

Towards Resilience:



CHARLOTTESM



Strategic Energy
Action Plan

EXECUTIVE SUMMARY

December 2018

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Uptown Charlotte, North Carolina

FOREWORD

In February, the NBA All-Star game will be held here. In 2020 the Queen City will host its second major political convention. Our population is growing. Business is booming. We boast a world-class urban tree canopy. We are a welcoming and diverse city, that is resilient with beautiful community spaces, and where every person can thrive and prosper.

As a signatory to the Global Covenant of Mayors since 2015, the City of Charlotte has joined thousands of cities and regions in a commitment to accelerate ambitious, measurable climate and energy initiatives that lead to an inclusive, equitable, low-emission and climate resilient future; this will help us to meet and exceed the Paris Agreement objectives. Charlotte City Council, who voted unanimously on June 25, 2018 resolution to direct Charlotte down this low-carbon path, and city leadership are committed to achieving our community's aspirations.

As part of our commitment to the Global Covenant of Mayors, we are pleased to introduce the City's first Strategic Energy Action Plan (SEAP) that sets out a framework to guide Charlotte's transition to a low-carbon future. By implementing this plan, Charlotte will take advantage of a unique opportunity for growth. The SEAP provides solutions for reducing our carbon emissions but will also make Charlotte a more attractive place to live and work and be globally competitive.

Charlotte is approaching the approval of the SEAP, and the associated accomplishment of the aspirational 2030 internal goal outlined in the resolution, using a two phase approach. The SEAP focuses on community based efforts, though it includes some general recommendations about how the city might strive toward zero-carbon facilities and fleet. Internal operational efforts for the transition of Charlotte's government fleet and facilities are presented as an appendix to the SEAP. The appendix will contain implementation and cost information and data to support early actions recommended to move toward

the accomplishment of the internal aspirational goals. This information and data will be updated annually as the SEAP progresses.

Achieving a low-carbon future for Charlotte will require a transformational change in the way we consume and generate energy. We have set aggressive targets to achieve by 2030 and 2050. We know that this will be challenging and require new and innovative ideas, projects and collaborations. The City will provide the leadership and some of the resources, but it will take the entire community and collaborative partnerships to make Charlotte a sustainable and resilient community. It requires companies and organizations to look at their role in this, as well as citizens to look at how they are using energy each day.

The year of 2018 will go down in Charlotte history books as the year Charlotte became a globally recognized leader in resiliency. We are in the process of making an extraordinary effort to coordinate and connect a series of catalytic and integral strategies, laying a robust foundation for a resilient and sustainable future for Charlotte. This means that all our communities and neighborhoods are hubs for innovation where there is equitable access to green jobs and training, and where an atmosphere of entrepreneurship and inclusion are fostered.

Charlotte has a strong tradition of unparalleled public participation and engagement. This is not something the City of Charlotte can implement on our own – we need the community to collaborate with us and bring innovative projects and solutions to improve our neighborhoods and City and meet our targets. The City will build on the successful engagement that helped develop the SEAP, and we continue to work to engage all communities and citizens across the City as we implement the SEAP to achieve our targets. We understand the enormity of the challenge before Charlotte and the world, but together we can meet this challenge and succeed!



Vi Lyles
Mayor



Marcus Jones
City Manager

CHARLOTTE CITY COUNCIL



Julie Eiselt, Mayor Pro Tem



Dimple Tansen Ajmera, At-large



James Mitchell Jr., At-large



Braxton Winston, At-large



Larken Egleston, District 1



Dr. Justin Harlow, District 2



LaWana Mayfield, District 3



Gregory A. Phipps, District 4



Matt Newton, District 5



Tariq Bokhari, District 6



Edmund H. Driggs, District 7

Charlotte has a council-manager form of government with a mayor and 11 council members elected every two years in November, and a professional city manager to run the day-to-day operations. The mayor and four council members are elected at-large by a city-wide vote. Seven council members are elected from districts by voters who reside in each district.

The mayor and city council are the “board of directors” for this municipal corporation. As such, they set policy, approve the financing of all city operations and enact ordinances, resolutions and orders. Their responsibilities also include appointing the city manager, city attorney, city clerk and members of various boards and commissions.

Together, the mayor and city council members are responsible for establishing the general policies under which the city operates.

These include:

- Appointing the city manager, city attorney, city clerk and members of various boards and commissions enacting ordinances, resolutions and orders.
- Reviewing the annual budget, setting the tax rate and approving the financing of all city operations.
- Authorizing contracts on behalf of the city.

ACKNOWLEDGEMENTS

A body of work like a Strategic Energy Action Plan does not come together without a substantial amount of effort from many people over a long period of time. What started with a vision went through many iterations and changes to reach the final document before you. In addition to the people identified in the Credits, I would like to call out a few individuals who went above and beyond expectations.

Emily Yates, with Envision Charlotte, was the heart and soul of this project. The City partnered with Envision to produce the SEAP, but Emily was its constant champion, editor, and visionary. Without Emily's dedication and expertise, we would not have been successful.

Dr. Sebastian Carney has been identified as the technical expert on the SEAP, which he was, but his input went far beyond just the technical components. He shared his wisdom and experience with the team as well as strategic guidance. He also endured multiple course and scope changes as we worked through what was the right direction for Charlotte.

Finally, our internal team of Kim Eagle, Gina Shell, Erika Ruane and our newest team member, Katie Riddle, spent countless hours editing, strategizing, meeting, and envisioning the best course of action with multiple partners and stakeholders. Their dedication to this project and community has been humbling and instrumental to its success.

We have a lot of work left to do as we move into implementation, but we should all take a moment to appreciate how far we have come and the commitment we have made to a better quality of life for all Charlotteans.

Sincerely,



Rob Phocas
Sustainability Director
The City of Charlotte

The SEAP was developed in partnership with:



INTRODUCTION



Charlotte is a vibrant and growing city with over 40 people moving to the City each day. In 2015, the City of Charlotte committed to ensuring that the City continues to grow in a more sustainable and resilient way by joining the Global Covenant of Mayors (GCoM). Charlotte is now one of many cities around the world that is working to uphold the Paris Climate Agreement – an agreement to reduce greenhouse gas emissions to combat climate change and create a resilient future.

As part of their commitment, Charlotte has taken the necessary steps to produce this Strategic Energy Action Plan (SEAP). The SEAP is a guide for how Charlotte can deliver a low carbon and resilient future by 2050. Developed through extensive stakeholder engagement, the successful implementation of the recommended tasks and actions will rely upon extensive partnerships with corporations, utilities, communities, non-governmental organizations (NGOs), and universities both inside and outside of Charlotte.

Beyond the requirement to develop a SEAP to maintain compliance with the GCoM, Charlotte set ambitious targets and developed the SEAP. The City did this recognizing that to be a globally competitive city, there must be a strategy in place to grow more sustainably and resiliently. Through a more integrated and inclusive approach to urban growth, the SEAP will form one part of the City's broader resiliency strategy.

The SEAP focuses on three key pillars that align with the areas where Charlotte's emissions are highest and where there is the opportunity for drastic reduction in emissions: buildings, transportation, and energy generation. Innovation provides the foundation upon which these pillars sit. The recommended 11 Action Areas provide targeted guidance and are the backbone

of the SEAP.

The City of Charlotte and Envision Charlotte, a local non-partisan 501 c(3) organization focused on sustainability, worked in partnership to produce the SEAP to meet the City's commitment to the Global Covenant of Mayors. Commitment and leadership from the Mayor, City Manager, and City Council will ensure the success of the SEAP as it is implemented.

This Executive Summary provides a summary of the full SEAP. For a more detailed explanation of each section, please refer to the full document.

Charlotte's Vision for Sustainability and Resilience

A vision for sustainability and resilience has been produced for the City. This was produced in partnership with the community. The purpose of the vision was to provide a common goal under which sustainable and resilient projects can sit. This vision was developed across multiple workshops and culminated in the following:

"Charlotte will lead, as a global city, by continuously improving, protecting, and preserving the environment, its community, and economy, while ensuring equity and resilience - for today's and future generations."

This vision is intended to be used by all stakeholders in Charlotte when promoting their work and attracting funds for initiatives that they want to undertake.

As part of its commitment to the Global Covenant of

GREENHOUSE GAS EMISSIONS

Mayors, the City produced a greenhouse gas (GHG) emissions inventory. To do this, the City utilized the Global Protocol for Cities (GPC). The GPC is a global standard for estimating emissions at the city scale which is used to facilitate transparency and consistency among cities reporting their emissions. As part of the requirements of the GCoM, Charlotte reports its GHG baseline and will continue to submit annual updates to CDP (formerly known as the Carbon Disclosure Project).

Via an intense data collection process, the City developed its most granular GHG baseline yet. Setting the baseline year as 2015, because that was the year the most comprehensive and reliable data was available, it was determined Charlotte's GHG baseline was 12tCO₂ per capita. This covers emissions for the entire geographic area of the City of Charlotte.

To stay in line with Paris Climate Accord objectives, the City set a 2050 target of below 2tCO₂e per capita, and City Council approved the target via the 'Sustainable and Resilient Charlotte by 2050' Resolution.

There are two types of inventory available under the Global Protocol for Cities: BASIC and BASIC+. For Charlotte, a BASIC inventory was produced. As shown in Figure 1, Charlotte's waste emissions account for 4%. The other 96% are different types of energy, making it the biggest GHG emitter. Buildings, both residential and commercial, comprise approximately 48% of emissions in Charlotte. Industry and Construction account for 6% of total emissions, while transportation accounts for 40%. This chart supports the premise that tackling emissions in the building and transportation sector will make the greatest contributions to achieving the SEAP targets.

The City is using CO₂e, or carbon dioxide equivalent, as the standard unit for expressing its GHG emissions. The purpose of this is to express the impact of each greenhouse gas in terms of the amount of CO₂ that would create the same amount of global warming. Like the GPC, Charlotte is using CO₂e because it is a global standard and creates consistency among cities reporting their emissions.

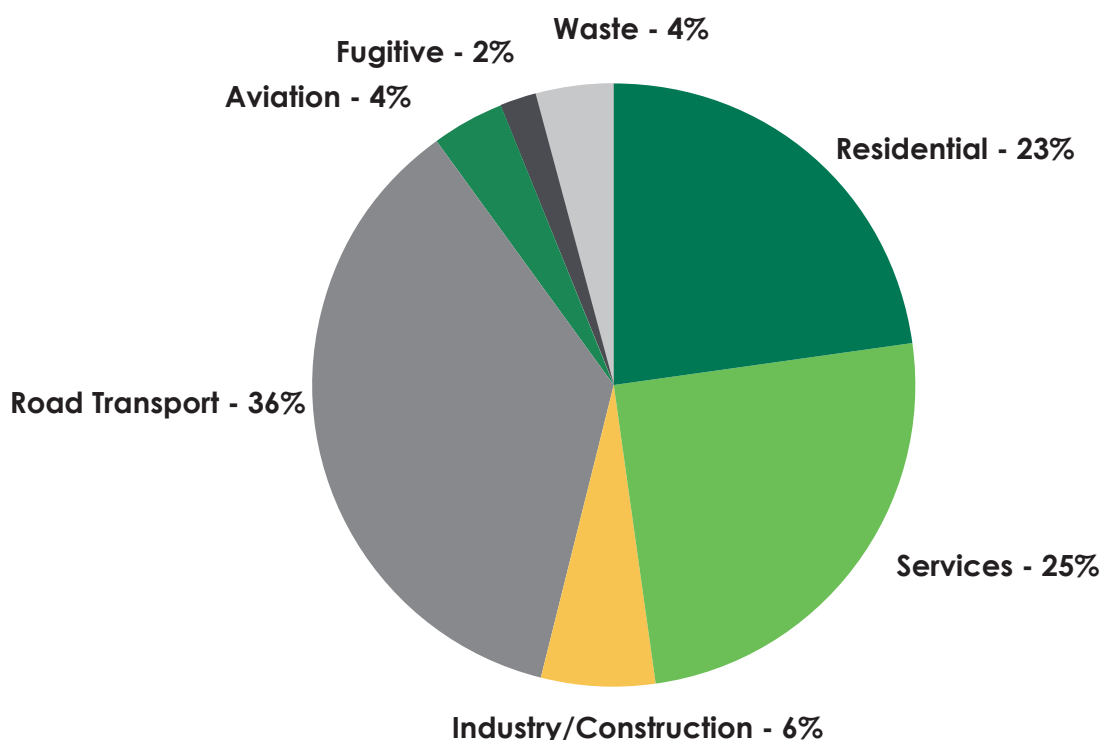


Figure 1: 2015 Baseline Greenhouse Gas Emissions for Charlotte, North Carolina

THE SUSTAINABLE AND RESILIENT CHARLOTTE BY 2050 RESOLUTION

In November 2017, Charlotte City Council considered a Clean Energy Resolution (CER) that would, among other items, commit the City to 100% renewable energy by 2050. City Council voted to send the resolution back to the City Council Environment Committee and asked that a new resolution be drafted that would be tailored to Charlotte, and have an action plan for how to achieve it. City staff worked in close partnership with stakeholders and drafted a new resolution that encompassed the City's commitment to the GCoM and broadened the target to a low carbon future, while also specifying that the SEAP would provide the action plan for achieving the goals. City staff presented the final resolution to City Council on June 25, 2018 and received widespread support from community stakeholders. Charlotte's City Council unanimously passed the resolution.

Charlotte's 'Sustainable and Resilient Resolution' provides targets that will allow the City to achieve a low carbon future. In the resolution, the City committed to striving to reduce emissions to less than 2tCO₂e by 2050. Another ambitious target in the Resolution

has the City strive to source 100% of its energy use in municipal buildings and fleet from zero carbon sources by 2030.

As the understanding of climate change and the resulting impacts continues to increase, the required emission reductions may need to go further. The SEAP provides a mechanism that can be used to deliver on the existing targets as well as stronger ones that may develop in the future.



Community members showing their support for the Sustainable and Resilient Charlotte by 2050 Resolution. Photo Credit: Michael Zytkow.



GRIP scenario session

A PLAN FOR ALL: FORMING AN ACTION PLAN

The SEAP is an ambitious, aggressive action plan for delivering a low carbon, resilient Charlotte. Achievement of the 2030 goals will be dependent on many factors, including technological advancements, operational compatibility and risk management, and the availability of appropriate resources and funding. For some segments of City fleet and facilities, achieving the goal may not be possible because operational and other concerns will outweigh or not allow for carbon reduction benefits. However, the City is committed to and will look for all opportunities to achieve the goal. While the plan has been developed by City government, and City government is responsible for leading its implementation, the SEAP is a citywide strategy intended to improve the quality of life for all citizens of Charlotte.

Charlotte is fortunate to have many community stakeholders that are actively engaged and knowledgeable in topics relevant to a resilient future. The recommendations set out in the SEAP's framework require collaboration with Mecklenburg County, the community, and other key stakeholders. Through the implementation of recommendations and biennial updates, the SEAP will align and support locally led efforts to deliver solutions that enable Charlotte to transition to a low carbon future. A key goal of the

SEAP is to enable and empower Charlotteans to make informed decisions regarding energy generation and consumption.

The SEAP process began with capacity building within city hall, and included staff across all departments. For the duration of the project, further engagement has occurred with staff and department heads. The project team also executed an extensive public engagement strategy, strongly supported by the City Council's Environment Committee. These sessions attracted large participation and were supplemented with independent bilateral meetings. Feedback from all stakeholders was encouraged throughout the process and the project team worked to incorporate that feedback where relevant.

In addition to the data collection and stakeholder engagement, it was necessary to understand what existing work had been completed that could be built upon or leveraged. A thorough review of existing and relevant City strategies and plans occurred, as well as in-person interviews and meetings. This helped provide a deeper understanding and facilitated identification of key points between strategies to create better cohesion.

DEVELOPMENT OF ACTION AREAS AND TASKS

The Action Areas are the outcome of many months of engagement. The Action Areas create an environment that allow for new ways of doing things so that the resolution's targets can be delivered. The Action Areas have been developed to be adaptable given the 32-year timeline of the SEAP. All Action Areas have been designed to create new workforce development opportunities and to support the City's efforts to increase equity and economic opportunity.

Figure 3 represents a visual guide to the 11 Action Areas and how they connect with each other to form a low carbon, resilient future for Charlotte. These recommended Action Areas will result in fundamental changes to how decisions are made in relation to investment within the City, most notably how the City approaches cost. It also requires a change in the way in which energy is thought about, particularly in understanding consumption patterns. Through the combination of structural change and physical projects, Charlotte will have a greater chance of successfully achieving the 2050 target.

5 Stages to Zero Carbon

The Five Stage Approach to Zero Carbon Energy is a logical and clearly described tool that can be applied to buildings or transportation. By following this tool, the City of Charlotte and its citizens are able to identify cost-effective and realistic paths to delivering the GHG reductions sought. It is a continuous approach and consists of the following five repeating stages.

Shifting Energy Demand

The biggest challenge to energy planning is ensuring peak demand is met. This challenge becomes more complex with high levels of intermittent renewables into the energy system, due to the production of electricity from intermittent renewables. This stage's goal is to shift when energy is demanded.

Reducing Energy Consumption

Reducing the amount of energy consumed is nearly always the most efficient way to meeting a zero carbon target. This is because the less energy required on the demand side, the less zero carbon energy that is required on the production side.

Changing the Energy We Consume

The types of energy we consume dictate emissions. Therefore, changing the type of energy consumed can lower emissions. This step does not have to be immediate; for example, the transition away from fossil fuel-based vehicles to electric vehicles can be started now and extend over many years.

Generating Energy Onsite

The generation of energy onsite includes heating, cooling, and electricity. Onsite generation may come from geothermal heat pumps or solar thermal. It may also include heating and cooling produced by a boiler or an onsite combined cooling, heating, and power (CCHP)¹ system running on zero carbon energy. Then, there is solar PV and wind, which may all be supplemented by storage opportunities. These options each reduce reliance on the grid.

Procure the Rest

When steps have been taken on each of the above stages, the remaining energy should be purchased from zero carbon sources – in the form of a tariff from a utility. This is meant to be the last resort when the other four options are not sufficient.

¹ Combined cooling, heat, and power (CCHP), also known as tri-generation, is an extension of combined heat & power (CHP). While CHP only generates electricity and heat, CCHP adds cooling to the list, which means some of the heat that is produced is also used to generate cooling energy.



Figure 2: 5 Stages to Zero Carbon Energy Diagram

The 11 Action Areas are the outcome of many months of engagement. The purpose of the Action Areas is to create an environment that allows for new ways of doing things so that the Resolution's targets can be delivered. The Action Areas have been developed to be adaptable given the 32-year timeline of the SEAP. All Action Areas have been designed to create new workforce development opportunities and to support the City's efforts to increase equity and economic opportunity.

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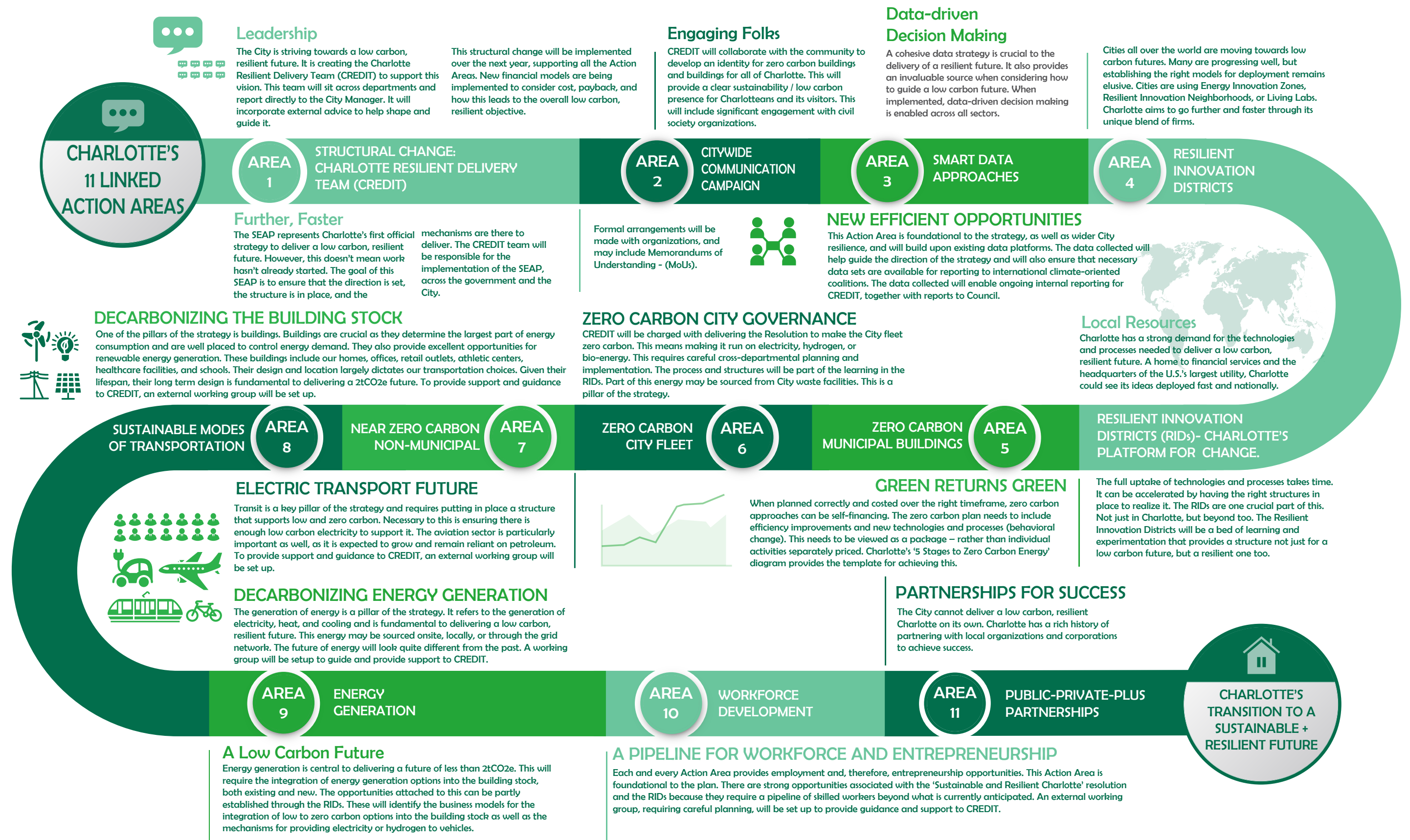


Figure 3: Charlotte's 11 Linked Action Areas

KEY RECOMMENDATIONS FROM THE SEAP

There are 11 recommended Action Areas that address opportunities for the greatest reduction in GHG emissions for Charlotte. Critical to successful implementation, the following two Action Areas can be seen as the key infrastructure for implementing many of the other recommended Action Areas and tasks.

The Charlotte Resilient Delivery Team (CREDIT)

For Charlotte's transition to a low carbon future to be successful, it is essential to create supporting roles within the City to facilitate this process and establish long-term programs. A lot of effort is required of the utility, businesses, community, and universities, but a fully-fledged transition to a low carbon future is not

likely to happen on its own without initial leadership and guidance from the City government.

A new team will be assembled and implemented within the City. It will be called CREDIT and will drive implementation of the SEAP. CREDIT's initial focus will be on solidifying key partnerships, encouraging structural change, catalyzing high-impact projects, and driving broad scale stakeholder engagement. As the success of their work increases, the groups' responsibilities and scopes have the capacity to grow over time.

Within CREDIT, it has been recommended to appoint both a Team Leader and an Energy Ambassador to guide the assembly of the team and drive the SEAP



Marshall Park in Uptown Charlotte



Uptown Charlotte at dusk

forward. The Team Leader is ultimately responsible for overseeing and implementing the SEAP, while the Energy Ambassador will work closely with the Team Leader to drive forward projects and have a strong knowledge base within the energy sector.

Resilient Innovation Districts

A resilient city is one that can deal with shocks and stresses. Shocks may include climatic events such as floods, or it could be the disappearance of an industry upon which the city is highly dependent. Stresses are issues that weaken a city and include income inequality, high unemployment, and energy poverty. Ensuring resilience at various scales (city, district, community, neighborhood) requires stakeholder engagement to produce greater understanding of these vulnerabilities.

Resilient Innovation Districts (RIDs) are areas that can facilitate this better understanding of vulnerabilities by acting as “testing grounds” for new technologies and pilot projects that maximize economic advantage and speed up the innovation process. There should be RIDs located in different areas of Charlotte that will integrate the three pillars, allowing the City to address

economic mobility. The RIDs will produce proven low carbon, resilient business models and will look to overcome obstacles while promoting energy efficient projects, new developments, and job creation. This will enable emissions to be reduced, City exports to be increased, and resiliency to be promoted. The proposed Resilient Innovation Districts are a combination of Energy Innovation Zones, Resilient Innovation Neighborhoods, and the Smart District concept.



Bridge in Freedom Park

CHARLOTTE SEAP DELIVERY STRUCTURE

The graphic below demonstrates the overall structure of the SEAP, which is based upon three pillars: buildings, transportation, and energy generation. The first two pillars can be broken into two parts: government owned and non-government owned. These pillars sit upon a foundation of workforce development and innovation, with each of these representing a working group. As the sole group responsible for overseeing the success of the SEAP, the CREDIT team will sit beneath all of these groups to shape, learn, and guide the SEAP's implementation. With the Resilient Innovation Districts being the implementation mechanism for many of the resulting SEAP projects, it naturally sits above each of these pillars, combining them. Engagement of stakeholders and communities will be required to ensure a strong focus on equity as the projects and SEAP are implemented. The outcomes of these will be delivered through various partnerships, both within and beyond Charlotte.

The buildings working groups will look at all new and existing buildings. They will develop strategies to use less energy, shift when peak energy is needed to allow for more zero carbon energy on the grid, increase on-site generation, and increase other zero carbon sources. The group will use the 5 Stages to Zero Carbon to guide and explain their work.

The transportation working groups will look at road, rail, and air transportation. The two groups will do this

in different ways; the group focused on government owned transit will explore how to transition the City's vehicle fleet to zero carbon by 2030, while the non-government group will focus on how to facilitate the rapid uptake of sustainable modes of transportation. Transportation is a significant source of emissions and offers major opportunities for reductions. The groups will focus heavily on road transportation and infrastructure provision, and will also need to utilize the '5 Stages to Zero Carbon' diagram to guide and explain their work.

The generation working group will look at the production of electricity, heating, and cooling. It will develop strategies needed to create a low carbon future, which will include new technologies and processes. This will also include new business models that will be tested in the Resilient Innovation Districts, and like the other groups, they will need to use the '5 Stages to Zero Carbon' diagram to guide and explain their work.

The workforce development working group will underpin each of these by developing a strategy to ensure that there is access to jobs and training, creating a workforce pipeline that is available to the three pillars. The group will be driven by an equity mandate to ensure access and distribution of jobs across all Charlotte communities, and will promote entrepreneurship and new models to achieve it.

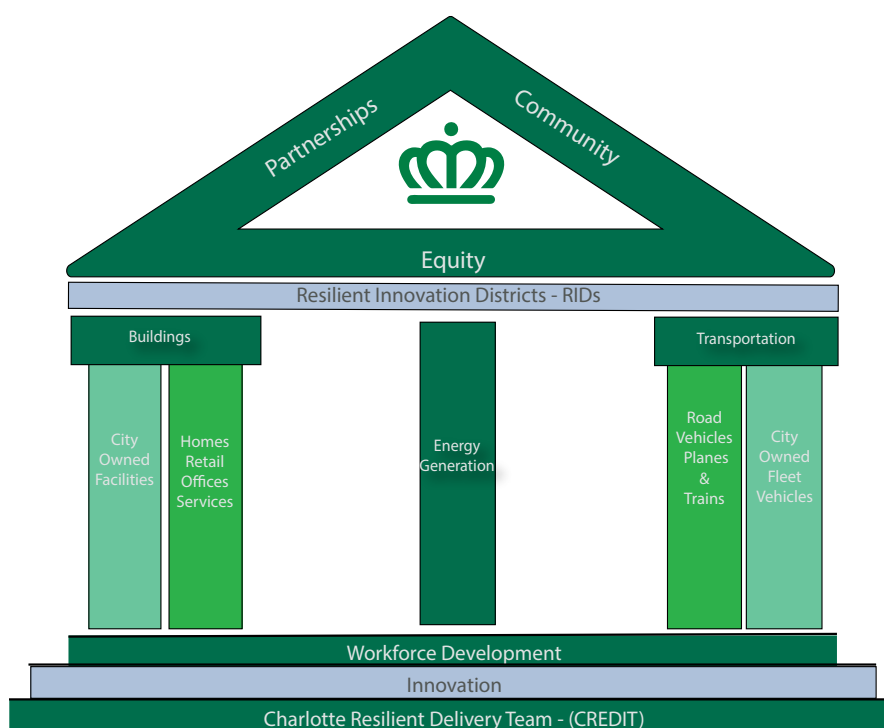


Figure 4: A graphic representation of the Charlotte SEAP Delivery Structure

STAKEHOLDER ENGAGEMENT

This strategy was developed through extensive stakeholder engagement; there have been formal engagements in the form of public meetings, external advisory group meetings, GRIP scenario sessions, internal stakeholder meetings, and informal meetings where project team members have had one-on-one sessions with community stakeholders, advocates, and City staff and leadership.

To ensure success of this plan, collaboration with organizations, community members, and advocacy groups already engaged in zero carbon efforts and programs will need to increase. The local knowledge and enthusiasm of the wide range of community and advocacy groups in Charlotte needs to be leveraged through catalytic partnerships and collaboration.

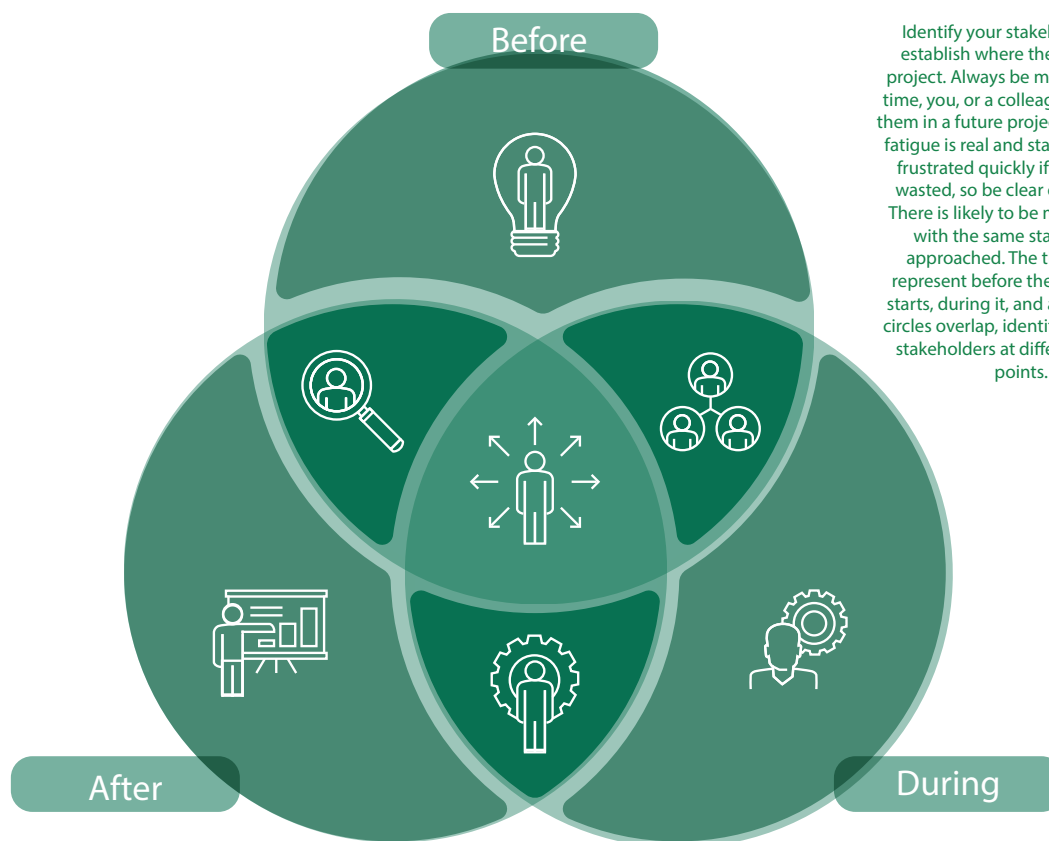
The City sees and understands the great opportunity for extensive stakeholder engagement during the SEAP's implementation, which will enable many community organizations to be involved. To ensure success of the SEAP, collaboration is necessary. CREDIT will be guiding the stakeholder engagement and will utilize the Figure 5 to help address the challenges around effectively and authentically engaging stakeholders within processes, especially the SEAP. The Stakeholder Engagement Tool is there to support mapping out when and how stakeholders will be engaged in advance of a project.



GRIP scenario sessions

GUIDE

Identify your stakeholders and establish where they fit in your project. Always be mindful of their time, you, or a colleague, may need them in a future project. Stakeholder fatigue is real and stakeholders get frustrated quickly if their time is wasted, so be clear on their role. There is likely to be many projects with the same stakeholders approached. The three circles represent before the project fully starts, during it, and at its end. The circles overlap, identifying different stakeholders at different project points.



Key



Initiators

These Stakeholders have the idea and get the project running. They may also be funders of the project.



Shapers

These Stakeholders are usually gatekeepers to resources, the project may need to be shaped to gain their buy-in.



Reviewers

These Stakeholders review the interim and final results of the project. This is done at key points and certainly before publication.



Recipients

This is the most common category of Stakeholders because they receive the results. If this is the main focus of the project it will likely fail.



Advisory

These Stakeholders are involved at every stage of the project and provide guidance. They are often members of an advisory group.



Informants

These Stakeholders provide inputs to the project. This may be in the form of data, knowledge, or time. This may be via email, phone, workshops or bilateral meetings.



Foundational

These Stakeholders are possibly the most important. They are the people that are represented by those above.



Reflectors

These Stakeholders provide feedback on the project. This can then be taken into the next project. This reflection is important to leadership.

Adapted from Carney et al



Figure 5: Charlotte Stakeholder Engagement tool, adapted from Carney et al.

ACTION AREAS + TASKS

INTERNAL ACTION AREAS

ACTION AREA 1: STRUCTURAL CHANGE

- Task 1: Set Up Internal City Resilience Delivery Team (CREDIT)
- Task 2: Setting the CREDIT Programmatic Agenda in FY20
- Task 3: Set Up Internal Revolving Fund Mechanism
- Task 4: Develop strategy for stakeholder group engagement in FY20
- Task 5: Hold a Meeting of Content Expert Advisory Group (CEAG) and Internal Working Group

ACTION AREA 2: INITIATE A CITYWIDE COMMUNICATION CAMPAIGN TOWARDS A LOW CARBON FUTURE

- Task 1: Form a Branding Team in FY20
- Task 2: Create a Striking Visual for Zero Carbon Buildings and Vehicles in FY20
- Task 3: Finalize Full Website Development in FY20

ACTION AREA 3: DEVELOP SMART DATA APPROACHES

- Task 1: Through CREDIT, Develop a Smart Data Implementation Plan in FY22
- Task 2: Internalize Long Term Vision for Energy in FY20
- Task 3: Standardize Data-based Decision Making into Practice in 2021
- Task 4: Annually Monitor and Submit Emissions Inventory and Questionnaire to CDP
- Task 5: Timeline and Measuring Progress

ACTION AREA 4: DEVELOP AND IMPLEMENT RESILIENT INNOVATION DISTRICTS (RIDS)

- Task 1: Formalize the Concept of a Resilient Innovation District Through Dialogue with all Relevant Stakeholders and in Line with The Comprehensive Plan Process in FY21
- Task 2: Implement a Set of Criteria that will Guide the Selection and Development of Resilient Innovation Districts in FY22

ACTION AREA 5*: STRIVE TOWARD 100% ZERO CARBON MUNICIPAL BUILDINGS BY 2030

- Task 1: Revise the Policy for Sustainable Facilities to align with the Sustainable and Resilient Charlotte Resolution in FY20
- Task 2: Identify Specific Building Targets for Action in FY20
- Task 3: Focus on specific projects in FY21

ACTION AREA 6*: STRIVE TOWARD 100% ZERO CARBON CITY FLEET BY 2030

- Task 1: Update the Fleet and Motorized Equipment Asset Management Policy in FY20
- Task 2: Begin installation of a telematics system across the City's entire vehicle fleet in FY21
- Task 3: Establish the Staggered Introduction of Electric and Other Alternative Fuel Vehicles
- Task 4: Consider Opportunities for Retrofitting of Vehicles to Electric Drivetrain in FY21

**Achieving zero carbon fleet and facilities by 2030 is an aspirational and ambitious goal for the City organization. Achievement of the 2030 goals will be dependent on many factors, including technological advancements, operational compatibility and risk management, and the availability of appropriate resources and funding. For some segments of City fleet and facilities, achieving the goal may not be possible because operational and other concerns will outweigh or not allow for carbon reduction benefits. However, the City is committed to and will look for all opportunities to achieve the goal.*

COMMUNITY ACTION AREAS

ACTION AREA 7: NEAR ZERO CARBON NON-MUNICIPAL BUILDINGS BY 2050

Task 1: Form a Building Working Group in FY21

Task 2: Make Existing Residential Buildings Low Carbon by 2050

Task 3: Influence the Energy Requirements of New Residential Buildings to be Near-Zero Carbon by 2050

Task 4: Make existing non-residential buildings low carbon by 2050

Task 5: Make New Non-Residential Buildings Low Carbon by 2050

ACTION AREA 8: FACILITATE RAPID UPTAKE OF SUSTAINABLE MODES OF TRANSPORTATION

Task 1: Form a Transportation Working Group in FY19

Task 2: Develop a Promotion and Awareness Campaign Around Electric Vehicles (EVs)

Task 3: Deploy a Citywide EV Charging System for Charlotte by 2030

Task 4: Increase Access to Zero Carbon Mobility Options

Task 5: Continue to Integrate Transportation Orientated Development (TOD) Policies into Land Use Policy Frameworks, Namely the Comprehensive Plan and UDO Update

ACTION AREA 9: DEVELOP AND IMPLEMENT STRATEGY FOR DEPLOYING LOW CARBON INFRASTRUCTURE GENERATION

Task 1: Form an Energy Generation Working Group Focused on Near-Zero Carbon For Buildings in FY19

Task 2: Develop a Suite of Educational Tools that can be Utilized Throughout the City in FY22

Task 3: Demonstrate New and Integrated

Approaches to Meeting Energy Demand in 2022

Task 4: Reduce the Carbon Intensity of Grid Supplied Electricity by at Least 90% by 2045

Task 5: Target a carbon intensity on the grid of at least 90% per kWh by 2045

Task 6: Identify Opportunities for a Bioenergy with Carbon Capture and Storage (BECCS) Combined Heat and Power (CHP) Unit by 2030

Task 7: Negotiate to Develop Tariffs for Low Carbon Electricity in 2022 and Identify a Period for their Rollout by 2030

ACTION AREA 10: DEVELOP GREEN WORKFORCE PIPELINE IN SUPPORT OF ENERGY TRANSITION

Task 1: Form a Working Group for Workforce Development and Equity in FY19

Task 2: Establish and Produce the Training Pipeline for Skilled Labor Jobs and Entrepreneurship Opportunities in FY22

ACTION AREA 11: ESTABLISH PUBLIC-PRIVATE-PLUS PARTNERSHIPS TO ACCELERATE TRANSITION TO A LOW CARBON FUTURE

Task 1: Identify, Build, and Formalize Relevant Partnerships in FY20 and FY21



Sign of other Charlottes at The Green in Uptown

NEXT STEPS

The SEAP is a long-term action plan with a 32-year implementation timeline with Action Areas, tasks, recommendations, targets, and projects that span this period. For the first two years, the key focus will be on implementing immediate-term (1-2 years) structural changes and internal projects within City government. This will include implementing 'Legacy Projects' that can be showcased at the Republican National Convention as a demonstration of Charlotte's leadership within this space. The following three years will be focused on delivering short-term (3-5 years) projects that include larger scale infrastructure projects that have been teed up by these key structural changes. The medium-term (5-12 years) will see the implementation and completion of projects that will deliver on the 2030 GHG reduction target of reaching 7tCO₂e and City target for sourcing 100% zero carbon energy for municipal buildings and transportation. The longer-term (12-32 years) will see a multipronged approach that includes working to scale up pilot projects and accelerate impact, and implementing larger scale infrastructure projects. As the projects are being implemented, they will be continuously monitored by CREDIT to ensure an equitable approach is taken.

The SEAP has been designated a "living document" due to its long-term target of 2050 and knowing that there will be technology advances, new research findings, and inevitable changes in government policies within this period. This will require an initial biennial review with the CREDIT team leading this review, identifying known risks or issues, and providing solutions in collaboration with stakeholders.

This Executive Summary is simply an overview document to help interested stakeholders understand Charlotte's ambitious and aggressive approach to reducing greenhouse gas emissions – how it was created, why it is necessary, and what steps will be taken to address the problems. For a more detailed plan, please visit: charlottenc.gov. This website provides more detailed information and status updates regarding CREDIT's implementation efforts.

The City is committed to providing transparent progress updates citywide, as well as work to communicate our success to cities nationally and globally to share what has been learned. Charlotte is committed to providing a low carbon resilient future for all of its citizens.



Caption: Romare Bearden Park in Uptown Charlotte.

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This report is a synopsis of the work conducted and does not necessarily reflect the views of any individual consulted.

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