

Center for American Progress



Making Charlotte a Climate-Ready and Just City

By Miranda Peterson

August 2017

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Introduction

When President Donald Trump announced his decision in June 2017 to withdraw the United States from the Paris Agreement, Mayor Jennifer Roberts of Charlotte, North Carolina, quickly responded, saying, “Climate change is an issue that affects us all, and we do not have time to wait for a new administration.”¹ Volumes of scientific evidence show more extreme heat, drought, wildfires, storms, and floods bearing down on Charlotte’s future.² Charlotte has made great gains over the past 15 years to address air pollution and extreme weather risk by expanding public transit, tree canopy, and energy and water efficiency solutions. However, without deliberate efforts to build resilience, damage from climate events will challenge Charlotte’s ability to manage and sustain its rapid growth as well as its ability to bridge the drastic divide between rich and poor.

Charlotte’s expanding prosperity and good quality of life have long remained out of reach for historically disadvantaged communities. Extreme weather exasperates existing environmental injustices and barriers to low-income residents’ economic mobility by putting extra stress on resident’s health, safety, and wallets. Costly damage from storms or dangerous heat waves can force families living paycheck to paycheck to choose between putting food on the table or buying medicine and fixing a roof or turning on an air conditioner. At present, climate change risks outpace the city’s urban planning and equity efforts as well as the business community’s efforts to transition to a global low-carbon economy. A vacuum of environmental and civil rights leadership in the federal government compels action from cities, states, and businesses to prevent the worst effects of climate change. Charlotte, too, must take action in order to protect its community.

Charlotte needs a comprehensive climate action strategy that includes climate change science and focuses on reducing carbon pollution and building residents’ preparedness and resilience to extreme weather shocks, with particular focus on the city’s communities of color and working-class neighborhoods.

Mayor Roberts, City Manager Marcus Jones, and the City Council will benefit from collaboration with community members to build on existing successes and create and pass a far-reaching and inclusive plan that will give all Charlotte communities a fair shot at thriving in the 21st century. Charlotte officials, hand in hand with a socially-minded citizenry that is energized to bridge the city's enduring divides, can mitigate loss of life and property from extreme weather events; address social and environmental justice concerns; and sustain the city's substantial growth.

To these ends, the Center for American Progress recommends the following actions:

- Create and carry out an equitable and measurable climate action strategy
- Effectively engage and empower communities to raise awareness of climate change threats as well as shape priorities and effective solutions at all stages of plan development and implementation
- Assess working-class communities' vulnerability and resilience to climate change and assess resilience strategies for equity
- Reduce working-class communities' heat risk through cooling centers and spraygrounds
- Improve access to solar and wind energy
- Expand access to safe and affordable active transit
- Promote energy efficiency in homes and businesses
- Expand green infrastructure to reduce flooding; provide cooler, cleaner air; and feed people
- Make corporate social responsibility through deep decarbonization and natural resource conservation core to the Charlotte business community's mission

By taking these actions, Charlotte city leaders and community members can create a springboard to a climate-ready and thriving future.

Rapid growth and access to prosperity leaves some longtime Charlotte residents behind

With a population of more than 827,000 people, Charlotte is the second-fastest-growing large city in the nation. The city adds new residents at a rate of 44 people per day, and the metropolitan region is ranked 14th nationally for economic output.³ The city is home to the largest U.S. utility, Duke Energy Corporation, and the second-largest U.S. banking sector, with both Bank of America headquarters and Wells Fargo corporate offices.⁴ This robust downtown business district greatly contributes to the state and region's economic growth and affluence. In addition to the city's economic output, Charlotte's thick tree canopy projects an image of good environmental and public health. "People really love their trees in Charlotte. We don't have an ocean or mountains, so the trees are really characteristic to Charlotte," says Shannon Binns, founder of Sustain Charlotte, the city's only urban planning advocacy organization.⁵ Over the past decade, Charlotte has been awarded numerous accolades as one of the top places to live in the United States and is considered a well-managed city.⁶ Mayor Roberts, who was inaugurated in December 2015, and Jones, who joined the city's leadership in October 2016, seek to manage and sustain this growth and prosperity and balance it with the city's environmental image.⁷

Per a Brookings Institution comparison of the 100 biggest metro areas, as the Charlotte-Concord-Gastonia region has grown, it also shot up 44 and 52 spots to 20th and 46th place in the prosperity and economic inclusion rankings, respectively, when comparing 2005 and 2015 data with 2010 and 2015 data.⁸ While these are critical trends that city leaders and the business community should take pride in, these changes mask historical barriers to opportunity within Charlotte society.

According to the most recent data from 2015, nearly 17 percent of Charlotteans live in poverty—a 3 percent growth since 2010—with residents of color comprising a disproportionate share of the city's impoverished populace.⁹ While many similarly sized U.S. cities have long struggled with entrenched racial segregation

and intergenerational poverty, social injustice is not a footnote in the history books for Charlotte. A 2014 Harvard and University of California, Berkeley study of economic mobility placed the city last out of the 50 biggest U.S. cities.¹⁰ A Charlotte child who was not born in the city's predominantly white and affluent "southern wedge" area had the worst chances of escaping poverty compared with a child from any other large urban area.¹¹

Rapid growth exasperates inequality for many residents

As more people have moved to Charlotte attracted by high-skill jobs and low cost of living, they have pushed into low-income neighborhoods close to downtown. According to the University of Virginia, between 1990 and 2012, the number of college-educated people living close to the city center increased by 32 percent. By contrast, more than 25 percent of Mecklenburg County residents living in poverty did not finish high school. This trend is reflected in many of Charlotte's central Uptown communities, such as the historically African American neighborhood of Cherry.¹² Increased competition for housing has sparked more development and higher prices for rent and other services, displacing many longtime residents into other neighborhoods or out of the city of Charlotte altogether.

As of 2014, the housing burden—or the percentage of household income spent on mortgages or rent—of white residents was 19 percent lower than that of black residents, whose housing burden was almost 57 percent of their income.¹³ Generally, white residents comprise 50 percent of the city's population, and black residents comprise 35 percent, showing the imbalance of Charlotte's affluence.¹⁴

Per a National Low Income Housing Coalition report, residents of Mecklenburg County—which is 80 percent Charlotteans—would need to work 40 hours per week at almost \$16 per hour in order to afford rent for a two-bedroom apartment.¹⁵ However, only about half of all people of color in Charlotte earn that wage or higher, compared with 82 percent of white residents.¹⁶ In Charlotte, the most basic living wage to support a family of three is \$23 per hour. A 2016 report on the state of poverty in Charlotte made numerous references to residents' struggle to pay for housing, utilities, healthy food, and health care.¹⁷

Charlotte's efforts to support economic equity and racial justice are unlikely to receive support from the conservative state or federal government. In 2016, the state Legislature passed a law prohibiting attempts by municipalities to raise the minimum wage.¹⁸ Though the measure was repealed in 2017, any efforts to raise

the state's minimum wage above \$7.25 per hour are widely believed to fail while conservative control of the state Legislature remains.¹⁹ The state Legislature has also passed voting restrictions, which the U.S. Supreme Court determined were unconstitutional in their deliberate attempt to disenfranchise black voters.²⁰ Additionally, the Trump administration has recommended historic cuts to the social safety net and the U.S. Environmental Protection Agency (EPA) as well as proposed the closing of numerous federal offices devoted to civil rights, including the EPA's environmental justice office.²¹ These actions have been met with either support or silence from the Trump administration's allies in Congress.

Families in Charlotte continue to face great difficulties affording necessities as well as saving enough money to deal with emergencies, which bodes ill for people's ability to grapple with costly extreme weather damage and disruption.

In Charlotte, health disparity reflects racial and economic disparity

Charlotte's affluent communities have greater access to a clean environment and good health compared with the city's working class communities. The North Carolina Department of Health and Human Services found notable racial and economic disparities in asthma levels and hospitalizations throughout the state.²² Poor quality housing exposes residents to unsafe indoor air quality due to factors such as mold or asbestos. The continued concentration of communities of color and working-class neighborhoods near traffic corridors and industrial complexes exposes them to higher levels of air pollutants such as ozone and fine particular pollution. The National Lung Association's 2017 State of the Air report gave Mecklenburg County an "F" grade for ozone pollution.²³ According to Dave Cable of TreesCharlotte, a tree-planting and forest conservation organization, a lack of trees in some working-class areas exacerbates air pollution issues.²⁴

While no coal-fired power plants are located within the city of Charlotte, communities that live on the city-county border are more likely to be exposed to dangerous levels of pollutants from nearby coal and industrial plants due to cross winds.

Charlotte cannot compel neighboring municipalities to address regional air pollution and haze. Though to help residents receive better information about their outdoor air quality, Clean Air Carolina, an air pollution reduction advocacy group, launched a real-time data collection project, which has Charlotte residents in both affluent and nonaffluent communities utilize air monitors during their

daily routines. Terry Lansdell, who organizes the program, describes the effect that greater data has on Charlotteans' health: "Already you can see from the data that there are moments when a gust of wind will blow in dangerous levels of pollution from industrial sites in and around Mecklenburg County. When this happens, residents are able to protect themselves and their families until the pollution has passed or capitalize on clean air opportunities."²⁵

Other residents worry a coal-ash spill will destroy their access to clean water. The rupture of Duke Energy's waste retention pond in 2014 spewed coal ash into North Carolinians' drinking water and damaged riparian ecosystems.²⁶ An estimated 2 million people in North and South Carolina rely on the Catawba River for drinking water.²⁷ For Charlotte residents, the loss of clean public water would create financial and health challenges, particularly for the nearly 141,000 impoverished residents that would be unable to afford the purchase of bottled water; water filters for cooking, drinking, and bathing; and water pollution kits to monitor the safety of their water.

Civil unrest underscores the need for intersectional social and climate justice solutions

In many Charlotte neighborhoods, people experience economic inequity and environmental injustice alongside other social and civil injustices. These experiences came to a head in September 2016, when predominantly African American Charlotteans protested in the streets and clashed with police for a week, an event spurred by the shooting death of Charlotte resident Keith Lamont Scott. Many felt that the protest—which was one of several national instances in 2016 unofficially linked to the Black Lives Matter movement—was emblematic of the community's anger not just over the need for better community policing, but also of being excluded by a city changing around them and a lack of faith in city institutions' ability to fix chronic problems.

Nonetheless, Charlotte officials, businesses, philanthropies, universities, and community advocates are working to unite around economic equity as a priority.²⁸ "Since September, there has definitely been a citywide fervor to address these issues and make lasting change," says Amanda Zullo, founder of Pop Up Produce, a Charlotte nonprofit, which works to increase access to fresh food for people struggling to make ends meet.²⁹ The Leading on Opportunity report, produced

by the Charlotte-Mecklenburg Opportunity Task Force and released in March 2017, lays out a strategy for supporting the poorest members' economic mobility through education and career readiness, but it does not address environmental disparities related to public health.³⁰

To working families, climate change may seem like a distant problem. But layered on top of societal hardships, climate change will increasingly exacerbate barriers to vital resources and prosperity. As climate change creates aggressive and damaging weather patterns, families will be forced more often to divert already limited funds from daily necessities to emergencies, and deteriorating public health could keep people away from work and school.

Charlotte city leaders should harness the energy of a community that cares deeply about social justice to build a base that supports strong and inclusive climate mitigation and resilience action. By cutting climate pollution, designing resilience solutions that benefit all residents, and strengthening the city's ongoing efforts to have a basic living standard for everyone, city leaders can better equip the people of Charlotte to support themselves and their families on multiple fronts. According to Nakisa Glover, a Charlotte community organizer and climate justice fellow at the Hip Hop Caucus, "Charlotte is setting itself up to be a world-class city, and for it to truly be a world-class city, it must take care of its people first. But Charlotte has for too long left residents behind. And in the face of climate change, which is already happening, these communities are being overburdened by these layered issues. Our inability to effectively deal with climate change is directly correlated to the health of our community, poverty, housing, and other justice issues."³¹

How climate threats disproportionately affect working-class communities

Heat risks

Located about 160 miles from the Atlantic Coast in the Catawba River Basin, Charlotte is in a part of the United States projected by scientists to see more hot days and drought alternate with cold snaps and deluges of rain as its climate continues to change. By 2041, Charlotteans will see at a minimum an extra month or more per year where temperatures climb above 95 F.³² With more moisture evaporating from soil into the atmosphere and disrupting the water cycle, naturally occurring cycles of drought plus spring and winter precipitation will intensify. The result is that Charlotte and the surrounding Piedmont region are more vulnerable to debilitating heat waves, water crises, and wildfires as well as damage from storms and flooding.³³

More hot days and cold snaps threaten the physical and financial well-being of residents that depend on the use of an air conditioner to escape heat exhaustion or a heater to stay warm. Children, seniors, the homeless, and community members who work or play outside or are dependent on outdoor transit services—such as waiting at bus stops—will be exposed to greater levels of heat illness and mortality as temperatures across the region climb. Unless the current global carbon emissions trend is significantly curbed, by the end of the century, North Carolina is expected to have the climate of towns on the Texas-Mexican border.³⁴

Rising temperatures also mean poorer air quality for vulnerable Charlotte residents who already struggle with medical expenses. Hotter environments are often matched by higher levels of air pollution from industrial plants and car tailpipes.³⁵ More heat and humidity can spur the creation of mold and bacteria and cause the deterioration of landfill covers.³⁶ Smoke from wildfires can cause dangerous health effects, such as the November 2016 wildfires that caused Code Orange air quality days in Charlotte. For working-class residents without paid leave who have respiratory or cardiac conditions, not going to work or staying home to take care of a family member is too often a costly choice.

This hotter climate will magnify the region's drinking water concerns, particularly for low-income residents who are dependent on public water services sourced from the Catawba River. Already endangered by potential coal ash spills and nearly unchecked withdrawal from the Catawba River due to Duke Energy's operations, Charlotte residents and small businesses will now have to defend against longer and more intense droughts and potential cuts to resident's public water usage.

Drought is projected to alternate with larger rainfall events that have already caused bacteria from sewage overflows as well as urban and agricultural runoff to pollute the Catawba River.³⁷ Polluted water poses a threat to the health and security of the Catawba as a drinking water source. In recent years, the nation has seen a rise in nuisance flooding caused by more rain. Pooling of polluted floodwaters in neighborhoods can foster the transmission of diseases and other health risks. Stagnant water in hot environments also becomes breeding grounds for mosquitos.³⁸

Flood risks

As rain events become more severe, the Catawba River Basin's vast network of urban creeks are more likely to flood, which will put thousands of homes, businesses, and infrastructure at risk of damage.³⁹ Even minimal flooding of cars parked in driveways, roads or transit services can obstruct everyday chores, commutes, and trips to school as roads become impassable and unsafe. Since 1950, heavy downpours in Charlotte have increased by 86 percent.⁴⁰ Rainstorms already cause headaches as basements and yards regularly flood in the city's under-resourced areas, such as along Stewart Creek.⁴¹

Moreover, flooding due to a major rain event in Charlotte or upriver has the potential to be catastrophic. Flooding brings city life to a standstill; businesses and schools are shut down, homes are destroyed, and mobility and access to services are limited. After the 2010 downpour-induced flood in Nashville, Tennessee—a city with similar environmental, demographic, and economic makeup to Charlotte—an estimated 400 businesses never reopened and more than 1,500 jobs were deemed unlikely to return.⁴² In communities that are already under-employed, loss of income can be debilitating to families. Cash-strapped residents that are unable to grapple with disaster recovery costs can lose financial security, be pushed over the edge into poverty, be forced to move and cut ties with their communities, or become homeless.⁴³ Without safeguards, sharp, post-storm rises in rent can squeeze affordable housing options even further. Unless aggressive steps are taken to prepare, all it takes is one major storm to destroy a community's chances at economic development for years or even decades.

Charlotte's city officials and community advocates support a standard of living that allows middle- and low-income Charlotte residents to not have to choose between stretching already tight budgets and a safe and healthy home environment for themselves and their families. Faced with extreme weather threats to the city's public safety and health; costly economic and infrastructure damage; more Code Red air quality days; water crises; and unmanageable housing, energy, and health care bills, some Charlotte leaders are already taking steps to build the city's resilience to climate change through smarter planning.

Rob Phocas, the city of Charlotte's sustainability director, understands the need for more climate action. "There can be a tendency in Charlotte to think we aren't going to be affected by climate change because we aren't on the coast and we won't be dealing with sea level rise. But we need to be taking the threat of more extreme weather seriously."⁴⁴

Existing resilience-building community assets and efforts to mitigate extreme weather threats in Charlotte

Charlotte city leaders, foundations, community organizations and residents, and the business community are taking action through various initiatives to help the city prepare for drought, more heat and pollution, and storms and flooding. With the Trump administration and their allies in Congress proposing historic cuts to programs that are designed to support low-income communities and climate action—including the Community Development Block Grant (CDBG) program, HOME Investment Partnerships Program, the Transportation Investment Generating Economic Recovery (TIGER) program, the weatherization assistance program, the low-income heating assistance program, and state energy and environmental program grants—these local initiatives are more important than ever. Despite a lack of leadership at the federal level, Charlotte can help all community members thrive in the midst of future concerns through intentional and aggressive action to create clean, healthy, and extreme-weather-ready communities. Charlotte stakeholders should support and build on these efforts.

Supporting safe and accessible active transit

Charlotte did not always consider the public health risks of heat and pollution. In the early 2000s, North Carolina was cited by the EPA for its dangerous air quality and was required to take action to reduce pollution. Reductions in dangerous air pollution were supported by a 2002 state law cracking down on power plants.⁴⁵ Charlotte was spurred to create a strategic transit plan and develop light rail to help reduce unhealthy levels of air pollution, such as ozone, from traffic.

The city is continuing to invest in active transit strategies, including walking, biking, and the use of public transit, to cut down on car dependency for mobility and manage traffic as the city rapidly grows.⁴⁶ The city is also sponsoring car-free days downtown Charlotte to help educate the public on the health, safety, and mobility benefits of active transit. These efforts have important implications for Charlotte residents. An estimated more than 23,000 households in Charlotte do not have car access and are limited to existing public transportation options.⁴⁷

Additionally, Charlotte is a dangerous place to be a pedestrian or bicyclist. Air pollution is creating respiratory and cardiac condition hotspots along traffic corridors, and fatal crashes including pedestrians and bicyclists, almost doubled between 2012 and 2016, amounting to an estimated 900 deaths.⁴⁸ As part of the new Transportation Action Plan, which was adopted by the City Council in February 2017, the city is executing the Vision Zero strategy to reduce traffic crashes. Efforts to make the city's streets safer will in turn support the public's use of more environmentally friendly active transit options that the city plans to invest in.

Neighborhood and district resilience planning

The city is also reducing carbon pollution and improving resilience to extreme temperatures by focusing on energy efficiency in homes, businesses, and municipal buildings, as well as providing heating and cooling assistance to the poorest residents. Energy efficiency cuts down on households' electric utility bills and supports public health and safety on extreme heat days or during cold snaps.

Many of the city's community resilience and urban planning goals are reflected in the North End Smart District plan, a collaboration between neighborhood residents and 16 city government, community organization, and business entities.⁴⁹ The initiative seeks to uplift traditionally low-income neighborhoods north of downtown through equitable development, innovation, and an urban planning process that is deliberately including the voices and perspectives of the area's 9,000 residents and community leaders.⁵⁰ The plan includes a mix of both resilient urban planning and economic mobility and health strategies, such as extending the city's Blue Line train nearby; implementing "smart" energy efficiency programming in homes; and investing in technology job training and internships for youth as well as community healthy food and waste initiatives.⁵¹

Some residents are weary of the city's promises that no one will be displaced by the development plan, given Charlotte's history of discriminatory development policy.⁵² If the North End Smart District experiment succeeds, city leaders plan to use it as a model for other economically depressed communities.⁵³ City officials could reduce the risk of displacement by ensuring that the new development includes housing units that are affordable and include rent hike protections for current residents.

Expanding the tree canopy

The city is also working to reduce air pollution and alleviate heat stress by increasing tree canopy cover by 2 percent and reversing development deforestation trends with a goal to have half of Charlotte covered by trees by 2050 through the 2017 Charlotte Urban Forest Master Plan, which also calls for financial assistance to low-income areas to help conserve tree canopy.⁵⁴ Trees acts as a carbon sink—helping to clean the air and cool streets, roofs, and recreation areas. These green infrastructure features can improve property values, quality of life, social cohesion, and aesthetic beauty while reducing noise pollution, stress, and violence in many areas.

Charlotte's current tree canopy provides \$335 million in extreme weather resilience, health, and financial benefits to families each year, including \$17 million worth of carbon pollution reduction.⁵⁵ While some working-class areas have high tree canopy cover, in other neighborhoods such as the North End, tree canopy covers only one-quarter of the area—40 percent lower than Charlotte overall.⁵⁶ TreesCharlotte's Neighborwoods program seeks to augment tree canopy in communities where there is the most need by planting at least 150 trees and providing training on proper arbor care for local residents to support long-lasting change.⁵⁷ Tree canopy expansion in low-income communities would improve air quality and livability and reduce temperatures and heat-related health risks.

Creating public cooling areas

In addition to air and climate pollution mitigation, Charlotte also has a plan to keep families cool on hot summer days with the city's spraygrounds—playgrounds for children with water features. The majority of the Mecklenburg County's spray-ground facilities are located near Charlotte's "crescent" neighborhoods, where families living in poverty are concentrated.⁵⁸ These spraygrounds provide relief to

children and their guardians during heat waves, such as in July 2015 when temperatures hit triple digits.⁵⁹ City officials should work with community members to expand spraygrounds to neighborhoods where heat relief could save the lives of poor children whose families do not own air conditioners.

Addressing drought

Climate change will intensify Charlotte's naturally occurring cycles of drought. To build drought resilience, city officials implemented strict water efficiency standards for homes. Duke Energy, which is the region's largest user of water, started a program in 2017 to give consumers free water efficiency kits to use in bathrooms and kitchens, which is paid for on the back end by consumer rate hikes.⁶⁰ City officials are also making water efficiency a feature of North End Smart District plans. Charlotte's efforts to curb residential water use should be expanded as well as augmented by rain barrel programs and public education.

The city has water management concerns in its sight. The city and regional authorities in collaboration with Duke Energy created a water management plan for the Catawba River. Outtake from the Catawba River used to be so high that Charlotte was projected to run out of water by midcentury. Now, with the water management plan in place, Charlotte has a collaborative vision for saving its drinking water.

However, some community leaders feel that the plan falls short of long-term community resilience. The plan to save the region's only freshwater resource is voluntary. According to the Catawba Riverkeepers Foundation, a Catawba conservation organization, Duke Energy, which is a part of the plan, is not asked to do nearly enough to conserve water—a reflection of a lack of public input.⁶¹ As state lawmakers did in 2002, with the passage of strong air pollution standards to protect the public's access to clean air, local leaders should work with state level officials to put in place a strong strategy to protect public access to clean drinking water for the more than 1.2 million people that will live in Charlotte by midcentury.

Reducing flood risks

Flooding is not uncommon to the residents of the Catawba River Basin. Starting in 1999 using FEMA grants, city officials launched a buyout program that has allowed 400 households the option to move out of their flood-wrecked homes to safer land and avoided an estimated \$300 million in future losses.⁶² Charlotte

decided to continue the successful program, which today is primarily funded locally.⁶³ The riparian buffer zones that were created through restored buyout are used as greenways, recreation areas, and community gardens.⁶⁴

The city should work with community groups to turn more buffer zone land and municipal and privately-owned land in low-income areas into spaces for community gardens and orchards in order to improve access to fresh food and reduce hunger. Successful examples include the 22 fruit trees that were planted on the land of Friendship Missionary Baptist Church with support from actors such as TreesCharlotte, local farmers markets, and the county government.⁶⁵ An estimated 87,000 people in Mecklenburg County live in food deserts.⁶⁶

Charlotte is also using the services of trees and green infrastructure to reduce flooding. Trees are currently estimated to intercept 1.2 billion gallons of stormwater runoff into Charlotte's waterways at a value of more than \$10 million annually.⁶⁷ This value will grow as Charlotte's trees reduce flood damage to property and businesses. The city also plans to expand its 187 miles of developed and undeveloped greenways and trails, and over the past decade and a half, has restored 18 acres of wetlands. Collectively, these natural features act as flood buffer zones between waterways and property.

The prioritization of flood management has translated into tangible benefits for residents, including improved public safety and savings on flood insurance premiums for households.⁶⁸ In May 2017, FEMA recognized Charlotte as having one of the top flood risk management programs in the nation.⁶⁹

Though in light of increasingly heavy rainfall projections, city officials should work with the business community and community groups to expand use of green infrastructure and awareness of flood notification systems. Working-class residential and commercial areas can benefit from the flood reduction and water cleaning services of trees, parks, curbside rain gardens, bioswales, and permeable pavement as well as improved engagement and knowledge of flood risks.

Taking climate action, resilience, and equity to the next level

As Charlotte continues to grow, the city is making progress toward building an equitable, resilient, and thriving city. In a city that prides itself on collaboration, government officials, community leaders and residents, and foundations and businesses are moving forward on building resilience to extreme heat, rising pollution, drought, and flooding. Nonetheless, it will take additional willpower from city officials and the powerful business community to ensure Charlotte's climate mitigation and resilience efforts are on pace with the threats that are linked to dangerous trends in global carbon emissions. An equitable climate action strategy that is formed in collaboration with sustainability and justice advocates and residents would help the city to achieve these goals.

Charlotte has various plans and initiatives which will help to address climate threats and reduce inequities, though not all the plans have resulted in government-led policy change for the city. When taken collectively, these plans—including the Corners, Corridors and Wedges plan, the City Council's FY2018 & FY2019 Environmental Focus Area Plan, the 5-Year Community Investment Plan, the Transportation Action Plan, the Urban Forest Master Plan, LivableMeck, and the Leading on Opportunity report—highlight important equity, growth, and climate strategies and goals.⁷⁰ Though separately, only one of these plans—the Leading on Opportunity report—is devoted to promoting equity and racial justice, while only the Urban Forest Master Plan incorporates data on carbon mitigation.

Some Charlotte residents desire a better strategy for facing the city's challenges than this piecemeal approach to managing growth and addressing injustice. "There has never really been a deep, strategic look at how Charlotte will handle its growth in the context of climate and extreme weather stresses. We owe it to the people who live here today and the generations who will follow us to create a comprehensive climate action plan and do everything we can to realize this vision," says Shannon Binns of Sustain Charlotte.⁷¹ Brandi Williams, who works for the city's waste management division, also feels that climate change resilience and economic mobility should be infused into Charlotte's vision for the future: "These things will remain in different baskets unless someone shows them they are one and the same."⁷²

With support for climate action in the mayor's office and a new city manager who used to work on climate change resilience in coastal Virginia, the city of Charlotte is primed to make the switch to a strategic long-term vision for a more extreme weather resilient and equitable city.⁷³ The city's sustainability director is already located in the city manager's office, which bodes well for Charlotte's ability to approach climate change action from a more holistic lens and break down the silos between city government departments to put this vision into practice. Integrating transparency into the city's process of accounting metrics for progress will be important for public accountability, in addition to creating a culture of extreme weather mitigation and preparedness.

While other priorities, including education reform and reducing crime rates, fight for space on city leaders' agenda, building a strong social fabric and spurring equitable prosperity should be considered interconnected paths to low-income communities' resilience to extreme weather shocks. City leaders should work closely with community members and leaders to make sure Charlotte puts its best foot forward when it comes to building a prosperous, healthy, and just future.

June Blotnick, executive director of Clean Air Carolina, describes the choice presented to Charlotte's city leaders: "We can't have a clean, healthy environment without paying attention to the needs of frontline communities. And we can't support our frontline communities unless we have more collective action and leadership."⁷⁴

The need for corporate social responsibility

Growing climate leadership

In addition to sponsoring and participating in initiatives to enhance community sustainability and resilience, Charlotte's corporate sphere is also setting goals to clean up their own facilities and core strategies.

Since 2011, Envision Charlotte, a “public private plus collaborative” of 64 of Charlotte's largest downtown commercial and government buildings, has sought to strengthen economic competitiveness through sustainability and innovation. This effort has led to \$26 million in energy bill savings and a 19 percent reduction in carbon emissions across participating companies' buildings.⁷⁵ In 2015, the Obama White House selected Envision Charlotte to serve as a role model to 10 other U.S. urban business communities.⁷⁶

Bank of America took this initiative a step farther by vowing to use 100 percent renewable energy and have carbon neutral facilities by 2020.⁷⁷ The financial services giant has committed \$125 billion in clean energy and sustainable solutions by 2025 as a step to transitioning its investment portfolio and core business strategy to support the Paris Agreement.⁷⁸ After President Trump announced the United States' withdrawal from the Paris Agreement in early June 2017, Charlotte-area companies Sealed Air and Ingersoll Rand, and Envision Charlotte pledged to continue lowering their carbon emissions and foster the sustainable economy.⁷⁹

This leadership is meaningful in North Carolina where localities such as Charlotte are unable to require businesses to take actions or implement public safeguards that are not authorized by the state government.

North Carolina also leads other states in clean solar energy deployment. The state added more clean solar energy in the first quarter of 2017 than any other U.S. state and has the second-largest solar capacity in the nation. However, this progress toward building a low-carbon economy may be hitting a roadblock. At the time of writing, the state Legislature had sent a bill to the governor's desk that would put

an 18-month moratorium on wind projects, threatening plans for a second utility-scale wind plant and related jobs and investment.⁸⁰ The bill, which was supposed to be focused solely on boosting solar and had the wind moratorium amendment added at the last minute, seeks to undermine the collective economic, jobs, and environmental benefits that both wind and solar bring to North Carolinians.⁸¹ Duke Energy and state legislators continue to use the disproved arguments that distributed energy is a threat to power reliability and security.⁸²

Companies such as Wells Fargo and Duke Energy continue to operate their businesses using a 20th-century mindset that perpetuates dangerous carbon emission trends and disregard for natural resources through the continued prioritization of fossil fuel investments. In addition to causing climate change, fossil fuel supply chains drive environmental destruction in ways that are unsustainable for natural resources and local communities. Wells Fargo committed to investing more than \$30 billion by 2020 to clean energy and environmental solutions, but as the largest lending bank in the United States, it could be doing much more.⁸³ Bank of America must also match its large commitment to low-carbon solutions with a rapid exit from fossil fuel investments.⁸⁴ More action is needed from Charlotte's business leaders to begin transitioning away from fossil fuels and toward a sustainable and just economy, which supports the health, well-being and job stability of Charlotteans.

Unmitigated carbon trends threaten economic, growth, and equity opportunities

Carbon-fueled extreme weather and sea level rise will pose labor, supply chain, and property challenges to North Carolina's manufacturing, agriculture, tourism, energy, and transportation industries.⁸⁵ More than \$2 trillion in assets could be stranded, amounting to an existential threat to the financial services sector.⁸⁶

Climate change threats, which will worsen with time, are already having a serious effect on North Carolina's economy. In 2016 alone, North Carolina's infrastructure and communities were caught in the crosshairs of five extreme weather events that caused more than \$1 billion each in damage.⁸⁷ This increasingly destructive weather escalates business, government, and community risks and liabilities and threatens North Carolina's and Charlotte's credit bond ratings, thus exasperating working-class people's ability to acquire loans.⁸⁸

Stronger hurricanes coupled by sea level rise could displace thousands of Charlotteans' neighbors on the North and South Carolina coasts.⁸⁹ Unless proper steps are made by those communities to build climate resilience, Charlotte could be left trying to manage a sudden or long-term influx of displaced coastal residents.

Climate change will also put North Carolina's infrastructure at risk. The U.S. Department of Energy stated that extreme weather is the number one threat to the nation's energy system as more strong heat waves, cold snaps, and storms strain the electric grid and cause blackouts.⁹⁰ By midcentury, North Carolinians could spend nearly \$1 trillion extra per year for air conditioning to escape soaring temperatures and for the infrastructure needed to support the demand.⁹¹ Duke Energy, which sells electricity sourced from mainly coal and natural gas—fossil fuels that cause climate change—announced in April 2017 a plan to strategically invest \$13 billion in its physical infrastructure over 10 years to, in part, build resilience to more extreme weather.⁹² This is an investment that dwarfs the company's \$500 million commitment to solar energy and will be paid for through consumer rate hikes.

While companies such as Duke may have the funds to build resilience to extreme weather to support their day-to-day operations and their bottom lines, families working to put food on the table do not. During the 2015 heat wave, Charlotte-based Electrolux donated 600 air conditioners to poor residents without air conditioners through Crisis Assistance Ministry for its fourth year in a row.⁹³ Scientific projections of skyrocketing midcentury heat will put many families who cannot afford to install or use air conditioning or other extreme weather resilience solutions in perpetual financial, health, and safety crises.

It is incumbent upon Charlotte's business community to pursue deep decarbonization by rapidly transitioning away from fossil fuel investment and accelerating investments in clean energy and low-carbon operations. A new definition of corporate social responsibility that includes ambitious climate change action and a business model that supports a just economy is necessary to sustain Charlotte's economic growth in a way that benefits all residents, mitigates long-term financial risk, and supports a high standard of living for future generations of Charlotte residents.

Recommendations

This report provides analysis on areas where Charlotte is advancing climate action and building extreme-weather-prepared communities, as well as areas for improvement. City officials and state leaders, along with community advocates and residents, businesses, and foundations should act quickly on the following opportunities to create change that will improve the lives of all Charlotte residents.

Create and carry out an equitable and measurable climate action strategy

Charlotte Mayor Roberts has stated that climate change and inclusivity are top challenges facing cities in the 21st century.⁹⁴ The city should put the mayor's statement into practice and create a strategy, grounded in the latest climate change science, to reduce carbon pollution; strengthen community resilience to extreme heat; improve air and water quality; and reduce drought and flood risks. City leaders can begin formulating an action strategy by using existing policies, goals and information relevant to climate action and community resilience from, for example, the FY2018 & FY2019 Environmental Focus Area Plan and Leading on Opportunity report, building on it with input from community members on priorities and overall plan design.

To create a plan that is carried out effectively, city leaders should make racial justice, equity, and climate change resilience central to each city department's mission to drive policy and recalibrate community engagement. For example, in New Orleans, in April 2017, the mayor unveiled a strategy to make city government processes more attuned to racial inequity. Among the steps the city will take are instructing city departments to create equity plans for their services and training employees on institutional racism and the role of government to advance racial equity. In Ft. Lauderdale, Florida, which is threatened by rapid sea level rise, officials provided training on the causes and local effects of climate change

to every city employee.⁹⁵ Ft. Lauderdale's leaders also changed city staff titles to promote and reframe what it meant for individual public servants to be accountable to city resilience while changing traditional mindsets about city management and planning in light of 21st-century challenges.⁹⁶

To support public accountability, Mayor Roberts should renew former Mayor Don Clodfelter's 2015 commitment to the Global Covenant of Mayors for Climate and Energy, which supports a three-year timeline for climate mitigation and resilience planning using a standardized methodology.⁹⁷ Mayors in cities such as Memphis, Tennessee; Atlanta; Roanoke, Virginia; Columbus, Ohio; and Nashville have all completed more than the first stage of the commitment's program.⁹⁸ To support city goals and progress outside the scope of the Global Covenant of Mayors, city leaders should collaborate with community leaders to create metrics to track goal progress and support public accountability and transparency—such as those formed by Sustain Charlotte in their 2014 Charlotte-Mecklenburg Sustainability Report Card.⁹⁹

However, to ensure climate progress outlives any changes in the mayor's or city manager's offices, any climate action strategy should be passed by the Charlotte City Council to ensure the strategy receives the full weight and support of the city government—as Atlanta; Alexandria, Virginia; and Arlington County, Virginia have done.¹⁰⁰

Effectively engage and empower communities to raise awareness of climate change threats as well as shape priorities and effective solutions at all stages of development and implementation

Charlotte's climate action planning presents city leaders and stakeholders with an opportunity to draw on climate change and equity strategies that are working in other cities to help meet the City Council's goal to make Charlotte a “global leader” and “model environmental community.”¹⁰¹ By using an equity and racial justice lens, Charlotte can get its plan right the first time by effectively engaging community members to design climate pollution reduction and extreme weather preparedness solutions that correspond to priorities identified by the community.

Charlotte's communities of color and working class neighborhoods will experience climate change effects in an outsized way. Therefore, the city must create ample opportunities for community members and leaders to have a seat at the table for self-representation and to help formulate sustainability, urban planning,

emergency management, and economic development policy that are related to climate action and readiness. City, community, and business leaders should ensure that the voices of community members living on the brink are front and center throughout decision-making processes. The city can support this goal by making it easier for working people and parents to be physically present to provide their ideas and insight. It should work with community leaders and ambassadors to communicate to residents about opportunities to give input; meet people in their neighborhoods; and provide meals, child care, and transportation—as Baltimore, Providence, Seattle, and Cleveland have done.

When it comes to tackling issues, Charlotte city leaders pride themselves on diverse collaboration between different sectors of Charlotte society; this is known locally as “the Charlotte way.”¹⁰² And yet, even with issues of prime community importance such as economic mobility, community members feel left out of the early stages of decision-making. Numerous interviewees for this paper remarked that organizers of the strategy to put the poorest Charlotteans on a path to prosperity favored the input of affluent community members and elites over people living paycheck to paycheck, which was reflected in the final Leading on Opportunity report.

Charlotte officials can harness community energy and insight to create a successful and equitable climate action and resilience strategy by collaborating with working-class community leaders and residents from the beginning. An inclusive process will ensure resilience efforts and investments are more likely to succeed in communities that are targeted for resources. Failure to capture residents’ ideas, insight, and energy for social change will be a missed opportunity to break with tradition and bring more equity into policymaking and effectively tackle the city’s most pressing economic, social, and environmental challenges.

Communities that are well-informed of oncoming extreme weather and understand how climate change affects their daily lives are better able to prepare and prevent loss of life, injury, and costly damage to property. Informed residents are more likely to help shape and support actions to reduce carbon pollution and climate change risks. The city should work with community groups to promote public education about how climate change affects residents’ daily lives as well as equitable strategies to reduce these effects.

Assess working-class communities' vulnerability and resilience to climate change and assess resilience strategies for equity

Charlotte officials and community members should collaborate to assess the city's neighborhoods for extreme weather and social vulnerability. By mapping for risks such as urban heat islands or flooding and by overlaying local health and demographic data, the city can see where to target resources to build resilience to climate change effects and address environmental injustices.

The city should make sure this is done through a “participatory mapping” process.¹⁰³ Geographic information system experts who built maps to assess the impacts of sea level rise in the San Francisco Bay and drought in Wyoming used community and tribal insight to help correct and fact-check maps used for government and tribal policymaking.

City and community members should also take stock of community and government extreme-weather-preparedness assets—as Norfolk, Virginia is doing with assistance from Resilience AmeriCorps—to help community members navigate crises and help emergency managers inform policy.¹⁰⁴ An asset map for Charlotte would lay out community infrastructure where residents can seek shelter or receive services in an extreme weather event, such as churches, community centers, schools, grocery stores, clinics, public transit access points, green infrastructure, and solar energy.

City officials and business community leaders should also assess current or proposed resilience projects and developments with equity planning tools that have been developed to support municipal leaders' collaboration with community leaders and working class residents —such as those used by planners in King County, Washington, or the toolkit developed by PolicyLink, an equity research institute.¹⁰⁵ While Charlotte goes through a period of rapid growth, these equity toolkits act as checklists and step-by-step guides for planners to promote inclusivity and ensure that residents can reap the benefits of resilience investments and economic development and are not displaced from their communities due to rising costs of housing, child care, or other services.

The Vulnerability, Consequences, and Adaptation Scenarios Process (VCAPS) developed by the University of South Carolina and the Social and Environmental Research Institute, Inc., also supports community involvement in climate hazard mitigation.¹⁰⁶

Reduce working-class communities' heat risk through cooling centers and spraygrounds

Rising temperatures will put stress on the physical and mental health of Charlotte residents. In order to support public health and safety, Charlotte city leaders should expand options where residents who may not be able to afford air conditioning or are homeless can escape extreme heat for free.

Charlotte city and Mecklenburg County leaders should expand their successful spray ground infrastructure and work with community members to identify and designate spaces that can act as cooling centers during the warm months of the year.

In Washington, D.C., public libraries also double as cooling centers. In Baltimore, due to tensions between undersupported communities of color, working-class residents, and the police, the city has worked closely with community members to designate “resilience hubs” on nongovernment property.¹⁰⁷ These resilience hubs act as cooling centers and as centers for information about extreme weather risks and resilience.

Improve access to solar and wind energy

State leaders should remove barriers to solar and wind deployment in North Carolina to create jobs, mitigate fossil-fuel driven emissions that cause climate change and hurt public health, and save funds. More solar and wind energy in Charlotte and across the state would improve electricity reliability for community members and businesses by releasing pressure from the electric grid during dangerous heat waves and cold snaps. Distributed solar power will also reduce the electric bills of residents living on the brink and in government buildings.

Expand access to safe and affordable active transit

City leaders have improved mobility for residents over the past several years by opening light rail, organizing days prioritizing pedestrians, and creating bike lanes. By providing residents alternative means of transportation, city leaders have cut down air and climate pollution and traffic. Greater mobility through active transit increases access to jobs and services and cuts pollution from personal vehicles. Improving mobility also helps low-income residents' ability to reach dry ground and emergency services during a flood or a cooling center during

heat waves. Charlotte leaders should stick with the Vision Zero plan to reduce pedestrian deaths through better crosswalks, sidewalks, and protected bike lanes, particularly in working-class areas. The city should continue to expand public transit options through its Transportation Action Plan to link underserved residents to jobs, vendors, services, and community resilience assets. By bringing more safe and affordable active transit options to Charlotte, city leaders will also support healthier, cleaner, and growing communities at the same time.

Promote energy efficiency and weatherization in homes and businesses

Charlotte should prioritize energy efficiency and weatherization in homes and businesses in working-class neighborhoods. City leaders should develop tax incentives for energy efficiency and weatherization for builders of affordable and mixed-income housing and middle- and low-income homeowners. The city should also work closely with community groups and foundations to create initiatives to fund and install energy efficiency and weatherization solutions in residencies and small businesses in working-class neighborhoods that could exponentially benefit from savings on electricity bills, as well as promote safety during heat waves and cold snaps. The city should also support communitywide public education on public health as well as fiscal benefits of energy efficiency.

Expand green infrastructure to reduce flooding; provide cooler, cleaner air; and feed people

The natural services of trees and other green infrastructure—bioswales, rain gardens, community gardens, and permeable pavement—should be a focus of Charlotte’s climate action and urban development plans. Green infrastructure is quickly being recognized by planners globally as one of the most cost-effective resilience strategies that cities can pursue to help address community vulnerability to the urban heat island effect, high levels of air and water pollution, and flooding.

Trees may be considered a defining characteristic of the city, but in some low-income areas of Charlotte, tree canopy or the funds to maintain the existing canopy can be scarce. Charlotte city leaders, foundations, and community groups should redouble their tree canopy expansion and care efforts through the 2017 Charlotte Trees Master Plan and other green infrastructure efforts by targeting resources, including funds as well as arbor care knowledge, to low-income areas.

Community gardens and fruit trees can provide healthy food to nutrition-insecure residents and support social cohesion and resilience while reducing flood risks. The city should also incentivize developers' and homeowners' use of permeable pavements, bioswales, and curbside rain gardens.

Make corporate social responsibility through deep decarbonization and natural resource conservation core to the Charlotte business community's mission

As Charlotte's government and community leaders work to make the city cleaner, healthier, and resilient, business leaders in turn must do their part to help their neighbors, employees, and future generations of Charlotteans. The CEOs, governing boards, and operating committees of Charlotte's business community must focus on deep decarbonization and sustainability through investment in and integration of renewable energy, energy efficiency, and other low-carbon solutions into their core business strategy to mitigate the extreme weather that threatens Charlotte's communities and economy.

At present, the operations of many of these companies are at odds with their desire to see Charlotte succeed. Companies must create a new definition of corporate social responsibility that directly accounts for their contribution to water and air pollution, extreme weather risks, and environmental injustices that community members are grappling with. Duke Energy must create a bold public commitment to reduce its water intake outside of the Catawba-Wateree Water Basin Master Plan that is responsive to public concerns.

Charlotte's business leaders should continue to back voluntary and charitable corporate social responsibility efforts that support sustainable facilities and clean and resilient communities. However, in order to rise to meet 21st-century challenges, these initiatives should be embraced as additional and not supplemental to deep decarbonization and natural resource conservation in practice. In doing so, they would join a growing chorus of corporate leaders who are focused on long-term financial risk management and have pledged to transition their operations to support a sustainable and low-carbon global economy.¹⁰⁸

Conclusion

It is possible for Charlotte to become a model community for environmental health, equity of opportunity, and the low-carbon economy. With strong leadership that embraces scientific consensus and the city's grassroots, inclusive climate action and community resilience can become a part of Charlotte's culture as well as the mindset of governing and business operations. The creation of a climate action strategy that is formulated to encourage progress and designed to highlight the priorities of historically disadvantaged community members will help Charlotte's city leaders prepare the Queen City and its future generations of Charlotteans for the effects of climate change. By embracing the recommendations above, Charlotte city officials, its business community, foundations, community leaders, and residents can together ensure that they are prepared for the challenges of the 21st century and ready to thrive—knowing no opportunity was missed and no Charlottean was left behind.

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Acknowledgements

The author would like to thank the following individuals and organizations for their contributions to this report: Shannon Binns of Sustain Charlotte; June Blotnick and Terry Lansdell of Clean Air Carolina; Dave Cable of TreesCharlotte; Nakisa Glover of the Hip Hop Caucus; Rob Phocas of the City of Charlotte's Office of Sustainability; Brandi Williams of the City of Charlotte's Waste Management Division; Amanda Zullo of Pop Up Produce; Ra'iatea Lohe, former Energy and Environment team intern at the Center for American Progress; and American Progress staff Danielle Baussan, Cathleen Kelly, Patrick Dolan, Rejane Frederick, Michele Jawando, Connor Maxwell, Emily Haynes, Will Beaudouin, Lauren Kokum, and Chester Hawkins.

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