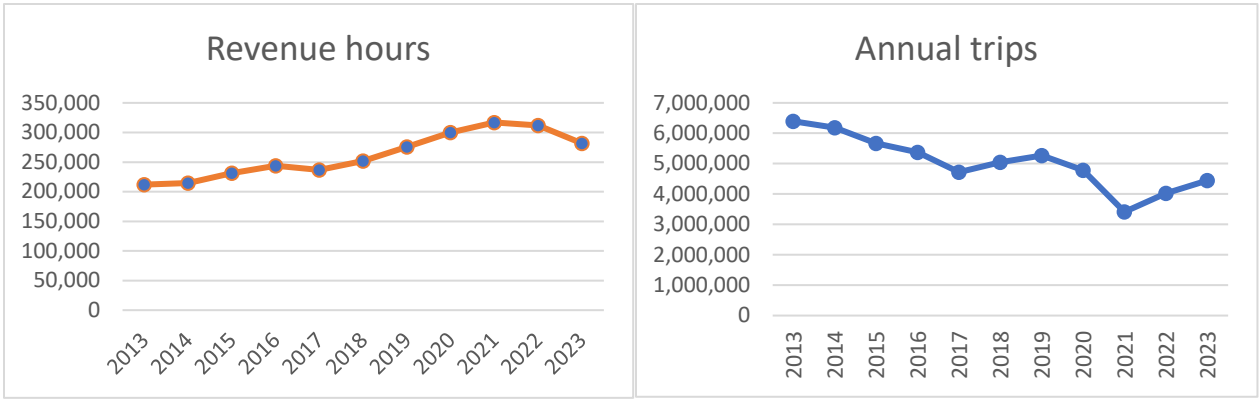
Raleigh E-Bike Incentive Program

Image 7: Electric Bike at the State Farmers Market.

The City of Raleigh will launch an e-bike purchase incentive program in 2024. The program, based on similar efforts in Denver and many other cities, will subsidize the cost of buying a new e-bike. The subsidy will be larger for low- or moderate-income residents. E-bikes have demonstrated a potent ability to substitute for vehicle trips and reduce vehicle miles traveled. Because they eliminate or lessen factors such as heat and hills, they make more and longer trips possible with a fraction of the energy needed to power a car, even an EV. Additionally, they make biking safer and more comfortable by reducing the speed differential between people biking and driving, especially going up hills.

The e-bike program will receive federal grant funding, and staff are investigating options to sustain it beyond the grant period.

Expanding Transit Service in Raleigh



Graph 4: Annual service hours of the GoRaleigh Transit System

Raleigh is a key partner in the implementation of the Wake Transit Plan, adopted in 2016. The plan provides for increased transit service in frequency, span, and geographic availability. Among many other benefits, increased transit service reduces vehicle miles traveled which reduces GHG emissions. Raleigh steadily grew transit service from 2013 through 2021. In 2022, despite planned service expansion, a bus driver shortage fueled by the COVID-19 pandemic forced service

cuts across the transit system. This also affected ridership in 2023. However, GoRaleigh returned to full service in January 2024, and ridership is now back to nearly 90% of pre-COVID levels. In addition to expanded service, GoRaleigh also has made it easier to use transit by expanding options for choosing routes and tracking buses in real time. Multiple apps now support this, including a recent addition to Google Maps.

Bus Rapid Transit (BRT) and Equitable Development

Image 8: Illustration of future Bus Rapid Transit corridor along New Bern Avenue. In accordance with the Wake Transit Plan, planning for BRT is underway to continue to provide service along four key corridors. Construction began in early 2024.

Bus Rapid Transit is a high-capacity bus-based transit system that delivers fast and efficient service that can include dedicated lanes, busways, traffic signal priority, off-board fare collection, elevated platforms and enhanced stations. These amenities combine to provide transit service that is faster, more reliable, and has higher capacity than traditional bus service. There are four corridors being developed in Raleigh for BRT: New Bern Avenue, Western Boulevard, Southern, and Northern. Construction on the first BRT line, along New Bern Avenue, began in 2024. Service is anticipated to begin in 2026. The Southern BRT line is expected to begin construction in 2026. BRT connects people to jobs, education resources, and other opportunities, it supports walkable places that support both housing and commercial destinations, and it improves air quality by reducing the number of vehicles on the road. In addition, individuals can save money by driving less or opt out of car ownership altogether. This reduces GHG emissions related to travel.

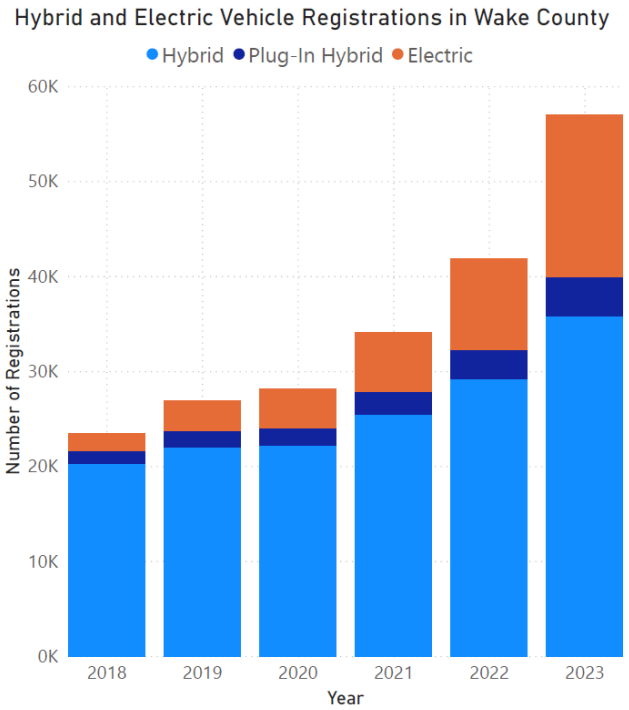
Development around the transit corridors is also important for supporting the provision of frequent service in BRT corridors and for maximizing the environmental benefit of the investment. The Equitable Development Around Transit plan, completed in 2021, created a policy framework for growth that centers more around transit rather than driving infrastructure for single occupancy vehicles. This provided a foundation for the zoning changes outlined above, and additional planning along the BRT corridors is setting the stage for subsequent zoning changes. This work helps to address equity by providing options for all Raleigh residents that promote affordability, including housing options that are accessible to services and transportation modes.

Raleigh to Richmond Rail Transit

In 2023, the North Carolina Department of Transportation's Rail Division received a $1 billion federal grant to design and build the first segment of a future Raleigh, NC to Richmond, VA passenger rail service. This segment will extend from Raleigh Union Station to Wake Forest, enabling regional passenger service before longer-distance trips begin. This will allow for more commuting trips from North Raleigh and northern Wake County to be on transit rather than driving. In the longer term, the planned Raleigh-Richmond rail connection will save an hour off the current trip, which also enables faster rail trips to Washington, D.C. and points beyond.

Transportation Electrification and Alternative Fuels

Emerging trends continue to show a shift to electric vehicles (EV) and alternative modes of transportation. Most charging of personal EVs happens at home, and public charging availability is also important to support travelers, commuters, fleets, multi-family residential EV owners. Public chargers have the economic benefit of supporting small businesses by increasing customer foot traffic in vicinity to charging station access.



Graph 5: Hybrid and Electric Vehicle Registrations in Wake County. Source: NC Department of Transportation.

Raleigh and Wake County have among the highest levels of EV uptake in North Carolina, with only Orange and Chatham counties with more EVs per capita. As of March 2024, there were several hundred publicly available charging station ports in Raleigh, with hundreds more elsewhere in Wake County.

To reduce transportation-related emissions, the City of Raleigh is shifting our own vehicle, equipment and bus fleet to electric and alternative fuels, while also supporting opportunities for the private adoption of electrical vehicle infrastructure and clean fuels. Raleigh is also supporting the growth of community EV charging stations. An EV ordinance requiring a percentage of parking spaces in new development include the electrical infrastructure to support charging was approved by City Council this year. While the numbers of charging locations will naturally rise as electric vehicles become commonplace, government can assist in addressing equity gaps in charging access, such as in older apartments or on street parking, and for small and minority owned businesses who can increase customer foot traffic and time spent with nearby vehicle charging infrastructure. In addition to those efforts, City staff is developing a multifamily EV program to support installations at existing apartment buildings where residents currently do not have access to charging. Lastly, staff is developing an application for a multimillion-dollar federal grant that can support both community and fleet charging.

Go Raleigh's Transition to Electric and Renewable Natural Gas Buses

GoRaleigh serves the greater Raleigh community in partnership with the GoTriangle bus system which links colleges and universities, employment centers, medical facilities, dense residential areas, Raleigh-Durham International Airport and downtowns across the Triangle. Through the innovative Raleigh Water Bioenergy Project, the City supplies renewable natural gas to power much of its transit bus fleet, significantly reducing GHG emissions. The Raleigh Transit Authority has a goal to convert 75% of its fleet to renewable natural gas, and the remainder to other advanced technologies, including electric buses. Currently, GoRaleigh operates five electric buses with charging infrastructure for up to 14, planning to add 4 more in the next year.

Image 9: GoRaleigh has goals to convert their bus fleet to electric, renewable natural gas and other new technologies as they become available. Conversion efforts to date have significantly reduced greenhouse gas emissions.

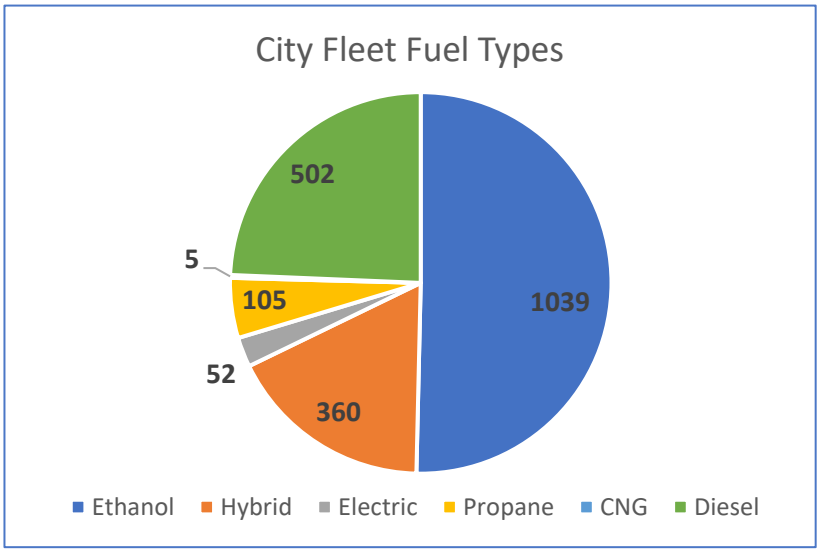
In addition to the five electric buses, GoRaleigh has converted most of its fleet to run on Compressed Natural Gas (CNG). Currently, 76 buses run on CNG, with another 17 expected in the coming year. CNG buses create dramatically fewer emissions compared to diesel buses – emissions from the current 76 CNG buses is the equivalent to just one diesel bus. The fleet is now 70% zero or low emissions vehicles. The emissions savings will grow as these buses start to use the fuel created from the City's Bioenergy Recovery Project. GoRaleigh also added 12 EV charging stations at its new park and ride facility at Poole Road. Similar plans are under way for the park and ride lot at the end of the future New Bern BRT line.

Renewable Natural Gas from Raleigh's Wastewater will Fuel our Transit Buses

As Raleigh's population expands, so does the volume of wastewater treated by the Raleigh Water department, serving over 600,000 people. Through the Bio-energy Recovery Project, community waste will be converted into Renewable Natural Gas via advanced anaerobic digestion. This process will yield methane-rich biogas, offsetting natural gas used for GoRaleigh buses. Not only does this curb methane emissions, a potent greenhouse gas, but it also eliminates the need for external natural gas sources to power buses. This project, the first of its kind in the US and slated for completion in late 2024, marks a significant step forward in sustainable wastewater management and transportation fuel innovation.

Transforming the City of Raleigh's Vehicle Fleet

The City of Raleigh Vehicle Fleet Services (VFS) was recently ranked as the #1 government vehicle fleet in the US by Government Fleet magazine. This award recognizes the top fleets for efficiency, modernity, metrics, community leadership, future visioning, and overcoming challenges. Raleigh's VFS manages a fleet of over 2,500 rolling vehicles, and Raleigh has already been leading the way by transitioning a large portion of the fleet to clean alternative fuel vehicles over in recent years as technology became available.



Graph 6: City of Raleigh's vehicle fleet grouped by fuel type. Source: City of Raleigh Vehicle Fleet Services

A major milestone in the transition to cleaner vehicles involved the creation of the renewable propane facility, located across from the Central Operations Facility on Westinghouse Boulevard. The facility opened in Fall 2023, with a ribbon cutting ceremony including the unveiling of a clean energy-themed mural. Further efforts to cut GHG emissions include implementing a new fuel management system for improved monitoring and ongoing enhancements to vehicle tracking technology. The City received an award in 2024 for its effective use of the Geotab fleet tracking system.

The Office of Sustainability and Vehicle Fleet are spearheading Raleigh's Electric Vehicle Implementation Rollout Strategy to advance electric vehicle technology. This plan, building on the Transportation Electrification Study, will detail the City's 10-year transition to an electric fleet. It will assess EV adoption opportunities, costs, charging infrastructure needs, and software requirements, prioritizing equity and public charging accessibility. Additionally, it will explore alternative fuel options for heavy-duty vehicles and quantify associated GHG emission reductions from vehicle replacements.

City Anti-Idling Program

The City is developing an anti-idling program designed to discourage unnecessary idling in City fleet vehicles. In some cases, some idling is a reasonable part of conducting daily activities. In others, it is possible to shut off the engine when it is not needed. Modern vehicles use very little fuel when starting, meaning that it makes sense to shut of the engine for even very short periods of rest. The program will include training for heavy fleet users on the benefits of avoiding unnecessary idling, which include reducing GHG emissions and saving the City money.

City of Raleigh New Electric Vehicle Shared Motor Pool

The City's motor pool provides vehicles for staff members to schedule use of a car and provides a very visible opportunity to expose and educate staff on driving and experiencing an electric vehicle. Currently, there are three shared motor pool locations with a mix of EVs, hybrids, and non-hybrid vehicles. A fourth location is planned at the Central Operations Facility on Westinghouse Boulevard. In line with Raleigh's fleet transformation to electric, electric motor pool vehicles are being piloted, with plans to expand to various park-and-ride charging locations across the city. The first EV motor pool system was recently installed at Raleigh Water's Lake Woodard Drive location, equipped with a transformer capable of powering 6 chargers and accommodating 12 parking spots for future EV fleet expansion.

Image 10: The City of Raleigh's first electric vehicle motor pool system was recently installed for use by City staff.

Electrifying Raleigh Park's Community Vehicles and Lawn Equipment

Image 11: We're Plugged in! Raleigh Parks showcases their electric maintenance equipment at the 2023 Earth Day celebration.

Parks, Recreation, and Cultural Resources (PRCR), Sustainability, and Vehicle Fleet Services have partnered to work on transitioning lawn equipment to electric, as well as vehicles that serve the community. PRCR has piloted and transitioned various electric maintenance equipment to electric power, reducing fuel consumption, maintenance costs, noise pollution, the chance of fuel spills and enhanced air quality and the experience of residents enjoying the park system.

Parks aims to convert 80% of small maintenance equipment to electric, with about 30% already electric as of 2023, and growing. Additionally, Parks operates 2 EVs and multiple hybrid vehicles.

Raleigh's EV Ready Playbook Setting Standards for North Carolina

The City of Raleigh is leading North Carolina by partnering with Advanced Energy to create an EV Ready Playbook that launched in 2023 and provides guidance across the State and beyond. This playbook provides information for all stakeholders (residents, developers, businesses) on best practices for EV infrastructure- including guidance on codes and permitting, signage, ADA accessibility, installation, hardware and software considerations and much more. This Playbook is also designed so that other local governments and organizations across NC can adapt it for their own communities, further supporting the growth of EV infrastructure and the EV market.

Raleigh Installing Movable Solar-Powered EV Charging Stations

The city has set up two portable solar-powered EV charging stations from Beam Global. These units can charge two vehicles simultaneously and have a battery that retains a charge even on cloudy days. Currently placed at Anderson Point Park and Brier Creek Park, they may be relocated occasionally for wider access. At this time, the public can use these chargers for at no cost.

The solar chargers can double as emergency power sources during severe weather. They can also be positioned in areas lacking EV charging infrastructure, saving costs on electrical site work and guiding future charging priorities. Alongside two existing chargers, the city will acquire a third Beam Global unit and a trailer using federal grant funds.

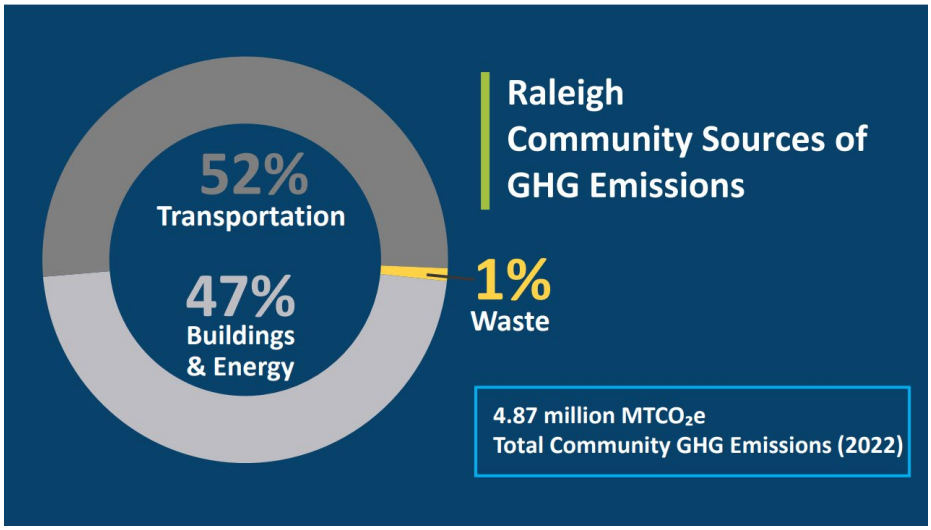
Image 12: Raleigh has rolled out its first set of Beam chargers! These chargers use energy from the sun to power the city's electric motor fleet.

Climate Resilience & Cross-cutting Strategies

Resilience is the ability of our community to bounce back from stressors such as climate change impacts, economic, environmental and health related issues, and the growing pressures of development and growth. Preparedness for weather and climate-related emergencies is key to addressing both resilience and equity. Raleigh is already feeling the impacts of climate change, and those that contribute the least to greenhouse gas emissions are often those that are most affected by climate impacts. We are experiencing the effects of more frequent and stronger hurricanes, increased rainfall and flooding, more frequent heat waves and more extreme temperatures.

The strategies in this section aim to help prepare Raleigh's community for climate related impacts and address GHG emissions from waste. One percent of Raleigh's community GHG emissions are generated from the breakdown of wastes in the landfill. In addition to resilience, the cross-cutting strategies of climate equity, innovation, education and outreach and funding for climate action are applied in the implementation of strategies in all sections of this report (ranging from Buildings and Energy; Transportation and Land Use; and Resilience and Cross Cutting sections), and further examples of these cross-cutting areas are reported in this section.

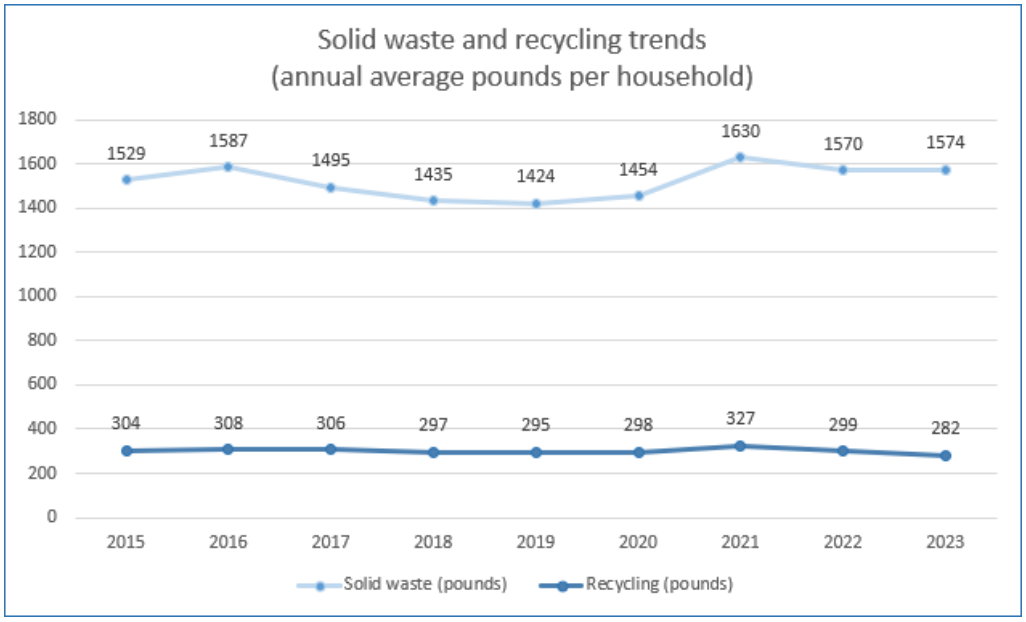
There are four strategy areas in the Resilience and Cross-cutting Strategies chapter and a further four cross-cutting strategy areas. For more specific actions in these categories, review Raleigh's Community Climate Action Plan, Chapter 7.



1. **Waste Reduction and Diversion**: includes measures to improve recycling practices among Raleigh residents and expand composting and yard waste programs.
2. **Community Resilience**: includes measures to address climate and non-climate stressors that affect Raleigh
3. **Green Infrastructure**: includes strategies to limit development in flood-prone areas of Raleigh and expand the uptake natural stormwater absorbing technologies like green stormwater infrastructure.
4. **Preservation and Green Space**: include measures preserve natural landscape features which absorb flood waters and provide protection from extreme heat.
5. **Cross-cutting strategies**:
    a. Equity: promotes equitable implementation of all climate strategies
    b. Funding: encourages seeking diverse funding sources for climate action
    c. Innovation: encourages the adoption of new technologies for climate action.
    d. Education and Outreach: encourages engagement with Raleigh's communities on climate awareness, climate action, and City climate initiatives.

Waste Reduction and Efficiency

Waste and the processes of managing and moving the various streams of waste all produce greenhouse gas emissions. CCAP includes strategies to address waste, including Raleigh Water's Bioenergy Recovery Project that will turn wastewater into a biogas, which will be used to fuel a large portion of the transit bus fleet (See the Transportation section above for more details). Additional waste reduction strategies include increasing recycling, reducing waste production, and increased composting to reduce GHG emissions from our landfills. For more information on the various waste reduction strategy programs the City offers, visit the Solid Waste Services (SWS) website; and stay tuned for various seasonal waste reduction education campaigns that are conducted year round (ie: recycling pumpkins, leaves and Christmas trees, reducing waste in holiday gift wrapping, etc). The Solid Waste Services Department works proactively to reduce waste and to increase recycling in Raleigh, while demonstrating a commitment to sustainability in all areas of the operations.



Graph 7: Household Waste and recycling trends. Raleigh's average household waste had been declining prior to 2020, when the COVID-19 pandemic shifted consumption patterns. Source: City of Raleigh Solid Waste Services, 2024

Green Yard Waste Carts

In July 2022, the City transitioned to Green Yard Waste Carts as the sole receptacle for curbside yard waste pickup. In the year following this change yard waste collection increased by 39%, from 12,919 to 17,947 tons. In addition to diverting waste from the landfill, the new yard waste carts support staff health and safety, plastics reduction, idling reduction, and yard waste collection efficiency and vehicle routing. In February 2024, the City expanded curbside yard waste collection by allowing residents to request a second cart, doubling pickup capacity to 190 gallons every 2 weeks.

Solid Waste Services converts yard waste into high-quality mulch and compost products, including organic compost, mulch, leaf mulch, and wood chips, available to the community. Using these products can improve soil conditions, improve plant establishment, increase water capture and reduce erosion. The City has enhanced its efficiency, processing, and operations in recent years to offer affordable, high-quality products. See the Raleigh Yard Waste Center Resources webpage for more details and information on how to use these products; and what is acceptable to drop off at the Yard Waste Center.

Image 13: City of Raleigh Yard Waste Carts

Raleigh Yard Waste Center Receives National Recognition

The US Composting Council awarded the Raleigh Yard Waste Center the 2023 Large-Scale Compost Manufacturer of the Year. This award honors commercial compost facilities producing over 10,000 tons annually, showcasing excellence in production and distribution. It celebrates the dedication of Raleigh's Yard Waste Center team and Solid Waste Services yard waste crews in diverting reusable debris from landfills. Annually, the Yard Waste Center produces approximately 50,000 cubic yards of organic compost, mulch, and dyed mulch from residential and commercial yard waste.

City of Raleigh Internal Waste Reduction Strategies

The City of Raleigh has undertaken several initiatives to reduce, eliminate or manage waste internally by making shifts in procurement and processes. Departments across the City are looking for creative ways to create less waste and send less to the landfill.

City of Raleigh freeFILL program: The Raleigh freeFILL program aims to reduce plastic water bottle use in Raleigh by highlighting more than 25 locations around the city that will allow people to fill their water bottle for free. Using a reusable water bottle and filling it with Raleigh's award-winning tap water can save a person hundreds of dollars every year, while replacing dozens of single-use bottles. The program was relaunched in 2023 after taking a pause due to health and safety concerns during the pandemic.

E-Waste Reduction in IT Department: The Information Technology (IT) team has shifted their procurement process for electronics used in City of Raleigh operations to no longer lease keyboards, mice, laptop cases, or adapters. Instead, departments will procure these items as needed, recognizing that existing devices often remain functional and do not require frequent replacement. By only replacing electronics when necessary, this will reduce e-waste at the source and contribute positively to the circular economy by fostering resource efficiency and minimizing the consumption of raw materials in manufacturing.

Damaged Sidewalk Concrete Being Diverted from Landfill: By switching sidewalk repair strategies, the Transportation Maintenance division diverted over 7,000 tons of concrete from the landfill in 2023. As a part of the Sidewalk Hazard Mitigation Program, trip hazards are now just cut out, rather than replacing a whole sidewalk panel.

Organics management RFP and selected company

The Solid Waste Services department (SWS) began a study in February 2024 to explore the possibility of establishing a food scrap compost program in Raleigh. The study, being completed by an environmental engineering firm, is working to identify suitable models for an organics recycling program including necessary infrastructure, community needs, and environmental impacts. The findings, anticipated to be ready in fall 2024, will include information on best practices, potential challenges, and innovative solutions specific to Raleigh so SWS can make an informed decision about moving forward with a food scrap compost program. By exploring sustainable waste management options, Raleigh is taking a proactive approach to reduce the environmental footprint, promote a circular economy, and contribute to a more resilient and eco-friendly community.

COR, Great Raleigh Cleanup, and Place at the Table Partnership

Image 14: In 2023, The Great Raleigh Cleanup hosted 73 cleanup events that removed 22,695 pounds of litter.

The City of Raleigh is partnering with The Great Raleigh Cleanup (TGRC) and A Place at the Table on a program, "The Workforce", where people experiencing homelessness are paid for their participation in beautification projects around the community. This program is important for making Raleigh a more beautiful place to live, work, and play while also supporting equity and resilience by creating education and engagement with the community.

During the pilot, the program employed 18 residents, who worked a total of 400 hours at a living-wage rate of $18/hour ($7,200 in wages). Participants removed 7,670 pounds of litter and returned 74 shopping carts. They said the program provided valuable support for them, including the ability to get daily essentials and supplies, temporary housing, job experience, the ability to access other support programs that required reporting proof-of-income, and a sense of pride and accomplishment.

In June 2024, Raleigh City Council approved the continuation of the pilot program. While the Workforce program doesn't provide housing to people experiencing homelessness directly, it's an important step in building closer relationships and trust with them, helping them connect to vital and immediate resources, building work experience for future opportunities, and providing a way to earn funds for day-to-day needs. City staff will also work with TGRC and A Place at the Table to identify opportunities to strengthen the Continuum of Care resources for people experiencing homelessness and create a "pathway" for people to access these resources, utilizing the strong relationship that A Place at the Table and TGRC have built with community members in need.

Community Resilience

Resilience is the ability of a community to 'bounce back' from a stress or emergency and resume normal life as quickly as possible. This involves adequate preparedness for emergency events, ensuring that infrastructure, housing and other buildings are not exposed to hazards and built to withstand them. City staff have been creating community partnerships, gathering data, sharing information and working to strengthen resilience in our community. Addressing climate equity is also a key part of resilience. The projects in this section integrate both resilience and equity by addressing those most impacted by climate change and economic, social, environmental, health and other stressors.

Raleigh Awarded $440,000 to Spend on Community Resilience

In October 2023, the City of Raleigh was the first city organization to be awarded a grant through the 15-year-old Environmental Literacy Program (ELP) by the National Oceanic and Atmospheric Administration (NOAA). The project, titled "Community Climate Education for a Resilient Raleigh" (CCERR) focuses on building Raleigh residents' climate resilience through education, engagement and resources. The CCERR project will benefit all Raleigh residents with increased resilience resources and educational opportunities. The City and its partners will particularly prioritize program participants who are vulnerable to extreme heat and/or flooding, socially vulnerable, or have Limited English Proficiency. The City of Raleigh's Office of Sustainability and Stormwater division have outlined the three activities which the grants funds will support and be working closely with community partners, county, state and federal agencies on this three-year project. The project kicked off in February 2024 with more than 40 project stakeholders brainstorming resources, connections, and ideas for the three activities. Read more about the three activities in the sections below.

Image 15: City Stormwater staff teach the 2024 cohort of the Walnut Creek Watershed Learning Network about green stormwater infrastructure.

Activity 1: Walnut Creek Watershed Learning Network to Empower the Local Community

Partners for Environmental Justice (PEJ) will host six cohorts (two in Spanish) of the already existing Walnut Creek Watershed Learning Network and three cohorts of a new Heat Island Learning Teams (one in Spanish) over the 3-year NOAA ELP grant where participants gain knowledge and skills to develop sustainable solutions and take action in their communities. In these six-to-eight-week courses, community members will be engaged about flooding and extreme heat, watershed management, environmental justice, civic engagement, and local government. These programs, which kicked off in summer 2024, are focused on education and empowerment for local residents, and allow opportunities for relationship building and information sharing between the City and key stakeholders. Each participant receives a stipend for meeting a participation threshold. Additionally, a Learning Network Community of Practice will be convened with other watershed learning networks across the Southeast, and best practices are being documented.

Activity 2: Ready Raleigh Emergency Preparedness Guide to Build Resilience and Prepare Residents

The City of Raleigh created the Ready Raleigh Emergency Preparedness Guide as a tool for communities to Be Connected, Be Prepared and Be Informed about potential emergencies and disasters that may impact the Raleigh area. As the second activity of the CCERR project, the existing Ready Raleigh guide is being printed and distributed to residents throughout the community. Ready Raleigh Emergency Preparedness meeting-in-a-box programs will also be developed, evaluated, and disseminated. The guide, available in English and Spanish, is focused on the household level and places a strong emphasis on building resilience to the impact of climate change and community level preparedness: connecting with and supporting friends and neighbors during emergency situations.

Activity 3: Resilience Planning at the Neighborhood Level

The third activity in the CCERR project is hosted by the NOAA Climate Adaptation Partnership (CAP) at the NC State Climate Office. Raleigh residents will be convened at the neighborhood level to discuss their vision for a resilient city and their community priorities, which will be documented and shared with City and County agencies.

Flood Early Warning System to Protect Residents

Raleigh's Flood Early Warning System, which was recognized at several national conferences in 2023 and a Cleantech Innovation Award finalist, helps protect the public from dangerous flooding by identifying and predicting locations of flooding as early as possible. Utilizing a network of creek elevation gauges, street sensors, flood cameras, and rainfall prediction networks, the system alerts Stormwater staff and emergency responders to potential flood risks across the city. With this information, Stormwater staff alert first-responders and other emergency personnel where flood risks are occurring or are about to occur so they can mobilize to help protect Raleigh residents. For instance, during a storm on December 17, 2023, staff provided ten hours' advance notice to City Management and Emergency Personnel. The Active Flood Control Program, in which the water level at Lake Johnson can be remotely lowered prior to storm events to allow capture of more upstream flow, also helps protect residents from the impacts of flooding.

Cool Roadway Tech is Addressing Urban Heat

In 2020 the City of Raleigh uses a pavement technology to mitigate urban heat islands, reduce GHG emissions and address water pollutant issues. Since 2020, a total of almost 40 lane miles of the cool pavement technology have been applied, with an anticipated additional 32 miles being added in 2024. As of 2024, these projects have eliminated about 437,000 metric tons of carbon dioxide. This innovative technology involves adding titanium dioxide to the asphalt rejuvenation process to create "Cool Pavement," so that when the pavement is exposed to sunlight, a chemical reaction that eliminates harmful pollutants is triggered. Treated roads show a 37% reduction in nitrogen oxides (a type of roadway pollutant) and an average 400% improvement in Solar Reflective Index over untreated roads.

Image 16: City of Raleigh has been keeping cool! Cool roadways installation, like the one above, help the City of Raleigh reduce the impact caused by the Urban Heat Island Effect.

Cool roadways are being deployed strategically, particularly along planned Bus Rapid Transit (BRT) corridors with high traffic. Utilizing a GIS mapping tool, areas in Raleigh affected by urban heat islands are prioritized for cool pavement application, addressing extreme heat impact zones. This approach results in approximately 375% improvement in urban heat island mitigation compared to untreated pavement.

Raleigh Recognized as a Leading Resilient City

Raleigh was ranked as the second most climate resilient city in 2023 by Architectural Digest. They considered population, elevation/projected sea level rise, extreme weather, a risk rank, readiness rank, air quality index, and clean energy ranking. In February 2024, the Milken Institute also ranked Raleigh as the #2 Sustainable Growth and Resilient Large City. This award highlights cities who are undergoing sustainable and equitable economic growth and developing resilience to natural and economic disasters. They rank cities on metrics associated with three categories: labor market performance, access to economic opportunities, and high-tech impact. These awards highlight how climate, community, and economic resilience are interconnected and all being lifted up in Raleigh.

Green Infrastructure

Expanding green infrastructure in Raleigh reduces the community's exposure to flood hazards and helps to mitigate extreme heat in areas that most intensely experience these impacts. Raleigh's stormwater management system includes traditional stormwater infrastructure to divert water out of occupied areas of our city and a growing portfolio of green stormwater infrastructure to absorb, retain and filter stormwater naturally. The City is also conducting studies on large watersheds in Raleigh with an equity lens to determine where the highest priority areas to strategically improve stormwater conditions for residents through programs like Stream Stabilization and Flood Hazard Mitigation Program.

Raleigh Rainwater Rewards

Raleigh Rainwater Rewards program offers reimbursement of up to 90% of the cost for homeowners, businesses, non-profits, and communities organizations to install green stormwater infrastructure (GSI), remove impervious surface or install rain cisterns and other GSI technologies. These projects have many environmental and aesthetic benefits. In 2023, 263 consults were completed via phone, email, and onsite visits, 37 projects totaling $529,449 were approved, and 31 projects were installed and began maintenance terms.

The Raleigh Rainwater Rewards Subsidy Program, funded by Raleigh City Council's designation of American Rescue Plan Act (ARPA) funds in 2022, offers a 100% funding opportunity for projects in disproportionately impacted communities, making GSI more accessible in these communities. Through this program, areas and residents most vulnerable to the impacts of climate change can improve their resiliency to flooding and water quality by installing and maintaining GSI that reduces and cleans stormwater runoff.

Image 17: Neighborhood rain garden funded by the Raleigh Rainwater Rewards Program.

New GSI Evaluation Policy

A new City of Raleigh Green Stormwater Infrastructure (GSI) Policy became effective in November 2023 that requires evaluating on City-led projects for GSI and promotes its installation to reduce stormwater runoff, improve water quality, and provide ecological benefits. Through collaboration between many departments across the City, the policy allows City projects to go above and beyond regulatory stormwater and development requirements to improve water quality. This policy also helps pave the way for more climate action policies in Raleigh.

Preservation and Green Space

CCAP supports open and natural space plans like tree planting, pollinator habitats, and parks acquisitions, which reduce urban heat islands, provide local food access, and increase physical and psychological resilience in our community. Trees create and define spaces; connect people to others and nature; and benefit the environment by consuming carbon, cooling the air, and collecting rainwater. Raleigh Parks is also implementing many projects funded by the 2022 Parks Bond to enhance equitable access to resilient parks and greenways citywide. These projects involve redeveloping community centers and parks, creating new walkable and bikeable connections, and enhancing park accessibility.

Tree Canopy Grant

Raleigh was awarded a $1,000,000 grant as part of the Inflation Reduction Act to plant, prune and remove hazardous trees in federally identified underserved areas in Raleigh over the next 5 years. Staff are working to finalize the contract and expect to start work in the summer of 2024. The information gained from the canopy assessment and Street Tree Equity project will help inform both process and prioritization for the expenditure of the grant funds.

Image 18: Trees in a City of Raleigh park. Urban trees provide GHG mitigation as well as shade and evapotranspiration to reduce the urban heat island effect.

Pollinator Habitat Protection and Expansion

Since joining BeeCity USA in 2017, Raleigh has been committed to conserving pollinators. Pollinators are keystone species in essentially every ecosystem on earth and touch our lives in numerous ways each day, including being responsible for approximately one third of all food and drink Declines in native pollinator populations globally pose a threat, with up to 40% of species at risk of extinction due to habitat loss, pesticide use, and climate change.

The City's Sustainability Office organizes efforts around pollinator habitat with partnerships across multiple departments and community partners. These efforts are highlighted during Pollinator Week each June, through a social media campaign aiming to share best practices and educate the community, volunteer events at parks to plant pollinator gardens, informational kiosks at parks and nature preserves, and participating in Moore Square's Farmer's Market to give away pollinator plant like milkweed. A new Pollinator Protection Program webpage was also launched as an educational resource in early 2024. The Parks, Recreation and Cultural Resources Department (PRCR) has ongoing programming to support pollinators throughout the parks and greenway trail system and has more than 30 sites participating in the Monarch Waystation program and 88 pollinator sites across the parks, nature preserves, and greenway trails in Raleigh. The Parks Maintenance staff also now plants over 4 acres of wildflowers as pollinator habitats along Raleigh's over 100 miles of greenway trails each year. The department follows strict integrated pest management policies and promotes pollinator health through landscape management practices including leaving the leaves, cut back timing, planting wildflower pots, and conducting pollinator best management for pesticide use.

Raleigh's Stormwater division, Raleigh Water, and the Raleigh Convention Center are all incorporating pollinator habitats and education into their practices and initiatives as well. In 2023, the Office of Sustainability held the second annual meeting of "The Wake County Swarm," a group a community partners focused on pollinator protection, such as area beekeepers, community gardens, and universities.

Tree Canopy Study

The results of the City of Raleigh and Wake County joint study to assess tree canopy cover for the Raleigh area were released in 2023. The study revealed that Raleigh's trees annually remove 2,171 tons of pollutants, sequester 81,693 tons of carbon, and capture 1.6 billion gallons of stormwater, equivalent to 2,418 Olympic-sized swimming pools! The tree canopy's overall value, estimated at $630.6 million, encompasses benefits such as carbon sequestration, shade, energy conservation, pollution removal, and stormwater mitigation. The study also provided insights into tree canopy health, distribution, changes between 2012 and 2020, and planting priorities based on community vulnerability. City staff are reviewing the data to inform future decisions and policies related to canopy management.

Raleigh Recognized for the Biophilia

Raleigh has been a Biophilic City since 2022, underscoring its dedication to the environment and climate change. Biophilic Cities around the world collaborate to recognize and conserve nature's value in urban settings, enhancing the lives of urban residents. Partner cities work together to conserve and celebrate nature in all its forms and the many important ways in which cities and their inhabitants benefit from biodiversity and wild urban spaces. Biophilic Cities acknowledges the importance of daily contact with nature as an element of a meaningful urban life, as well as the ethical responsibility that cities have to conserve global nature as shared habitat for non-human life and people. See Raleigh's Biophilic City webpage to learn more about how this designation supports continued climate action implementation by connecting urban spaces, nature and people with innovative design and ideas.

Street Tree Equity Project

Urban Forestry, within the Parks and Natural Resources Division of Raleigh Parks, will be planting 1,000 street trees over 3 years. To date, 700 trees have been planted, with the remaining 350 to be planted in January 2025. After surveying the distribution of street trees in Raleigh, the City's Urban Forestry team found that street trees were not equally or equitably distributed, with a particular lack of trees in Southeast Raleigh. Trees are being strategically planted in areas that would benefit most from the advantages of trees: cleaner air, reduced flooding, carbon dioxide absorption, shade, and lowered air conditioning costs. The Street Tree Equity project is lifting up those most impacted by climate change in Raleigh.

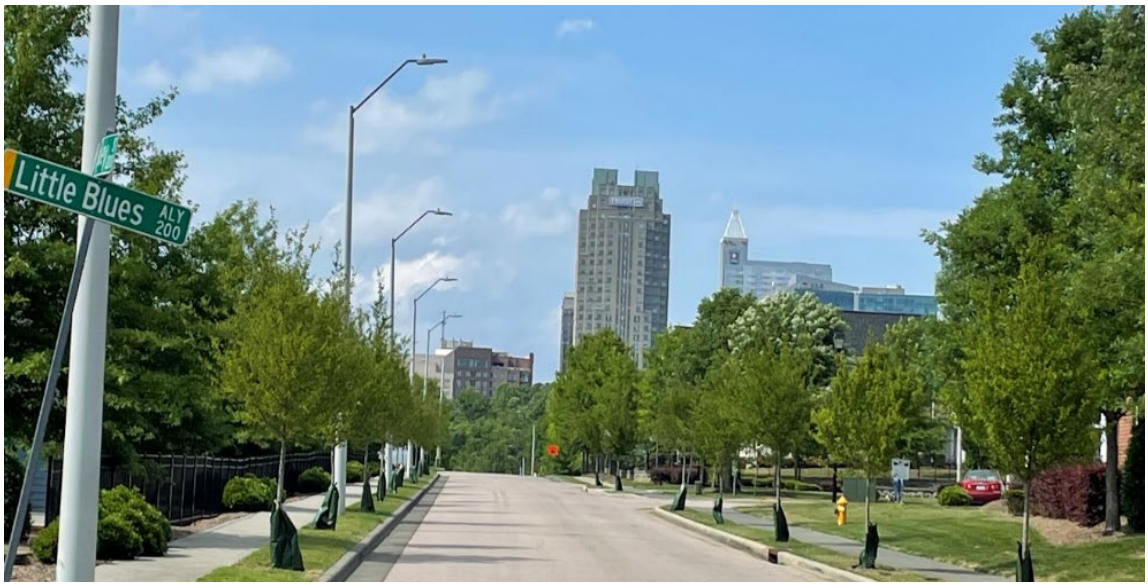


Image 19: Are street trees equitably and equally distributed in Raleigh? Urban Forestry Division of Parks Recreation and Cultural Resources found that there was not an equal and equitable distribution of street trees and a lack of street trees within Southeast Raleigh. Through the Street Tree Equity Program, the division seeks to rectify through planting 1,000 street trees within this area and have already planted about 750 trees!

Raleigh's Open Space Plan to Build the Community's Access to Parks

The City of Raleigh Open Space Plan, which was developed in 2020, includes criteria to prioritize park development and land acquisition opportunities, to identify areas of the city that are currently underserved and to identify those communities which, based on population growth and demographic factors, will benefit most from improved park access. These prioritization and evaluation criteria are organized into the following categories:

- Social Equity
- Economic Viability
- Environmental Protection
- Mitigation Potential
- Accessibility and Connectivity
- Development Potential

Climate Equity

Climate change impacts will be felt most strongly by those who contribute least to GHG emissions. Climate action is an opportunity to build a more equitable city for all our residents. CCAP includes a focus on equity to ensure that we prioritize our community members most vulnerable to climate change. An Equity Impact Matrix was created in CCAP to review the distribution of benefits and burdens of the CCAP strategies across the Raleigh. Examples of equity initiatives and projects are mentioned throughout this CCAP Implementation Report, as all projects should consider equity in their implementation. Below are a few additional examples of where the City is implementing projects to lead with equity.

Equity Budgeting Tool

The City of Raleigh created and piloted an equity budgeting tool in 2023 which will be further refined and embedded into the budgeting process for FY24. This tool ensures the city is prioritizing resources, services, infrastructure and programs that serve those in our community equitably. The Equity Impact Matrix from the CCAP is being used as a tool for this initiative which can help to align city projects to climate equity (to learn more about the Equity Impact Matrix see Chapter 3 in the Community Climate Action Plan. The City is continuing to use the tool for the FY25 budget process. Sustainability staff is reviewing similar efforts from other cities and may work with Budget staff to consider future enhancements.

City Selected for Bloomberg Sustainable Cities Grant

Raleigh was one of 25 cities in the US awarded a Bloomberg Philanthropies grant focusing on climate change strategies that also address the racial wealth. Recipients also receive a Bloomberg Philanthropies-funded innovation team with dedicated staff members with expertise in data analysis, human-centered design, and project management.

Specifically, the grant will focus on:

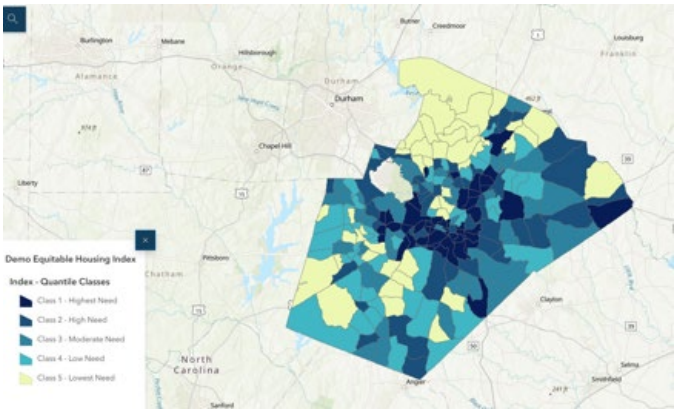
- Developing affordable, sustainable, and energy-efficient housing
- Increasing equitable access to electric vehicles and infrastructure
- Accelerating the transition and expanding access to clean energy
- Enhancing programs like the Impact Partner Grant and Small Business Toolkit to reach a diversity of entrepreneurs
- Funding new pilots with community-based organizations

Community Resilience Work Focuses on Equity

The NOAA grant mentioned above has a large equity component. The neighborhoods along Walnut Creek have a higher percentage of low-income households than Raleigh as a whole and also includes areas that are prone to flooding. The work will bolster community resilience to future climate-related events and to other future changes and challenges.

Environmental Justice Mapping Project

The City of Raleigh has begun developing a GIS mapping tool to identify areas of the city experiencing environmental injustice. On its own, this map will incorporate a variety of Raleigh-specific environmental and socioeconomic indicators that, when compiled together create a composite score for a region. The score will allow users to visualize the geographic distribution of environmental justice throughout the city. Additionally, this map will also serve as one component to the city's broader equity index mapping initiative, a project comprised of various subindices focused on, among other disciplines, housing, environmental justice, digital equity, and transportation.



Food Security, Community Gardens and Urban Farms

The City of Raleigh works closely with Wake County on food security. An update to the original 2017 Wake County Food Security Plan was released in 2023 after a thorough community engagement process and research-based analysis of similar models, titled "Moving Beyond Hunger: Creating a Resilient & Equitable Food System." The update does not replace the original plan but supports it by identifying eight mutually reinforcing food system investments totaling $7.2 million to support a more equitable and food secure county. These measurable strategies are aligned with the following key values: attention to root causes of hunger, racial equity, local economic development, community health, accessibility, climate change resilience, and community leadership. The City is currently undergoing a review process of the 2023 update to identify areas of alignment and further opportunities for alignment. The City's Parks, Recreation, and Cultural Resources department also partners with Wake County on providing summer meals and snacks to campers at Community Centers in qualifying geographic areas through the Summer Food Service program. Over 26,000 meals were provided in 2023, 4,000 more than in 2022. Six pop-up markets with fresh produce were also held at City of Raleigh Parks in partnership with Food Bank of Eastern NC, serving over 6,100 individuals and distributing nearly 64,000 pounds of fresh produce. The City is also a member of the Capital Area Food Network which is made up of various community partners and stakeholders working together on these issues.

Image 20: Food Bank of Eastern and Central NC weekly pop-up markets provide no cost food distribution to Raleigh residents. These pop-up markets have provided over 10,000 meals of fresh produce, dairy products, and protein to the Raleigh community. Image credit: Food Bank of Central and Eastern North Carolina

There are two City of Raleigh Strategic Plan initiative teams made up of City staff that are working on Food Security, Community Gardens and Urban Farms on private and public land. The Private Land team is identifying and addressing barriers for gardens and urban agriculture on private land. This team has updated and created an educational webpage to provide clear information for interested community members and to provide guidance on how to navigate the process to set up various types of community gardens and urban farms.

The Public Land team assessed suitable locations for public land gardens in 2023 based on factors like accessibility, the Wake County Vulnerability Index and community need. Five locations were identified as suitable for community gardens. SVHC 4.3, along with the Parks, Recreation, and Cultural Resources Department, is developing a community garden program. In fall 2023, an agreement with Inter-Faith Food Shuttle established the first community garden at Barwell Road Park. Inter-Faith Food Shuttle is guiding Raleigh Parks and community groups in setting up and sustaining gardens. By April 2024, the first garden was completed, and plans for a second at Eastgate Park are underway.

Funding

Climate Action Implementation Funding and Resources

The City of Raleigh Office of Sustainability works with City of Raleigh departments to identify opportunities to increase climate impacts with funding opportunities. In addition, the City also seeks funding through private foundations, professional associations, and other sources to perform or supplement climate work. The chart below includes recent and ongoing funding in support of climate action.

The following are just a few examples of projects and funding opportunities that the City pursues. Funding opportunities are continually evaluated for relevance and feasibility.

City of Raleigh Funding for Climate Action

Funding Source	Funding Amount	Program/Project	CCAP Alignment
American Rescue Plan Act City Council approved over $6.5 million in ARPA funds to be used on a portfolio of climate action projects in July of 2022.	$1.799 million	Solar projects for City facilities including the Northeast Remote Operations Center, Central Operations Facility, and other locations to be determined.	**Buildings and Energy** Renewable Energy
	$210,000	Solarize the Triangle Low-to-Middle Income (LMI) projects. Solarize Raleigh is part of the regional "Solarize the Triangle" campaign, a community-based group purchasing program to make renewable energy more accessible across the region. Funding will specifically support solar access for LMI residents as a part of the larger campaign.	**Buildings and Energy** Renewable Energy
	$600,000	This project will support the transition of Raleigh's City fleet to electric vehicles in accordance with the City's fleet replacement cycle.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels
	$400,000	This project will fund EV chargers and infrastructure in support of Raleigh's City fleet transitioning to electric vehicles. The funding will be used primarily for EV infrastructure for City fleet vehicles, but also includes EV infrastructure for publicly available EV parking at City facilities, and solar-powered EV charging infrastructure pilots.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels
	$3 million	Stormwater projects that address flooding and urban heat mitigation projects and to prioritize areas of Raleigh with the greatest need.	**Resilience and Cross-Cutting** Community Resilience Green Stormwater Infrastructure
	$500,000	To address food access with projects to make low cost, fresh produce available to underserved areas of Raleigh	**Resilience and Cross-Cutting** Community Resilience
2022 Parks Bond Parks bond referendum was passed by Raleigh voters in 2022	$275 million	Includes projects for equitable, resilient park and greenway access across Raleigh. Please refer to the Parks Bond website for information about all of the projects that were included.	**Resilience and Cross-Cutting** Preservation and Green Space
US Department of Transportation Federal Transit Administration (FTA) Low or No Emissions Vehicle (Low-No) Program	$2,030,000	The FTA Low-No program supports the transition of the nation's transit fleet to the lowest polluting and most energy efficient transit vehicles. The City utilizes this program to assist in funding the new clean technology transit buses, including the five new electric transit buses and the charging infrastructure.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels
North Carolina Clean Energy Technology Center Clean Fuels Advanced Technology (CFAT) grants support transportation-related	*$57,000 application submitted September 2022*	The City has applied for several CFAT grants over time, including to pilot clean technologies, and electric vehicle infrastructure replacements. The most recent application is for 15 propane upfit kits to transition various City fleet vehicles away from fossil fuels.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels VMT Reduction and Alternative Mobility

projects that reduce emissions in North Carolina's non-attainment and maintenance counties for National Ambient Air Quality Standards.			
North Carolina Department of Environmental Quality Volkswagen Settlement Funds are available from the EPA's lawsuit against VW for the installation of vehicle emissions cheat devices.	$852,153	These funds prioritize projects that significantly reduce GHG emissions and improve air quality. The City has successfully applied and received funding for the Parks electric bus and the Raleigh Trolley as well as $20,000 for new public electric vehicle charging infrastructure. Phase 1 funds were awarded in 2020 and Phase 2 funds were awarded in 2022.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels
Wake County Transit Plan Funded by a half-cent transit-designated sales tax that was approved by the Wake County voters in 2016.	Approximately $100,000,000 per year	Over the next 10 years, the Wake Transit Plan will triple countywide bus service, increase the number of routes running every 15 minutes or less and add bus rapid transit and commuter rail systems.	**Transportation and Land Use** VMT Reduction and Alternative Mobility
US Department of Transportation Congestion Mitigation and Air Quality Improvement Program (CMAQ) Funds to reduce emissions from transportation-related sources.	$2.4 million	The City of Raleigh has received approximately $2.4 million in CMAQ funds to capture additional intercity passenger rail trips between Raleigh and Charlotte. These funds will be used to partially subsidize parking at Union Station in order to attract more riders and reduce VMT. Union Station and the neighboring RUSBUS are served by GoRaleigh and is the home of the new Regional Bus Facility under construction by GoTriangle.	**Transportation and Land Use** VMT Reduction and Alternative Mobility
Department of Energy Energy Efficiency and Conservation Block Grant	$450,390	The funding will advance sustainable transportation through three activities: an income-qualified electric bicycle incentive program, a mobile public solar-powered EV charging station, and 30 EV chargers for the municipal fleet.	**Transportation and Land Use** Transportation Electrification and Alternative Fuels VMT Reduction and Alternative Mobility
Federal Highway Administration Safe Streets and Roads for All (SS4A) Grant Program	$1 million	Raleigh will hire an engineering firm to help develop a Vision Zero Comprehensive Safety Action plan with these funds.	**Transportation and Land Use** VMT Reduction and Alternative Mobility
National Oceanic and Atmospheric Administration Environmental Literacy Program Grant	$441,760	Community Climate Education for a Resilient Raleigh (CCERR) focuses on building Raleigh residents' climate resilience through education, engagement, and resources. The CCERR project will benefit all Raleigh residents with increased resilience resources and educational opportunities.	**Resilience and Cross-Cutting** Community Resilience Education and Outreach
Bloomberg Philanthropies American Sustainable Cities	Three "innovation team" staff for three years	The City of Raleigh will work with community partners to deliver climate-change solutions that close the racial wealth gap, address affordability and entrepreneurship, and build a more equitable and resilient community.	**Resilience and Cross-Cutting** Community Resilience
US Forest Service	$1 million	As part of the Inflation Reduction Act, the US Forest Service has awarded $1 million dollars to the City of Raleigh to support tree planting, urban	**Resilience and Cross-Cutting** Preservation and Green Space

Urban and Community Forest Grant		forest management and planning, and related activities, particularly in disadvantaged communities.	Green Stormwater Infrastructure
Environmental Protection Agency Community Change Grant (pending)	$12,489,995.36 *application in progress*	The City of Raleigh is applying for funding to increase climate resilience and equity in Southeast Raleigh. This application was created with support from the Bloomberg American Sustainable Cities program.	**Resilience and Cross-Cutting** Preservation and Green Space Green Stormwater Infrastructure
Federal Emergency Management Agency (FEMA) Hazard Mitigation Grants	Sought as needed for buyouts	These funds are used for the voluntary acquisition of flood prone properties. The properties are acquired and buildings are demolished returning the site to greenspace in perpetuity and deed restricted in accordance with all applicable federal, tribal, state, and local laws, regulations, floodplain standards, permit requirements and conditions as a means of mitigating against future flood damage and losses at these sites.	**Resilience and Cross-Cutting** Preservation and Green Space Green Stormwater Infrastructure

Innovation

Raleigh's Climate Action Fund is Funding Innovative Projects

The Climate Action Fund is a tool to help catalyze innovative pilot project ideas aimed at addressing the objectives in CCAP. This program provides small catalytic funding, and guidance from city staff leaders on how to implement the project with the CCAP objectives of equity, resilience and GHG mitigation as priorities. Over the years, various climate and sustainability related pilots and projects have been evaluated and funded. In 2023, those projects included:

- Neighborhood Climate Action Fund: This will provide funding for neighborhood-requested projects that provide a climate or resilience benefit.
- Clean Energy Mural: This provided funding for a mural (see above) at City's Vehicle Fleet facility off Westinghouse Boulevard, highlighting the City's commitment to green energy.

So far in 2024, funding has been allocated for the following in-progress projects:

- Anti-idling training: Idling of vehicles and equipment significantly contribute to greenhouse gas emissions. Anti-idle training for City employees will help to reduce excessive idling across City vehicles and equipment.
- Solar and sustainability features for the Durant Nature Preserve Boat House: This project will generate renewable energy and educate the community about sustainability. The project will take advantage of federal solar tax credits where possible.
- Pollinator outreach materials: The Community Integrated Mosquito Management Program will increase and protect biodiversity by reducing broadcast insecticide spraying in neighborhoods. Climate Action Fund money will be used to pay for materials to provide one year of outreach at six community events, ongoing presence at nature centers, and distribution to community partners, like Wake County Swarm, Raleigh City Farms, Bee-Loved Community Garden, and Interfaith Food Shuttle/COR community garden programs.
- Raleigh Rainwater Rewards: This program supports a wide range of water quality projects that not only improve the water quality of urban runoff but reduce flood risk by capturing the first flush (first 1" of a rain event). This funding will go towards a pilot to expand the "traditional" Rainwater Rewards program and break down barriers to participation that previously limited historically underserved communities that are also traditionally most impacted by climate change. This funding will increase coverage to 100% funding for eligible residents. Flooding and heat are two of Raleigh's biggest climate impacts, and expanding access to communities most vulnerable is a best practice climate action strategy that addresses equity and resilience. These projects are typically located near the impervious surface they treat, retaining this water runoff during the storm event, and mitigating volume on downstream properties.

Raleigh's CCAP Implementation Receives National Recognition

In April 2024 it was announced that the American Planning Association, the national organization for regional and urban planning, selected the City of Raleigh as the winner in the Community-Wide Award category for the 2024 APA Sustainable Communities Division Awards for Excellence in Sustainability. The City won for its 2023 Community Climate Action Implementation Report and continued measurable progress toward equitable climate change mitigation and resilience. The CCAP was one of the first local government community climate action plans in North Carolina and one of the first plans nationally to embed not only GHG reduction, but also equity, environmental justice, and community resilience.

Dix Park Sunflowers and Other Sustainability Features

Image 21: The annual planting of sunflowers at Dorothea Dix Park. In 2023, hundreds of thousands of sunflower seeds were planted by the City for the enjoyment and education of the community drawing crowds from across the region and beyond.

The City's Sustainability Office and Raleigh Water department collaborated to test a custom-built biofuels processor trailer at Raleigh Water's Neuse River Resource Recovery Facility. Sunflowers were planted on wastewater-irrigated fields to explore their potential as a biofuel source for farm equipment. Though successful, operational challenges prompted the biofuels processor to be repurposed for community education. This initiative led to a partnership with Parks, Recreation, and Cultural Resources to grow sunflowers at Dorothea Dix Park, offering easier community access and promoting sustainability awareness. The sunflowers are now celebrated across the community; and have become an iconic symbol of Raleigh, drawing thousands of people from near and far to gather together and enjoy nature. These sunflowers provide the opportunity to educate the community on the various benefits of pollinator habitat, as well as biofuel and many other sustainability and climate actions the city is taking.

Other in-development sustainability features at Dix Park include the installation of 10 EV parking spaces at the under-construction Play Plaza and rooftop solar at the Dix Chapel.

Raleigh Hosted 'Smart Cities' Conference

The Connected Triangle+ Summit, which Raleigh hosted in 2023, focused on how "smart cities" initiatives use data and analysis to address a range of community issues. The 2023 conference included a focus on climate change and equity, including a session specifically on creating a "sustainable smart region." The conference will return to Raleigh in May 2024.

Raleigh Receives Cleantech Awards

Raleigh received two awards in 2023 from the Research Triangle Cleantech Cluster, a group of local partners focused on technology-based approaches to clean energy and GHG reduction. As Raleigh and the region have long been leaders in technology-fueled economic growth, pairing that strength with a focus on sustainability offers the potential to unlock significant innovation.

Specifically, the City received or shared awards for two separate programs:

- Raleigh Water received a local government award for work in partnership with N.C. State on creating a predictive model for identifying sewer lines in need of repair or inspection.
- The Solarize the Triangle campaign, which included the City and 11 other local governments, received an award for the group purchasing and marketing campaign that has led to nearly 300 rooftop solar installations across the Triangle, including several dozen in Raleigh.

Image 22: Solarize the Triangle was recognized at the 2023 Cleantech Awards for its partnership and collaboration in increasing solar renewable energy to residential properties such as the one above.

Outreach, Education, and Partnerships

Partnership Raleigh Community Climate Internship program

The Partnership Raleigh Community Climate Intern Program is a partnership between the City of Raleigh Office of Sustainability, the Housing and Neighborhoods Partnership Raleigh Youth Employment Program, Bank of America Charitable Foundation and Verizon Workforce Development Initiative. In 2023, Bank of America awarded the City $40,000 for this program. This funding enabled 20 high school and college students to participate in an eight-to-ten-week hybrid internship program focused on reducing greenhouse gas emissions and supporting climate action in Raleigh.

Image 23: Partnership Raleigh Community Climate Internship Program connects high school and college students to City of Raleigh departments to help support the CCAP. Interns get hands on experience in local government and participate in biweekly professional development trainings.

The program prioritizes youth of color underrepresented in these fields, supporting youth development in the technical and professional skills that create opportunities for employment in the local community. It also provides interns with training and knowledge in fields such as stormwater engineering, civic engagement, data analysis, green and sustainable infrastructure, equity evaluations and increased knowledge of climate equity, sustainability and climate issues affecting the Raleigh community. With the support of the City of Oaks Foundation, a total of 37 interns have benefited from this program since its inception in 2021.

Climate Action Events

The City actively engages with the community through events and programs, often highlighting the CCAP through tabling, discussions, and panels focused on areas like energy, buildings, transportation, waste, equity, and resilience. The Office of Sustainability collaborates with all City departments to integrate climate action into public outreach materials. Despite its small team, Sustainability strives to enhance climate action outreach by integrating it into existing channels, both internally and externally, and developing tools for community members to educate their networks about the CCAP.

Recent outreach efforts include tabling at events such as the ribbon-cutting ceremony for the City fleet's renewable propane use; an open house focusing on sustainability, stormwater, and affordable housing; and a series of presentations on the Sustainable Business Toolkit attended by over 200 community members. Additionally, a flyer highlighting sustainability initiatives at Dix Park, from solar plans to EV charging to sustainable water management to attracting pollinators and celebrating Earth Day, was distributed at the Dix Park Project Summit. Moreover, in 2023, Sustainability was one of the first City departments to pilot and use the new Community Engagement Van to talk about CCAP to the community and created a toolkit of climate action resources for partners utilizing the van for community engagement.

Championing Raleigh's Environmental Stewards

Image 24: City of Raleigh is proud to showcase our environmental stewards! The 2023 Raleigh Environmental Awards showcased individuals and organizations in Raleigh that have implemented positive environmental change in or community.

The City's Office of Sustainability partners with the Environmental Advisory Board (EAB) to host the Annual Environmental Awards, honoring individuals and organizations in Raleigh for their environmental efforts and climate action supporting the CCAP. Worthy individuals, groups or projects are eligible for awards that reduce GHG emissions, build resilience and/or address climate equity; and include a focus on youth climate action, environmental justice, air and water quality, natural resources, transportation, waste energy, and land use. The City's Stormwater, Raleigh Water and Solid Waste Services Departments also partner and host awards that support climate action in their respective fields. A favorite event is the Trashion Fashion Show where winners model their winning fashion made of recycled materials. In 2023 and 2024, the Environmental Awards Ceremony have taken place at the annual Earth Day Event at Dix Park.

Youth Conservation Corps

In 2023, the City of Raleigh collaborated with the Conservation Corps of North Carolina (CCNC) to host the Youth Conservation Crew (YCC) summer program. This initiative offers Raleigh teens hands-on experience in conservation and career development. Continuing the legacy of the original 1930s Civilian Conservation Corps, the YCC nurtures future land stewards through downtown conservation projects and provides an opportunity for youth to meet professionals and learn about career opportunities in natural resources. Based at Walnut Creek Wetland Park, eight crew members engaged in various tasks across City parks and greenways, learning from and working alongside professionals in urban forestry, stormwater management, and invasive species control. The participants gained experience using specialized equipment while completing projects such as trimming low-hanging limbs from trails, clearing invasive plants, and removing litter from local streams.

Image 25: The 2023 Youth Conservation Corps allows participants to gain valuable hands-on experience in natural resource conservation.

Climate Action Outreach and Implementation through Partnerships

The Office of Sustainability collaborates with all City departments to communicate climate action efforts to the community and works with internal and external partners on various programs. Numerous partnerships and outreach initiatives are detailed in this report, spanning a wide range of climate action topics and involving diverse stakeholders at the local, national, and global levels. Below are a few examples of annual partnerships and programs:

CCAP Education and Outreach Partnership with Communications and City Departments: Sustainability partners with the Communications Department to educate City staff on how to embed climate messages into communications via webpages, social media, and other strategies. The Communications department has recognized sustainability as one of its priority topics for City-wide communications. In spring 2024, Sustainability and Communications partnered to share advice from Raleigh third-grade student Levi about how to live sustainably. Through a video and article series, Levi shared recommendations to walk, take the bus, and plant native plants in the campaign called "Can You Be as Sustainable as a Third Grader?"

***Collaboration with Human Resources to Promote Green Careers in the City*:** Sustainability is partnering with Human Resources to create educational resources about green careers in City government. The City has important roles sustainability-oriented roles in planning, transportation, solid waste services, engineering services housing and neighborhoods, and more that make significant strides toward the City's climate action goals.

Clean Energy Murals: Artist Max Dowdle created two murals at the City's Vehicle Fleet facility off Westinghouse Blvd., highlighting the City's commitment to green energy. The murals highlight renewable propane, a plant-based fuel from vegetable oils and other fats. Renewable propane produces far less greenhouse gas emissions than fossil fuels. These murals were funded by the Office of Sustainability's Climate Action Fund and were painted with the help of City staff and Community Climate Action Interns.

Image 26: Clean energy mural at the City's Vehicle Fleet facility off Westinghouse Boulevard. This mural showcases the City's continued priority of green energy.

***Sustainable Business Toolkit*:** Sustainability partnered with the City, State, and community partners to create the Sustainable Business Toolkit that provides free resources for businesses, non-profits, residents and organizations to become more sustainable, save money, be recognized for their sustainability work, and get involved in their community. The Toolkit resources cover a broad set of categories: energy and water conservation, waste reduction, stormwater funding, renewable energy programs, transportation reduction strategies and more. The City is also partnering with several organizations in Raleigh and the Triangle on engagement. In 2023, Sustainability presented the Sustainable Business Toolkit to six community partners, boards, and commissions, totaling over 200 individuals, and encouraged them to share with their own network.

Sustainable Neighborhood Toolkit: In 2024, the Office of Sustainability launched the Sustainable Neighborhood Toolkit to help individuals, neighborhoods, and communities become more sustainable. If you've ever wondered how you can contribute to climate action, then this Toolkit is for you! There are resources on solar permitting, recycling, sustainable commuting, funding for neighborhood level-sustainability projects, and more!

Building Safety Month: In recent years, Sustainability staff collaborated with Planning and Development for Building Safety Month in May. In 2023, they promoted the Ready Raleigh emergency preparedness guide on social media as part of the event. Moving forward, they plan to continue this partnership, emphasizing the links between building safety, energy efficiency, renewable energy options, and electric vehicle infrastructure.

Neighborhood Climate Action Fund: The City introduced the Neighborhood Climate Action Fund (NCAF) in 2024 to support Raleigh residents in implementing climate change-related projects benefiting their communities. Residents can apply for two funding levels: $250 and $1,000, with the latter requiring a 50% match in monetary or volunteer contributions. Example projects include electric vehicle charging stations, community gardens, pollinator gardens, neighborhood cleanups, tree plantings, native plants, neighborhood composts, LED lights, clothes swaps, Ready Raleigh emergency preparedness kit packing parties, neighborhood electric tool library, and compostable products for neighborhood events. The NCAF is run by the Housing and Neighborhoods Department and funded by the Office of Sustainability's Climate Action Fund.

Annual Earth Day Celebrations: The City of Raleigh has long been celebrating Earth Day with the community. In April 2023, several City departments collaborated to host an Earth Day celebration at Dix Park. At this event, the Office of Sustainability hosted the Environmental Awards program that recognized community members for their work in the sustainability and climate spaces. The celebration included a "touch a truck" activity where attendees could touch electric vehicles and lawn equipment, a passport game that educated participants on the City's climate action work, and education about Native American history.

Image 27: We love to celebrate our Earth! The City's annual Earth Day celebration highlights local environmental stewards through the environmental awards and hosts educational programs and booths.

Solid Waste Services Outreach and Education: Solid Waste Services is actively engaging the community through facility tours at key locations like Wilder's Grove, Sonoco (the city's recycling processor), and the Yard Waste Center. These tours aim to raise awareness about sustainability, recycling, and the importance of being responsible stewards. Tour participants gain insights into the recycling process and the journey of yard waste from pickup to processing, empowering them with knowledge to make informed decisions. These tours are inclusive, welcoming citizens of all ages and providing ample time for questions and answers, encouraging an open dialogue between staff members and participants. This interactive and educational approach aims to demystify the recycling and yard waste processes, empowering citizens to make informed decisions in their daily practices. Safety measures, including personal protective equipment, are provided during the recycling center visit, offering a hands-on experience to foster a deeper appreciation for the environmental impact of their actions.

The Solid Waste Services department encourages residents to take advantage of these tours to enhance their knowledge and become actively involved in sustainable practices. By fostering a sense of community responsibility, these tours contribute to creating a more environmentally conscious and engaged community.

Bee City USA and Pollinator Week: As a BeeCity USA member, Raleigh City staff and community members work to protect and preserve pollinator habitat. Each year, during Pollinator Week (mid-June), departments partner on programming, led by the Parks Department. Sustainability creates Raleigh's Annual Bee City USA report which highlights City- and community-wide efforts like green stormwater infrastructure installations, Neighborhood Enrichment Funds for pollinator gardens and beehives, and many other city and community projects and resources. In 2023, The City of Raleigh hosted about 20 pollinator-related outreach activities with over 100,000 total attendees. We created or enhanced 50 habitat projects in 2023, an about 500 people – staff, volunteers, students, and partners – helped with these projects. These projects spanned diverse environments, from vibrant flower gardens and lush orchards to meticulously curated native milkweed planting sites, designed to support crucial pollinator species like monarchs and bees.

For instance, the Dorothea Dix Park Sunflower planting is a huge draw across our region. Every year, the City plants five acres of sunflowers in a public space. Community members have access to the field and there is intense interest in the flowers and the unique fauna they attract. The site draws over 100,000 visitors each year and #dixparksunflowers on Instagram has thousands of photos captured in the field each year. The City includes educational signage throughout the sunflower field on the types of pollinator species, and the blooms receive high media coverage each year.

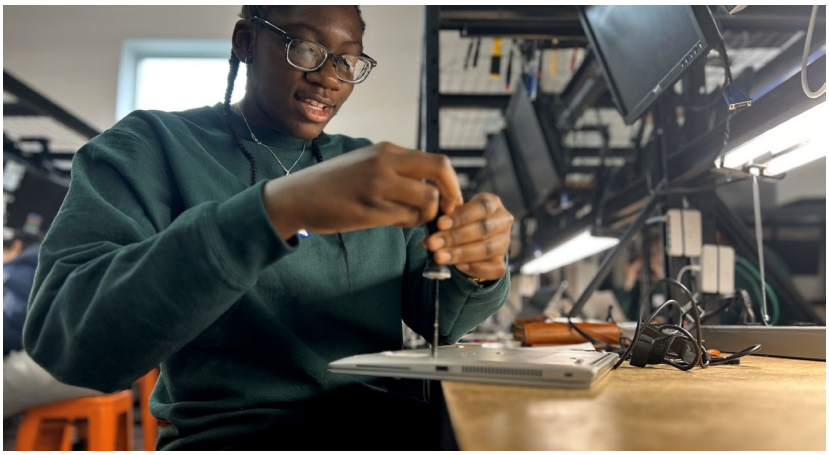
Commute Smart Ambassador Academy: The City launched this program in 2023 to engage teens in activities and lessons around transportation issues and topics so they can become ambassadors for their peers and encourage the use of alternate forms of transportation wherever possible. It is centered around transportation design, history, equity, and more. The first year of the program was a huge success, receiving positive feedback from students and parents.

Image 28: The first year of the Commute Smart Ambassador Academy was a success! Students in the program graduated with information about alternative types of transportation and how to be an ambassador for cleaner commuting, and a bike fitted just for them!

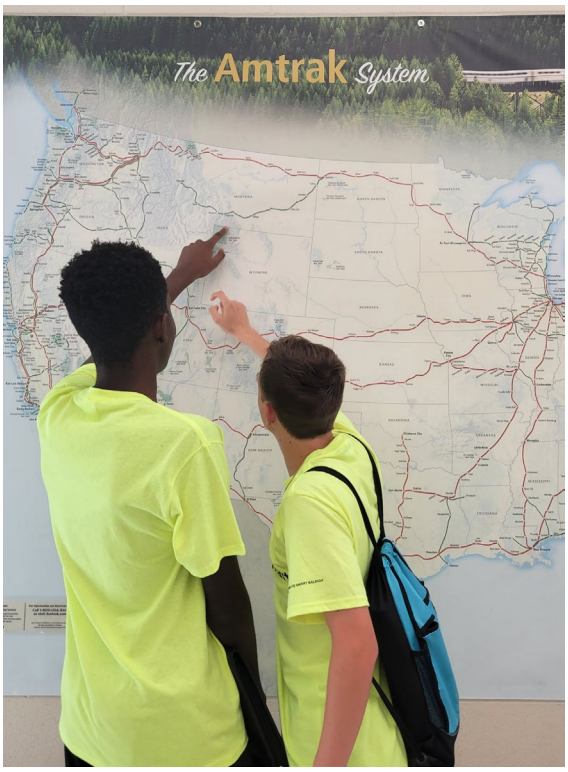
External Partnerships: The most vital part of implementing CCAP is the community taking collective action. Hundreds of organizations and individuals came together to create CCAP, and these partnerships continue to grow. City staff throughout all the departments partner with the community on various climate actions. Several examples of these partnerships are listed throughout this document. Here are just a few examples of our partnerships:

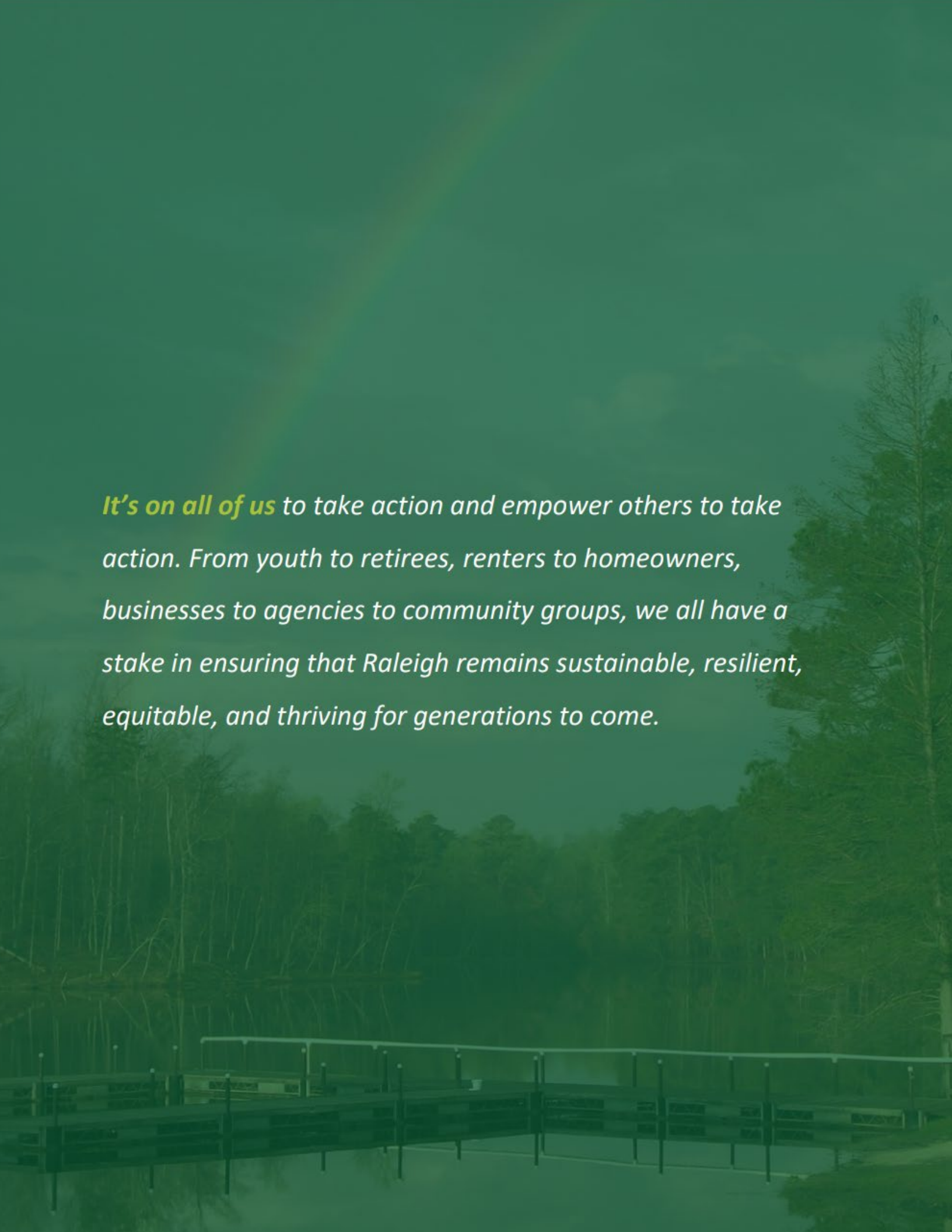
- Partners for Environmental Justice: Training community members on resilience and safety during heat and flooding events.
- North Carolina Sustainable Energy Association: Acquiring data on solar, electric vehicle charging, and energy efficiency in the community.
- North Carolina Clean Energy Fund: Developing clean energy finance models for reducing energy bills for low-income families.
- The Great Raleigh Cleanup: Employing residents experiencing homelessness to do beautification projects around Raleigh through the new partnership program called "The Workforce."
- Duke Energy and other groups: Sharing Duke's energy-saving programs like Duke Energy's Charger Prep Credit Program in the Sustainable Business Toolkit and at affordable housing open houses to help the community save on energy bills.
- Central Pines Regional Council (CPRC): Applying for federal Climate Pollution Reduction Grants.
- CRPC and Rebuilding Together of the Triangle: Developing a program to make solar more accessible for low-to-moderate income households.

CCAP is only successful if we all work together, demonstrate leadership, create opportunities for change, find ways to implement in our daily lives, and plan for the future. The City will continue to look to its partners across the region and beyond to implement climate action over time.




The Bird and Butterfly Garden
AT DURANT NATURE PARK
An educational project of
Raleigh Parks and Recreation Department
North Carolina Wildlife Nongame Program
Wake Audubon Society
and
area Garden Clubs


The Amtrak System



It's on all of us *to take action and empower others to take action. From youth to retirees, renters to homeowners, businesses to agencies to community groups, we all have a stake in ensuring that Raleigh remains sustainable, resilient, equitable, and thriving for generations to come.*

Raleigh's Community Climate Action Plan (CCAP) implementation and reporting will continue over time. Additional tracking metrics and community climate actions will be developed and reported out in future CCAP Annual Reports.

Please reach out to us if you have information you'd like to share related to community climate actions at Sustainable.Raleigh@raleighnc.gov