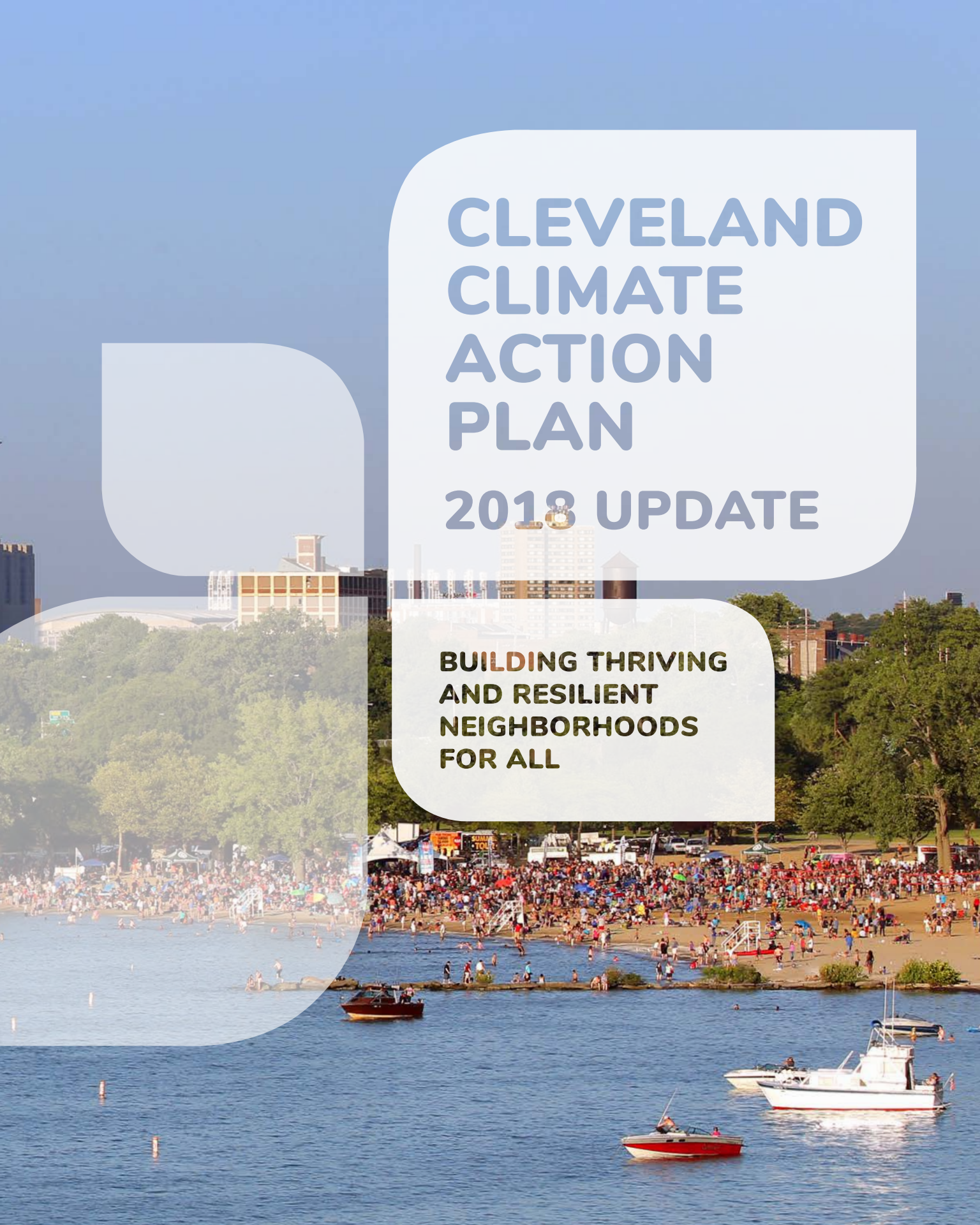
CLEVELAND CLIMATE ACTION PLAN

2018 UPDATE

BUILDING THRIVING AND RESILIENT NEIGHBORHOODS FOR ALL



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Acknowledgements

The Mayor's Office of Sustainability thanks the Sustainable Cleveland community for the many contributions to this Plan. The core team for this plan included the City of Cleveland, Brendle Group, Cleveland Neighborhood Progress, and ioby. The Racial Equity Institute, BrownFlynn, the Cleveland Urban Design Collaborative, and the University of Buffalo also provided significant technical expertise. We thank the 300 resident leaders who participated in neighborhood workshops. A big thank you to the Climate Action Advisory Committee, members of which are listed here.

Thanks to our funding partners for their thought leadership, guidance, and financial support —these include the Funders' Network for Smart Growth and Livable Communities (Partners for Places grant), the George Gund Foundation, and the Cleveland Foundation. The City of Cleveland and Cleveland Neighborhood Progress also provided in-kind support.

Alliance for the Great Lakes

ArcelorMittal

Bike Cleveland

BrownFlynn

Buckeye Ministry in Mission Alliance

Burten, Bell, Carr Development, Inc.

Case Western Reserve University

Catholic Charities Diocese of Cleveland

City of Cleveland

Cleveland 2030 District

Holden Forests & Gardens

Cleveland Clinic

Cleveland Foundation

Cleveland Housing Network

Cleveland Metroparks

Cleveland Metropolitan School District

Cleveland Museum of Natural History

Cleveland Neighborhood Progress

Cleveland State University

Cleveland Thermal

Corporate Sustainability Network

Cuyahoga Community College

Cuyahoga County

Cuyahoga County Land Reutilization Corporation

Cuyahoga County Soil & Water Conservation District

Cuyahoga Metropolitan Housing Authority

Detroit Shoreway Community Development Organization

Eaton Corporation

Emerald Cities

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Famicos Foundation

Federal Reserve Bank of Cleveland

The Food Access Raises Everyone (FARE) Project & The Food Trust

Forest City Enterprise

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Green Strategies LLC

Hispanic Alliance

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Kamm's Corners Development Corporation

Kent State University Cleveland Urban Design Collaborative

KeyBank

Lincoln Electric

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MetroHealth

NAACP, Cleveland Chapter

NOACA

Northeast Ohio Regional Sewer District

Ohio City, Inc.

Ohio Interfaith Power and Light

Ohio Sea Grant

Ohio State University Extension, Cuyahoga County

Olivet Institutional Baptist Church

Prosper for Purpose

Resilient Cleveland Climate Ambassadors

Sierra Club

Slavic Village Development

Towards Employment

Trust for Public Land

United Church of Christ

United Way

University at Buffalo

Mayor's Letter

Dear Friends,

For the past year, the City of Cleveland has led a community process to update its Climate Action Plan. When the U.S. pulled out of the Paris Climate Agreement in 2017, it became clear that leadership from local government, businesses, and civic institutions is needed now more than ever. So, I re-affirmed my commitment to climate action, along with 400 "Climate Mayors" across the country.

Collectively, we've made progress since the first Cleveland Climate Action Plan launched in 2013. We've reduced carbon pollution while growing the economy. Water quality and air quality have continued to improve. The City has been recognized for supporting solar and wind energy. More than 70 miles of bike infrastructure were installed and the bike share system launched. Dozens of organizations launched and are now implementing the Cleveland Tree Plan. And we have supported more than 50 resident-led, neighborhood-based climate action projects.

Despite this positive momentum, we know much work remains to accelerate progress, and to ensure those most in need enjoy the benefits of climate action. This plan update builds off the previous work by firmly establishing a series of cross-cutting priorities: social and racial equity, green jobs, resilience to the impacts of climate change, and business leadership.

I would like to thank the Climate Action Advisory Committee, the project's core team, the funders, and all the residents who contributed their time and expertise. We can achieve this plan, but it requires a commitment from civic leaders, businesses, institutions, and individuals throughout the City of Cleveland. While this plan centers on the City of Cleveland, it requires a broader community effort. We look forward to collaborating with communities across Northeast Ohio to enable the regional prosperity we all seek.

This plan is about much more than climate change. Implementing the actions in this plan will create a more sustainable Cleveland. By strengthening our economy, cleaning our environment, and improving the health and wellness of Clevelanders, we are building a thriving green city on a blue lake.

Sincerely,

Frank G. Jackson
Mayor

CITY OF CLEVELAND
Mayor Frank G. Jackson

Introduction

When the U.S. pulled out of the Paris Climate Agreement in 2017, it became clear that leadership from cities, counties and states, businesses, and universities is needed now more than ever. So Mayor Jackson, along with climate mayors across the country, re-affirmed commitment to the Paris Agreement. A statement from the 400+ U.S. Climate Mayors aligns well with Cleveland's approach to climate action.

"We will continue to lead. We are increasing investments in renewable energy and energy efficiency. We will buy and create more demand for electric cars and trucks. We will increase our efforts to cut greenhouse gas emissions, create a clean energy economy, and stand for environmental justice. And if the President wants to break the promises made to our allies enshrined in the historic Paris Agreement, we'll build and strengthen relationships around the world to protect the planet from devastating climate risks."

80%:
Cleveland's Greenhouse Gas reduction goal by 2050

At the heart of climate action in Cleveland is building thriving and resilient neighborhoods throughout the city. **The 2013 Cleveland Climate Action Plan established an overarching greenhouse gas (GHG) reduction goal of 80% below 2010 emissions by 2050, with interim goals of 16% reduction by 2020 and 40% reduction by 2030.** These goals are designed to be bold yet achievable. This updated plan retains those goals, while elevating the actions neighborhoods and residents can take every day.

Many organizations, businesses, neighborhoods, and people have been working to reduce their carbon footprint associated with energy use, transportation, solid waste, and other areas. While reducing emissions is a driving force for many of these efforts, there are many other benefits to taking climate action. In fact, even if climate change was not a factor (which it is!), taking the actions laid out in this plan would still make sense from an economic, environmental, and equity perspective. The worsening impacts of climate change simply adds urgency to acting now.

Key benefits of taking climate action include:

- Local green job creation and sustainable economic development
- Reduced utility and maintenance costs for homes, businesses, and government
- Improved risk management and resilience to climate change
- Healthier, more comfortable homes
- Improved air quality, public health, and quality of life
- More educated population with the tools to take action at home, at work, and in their community

While the first Cleveland Climate Action Plan (CAP) has been successful in building momentum for climate action in Cleveland, much work remains to scale these benefits, especially for those most in need. To improve outcomes in these areas, the updated CAP was supported by a 90-member Climate Action Advisory Committee (CAAC). By engaging leading organizations throughout the community, this Climate Action Plan has great transformative potential to inform other regional planning efforts and projects. Equitably-driven sustainability and climate action can strengthen the impact of a wide variety of organizations.

[Climate] Resilience:
the capacity of a community to anticipate, plan for, and mitigate the risks—and seize the opportunities—associated with environmental and social change.

https://kresge.org/library/bounce-forward-urban-resilience-era-climate-change

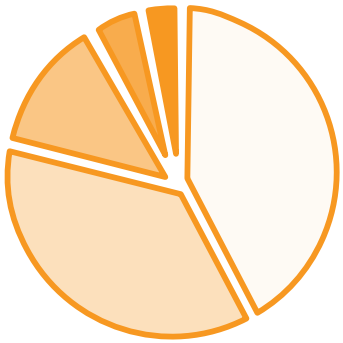
Engagement Process

12

CAP workshops held throughout the City of Cleveland with more than

300

attendees



Workshop Participants

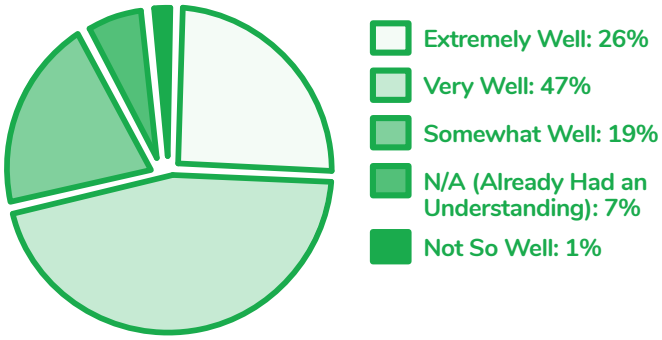
- Caucasian / White: 44%
- African American / Black: 37%
- Other: 14%
- Hispanic / Latino: 3%
- Asian: 2%

Cleveland is truly a city of neighborhoods. Lasting climate action requires planning, engagement, and implementation at the neighborhood level.

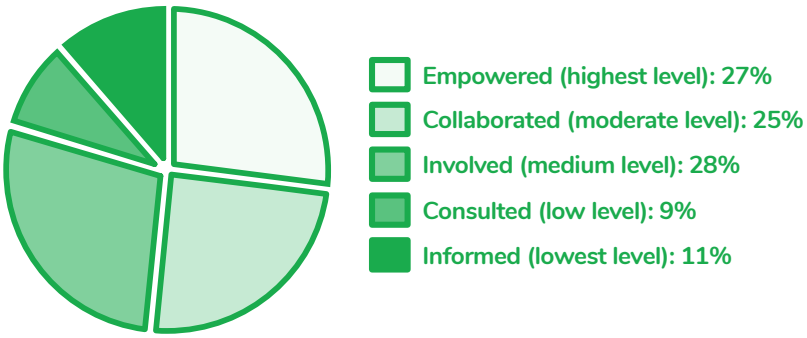
Learn More. Say More. Do More: Workshops on Health, Community and Climate Action provided a key engagement platform for the Climate Action Plan (CAP) update process. Over six months and 12 workshops, more than 300 attendees voiced priorities for themselves, their family, and their neighborhood. These priorities were then connected to climate action. At each workshop, facilitators and participants alike represented Cleveland's diverse population and worked together to identify priorities, many of which are seen in the CAP through objectives that address:

- Vacant land and illegal dumping
- Access to quality, affordable, and healthy food
- Programming needs to help residents save money on energy costs
- Gaps in connecting residents to industries where green jobs are most likely to be found
- Safety issues related to transportation, mobility, and parks
- Youth engagement and the role of education in climate action and resilience

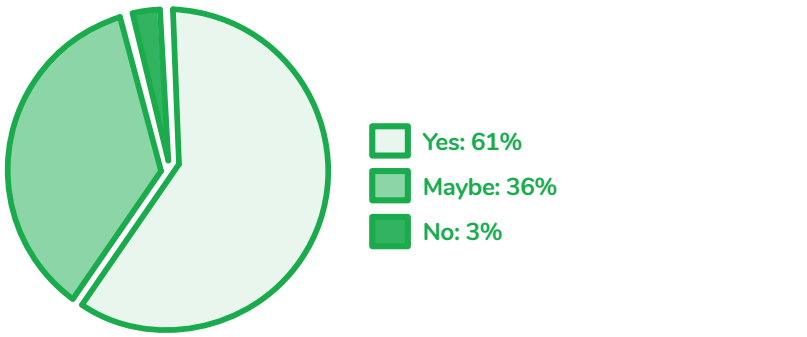
Q: How well do you understand climate change after attending the workshop?



Q: As a result of attending the workshop, how engaged do you feel in the Climate Action Plan and efforts of the City and partners to ensure neighborhood priorities are included in the process?



Q: After attending the workshop are you inspired to do a project?



Each workshop dedicated time to supporting resident projects through the ioby (in our backyard) crowd-sourcing platform and Cleveland Climate Action Fund grants.

The Cleveland Climate Action Fund Crowd-Funding Challenge presented at the workshops inspired over 40 neighborhood projects including (but not limited to): tree plantings, composting of food waste, installations of solar panels, re-activating vacant land, and capturing stormwater. More than half of the project leaders successfully met fundraising goals and received matching dollars through the Cleveland Climate Action Fund. At the end of both rounds of crowd-funding, approximately $120,000 was invested in neighborhood-based climate action projects across the city, which includes $50,000 of Cleveland Climate Action Fund dollars.

Climate Change Overview

Greenhouse Gas (GHG): *Any gas that absorbs infrared radiation (heat) in the atmosphere. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and others.*

Climate Change Adaptation: *Preparing for the impacts of an already changing climate.*

Climate Change Mitigation: *Reducing GHG emissions and lessening impacts from additional warming of the atmosphere.*

The release of ***greenhouse gases*** (GHGs) from the burning of fossil fuels and other sources is increasing the greenhouse effect of the Earth's atmosphere. GHGs act like insulation around Earth, trapping heat and energy in the atmosphere and causing the global temperature to increase. This phenomenon is called the greenhouse effect. It is natural and necessary to support life on Earth, but the excessive buildup of GHGs from burning fossil fuels is changing the Earth's climate resulting in negative impacts on human, environmental, and economic health.

Why Climate Action?

According to the U.S. Environmental Protection Agency, annual temperatures in the Midwest, including Northeast Ohio, have increased over the last several decades. Heat waves are becoming more frequent. Snow and ice are arriving later in the fall and are starting to melt earlier in the spring. Heavy downpours now occur twice as frequently as they did a century ago. These trends are likely to continue under future climate change: average summer temperatures are projected to increase by 3°F over the next few decades, and could increase by over 10°F by 2100 without global action.

Cities are at the front lines of climate change, and Cleveland is no exception. Cities are in a unique position to provide good quality of life for residents. With a greater density of amenities and infrastructure (transit, streets, buildings, etc.), cities offer relatively low levels of GHG emissions per person than in the suburbs or more rural areas. Cities also have a key role to play in ***adaptation:*** preparing people for floods, storms, heat waves, and other impacts of climate change. Addressing climate change head-on through this Climate Action Plan will not only help the city take important steps to ***mitigate*** climate change, but will also provide numerous economic and environmental benefits to Clevelanders that are more equitably distributed.

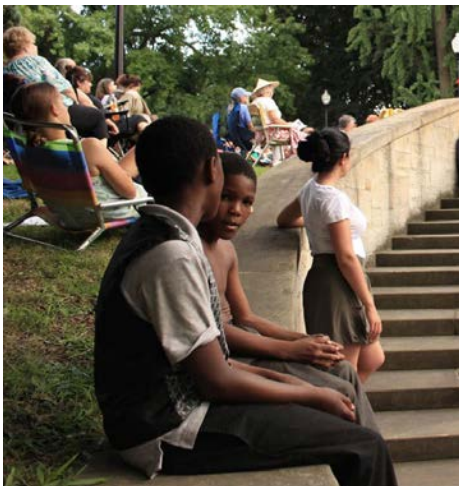
Equity

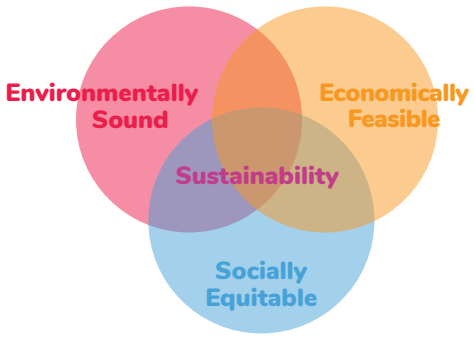
In recent years, negative effects of climate change such as extreme storms and flooding have been shown to disproportionally impact communities of color and low-income communities[1]. For example, low-income populations and communities of color are more likely to[2]:

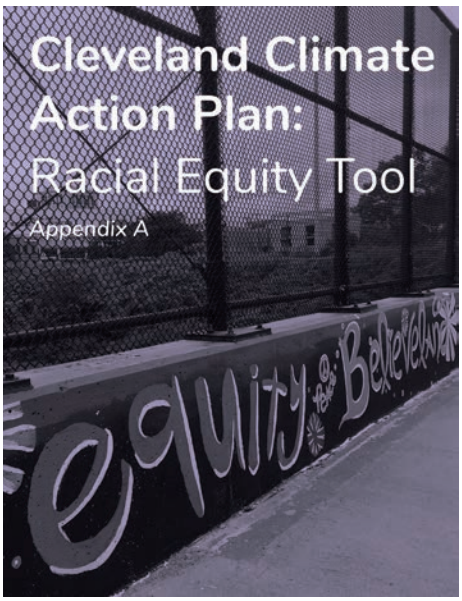
- Live in areas with less green space and to be more vulnerable to heat related and respiratory illnesses
- Be impacted by extreme weather events that occur as a result of climate change due to low access to key information and available programs and services as a result of language, cultural, or geographic barriers
- Have less access to healthy and energy efficient housing, transit, or safe bicycling and walking routes
- Spend a disproportionate amount of their annual income on energy costs (13.3% compared to 3.3% for non-low-income households)

These are among the reasons that ***equity*** serves as the main thread that ties this plan together. One of the advantages of organizing around climate action is that strategies to reduce GHGs and adapt to climate change create many other quality of life benefits. For example, investing in cleaner transportation options also improves air quality and creates safer, more walkable streets, thereby increasing the health and well-being of residents. Prioritizing actions within communities of color and low-income neighborhoods will have a greater impact because they have traditionally been impacted disproportionately by pollution sources and development patterns that both contribute to climate change.

Equity: *Understanding and giving people what they need to enjoy full, healthy lives. Racial equity, in particular, is the condition that would be achieved if one's race no longer predicted how one fares.*[3]







Appendix A: Racial Equity Tool

To help view climate action through an equity lens, CAAC members were supported in taking racial equity training. An equity and engagement subcommittee also formed to develop a racial equity tool *(see* ***Appendix A,*** *Racial Equity Tool)*. This tool was used to assess every objective in this plan for its ability to improve racial equity. These efforts established the foundation for a shared approach for equitable climate action. As an additional resource, our partners at ioby developed A Racial Justice Guide from lessons learned working in Cleveland! Download the guide at:

https://www.ioby.org/resources/guidetoracialjustice

Economy

Cities across the country are experiencing the economic benefits of taking climate action. Cleveland has the potential to achieve similar or better results as other cities, largely because of the unique local opportunities to improve building efficiency and to transition from coal to more sustainable sources of energy.

Perhaps the most compelling economic case for this plan comes from the numbers and types of jobs the actions generate (see ***Appendix B,*** *Green Jobs / Workforce Development Analysis*). Many employment sectors comprise the green job industry, such as green building and construction trades, manufacturing, clean technology, energy, green infrastructure, civil engineers, and other professional/technical trades like environmental policy experts and planners, among others. In Cleveland, where manufacturing and professional/technical trades account for nearly 25% of the Gross Domestic Product (GDP), investment in these jobs is a reinvestment in the long-term stability of the City's economic infrastructure.

The Sustainable Cleveland 2019 initiative is, at its core, focused on sustainable economic development. This plan builds off lessons learned since 2009 by prioritizing actions where business and government can work together to support green job growth.

Environmental

Climate change is having wide-ranging impacts on people and the environment in Northeast Ohio. Generally, these impacts exacerbate existing challenges by putting additional stress on vulnerable populations, infrastructure, and ecosystems. Impacts on public health include 1) more heat-related stress, 2) greater risk of vector-borne illness, and 3) reduced summer air quality in urban areas than would otherwise occur due to increased ground-level pollution.

Climate change will also place additional stress on water resources, a key natural asset in Cleveland and Northeast Ohio. Impacts include 1) warmer water temperature in lakes and rivers causing increased evaporation and heavy precipitation events, 2) increased competition for water, 3) stress on wetlands, 4) reduced hydropower generation, and 5) earlier snowmelt and peak runoff increasing flooding risk.

Additional climate impacts to biodiversity and ecosystems in Northeast Ohio include 1) shift in the distribution and range of species, 2) loss of species not able to adapt to changes and facing increased competition from invasive species, and 3) decline in beach health and more harmful blooms of algae. Note that longer growing seasons over the next few decades will increase yields of some crops, but benefits will be offset by occurrence of extreme events such as heat waves, droughts, and floods.

Through climate action, Cleveland can cement its place among world leaders on climate change, help to preserve a healthy planet for generations to come, and invest in local businesses and infrastructure that allow for the City to thrive. More details can be found in ***Appendix C***, *Social and Climate Vulnerability Assessment.*

Climate Action in Cleveland

Carbon Footprint (aka Greenhouse Gas Inventory): *The total amount of GHGs that are emitted into the atmosphere each year by a person, family, building, organization, or company. A person's carbon footprint includes GHG emissions from fuel that is burned directly, such as by heating a home or riding in a car. It also includes GHGs that come from power plant emissions that make electricity, and landfills where trash is sent.*

[Carbon] Source: *An energy type or other process that emits GHG emissions such as natural gas.*

In 2013, Cleveland released its first Climate Action Plan (CAP), with a commitment to update approximately every 4-5 years. Since that time, we have been able to see significant progress on many of the original plan's actions. This update was made in reference to the 2013 plan as a benchmark for continued improvement in both the outcomes and the process, getting us not only to our emission reduction goals, but ensuring resiliency along the way. To see and understand progress since 2013, please refer to each *Progress Since 2013* section included throughout the focus area objectives.

Cleveland's 2016 Carbon Footprint

To understand the changes in Cleveland's GHG emissions, the city's ***carbon footprint*** for 2016 was calculated and compared to 2010 emissions. The city's emissions from building energy use (electricity and natural gas), transportation (on-road vehicles, marine vessels, and airline travel), and waste (solid waste and wastewater) were calculated for 2016 and compared to the baseline of 2010. Cleveland's carbon footprint has been reduced from 12.8 million **MTCO2e** in 2010 to 12.5 million MTCO2e in 2016, **a 2% decrease**. The trends of emissions by ***source*** is shown in Figure 1.

Since the industrial revolution the world has largely seen economic growth and GHG emissions coupled. So when economic activity goes up so do emissions, and vice versa. With decoupling, like we're starting to see here in Cleveland, economic activity goes up, while emissions go down. When we compare GHG emissions against economic growth as measured by Gross Regional Product (GRP), from 2010 to 2016, we see an ***13% decrease in MTCO2e/GRP.*** This trend needs to accelerate at a global scale to prevent the worst impacts of climate change.

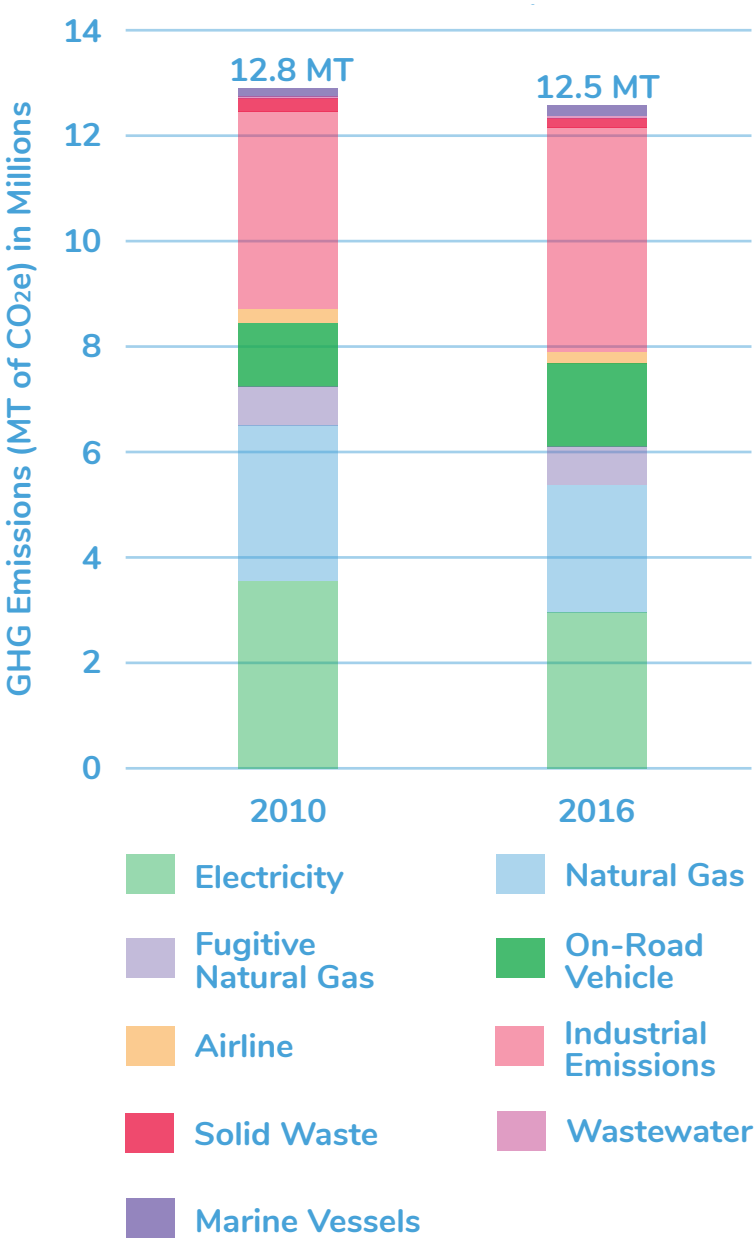
For more information on GHG inventory results and methodology including changes baseline calculations see detailed emissions calculation report in ***Appendix D:*** *Cleveland's Greenhouse Gas Inventory*.

The two major contributors to Cleveland's reduced carbon footprint are: 1) decreased electricity emissions from a shift in the fuel used to generate electricity (largely from coal to natural gas and clean energy) and 2) reduced natural gas use in buildings. These reductions have been partially offset by increased emissions from on-road vehicles and industrial processes since 2010, largely due to economic recovery since the recession.

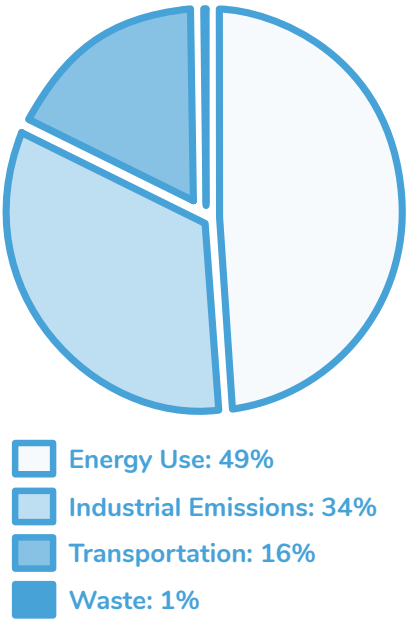
Sector: *A descriptor used to identify the subset of a community responsible for the emissions (ex: the residential sector)*

MTCO2e: *Metric tons of carbon dioxide equivalent, a common unit of measurement when looking at climate action measures. The unit "CO2e" represents an amount of a GHG whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) of the gas.*

Figure 1: City of Cleveland GHG Emissions 2010–2016 by Source



2016 City of Cleveland GHG Emissions by Sector



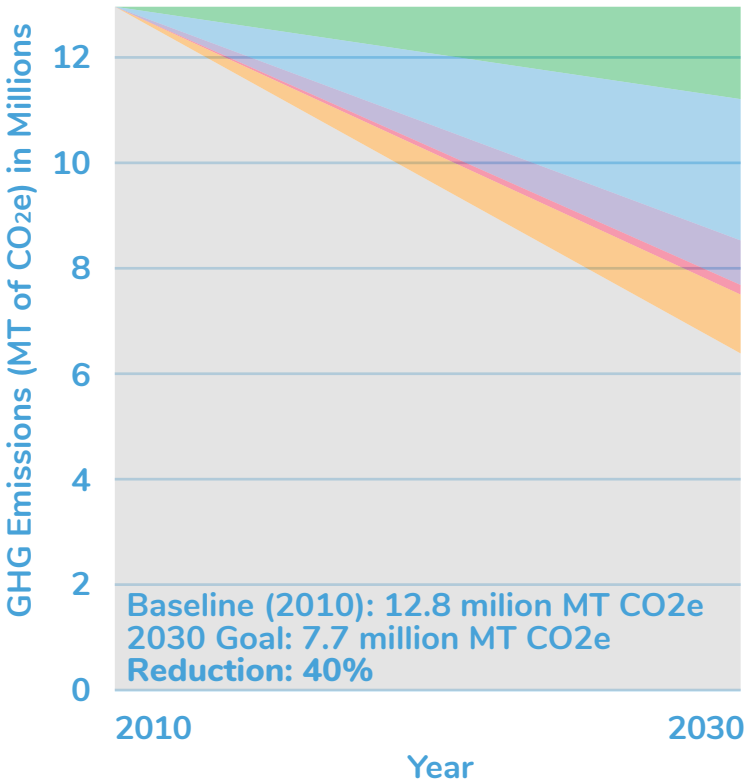
Cleveland's Carbon Footprint Reductions from 2010 to 2016:

2%
Overall

10%
Overall (excluding industrial emissions)

13%
While experiencing an overall increase in economic growth
(MTCO2e/GRP)

Figure 2: Process for Achieving Our 2030 Goals by CAP Focus Area



Reduction by Focus Area:

- 1.6 million MT CO2e
- 2.5 million MT CO2e
- .4 million MT CO2e
- <0.1 million MT CO2e *
- <0.1 million MT CO2e *
- 0.6 million MT CO2e

*Actions in these two focus areas tend to improve resilience rather than reduce emissions

Measuring Progress

Figure 1: The two major contributors to Cleveland's reduced carbon footprint are: 1) decreased electricity emissions from a shift in the fuel used to generate electricity (largely from coal to natural gas and clean energy) and 2) reduced natural gas use in buildings. These reductions have been partially offset by increased emissions from on-road vehicles and industrial processes since 2010, largely due to economic recovery since the recession.

Figure 2: This figure shows how the implementation of Cleveland's CAP will reduce the city's carbon footprint by 40% by 2030, compared to a 2010 baseline. It also shows the relative saving potential of the different Focus Areas.

Plan Framework

The main components of the CAP are:

Focus Areas are the main themes and organizing structure of the Climate Action Plan. Specifically, the Focus Areas include:

- **Energy Efficiency and Green Building**
- **Clean Energy**
- **Sustainable Transportation**
- **Clean Water and Vibrant Green Space**
- **More Local Food, Less Waste**

Cross-Cutting Priorities are addressed throughout the CAP across all focus areas. They include:

- **Social and Racial Equity**
- **Good Jobs, Green Jobs**
- **Climate Resilience**
- **Business Leadership**

Each priority is discussed in more detail in each of the focus areas. For more information, see the Cross-Cutting Priorities section for an overview. Appendices A,B,C & F include analyses and resources that support Cross-Cutting Priorities.

Objectives summarize what the Cleveland community plans to achieve and are used to organize the various Actions. There are 28 Objectives across the five Focus Areas and Cross-Cutting Priorities.

Goals embody the desired outcomes that the Cleveland community intends to achieve for each Focus Area. Where applicable, Goals include numeric targets and time frames for achieving these targets. In other instances, goals are more qualitative but still articulate a desired future end state.

Actions consist of specific strategies that will be implemented to meet the Goals and Objectives. At this level projected costs and benefits were analyzed to help scale and prioritize possible actions. For any given Goal there are generally several supporting Actions.

The objectives by Focus Area as they relate to the Cross-Cutting Priorities are shown in the table on the following spread. For more detail on the Actions that support each Objective, see ***Appendix E***. The impact of each of the objectives on the City's carbon footprint is shown on page 15. Additionally, this plan offers a detailed roadmap for community climate action. It does not provide every step needed to reach the goals and implement the actions. That will be up to key stakeholders and other partners.

Note that the City of Cleveland has a separate sustainability plan, called the Sustainable Cleveland Municipal Action Plan, which focuses more on leading by example in City operations. The City's operations represent about 5% of the total emissions in the community, pointing to the need for community-wide collaboration that this Climate Action Plan represents.

Look for Actions throughout the Focus Area section marked with this symbol, indicating strong potential to help advance Social & Racial Equity in Cleveland

FOCUS AREAS

ENERGY EFFICIENCY & GREEN BUILDING
Projected CO2e Reduction:
1.6 million MT

CLEAN ENERGY
Projected CO2e Reduction:
2.5 million MT

SUSTAINABLE TRANSPORTATION
Projected CO2e Reduction:
.4 million MT

OBJECTIVES

1. Make more homes affordable, comfortable, healthy, and energy efficient
2. Prioritize energy efficiency in small and mid-size businesses
3. Support community hubs to be more efficient and resilient
4. Promote new construction and major renovations that meet high green building standards
5. Generate more solar energy locally
6. Improve access to affordable clean energy for residents and small organizations
7. Reduce commerical and industrial emissions with advanced technologies
8. Establish an offshore wind industry in Northeast Ohio
9. Use advanced technology to build a cleaner, safer, smarter city
10. Support clean energy policy
11. Drive cleaner, more efficient vehicles
12. Build transportation systems that prioritize safety for all
13. Increase use of public transit through regional collaboration
14. Make Cleveland a premier cycling city
15. Continue to green Cleveland's ports

*THE OBJECTIVE NUMBER IS NOT INDICATIVE OF RELATIVE IMPORTANCE.

CLEAN WATER AND VIBRANT GREEN SPACE

Projected CO2e Reduction: <0.1 million MT

16 Update land use policy to foster health, equity and sustainability

17 Reduce dumping through vacant land reuse and education

18 Implement the Cleveland Tree Plan to grow and maintain a healthy urban forest

19 Improve access to clean and safe public parks

20 Scale up stormwater management

21 Improve water quality and conservation

MORE LOCAL FOOD, LESS WASTE

Projected CO2e Reduction: <0.1 million MT

22 Encourage waste reduction and diversion in homes and businesses

23 Reduce food waste and hunger

24 Enhance the local food system and resident access to high quality, affordable, healthy food

CROSS-CUTTING PRIORITIES

Projected CO2e Reduction: 0.6 million MT

◀ The size of the icons indicates how much the Focus Area supports these priorities

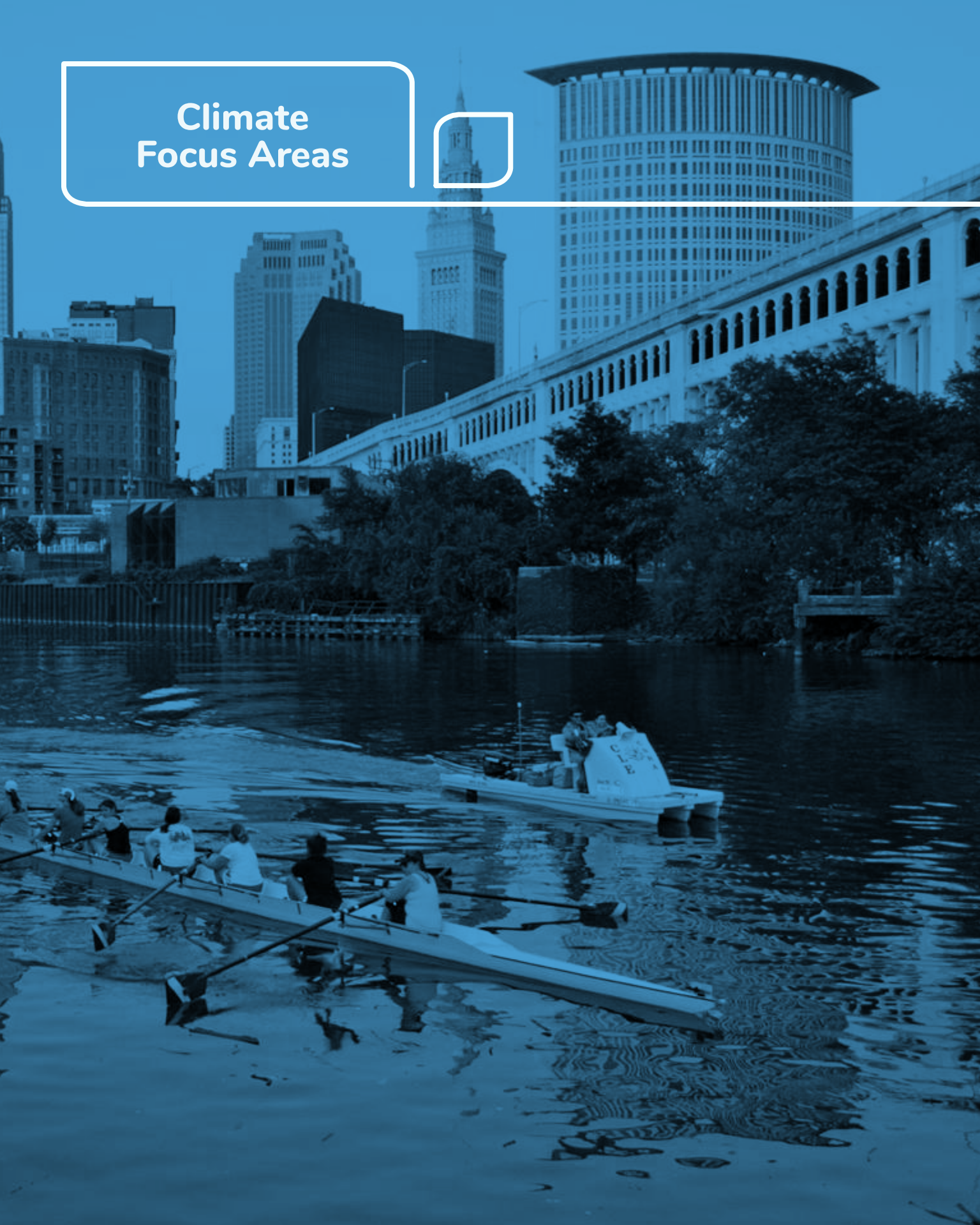
25 Engage residents to advance equity in climate action

26 Advance green jobs through workforce development

27 Support and recognize local businesses taking climate action

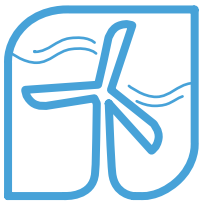
28 Improve resilience to climate change and other impacts

Climate Focus Areas



The Climate Action Plan (CAP) was developed by many stakeholders with commitments to reduce the negative impacts of climate change through the CAP Focus Areas. The following sections are meant to provide a snapshot of the many ways each Focus Area contributes to climate action as they contain relevant key facts, main goals, cross-cutting priorities this area can advance, and an overview of the corresponding objectives and actions that make up the plan. For a more detailed description of plans for action implementation, refer to **Appendix E**, *"Climate Action Implementation Plans."*

Energy Efficiency & Green Building



Clean Energy

Sustainable Transportation

Clean Water & Vibrant Green Space

More Local Food, Less Waste

Cross-Cutting Priorities

ENERGY EFFICIENCY & GREEN BUILDING

729

non-residential heating, ventilation, and cooling (HVAC) contractors were employed in Cleveland in 2015 with an average wage of

$60,200

These people are instrumental in both energy efficiency retrofits in existing buildings and the construction of new high-performing buildings.

Summary

The business case for energy efficiency and green buildings is strong. They have lower utility and maintenance costs, less risk from energy price volatility, increase property values, improve health and productivity of occupants, create local jobs, and much more. Scaling up green building practices across the city is critical to ensuring every neighborhood and business receives these benefits.

Key Facts

- In 2016, building energy use was the source of 44% of all GHG emissions for the City of Cleveland.
- In 2015, Ohioans spent roughly $3,600 per person annually on energy, according to the Energy Information Administration, which is down from $4,700 per person in 2010 (due to increased production of natural gas and residential pricing lower than the US Average for this resource).
- Workers in green, well-ventilated offices record a 101% increase in cognitive scores (brain function)[4].

Goals

- By 2030, reduce residential and commercial energy use 50% and industrial use by 30%.
- All large commercial and industrial buildings are tracking and managing their energy use by 2023.

Objectives

1. **Make More Homes Affordable, Comfortable, Healthy, and Energy Efficient**
2. **Prioritize Energy Efficiency in Small and Mid-Size Businesses**
3. **Support Community Hubs to be More Efficient and Resilient**
4. **Promote New Construction and Major Renovations that Meet High Green Building Standards**

Cross-Cutting Priorities

Social & Racial Equity

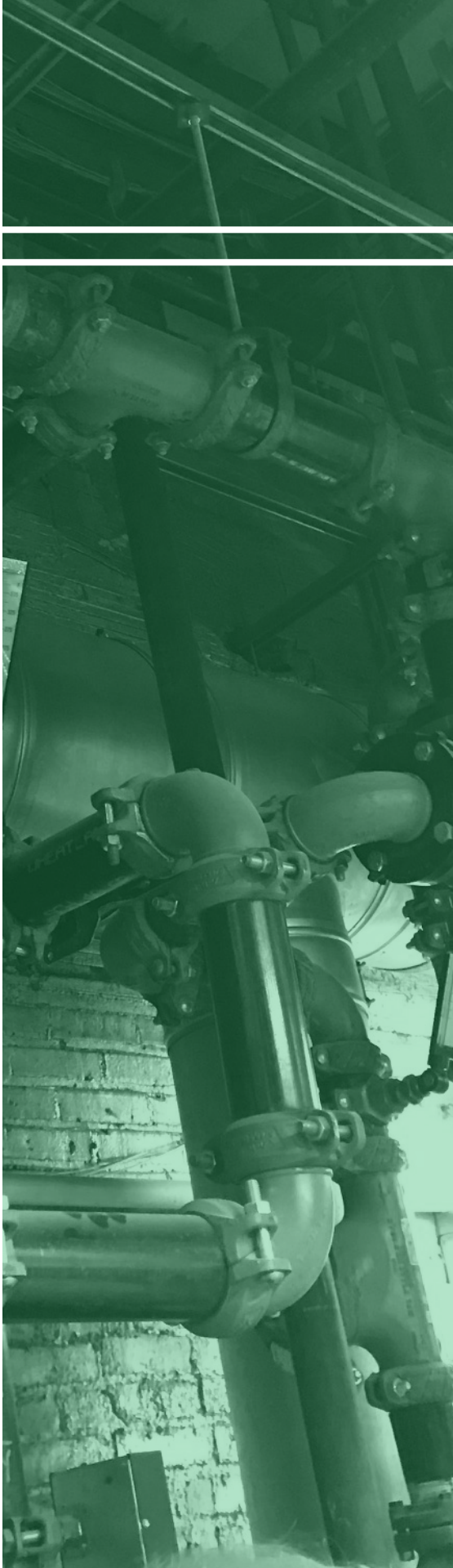
Policies implemented in the 1920s and applied through much of the 1960s made securing a loan to repair or renovate your home or purchase a home in a nicer neighborhood impossible for many black Clevelanders (Zeltner, 2016). One consequence is that many homes in predominantly black neighborhoods have fallen into disrepair. Greening these homes not only makes utility bills more affordable, but also provides a healthier environment for occupants.

Good Jobs, Green Jobs

Industries to watch focus on products and services to improving energy efficiency and building performance, including:

- New construction and remodelers
- Electrical, plumbing and HVAC (heating, ventilation, and cooling) contractors
- Architectural and engineering services
- Lighting equipment manufacturing

In 2017, total employment in these industries in Cleveland was 6,276 and average annual wages were $68,038.



Climate Resilience

As climate change brings more extreme heat to Cleveland, heat-related illnesses will become more prevalent and have a disproportionate impact on poor and elderly populations. More frequent heavy rain events will also have an impact on basement flooding. By making homes, businesses, and community hubs more efficient and resilient to extreme weather, these buildings can provide comfortable and safe places to shelter for those most vulnerable.

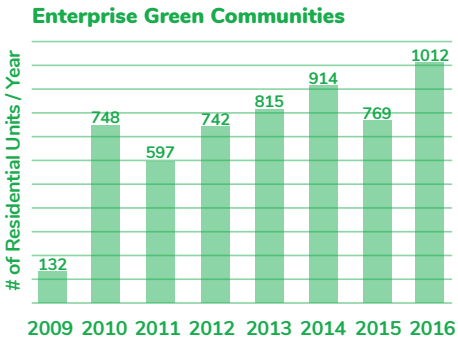
Business Leadership

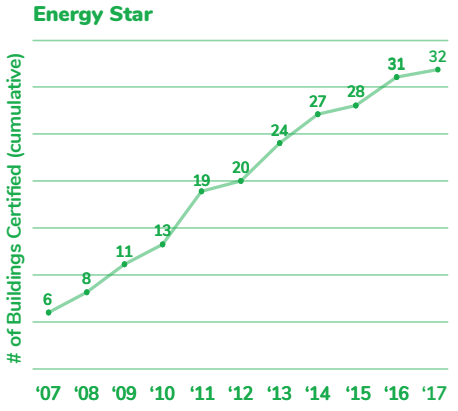
By investing in energy efficiency measures, Cleveland businesses can reduce energy price volatility, decreasing costs, and increase profits. Green buildings not only cost less to operate, but are also proven to improve worker retention and productivity.

Objective 1: Make more homes affordable, comfortable, healthy, and energy efficient

Summary

Cleveland's aging building stock and improving economy create opportunities for improved energy efficiency of existing older homes. This can be done through better insulation and air sealing, more efficient heating and cooling equipment, and efficient appliances and electronics. Key benefits include residents less burdened by utility costs and homes that are healthier and more comfortable.





Progress since 2013

- Cleveland Energy$aver, Cleveland's energy efficiency program, re-launched
- Northeast Ohio Public Energy Council (NOPEC) launched *My Energy My Way*
- The National Healthy Housing Center's ranking for Cleveland is currently 22 out of 45, with a prior rank of 35
- Dominion Energy Ohio and First Energy providing energy efficiency incentives to homeowners
- City of Cleveland and Cuyahoga County launch programs to combat lead poisoning; specific departmental efforts from the City's *Healthy Homes Interdepartmental Initiative* include:

  Cleveland Department of Health *increased lead investigations and enforcement*; Building and Housing *created the Rental Inspection Healthy Homes Initiative*; Community Development *awarded HUD funding to provide grants to eligible families for lead hazard repairs*

Actions

a Educate owners and tenants of affordable, multifamily housing about cost-savings gained from energy efficient homes through training programs

b Hold regular workshops with building contractors on green building best practices

c Expand marketing plan for home weatherization citywide

d Pursue coordinated one-touch approach to expand low-income housing programs by layering healthy homes, lead, and weatherization programs

e All local utilities provide energy efficiency incentives and other resources to customers

Objective 2: Prioritize energy efficiency in small and mid-size businesses

Summary

Increasing energy efficiency in commercial and industrial properties can significantly increase savings on energy bills. Efficient buildings cost less to operate, adding directly to bottom-line profits for local businesses.

Progress since 2013

- As of 2017, Cleveland 2030 District signed up 50 building owners (representing 57 million square feet) to reduce energy use, water use, and transportation emissions, all supported by 60+ professional and community partners. These buildings have reduced the energy use per square foot by about 20%.
- Over the last several years COSE (Council of Smaller Enterprises) has conducted more than 1,000 energy audits (and 100 more per year through 2024), saving businesses millions
- Case Western Reserve University (CWRU) has developed an Industrial Assessment Center through the U.S. Department of Energy
- U.S. Green Building Council Ohio, NEO Region, restructured, partnered with Cleveland 2030 District on Annual Green Building Challenge

Actions

a Coordinate and expand green building support to more sectors and neighborhoods

b Explore energy efficiency policy options, including mandatory benchmarking and disclosure programs

c Establish a local Industrial Assessment Center to support students and manufacturers in advancing energy efficiency

d Become a leader in US DOE's Better Buildings Program and Better Plants Program through expanded engagement

Objective 3: Support community hubs to be more efficient and resilient

Summary

Community hubs that implement best practices of energy efficiency and resiliency are integral to a community's ability to respond during extreme weather events. If the grid goes down or Cleveland experiences extreme heat or cold snaps, buildings like rec centers, libraries, schools, community development corporations (CDCs), and places of worship can serve a critical role for residents in need.

Progress since 2013

- Burten, Bell, Carr Development Inc. piloted an effort to make its building resilient in the face of extreme weather.
- A number of places of worship working to install solar on-site.
- 21 LEED certified educational facilities in Cleveland (Cleveland Metropolitan School District, Case Western Reserve University, Cleveland State University, Cleveland Public Library, Cuyahoga Community College), with many others currently in design.

Actions

a Work with neighborhoods to identify and connect community hubs with limited resources to existing programs

b Ensure energy efficiency and resiliency are prioritized in new school construction and retrofits

Objective 4: Promote new construction and major renovations that meet high green building standards

Summary

Modern green building standards not only focus on ensuring an energy efficient building, but also an environment that promotes well-being. Buildings that meet these standards are less expensive to operate and maintain, improve employee retention, and lead to healthier and more productive occupants.

Progress since 2013

- The City of Cleveland's Green Building Standard, which must be met to receive residential property tax abatement, was updated.
- In 2016, Ohio was the only state to receive a perfect score in Global Green's analysis of green building criteria in low-income housing tax credit programs.
- The Cleveland Clinic's Center for Functional Medicine achieved WELL building certification, which places additional emphasis on the connection between building performance and human health.
- Development of statewide green building council (U.S. Green Building Council Ohio, Northeast Ohio Region).

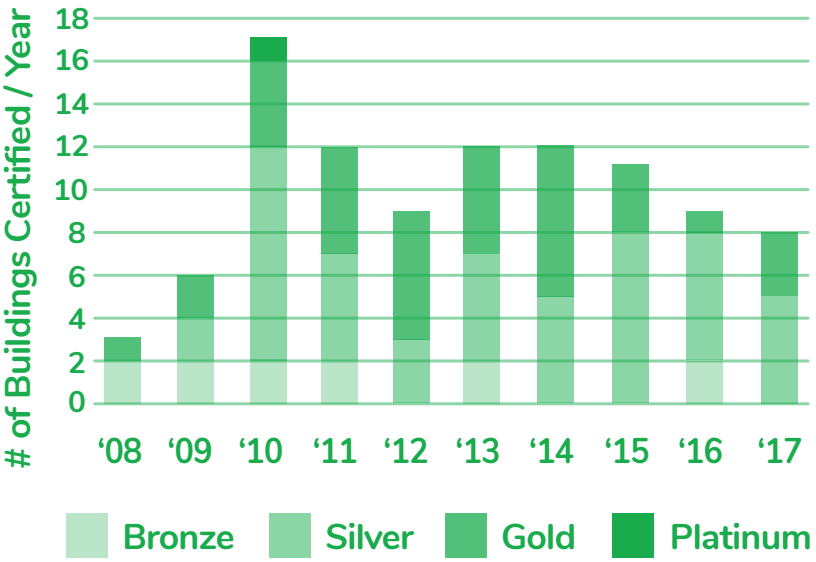
Actions

a Develop more formal green policy for new commercial buildings that goes beyond code, especially for those projects receiving public money

b Update Cleveland Green Building Standard to incorporate new codes, support higher performance building, and advance social equity

c Incentivize continued use of financing tools to promote green building

LEED Certified Buildings in the City of Cleveland



CLEAN ENERGY

Employees in the manufacturing of specialty transformers vital to the expansion of clean energy have an average annual wage of

$84,500

Summary

Renewable energy sources are clean, inexhaustible, and increasingly cost competitive. Investing in solar, wind, and other advanced forms of energy generation creates good local jobs, supports economic development, and helps us breath easier. Clean energy includes renewable and advanced energy technologies; combined with energy efficiency and conservation, clean energy provides Cleveland with its greatest opportunity to reduce GHG emissions. The goals and objectives in this Focus Area lay the path for Cleveland and Northeast Ohio to be a national leader in clean energy.

Key Facts

- Renewable portion of electricity generation profile increased from 7% in 2010 to 18% in 2016 for Cleveland Public Power and 2% to 4% for First Energy.
- Known renewable energy installations across Northeast Ohio increased from 0.24 MW installed at 9 facilities in 2010 to 15.02 MW installed across 178 facilities in 2017, generating approximately 19 million kWh of clean electric power—enough to power over 2,000 Cleveland homes.
- 49% of emissions come from electricity and gas use.

Goals

- 25% of electricity used in Cleveland is supplied by renewable sources by 2030 (15% by 2022)
- Ensure all residents and businesses have access to affordable clean energy programs.
- 100% of electricity demand from clean, renewable energy by 2050

Objectives

5 **Generate More Solar Energy Locally**

6 **Improve Access to Affordable Clean Energy for Residents and Small Organizations**

7 **Reduce Commercial & Industrial Emissions with Advanced Technologies**

8 **Establish an Offshore Wind Industry in Northeast Ohio**

9 **Use Advanced Technology to Build a Cleaner, Safer, Smarter City**

10 **Support Clean Energy Policy**

Cross-Cutting Priorities

Social & Racial Equity

Fossil fuel energy generation have been shown to disproportionally impact low income communities and communities of color. According to a study by the National Association for the Advancement of Colored People (NAACP), people living near the 75 dirtiest coal plants in the county had an average income 25% lower than their state average and almost 53% were people of color (Wilson, 2016). One of the plants identified in the report was the Lake Shore power plant in Cleveland, decommissioned in 2015. Communities living near these facilities have a higher exposure to the particulate matter and other pollutants emitted, therefore increasing the related health risks such as asthma and other lung diseases. At the same time, growing the clean energy economy creates opportunity for good local jobs for those most in need.

Good Jobs, Green Jobs

Industries to watch focus on products and services related to the generation of electricity, heat, or fuel from renewable sources, including:

- Power generation from renewable sources (solar, wind, geothermal, biomass, and other)
- Manufacturing of turbines and turbine generator set units
- Manufacturing of storage batteries
- Lighting equipment manufacturing

In 2017, total employment in Cleveland in these industries was 73 and average annual wages were $82,832.

Note: These industries encompass the manufacturing of clean energy equipment and installation at a large (utility) scale, but the installation of building-scale equipment is likely included in the electrical contractor industry, which is included with Energy Efficiency and Green Building employment figures. According to the Solar Jobs Census, there were 586 solar jobs in Cuyahoga County in 2017 (data are unavailable from this source for the City of Cleveland). According to the 2018 Clean Jobs Midwest Report, in Cuyahoga County, total Clean Energy jobs totaled 13,806, Renewable Energy jobs 1,321 and Energy Efficiency Jobs 10,967.

Climate Resilience

As climate change brings more frequent and more intense heat waves, widespread brownouts become more likely due to increased use of air conditioning. These brownouts can be combated by investing in local solar generation with storage capacity. Batteries store the energy produced by renewable energy and, in the event of a brownout, can be used to power facilities. For example, installation of this technology at elder care facilities could prevent serious consequences on the health of residents by preventing power interruptions.

Business Leadership

Local businesses can help advance clean energy by purchasing clean energy or installing renewable energy generation at their own facilities. Onsite generation with storage can help ensure the business' power and operations will not be interrupted in the case of a power brownout or power outage.

Objective 5: Generate more solar energy locally

Summary

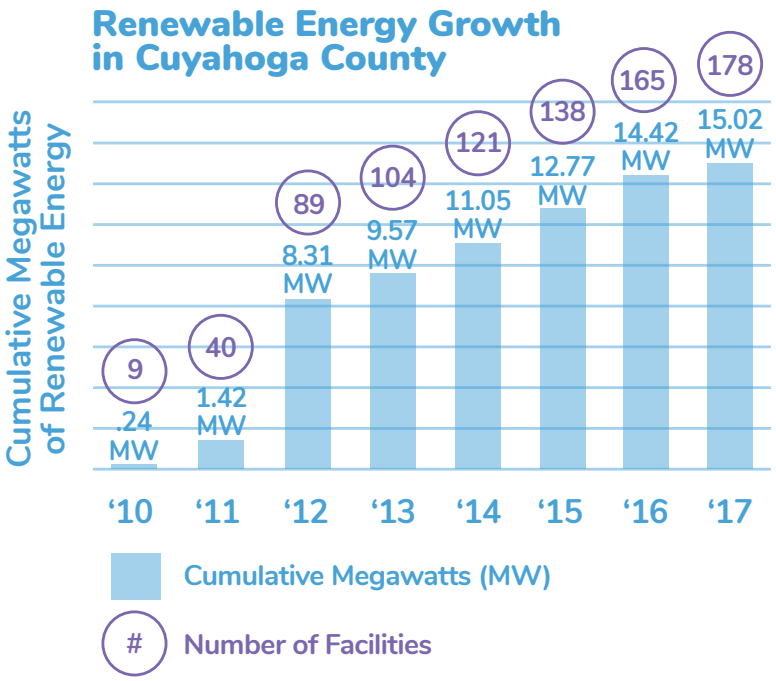
Solar energy can reduce building energy costs, improve property values, and help utilities better manage times when energy demand is highest. Approximately 71% of buildings in Cleveland are solar-viable (Google, 2018). Cleveland and Northeast Ohio have a great opportunity to build off recent successes to significantly expand solar in our community—now is the time to take advantage.

Actions

- a Gain recognition as a SolSmart Silver or Gold level city
- b Partner on a county-wide solar strategy to expand solar, especially to low and moderate income households
- c Identify and install community solar projects on vacant and/or contaminated land

Progress since 2013

- The City completed a "Solar Roadmap" assessment to identify goals around permitting, planning and zoning, financing, and market development to transform Cleveland into a successful solar community (Solar Roadmap, 2018). This led to the City being designated a "SolSmart Bronze" community in 2017 for advancing solar energy growth.
- Cleveland released a Solar Energy Guide in 2017, making it easier to go solar.
- Cuyahoga County completed two rounds of a solar co-op, resulting in about 20% savings on solar installation for nearly 100 homes.
- Three large solar installations on brownfields/landfills took place, with more opportunities assessed.



Source: Public Utilities Commission of Ohio (PUCO): Approved cases of Renewable Energy Installations

Objective 6: Improve access to affordable clean energy for residents and small organizations

Summary

Generating clean energy on-site is not always feasible for businesses or households for a variety of reasons. This objective uses innovative approaches to make clean energy available to more people and organizations.

Progress since 2013

- City of Cleveland Incorporated renewable energy into 2013, 2015, and 2018 electric aggregations for CEI (First Energy) customers. The result is 100% clean energy (through the purchase of Renewable Energy Certificates) for over 50,000 residents and 5,000 small businesses.
- Cleveland joined the Department of Energy's Clean Energy for Low Income Communities Accelerator (CELICA).

Actions

a Continue to incorporate renewable energy projects into community choice aggregations

b Create community-wide Clean Energy Equity plan to support low-income residents and small organizations to purchase renewable energy

Objective 7: Reduce commercial & industrial emissions with advanced technologies

Summary

To meet our air quality and GHG reduction goals, we must continue to reduce industrial process emissions per unit produced. These emissions make up 34% of the City's overall emissions. While total process emissions have increased since 2010, they have not risen at the same pace as the increase in production, pointing to improved efficiency.

Clean energy is about much more than electricity. It also includes generating gas, steam and chilled water with lower carbon sources, as well as cogeneration.

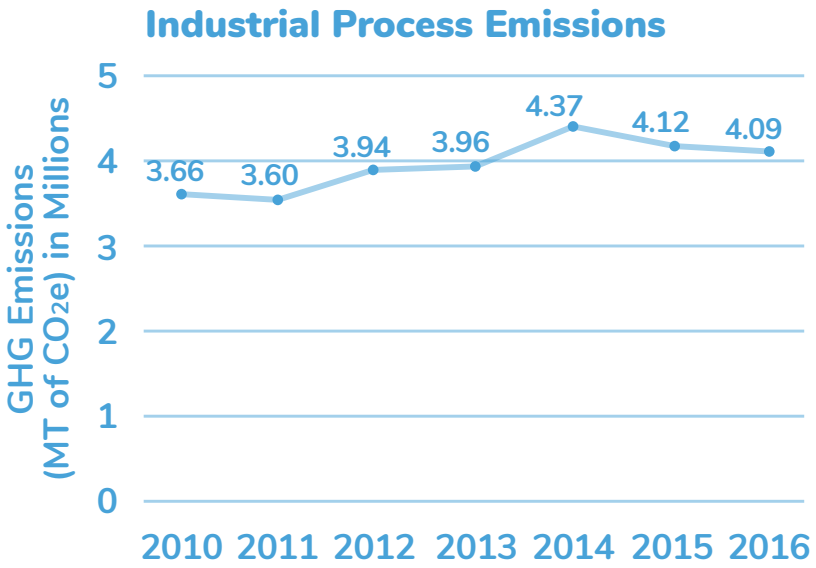
Progress since 2013

- Cleveland Thermal switched from coal-fired boilers to high-efficiency natural gas units in 2016, which reduced the facility's emissions by 18% compared to 2010. The Medical Center Company also transitioned away from coal to natural gas.
- Select manufacturers (Alcoa, ArcelorMittal, Great Lakes Brewery, Mitchell's Ice Cream, Talan, etc.) have made progress.
- Grind2Energy expanded in Cleveland to serve bio digesters (e.g. Quasar's Collinwood BioEnergy).

Actions

a Identify opportunities for facilities to repurpose waste to energy without burdening residents

b Pursue more cogeneration (or combined heat and power)



ArcelorMittal USA is the first integrated steel company to sign on to the U.S. Department of Energy's Better Plants program, committing to reduce energy use per ton of steel produced by 10% in 10 years, starting in 2013. Contributing toward this goal, ArcelorMittal's Cleveland facility reduced its energy intensity by more than 2% in the first three years of the program, while total steel production has increased. In 2018, the Cleveland plant, which employs about 1900 people, was the first integrated steel mill in the country to earn DOE's '50001 Ready' designation for energy management.

Objective 8: Establish an offshore wind industry in Northeast Ohio

Summary

Offshore wind represents a large, nearly untapped resource for clean energy. The Lake Erie Energy Development Corporation (LEEDCo) has made significant progress in recent years to make Cleveland home to the first freshwater project in North America. The Icebreaker Wind project, a 20.7-megawatt (MW) demonstration wind farm, will connect with the Cleveland Public Power Transmission system and is expected to create over 500 jobs, bringing $168 million into the local economy. This objective is focused on bringing this project to finish line and setting the stage for a new industry in Northeast Ohio.

Progress since 2013

- The Icebreaker Wind project has made progress in the siting and permitting process from both the state and federal levels (LEEDCo, 2018).
- In May 2016, Icebreaker Wind won a $40 million grant from U.S. DOE for construction.
- Over 350 local companies registered for a Supply Chain Open House held in December 2016.

Actions

a Complete Icebreaker Wind Pilot Project

b Develop strategy to establish an offshore wind industry in NEO

Objective 9: Use advanced technology to build a cleaner, safer, smarter city

Summary

Through collaborations with public, private, and industry leaders, Cleveland is making progress in becoming a smart city; that is, using technology to improve quality of life and safety. Energy plays a big role in this transformation, but only if the entire community speaks with one voice around smart cities, and all Clevelanders benefit from new technologies.

Clean energy initiatives reduced the city's emissions by about

664,000

MTCO2e, which is about

30%

of the total impact expected from these objectives by 2030

Progress since 2013

- City of Cleveland completed LED Streetlight pilot.
- Cleveland Water completed Automated Meter Readings rollout. These meters have helped over 10,000 customers fix leaks, which also reduces energy use associated with pumping water.
- Electric utilities completed smart meter pilots.

Actions

- a Complete Cleveland microgrid feasibility study and begin implementation
- b Expand the use of smart grid technologies, including smart meters
- c Complete LED Streetlight project and expand on smart technology capabilities

Objective 10: Support clean energy policy

Summary

State and Federal policies focused on clean energy are critical to facilitating renewable energy development. Local government and large institutions can do a lot to spur clean energy, but good state policy is especially important to support Cleveland's leadership in clean energy. For example, a state law on setback requirements has basically halted wind energy development in Ohio.

Progress since 2013

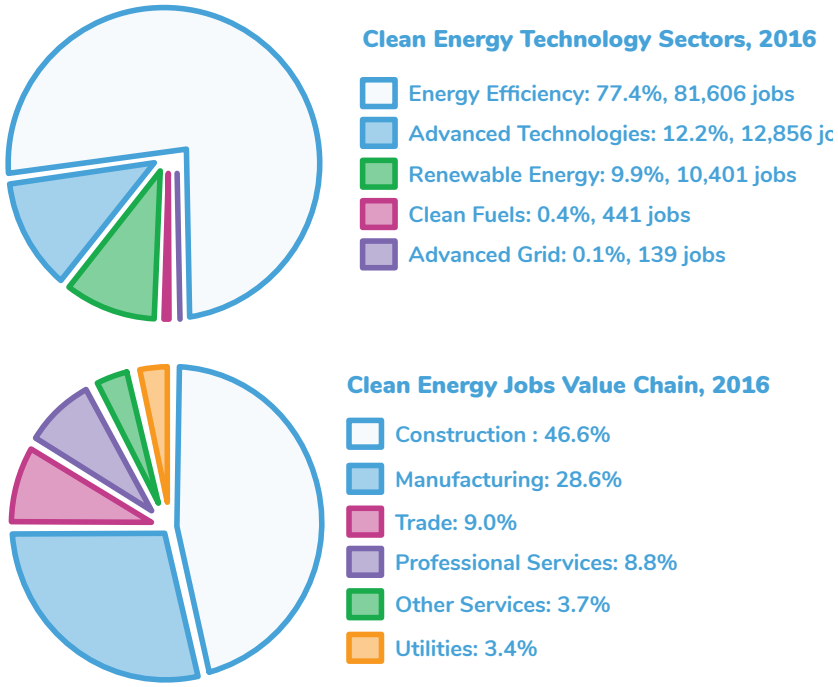
- The Ohio Renewable Portfolio Standards, which requires investor-owned utilities (IOUs) to support clean energy, was "frozen" in 2015-16. The Standards were weakened, but reinstated, in 2017. This also resulted in IOU's once again offering energy efficiency incentives to residents and businesses.
- In 2017, Cleveland Public Power provided 22.5% renewable energy and First Energy provided 4.5% renewable energy.

Actions

a. Help strengthen statewide standards to ensure support for energy efficiency and renewable energy

b. Meet Cleveland Public Power renewable energy targets, using local renewable energy generation where feasible

c. Explore county-wide incentives for clean energy development



ABOVE: Manufacturing makes up 30% of clean energy value chain in Ohio, the second largest in the Midwest

Courtesy Clean Jobs Midwest 2017, www.cleanjobsmidwest.com

SUSTAINABLE TRANSPORTATION

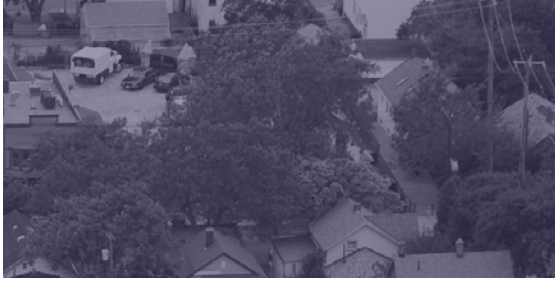
Total estimated emissions from transportation increased

16%

between 2010 and 2016

Summary

Since 2013, emissions reductions in other Focus Areas have been partially offset by an increase in transportation emissions, even though vehicles themselves have become more efficient. The simple explanation is that Clevelanders who drive are driving more. Relatively low gas prices, limited state support for public transit, regional land use planning, subsidized parking, and recovering from the recession are all factors. Addressing these challenges will not only reduce emissions, but also clean our air and provide more affordable mobility options to all Clevelanders.



Key Facts

- On-road transportation contributes 15% of the total GHG emissions for the City, and emissions from passenger cars and trucks make up about 80% of all on-road emissions.
- Commuters driving alone decreased by 1% from 69% in 2010 to 68% in 2016 (US Census Bureau, 2018).
- Clevelanders travel an average of 26 miles per day, which is up from 17 miles per day in 2010.

Goals

- Reduce vehicle miles traveled and the share of vehicles on the road whose only occupant is the driver from 70% to 65% by 2020, 55% by 2030
- Make progress in meeting Vision Zero goal to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all
- Northeast Ohio achieves air quality attainment by 2021

Objectives

11 **Drive Cleaner, More Efficient Vehicles**

12 **Build Transportation Systems that Prioritize Safety for All**

13 **Increase Use of Public Transit Through Regional Collaboration**

14 **Make Cleveland a Premier Cycling City**

15 **Continue to Green Cleveland's Ports**

Cross-Cutting Priorities

Social & Racial Equity

Access to reliable transit systems is important for the health and wellbeing of Cleveland's residents, especially for low income and elderly individuals. In 2016, about 25% of Cleveland households did not have a personal vehicle available (US Census, 2018). For many people, walking, cycling, and public transportation are often the only options available to access goods, health care, and employment.

1,376
people were employed in the operation and management of the mixed-mode transit system with an average wage of
$79,000.

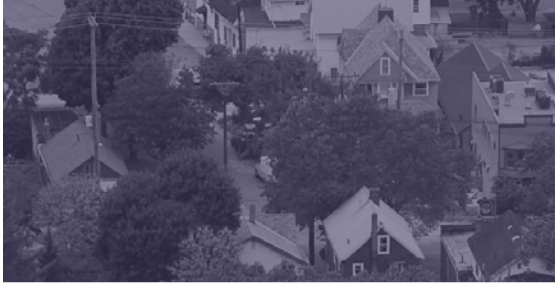
Good Jobs, Green Jobs

Industries to watch include products and services related to the efficient movement of people and goods:

- Mixed mode transit systems
- Commuter rail and bus transit systems
- Transportation program administration
- Automotive repair

In 2017, total employment in Cleveland in these industries was 2,603 and average annual wages were $67,229.

Just as important is the critical role sustainable transportation plays in getting people to work. According to the Cleveland Federal Reserve, while access to transit in Northeast Ohio is better than the national average, less than one-third of the region's jobs can be accessed by transit in 90 minutes or less.



Climate Resilience

While the long-term impact of climate change on Lake Erie's water levels is unclear, trends point to greater fluctuation of water levels in the shallowest of the Great Lakes, impacting shipping. Over the last half-century we've also witnessed, on average, 20 more freeze-free days per year on Lake Erie, which also impacts commercial navigation. Even minor impacts on the harbor's operation could impact Cleveland's economy, which supports 20,273 harbor-related jobs directly or indirectly according to a 2015 report (Martin Associates, 2016). Finally, more freeze-thaw events reduces the life of infrastructure, including roads.

Business Leadership

By providing transit-based benefits such as RTA's commuter advantage program to their employees, business can support employee retention while reducing needs for parking. NOACA's Commuter Choice Challenge highlights the full range of activities organizations can take to support sustainable transportation.

Objective 11: Drive cleaner, more efficient vehicles

Summary

By making cleaner vehicles more accessible, the GHG emissions and air pollution can be reduced without requiring significant behavior changes. A cleaner vehicle can also be cheaper to own and operate. Switching from a traditional gasoline vehicle to an electric vehicle could save the average Cleveland resident $755 per year (Union of Concerned Scientists, 2017).

Progress since 2013

- Increase in electric vehicle charging stations and alternative fuel vehicle events
- RTA adds 60+ compressed natural gas (CNG) buses
- City of Cleveland, CMHA, and UCI completed an assessment of their fleets for alternative fuel vehicles
- In 2018, the Public Utilities Commission of Ohio approved a $10 million plan to install 375 charging stations across Ohio

Actions

- a Develop citywide and regional strategy to expand electric vehicle fleets and charging infrastructure
- b Examine potential for clean vehicle car sharing, and how best to provide community support
- c Develop plan for compressed natural gas (CNG) and propane fueling infrastructure
- d Implement approaches for promoting and enforcing anti-idling

Objective 12: Build transportation systems that prioritize safety for all

Summary

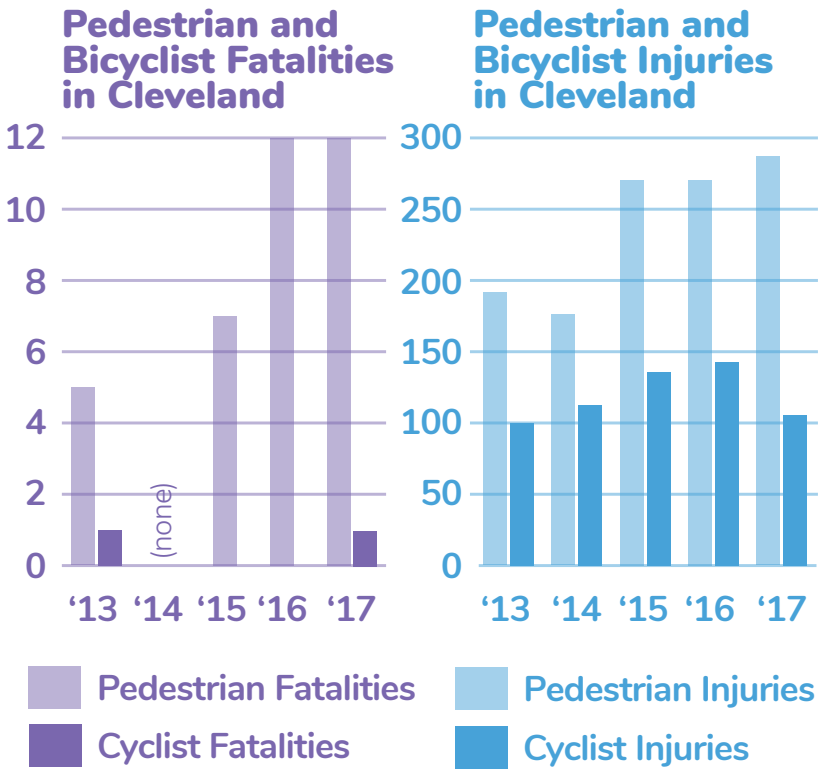
Public safety is a top priority in Cleveland, with transportation serving a big role. From 2011-2015 in Cuyahoga County there were 120,032 crashes, with the largest percentage of crashes being in the City: 44% of total crashes and 38% of fatal and serious injury crashes were in Cleveland during that time period. Initiatives already underway will improve safety for all, increase physical activity, and help stimulate the local economy by reducing transportation costs for residents and making local businesses more accessible.

Actions

- a Launch and implement City Vision Zero initiative
- b Continue to implement Safe Routes to School
- c Conduct walk audits to ensure streets are free from any hazards and ADA accessible
- d Implement complete and green streets policy throughout the city

Progress since 2013

- Safe Routes to School launched, implementation well underway
- Cleveland City Council passes resolution on Vision Zero initiative
- RTA pilot of pedestrian safety detection system on buses
- Sustainable Cleveland celebrates Year of Sustainable Transportation in 2016
- City of Cleveland releases Complete and Green Streets report, highlighting progress in implementing the ordinance that went into effect in 2012
- Since 2011, Cleveland-Elyria region has been one of the top 20% safest regions for pedestrians



Objective 13: Increase use of public transit through regional collaboration

Summary

Despite recent decreases in ridership, public transit has never been more important in Northeast Ohio. Investing in the Greater Cleveland Regional Transit Authority (RTA) improves individual mobility, provides access to jobs and services, decreases emissions, helps clean our air, and much more.

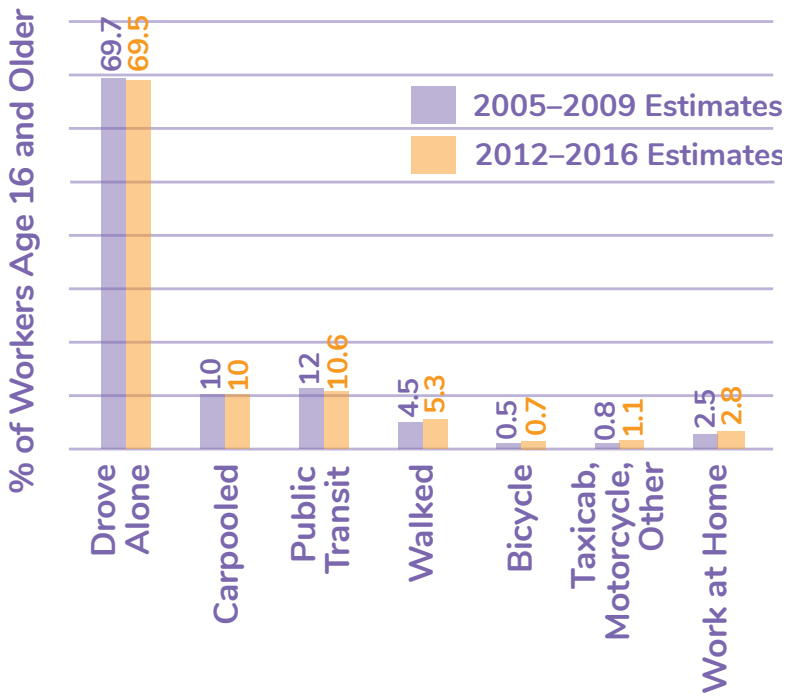
Progress since 2013

- RTA's Commuter Choice Advantage expanded from 696 companies in 2013 to 856 companies in 2017[5].
- Tri-C and other organizations have increased ridership through additional incentives
- RTA recognized for its sustainability achievements and bus safety by American Public Transportation Association
- RTA completion of the CSU bus rapid transit line

Actions

- a Advocate for more public transit funding, especially at the state level
- b Establish employer partnerships to support sustainable commuting options
- c Increasingly apply technology to improve public transit safety, fuel efficiency and user experience
- d Prioritize Transit Oriented Development through investment and regulation
- e Invest in infrastructure that supports bus operations and more comfortable and welcoming bus stop environments
- f Increase public transit options for older adults that are easily accessible, affordable, and safe

Commuting Modes of Transportation



Objective 14: Make Cleveland a premier cycling city

Summary

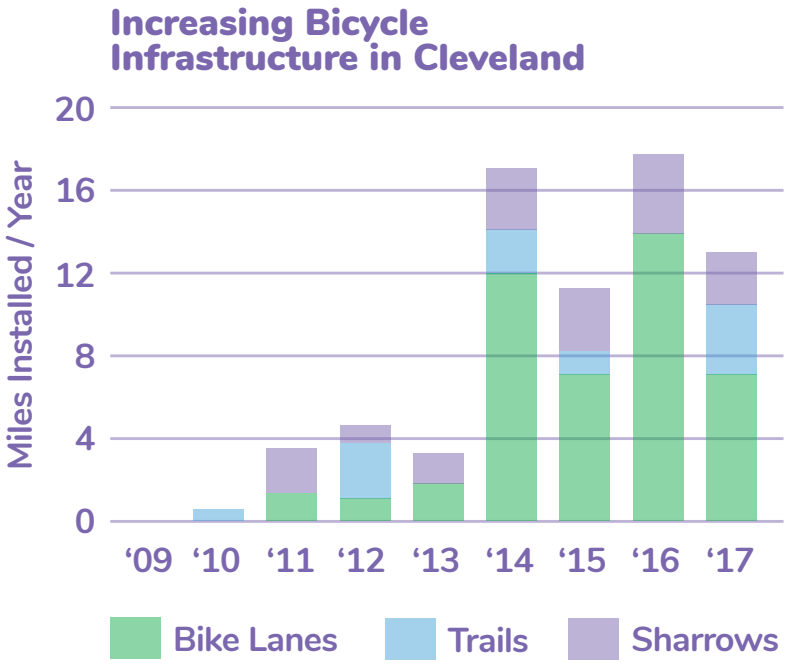
Since 2013, Cleveland has made big strides in becoming more bike friendly, especially in terms of infrastructure. Becoming a premier cycling city will require greater progress in safety (through protected bike infrastructure and education), equity, and business leadership.

Progress since 2013

- Installed more than 70 miles of bike infrastructure (see graph) in the City of Cleveland
- Launched UHBikes bike share system in 2016, with 29 stations and 250 bikes.
- Cleveland a top 20 cycling city according to People for Bikes

Actions

- a Expand bike share and incorporate dockless and e-bikes, while improving access to everyone
- b Update City Bikeway Master Plan, with emphasis on equity, safety, and connectivity
- c Continue to install and maintain at least 10 miles of bike infrastructure per year, including transformative projects that prioritize safety
- d Partner to support Safe Biking Classes for more residents
- e Apply for Silver Level Bike Friendly Community Status
- f Increase number of Bicycle Friendly Businesses certified and recognized



Prior to 2009, there were 39.6 mi. of existing bike infrastructure

Objective 15: Continue to green Cleveland's ports

Summary

Cleveland's airport and marine port act as a central hub supporting the City's manufacturing and tourism economies. Supporting sustainability leadership at these facilities showcases the region's commitment to climate action as people and goods enter and leave the City. In general, shipping by boat also results in less emissions than by truck.

Progress since 2013

- Cleveland-Cuyahoga County Port Authority, a Green Marine member since 2007, improved its Green Marine Scorecard in 2016 through improvements in greenhouse gases, spill prevention, community impacts, and environmental leadership.
- Cleveland Hopkins Airport has led by example by installing solar, two green roofs, LED lighting, Smart Parking strategies, water quality initiatives, and more.

Actions

a Improve Cleveland-Cuyahoga County Port Authority Green Marine certification

b Continue to green Cleveland's airports


2008
www.akronmetro.org
METRO
NO PARKING ANY TIME
UHBikes

CLEAN WATER AND VIBRANT GREEN SPACE

609

people were employed in landscaping services in Cleveland in 2015 with an average wage of

$36,700.

Cleveland's commitment to green infrastructure and its urban forest will require skilled landscapers and arborists.

Heat Island: *describes the phenomena by which urban areas are hotter than nearby rural areas due to heat absorption and retention of asphalt and concrete*

Summary

Without clean water, there is no sustainability. And vibrant green space is critical for thriving and healthy neighborhoods. Providing access to quality green space improves neighborhood walkability, provides natural gathering spaces, improves property values, supports peace of mind, and so much more. At the same time, green spaces reduce water pollution by decreasing water runoff during storms that often result in sewer overflows. Cleveland has made great strides in these areas, but much work remains.

Key Facts

- Cleveland Metroparks awarded largest state grant ever received to further conservation initiatives.
- The amount of wastewater overflow has decreased from 5 billion gallons in 2011 to 4.1 billion gallons in 2015.
- The 2013 Tree Canopy Assessment found that Cleveland's tree canopy cover has decreased by about half over the last half-century, to about 19%.

Goals

- 100% of residents live within a 10-minute walk of a safe and clean park
- Delist Cuyahoga River as an Area of Concern by 2025
- Install stormwater control measures on all development projects
- 30% Tree Canopy by 2040 and 50,000 trees planted by 2020

Objectives

16 **Update land use policy to foster health, equity and sustainability**

17 **Reduce dumping through vacant land reuse and education**

18 **Implement the Cleveland Tree Plan to grow and maintain a healthy urban forest**

19 **Improve access to clean and safe parks**

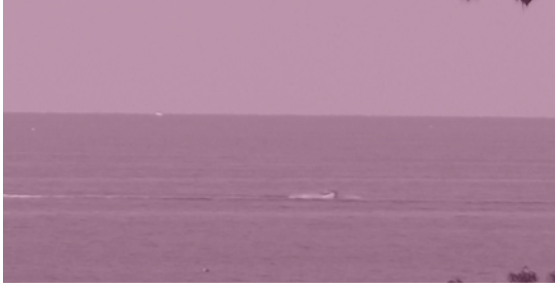
20 **Scale up stormwater management**

21 **Improve water quality and conservation**

Cross-Cutting Priorities

Social & Racial Equity

Green space and tree canopy can help provide relief from the urban ***heat island*** effect by shading asphalt during extreme heat events. Mortality in populations over 75 increased during these heat events, with the black elderly population suffering the worst (Cleveland Neighborhood Progress, 2015). Along with making trees more equitably distributed, there is an effort underway in Northeast Ohio to improve water equity.



Good Jobs, Green Jobs

Industries to watch focus on products and services that improve water quality and conserve natural resources, including:

- Nursery and tree production
- Landscaping and landscape architectural services (including green infrastructure maintenance)
- Water supply and irrigation systems
- Sewage treatment facilities
- Water and sewer system construction
- Administration of conservation programs.

In 2017, total employment in Cleveland in these industries was 3,754 and average annual wages were $53,792.

Climate Resilience

Heavy rain events can overload the City's wastewater system, leading to combined sewer overflows, which has significant negative impacts on water quality. Climate change has increased the frequency of heavy rain events in Cleveland by 22% when compared to the historical average. As the climate continues to warm, these events are expected to increase in frequency and severity – highlighting the need for gray and green infrastructure (Objective 18) to manage the water runoff.

Business Leadership

As Cleveland businesses expand existing facilities or invest in new buildings, incorporating green infrastructure into those projects will not only retain stormwater, but also provide green space for employees, reduce urban heat island, and likely result in credits on their stormwater bill.

Objective 16: Update land use policy to foster health, equity and sustainability

Summary

Sustainable development uses land efficiently and provides a range of living choices, employment opportunities, and access to services using transit and active transportation modes. The City can use a combination of incentives and revisions in land use and zoning codes to encourage and promote higher density and more diverse development. More efficient land use could also increase green space, both improving quality of life and neighborhood resiliency.

Progress since 2013

- In 2016, the City of Cleveland created the Urban Form Overlay District, designed to improve walkability of designated zones and encourage dense mixed-use neighborhoods.
- The City of Cleveland passed a riparian and wetland setback ordinance in 2016 to protect areas along the banks of streams and rivers.
- Select community development corporations (CDCs) have begun incorporating sustainability and climate action into their Strategic Investment Initiative (SII) planning. MetroHealth and Slavic Village have adopted the EcoDistrict model for planning purposes. MetroHealth Community District is one of 15 currently registered EcoDistricts.

Actions

a. Develop a plan for vacant land reuse to identify potential future uses

b. Innovate and expand city zoning practices that shape the built form to balance the social, economic and environmental needs of our community

c. Establish best practices for integrating sustainability and climate into neighborhood planning

d. Create a “Green Infrastructure Guide” and incorporate into Planning Review

Objective 17: Reduce dumping through vacant land reuse and education

Summary

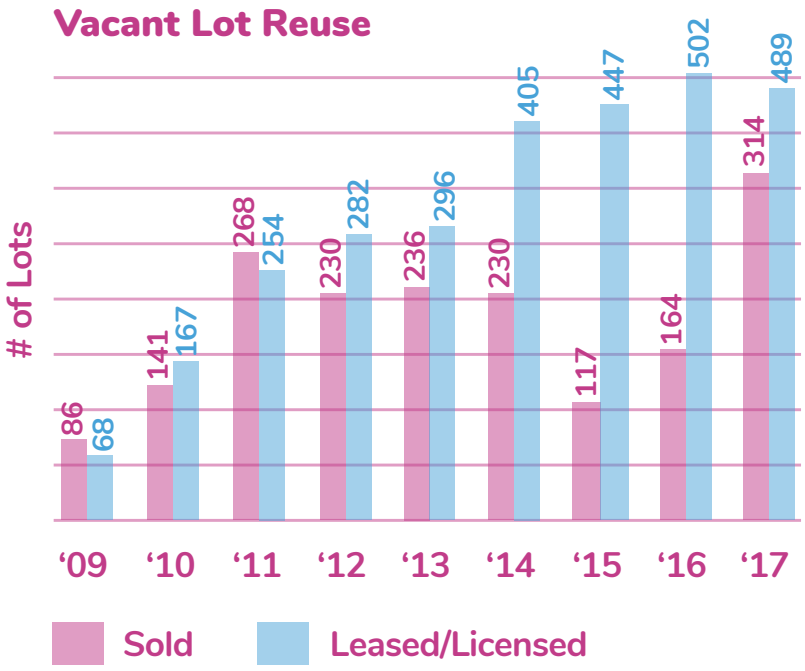
During the 12 neighborhood workshops, one consistent theme was the opportunity to re-activate vacant land, while also addressing illegal dumping that occurs in many neighborhoods. Among the city's 27,000 vacant parcels, there are plenty of opportunities to support tree planting, local food production, solar, stormwater management, and commercial development.

Actions

- a Increase tree plantings and parks on vacant land
- b Create a city database and map of prior land uses or central inventory of land contaminants
- c Develop a demolition standard and create a database of future land uses

Progress since 2013

- Completed pilot tree planting on vacant land in 2018
- Analysis of Reimagining Cleveland projects
- Cleveland Metropolitan Housing Authority and Medical Center Company completed large scale solar arrays on brownfields, in partnership with Cleveland Public Power
- Maintained some of the largest urban farms and greenhouses in the country



Objective 18: Implement the Cleveland Tree Plan to grow and maintain a healthy urban forest

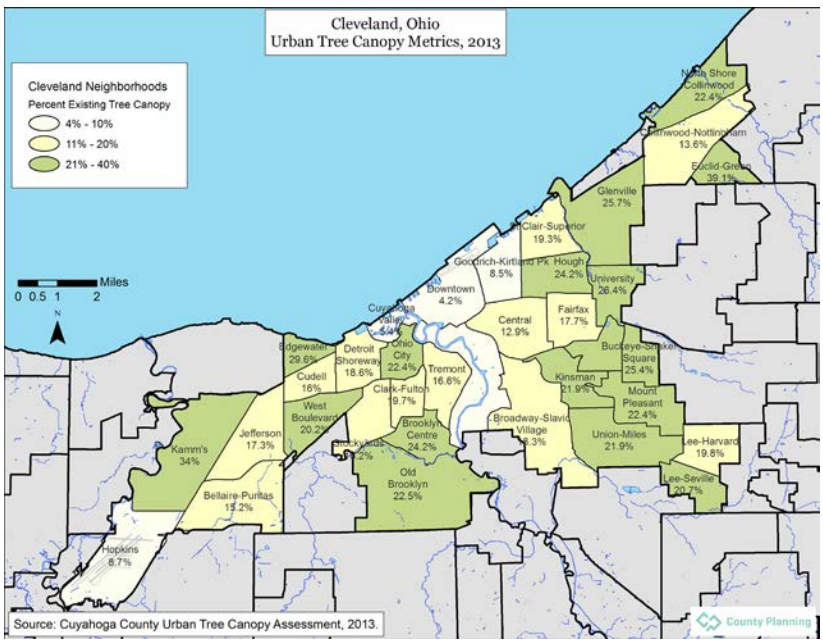
Summary

Trees are a critical piece of our community: they make us healthier and safer, add economic value to our homes and businesses, help us meet environmental challenges, and give us a stronger connection to nature that improves mental health.

The Cleveland Tree Plan is built on the need rebuild the urban forest, together. It has three overarching goals: (1) recognize trees as critical community infrastructure, (2) reverse the trend of tree canopy loss, and (3) foster capacity for full stewardship for the tree infrastructure.

Progress since 2013

- The Cleveland Tree Plan was finalized in 2015, and adopted by Cleveland Planning Commission in 2016. The plan evaluates the state of the urban forest, calculates the benefits of Cleveland's trees, and identifies nine major actions required to revitalize Cleveland's urban forest.
- The Cleveland Tree Coalition, made up of 40+ organizations, formed to implement the plan.
- In 2017, the Coalition set a goal of 30% canopy by 2040 and 50,000 trees planted and maintained by 2020 in the City of Cleveland.
- Arbor Day has become a bigger event with their Healthcare Tree Recognition Program, multiple Tree Steward training rounds have been completed, and Coalition partners have received a number of tree grants.



Actions

- **a** Develop a governance structure for the Cleveland Tree Coalition, including a way to fund trees
- **b** Explore the integration of trees into the Stormwater Credit Program to increase trees and manage stormwater
- **c** Develop and update City policies to keep trees healthy
- **d** Develop neighborhood tree goals and increase opportunities for residents to learn about and take care of trees
- **e** Update county-wide urban tree canopy assessment and the City's detailed tree inventory

Objective 19: Improve access to clean and safe public parks

Summary

Neighborhood parks provide multiple benefits including increasing resident health by providing a safe and welcoming place to be active, increasing property values of homes and/or businesses in the neighborhood, and improved air quality.

Actions

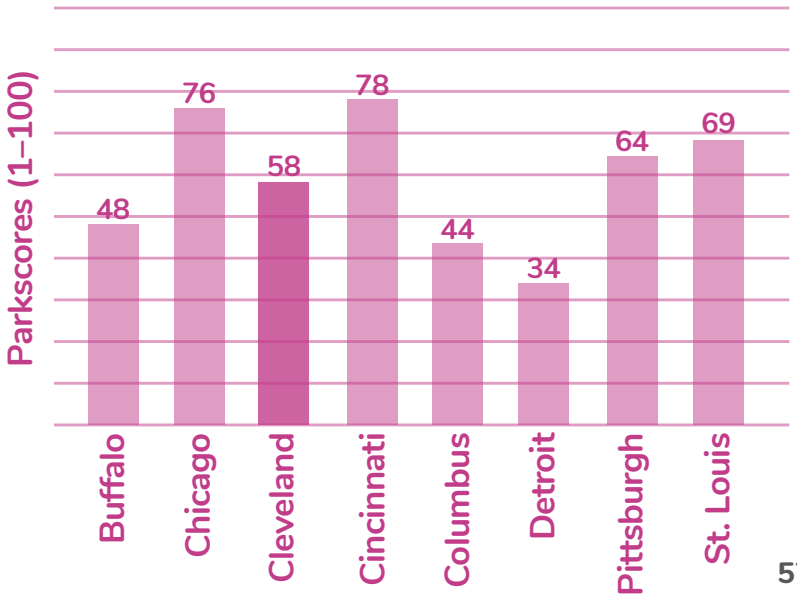
a Implement recommendations from the City's Parks Assessment that consider quality (clean and safe) and quantity of parks

b Build private/public partnerships that add, improve and connect more trails to parks, including recommendations from the Cuyahoga Greenways 2018 Plan

Progress since 2013

- According to the Trust for Public Land's 2018 Parkscore, Cleveland now ranks 37th out of 100 cities in terms of park acreage, investment, amenities, and access. Cleveland was ranked 45th in 2017.
- City of Cleveland completed a City Parks Assessment to help inform how dollars can best be invested.
- The Cleveland Metroparks Master Plan has been working to increase the number of parks and green spaces around Cleveland. Successes include the grand opening of the West Creek Watershed Stewardship Center and West Creek Reservation (Cleveland Metroparks, 2015).
- Cleveland's Metroparks has created Cleveland Metroparks 2020: The Emerald Necklace Centennial Plan, which has five strategic goals – protection, relevancy, connections, come out and play, and organizational sustainability. Additionally, Cleveland Metroparks won the prestigious 2016 National Gold Medal Award for excellence in Park and Recreation Management.

2018 Parkscores by City

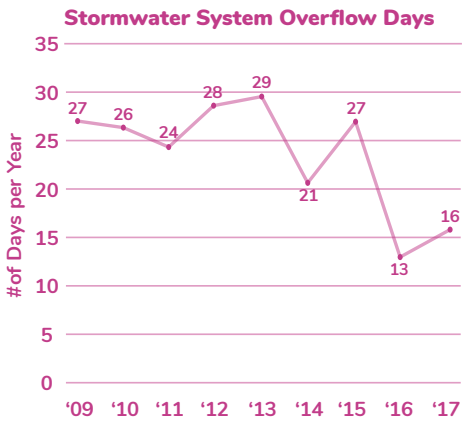


Objective 20: Scale up stormwater management

Summary

Due to the way Cleveland's sewer system is built, rainwater runoff mixes with sanitary sewage. This means that during heavy storms, the water runoff can overwhelm water treatment plants and some of the flow (a mixture of stormwater and sewage) is forced through overflows directly into Cleveland's waterways.

Natural areas allow stormwater to be stored and infiltrate or evaporate—reducing the strain on the sewer system. This green infrastructure, like retention ponds and rain gardens, serves to complement gray infrastructure by allowing the rainwater to soak into the ground instead of running off into the sewer system. Green infrastructure offers a range of other benefits to communities, including additional urban green space and improved air quality.



Progress since 2013

- The Northeast Ohio Regional Sewer District (NEORSD)'s Green infrastructure grants program has invested $4.5 million in 65 projects that are expected to manage 16.3 million gallons of stormwater each year (Northeast Ohio Regional Sewer District, 2017).
- More than 4,000 rain barrels have been provided to residents through the Mayor's Summer Youth Employment Program.
- NEORSD's Regional Stormwater Management Program implementation started in 2016

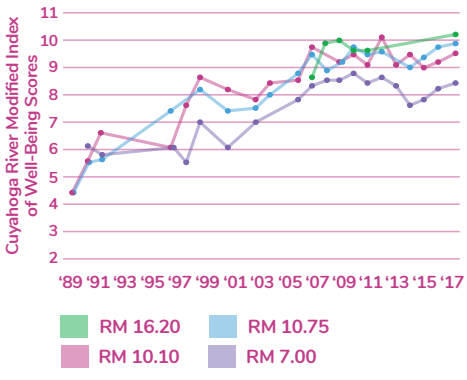
Actions

- a Leverage resources to support neighborhood green infrastructure grants and ongoing maintenance
- b Enhance the rain barrel program, focusing on outreach, effective installation and maintenance
- c Strategically use local NEORSD's funding programs to improve stormwater management
- d Expand green roof installations through outreach and incentives, including the Stormwater Credit Fee
- e Finish and begin to implement Stormwater Master Plans for Cuyahoga County
- f Complete green infrastructure workforce demand study

Objective 21: Improve water quality and conservation

Beneficial Use Impairments: *a change in the chemical, physical or biological integrity of the Great Lakes system sufficient to cause (not an exhaustive list): Restrictions on Fish and Wildlife Consumption, Degraded Fish and Wildlife Populations, Fish Tumors or Other Deformities*

Improved Water Quality of the Cuyahoga River 1989–2017



Distances are measured in "river miles" along the river's length from its mouth on Lake Erie, indicated by "RM" on the graph

Water Equity: *ensuring that all people have access to safe, reliable, and affordable water and wastewater systems*

Summary

Water efficiency and conservation includes a variety of solutions to reduce overall water use in the City such as efficiency upgrades to sinks, toilets, showers, and equipment and improved irrigation controls. Conserving water and using it more efficiently reduces distribution and treatment costs (pumping energy, chemicals, etc.) and related greenhouse gas emissions.

Progress since 2013

- In 2018, two ***beneficial use impairments*** (BUIs) were removed from the Cuyahoga River, including "degradation of aesthetics" and "lack of public access" from a list of 10 factors—this is the latest sign of significant improvement in the health of the river.
- Cleveland Water Department's advanced metering technology has resulted in over 20,000 fixed leaks.
- Using 2010 as a baseline, water efficiency projects in Cleveland 2030 District buildings have reduced the water use by 18% saving 97.5 million gallons of water (Cleveland 2030 District, 2017).
- Cleveland Water Alliance has supported water innovation through competitions like Erie Hack and the Internet of H2O, along with other programming.

Actions

- **a** Make progress in restoring the Cuyahoga River by removing Beneficial Use Impairments
- **b** Develop and implement recommendations of the "***Water Equity*** Taskforce"
- **c** Finalize analysis of leaks in drinking water distribution system, implement findings
- **d** Promote water conservation in public and private buildings
- **e** Establish Cleveland as a hub of water innovation and business development

MORE LOCAL FOOD, LESS WASTE

Organic Material: *Carbon based materials originating from living organisms such as wood, paper, and food.*

Diversion Rate: *The ratio between the amount of waste recycled and the total amount of waste generated—usually reported as a percent.*

In Cleveland:

- 7 *Farm Stands**
- 12 *Farmers' Markets**
- 178 *Community Gardens*

**All—in addition to one local Community Supported Agriculture (CSA) program—accept SNAP/ Produce Perks*

Summary

This focus area is, in many ways, about access to land. Cleveland has become a national leader in local food due partially to re-use of vacant land. At the same time, landfills in suburban communities impacts waste reduction efforts in Cleveland. As ***organic material*** decomposes in a landfill it releases GHG emissions, more specifically, methane. This gas is 22-25 times more effective as a GHG than carbon dioxide. Food waste reduction strategies can help reduce these emissions while helping to provide healthy, affordable food options to all Clevelanders.

Healthy food access is not only important to resident's health and reducing diabetes and other diet-related diseases, but also stimulates the local economy[6]. Whether you define local as 100 or 25-miles from "farm to fork", the CAP seeks to engage the many different groups whom each have the autonomy to develop their own working definitions of what is local. The goal is to be inclusive to all entities and individuals working towards a more sustainable food system in our region.

Key Facts

The ***diversion rate*** in Cleveland has increased from 27% in 2010 to 30% in 2016 for residential and commercial waste and decreased from 77% to 74% for industrial waste.

Goals

- Achieve diversion rate of at least 50% by 2030 for both residential and commercial waste in Cuyahoga County (35% by 2022).
- Achieve residential diversion rate of 30% by 2030 for the City of Cleveland.
- Reduce the number of residents with ***low access*** to healthy food from 61% in 2015 to 40% in 2022.

Low Food Access:
a person lives more than a ½ mile from the nearest store that can provide a full balanced diet on a regular basis, and their income is below 200% of the poverty level.

Objectives

22 **Encourage waste reduction and diversion in homes and businesses**

23 **Reduce food waste and hunger**

24 **Enhance the local food system and resident access to high quality, affordable, healthy food**

Cross-Cutting Priorities

Social & Racial Equity

Individuals living in places with ***low access*** to healthy food are at higher risk of death due to chronic food related illnesses such as heart disease and diabetes[7]. By supporting targeted healthy food programs (Objectives 23 and 24), the City can help alleviate the burden for the residents living in low food access areas while reducing food waste and GHG emissions.

Good Jobs, Green Jobs

Jobs in this focus area include products and services related to agriculture and local food production, as well as waste reduction, recycling, and remediation. Industries to monitor include:

- Food crops grown under cover
- Used merchandise stores
- Remediation services
- Recyclable material merchant wholesalers and materials recovery facilities
- Waste collection and disposal

In 2017, total employment in Cleveland in these industries was 1,545 and average annual wages were $53,427.

Climate Resilience

Longer growing seasons over the next few decades will increase yields of some crops, but benefits will be offset by extreme events. More frequent drought and floods to the Cleveland area coupled with shifts in seasonal weather patterns farmers have come to expect, will likely negatively impact local food production and make food prices more volatile. Additionally, prolonged power-outages can mean increased food spoilage and waste, creating burdens on residents and management systems they depend on. Addressing the vulnerabilities in both systems can reduce these compounding burdens on residents and infrastructure, while ensuring access to healthy, affordable, and local food and reduced emissions from controlling food waste.

Business Leadership

Connecting local businesses such as restaurants and grocery stores with food banks and other distribution programs (Objective 23) allows Cleveland businesses to support communities through food donations, and help to reduce food waste and related GHG emissions. Institutions can also lead by serving local food in cafeterias, while restaurants and caterers can become Dine Green certified.

Objective 22: Encourage waste reduction and diversion in homes and businesses

Summary

A coordinated approach to waste reduction and diversion across Cleveland, starting with policies that restrict certain materials, such as plastic bags, or divert others, such as organic waste, are important tools in encouraging waste reduction both at the residential and commercial level. Furthermore, a coordinated approach provides consistent messaging and education to guide businesses and community members. For example, outreach to businesses could include guidelines for sustainable purchasing policies, supply chain engagement, zero waste events, hazardous materials diversion, and incentives for meeting waste reduction targets.

Progress since 2013

- Cleveland's automated curbside recycling program has been rolled-out to all citizens and residential leaf collection resumed in select neighborhoods.
- 70+ public recycle bins installed downtown to increase public recycling options.
- Development of the Zero and Reduced Waste Event Guide, and associated workshops, to promote waste reduction at events.
- Increased availability of commercial composting options.
- Launched the *Don't Break the Lake* and *Skip the Straw* campaign targeted at reducing plastic pollution.

Actions

- a Develop comprehensive plan for waste reduction and management in Cleveland
- b Increase outreach and education to residents on proper recycling
- c Support recycling in multifamily residences
- d Encourage more organizations to move toward zero waste
- e Make zero and reduced waste events standard for large community events
- f Explore expansion of leaf pickup citywide

Objective 23: Reduce food waste and hunger

Summary

Food waste represents a large component of global GHG emissions. One study showed that feeding urban populations accounted for 20-30% of global GHG emissions. This includes the emissions required to grow and transport food as well as the emissions from decomposing waste[8]. Even though the impact on the City's carbon footprint is relatively minor, reducing food waste is essential for food access and global emissions reduction efforts.

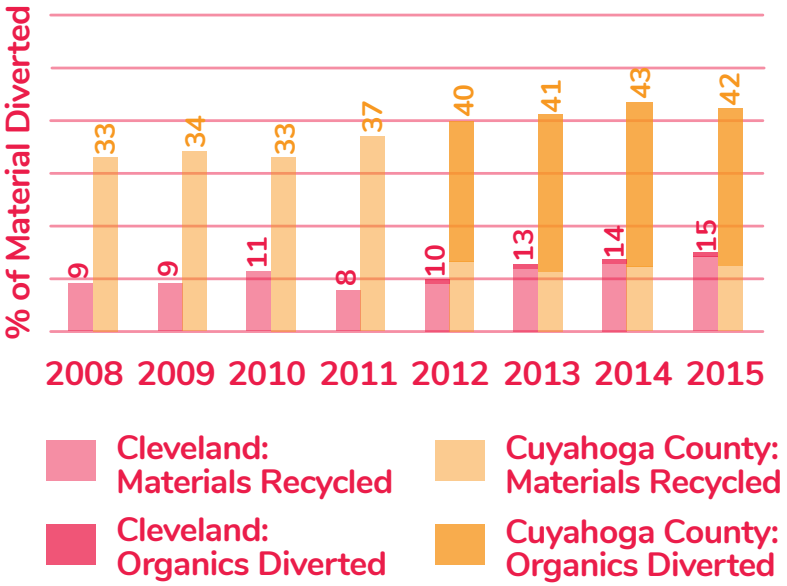
Actions

- a Increase availability of composting options for residents and businesses
- b Expand networks for food rescue efforts to connect to hunger services
- c Support business network of sourcing, procuring, distributing and marketing cosmetically imperfect produce
- d Join campaigns for standardizing food labeling dates and educating the public on donor liability and food thrift

Progress since 2013

- Stone Soup Cleveland launched in 2015. Aimed at connecting those with excess food to those in need, they have rescued over 73,000 pounds of food.
- Hunger Network of Greater Cleveland's app-based and volunteer-driven Food Rescue program launches in 2018 to coordinate recovery and delivery of excess food from local donors to neighborhood food pantry and hot meal sites, reducing food waste and fighting local hunger.
- Grind2Energy systems installed at several of Cleveland's large venues, including First Energy Stadium, Progressive Field, Jack Casino, and the Huntington Convention Center, to convert food waste to energy using anaerobic digestion.
- Rust Belt Riders launched in 2014 and now employs 5 full-time staff in servicing over 85 Northeast Ohio businesses in diverting over 100,000 pounds of food waste from landfills each week.

Material Saved from Landfills



Objective 24: Enhance the local food system and resident access to high quality, affordable, healthy food

Summary

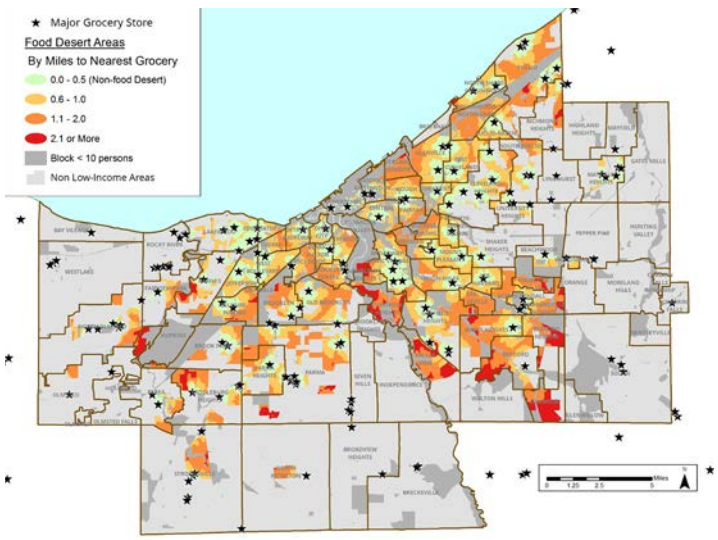
Access to healthy, affordable food is essential for the well-being of Cleveland residents. Type 2 diabetes and other diet-related diseases have a much higher prevalance in neighborhoods without healthy food access. Grocers and farmers' markets that provide healthy food in low-access neighborhoods can also act as economic hubs stimulating the local economy.

Actions

- **a** Understand the feasibility of a frozen food facility to aggregate and distribute local food and extend availability of local produce beyond the growing season
- **b** Update policies to expand institutional purchasing of local and climate-friendly foods throughout the City
- **c** Expand high quality retail development and healthy food accessibility through a county-wide strategy
- **d** Develop and support a resident entrepreneurial network to provide fresh, healthy and local foods

Progress since 2013

- Two new grocery stores opened in the summer of 2018 in Cleveland's Edgewater and Buckeye neighborhoods.
- Produce Perks, a County program that provides a match to dollars spent using SNAP benefits at farmers' markets for the purchase of produce, is expanding to include five Dave's Markets locations by summer 2018. Since 2010, this program has grown from four farmers markets to 30 farmers' markets, farm stands, and Community Supported Agriculture services, resulting in about $400,000 invested in local agriculture. All farmers' markets and stands in Cleveland accept Produce Perks; 98.9% of the Produce Perks distributed were redeemed.
- In May 2018, the Cleveland Food Hub launched to incubate small food businesses
- Farm Fare, a Cleveland-based business-to-business online marketplace, launched to distribute fresh, local goods from food hubs throughout Ohio.



Cuyahoga County: Grocery Stores and Food Access

CROSS-CUTTING PRIORITIES

Objectives

25 **Engage Residents to Advance Equity in Climate Action**

26 **Advance Green Jobs through Workforce Development**

27 **Support and Recognize Local Businesses Taking Climate Action**

28 **Improve Resilience to Climate Change & Other Impacts**

Summary

Cross-cutting objectives represent priorities to be addressed throughout the CAP across all focus areas. As such, objectives and actions within this section have an impact on each of the five focus areas. During the development of the CAP update, subcommittees were formed around each of these four cross-cutting priorities.

- Social & Racial Equity
- Good Jobs, Green Jobs
- Climate Resilience
- Business Leadership

ENERGY EFFICIENCY & GREEN BUILDING

CLEAN WATER AND VIBRANT GREEN SPACE

CLEAN ENERGY

MORE LOCAL FOOD, LESS WASTE

SUSTAINABLE TRANSPORTATION

Objective 25: Engage Residents to Advance Equity in Climate Action

Cleveland Climate Action Fund Crowd-Funding Challenge project, "Green Movement in Glenville," for a Hi-Tunnel where steam will be piped for year-round growing

Garden Valley Neighborhood House is updating their electrical system to install solar panels to power their food pantry refrigerators

Summary

Climate action planning calls for making big decisions that impact equity (deciding who gets what, when, where, and how). By applying an equity lens to the CAP, the level of consciousness of the decisions being made to address climate change has increased. The Cleveland Climate Action Plan Racial Equity Tool ***(APPENDIX A)*** can be used prior to making decisions within city government and other institutions looking to advance racial equity and shared prosperity. Equity in climate planning, in particular, supports the just distribution of the benefits of climate protection efforts.

Actions

- **a** Establish the Climate Action Plan Racial Equity Tool as a resource for other initiatives
- **b** Integrate sustainability and climate action into K-12 curriculum, programming and operations
- **c** Establish a Cleveland Smart City collaborative that improves quality of life through technology and prioritizes investments for the most vulnerable
- **d** Develop and expand partnerships for education, training, and outreach efforts for residents around climate action and sustainability
- **e** Make the Cleveland Climate Action Fund financially sustainable and increase impact

Objective 26: Advance Green Jobs through Workforce Development

Summary

In 2017, approximately 5% of Cleveland's workforce was employed in industries that align closely with the CAP focus areas. On average, the average annual wages of workers in these industries in Cleveland was $7,170 greater than average annual wages of workers in all industries in Cleveland. Looking to the next decade, forecasts show that these focus area-aligned industries are expected to grow at a slightly greater pace than other industries. For more detailed information about green jobs see ***APPENDIX B:*** Green Jobs / Workforce Development Analysis. Actions here are centered on integrating a green jobs focus into existing workforce development organizations.

Actions

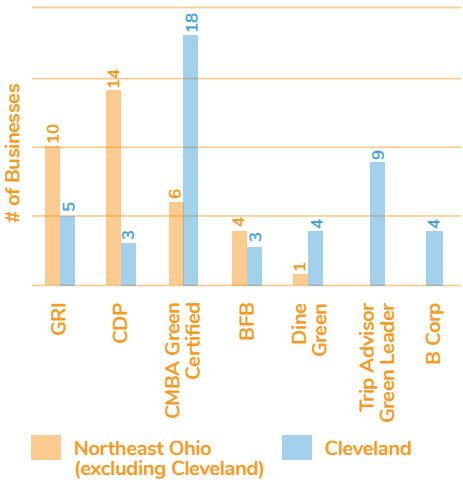
- **a** Update green jobs analysis at least every 1-2 years and incorporate a workforce development assessment
- **b** Develop working group with workforce development and training organizations to integrate green jobs into existing work
- **c** Build a green jobs awareness and recruitment strategy with community organizers and workforce organizations

Objective 27: Support and Recognize Local Businesses Taking Climate Action

Summary

Businesses are increasingly acting and reporting on environmental and social governance practices, and the positive impact they can have to their bottom-line. Investors and other key stakeholders are using this information to evaluate companies globally, and consumers are demanding transparency to make purchasing decisions that align with their values. The City of Cleveland's Office of Sustainability engaged BrownFlynn, a leading corporate sustainability and governance consulting firm, to analyze publicly available environmental and social governance (ESG) data for the largest public companies in Northeast Ohio (***APPENDIX F***). The purpose of this analysis is to better understand sustainable business practices among regional companies, identify gaps in reporting, and use this data to spur conversation for best practice sharing, collaboration, and reporting.

Recognized Green Businesses (Updated August 2018)



*There is a total of **76** certified businesses in Cleveland and Northeast Ohio.*

AT LEFT: *For Cleveland to become truly sustainable, it's crucial for businesses to adopt sustainable practices within their own operations. To track progress, Sustainable Cleveland is identifying those organizations based in Northeast Ohio that transparently report on sustainability using the following protocols: Global Reporting Initiative, CMBA Green Certified, Dine Green, Carbon Disclosure Project, Bicycle Friendly Businesses, Trip Advisor Green Leader and B Corp (bands A, B, or C).*

Actions

- **a** Engage business and institutional leaders to increase the number of NEO organizations reporting on race, equity and inclusion
- **b** Develop, promote and implement a local green business recognition program
- **c** Research climate action financing tools and develop approach for Cuyahoga County
- **d** Create comprehensive resource for Cleveland's manufacturers focused on energy and waste

Objective 28: Improve Resilience to Climate Change & Other Impacts

Summary

Over the last several years Clevelanders have experienced an increase in average annual temperature, precipitation, and frequency and intensity of severe storms. These are just some of the changes that have led to real and serious impacts on our infrastructure, economy, social networks, cultural identity, and safety. Making sure we are considering what changes are projected to take place in the future, identifying who is most vulnerable to these changes, and integrating that information into how we operate as a City is critical. In particular, assessing vulnerability ***(APPENDIX C)*** is one important component of our City's efforts to create a more equitable and resilient community for all Cleveland residents – ensuring every resident is more prepared for the current and future risks that are exacerbated by climate change.

Actions

- a Develop plan to continue and extend work under the Climate Resilience and Urban Opportunity Initiative, including the role of neighborhood climate ambassadors
- b Complete City Resilience Index
- c Incorporate Climate and Vulnerability Assessment into city and county plans
- d Use an inventory of houses with air conditioning for a more responsive network of cooling and heating centers and draft guidelines for network members
- e Develop air quality mapping program at neighborhood level, focusing on community hubs

Implementation & Tracking Progress

Reporting Progress

Leading up to and following the release of this plan, the City has committed to several global and national efforts to report climate action progress.

- Global Covenant of Mayors for Climate and Energy: Mayor Jackson has joined the Covenant of Mayors for Climate and Energy, an international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society. Participation on the Covenant requires using a common reporting framework and making action plans publicly available. Cleveland became compliant with the Covenant in 2017, making us one of the first ten US cities to do so.
- Carbon Disclosure Project: The City of Cleveland also reports through CDP, a non-profit charity that runs a global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. In 2018, Cleveland was recognized by CDP as one of the cities globally leading on climate disclosure.
- STAR Communities: Cleveland has been STAR certified community since 2014. STAR is a community rating system, comprehensive framework and certification program for evaluating local sustainability, encompassing economic, environmental, and social performance measures
- World Wildlife Fund: Cleveland is the 2018 National Winner of the World Wildlife Fund's One Planet City Challenge, in large part due to our climate reporting.

  To build accountability and report on progress more locally, the Cleveland Climate Action Advisory Committee will continue to serve as a managing body, ensuring implementation of the plan and regular emissions reporting.

Financing Climate Action Implementation

Implementation involves complex change that requires not only an action plan, but vision, skills, incentives and resources. Particularly, resources in the form of finance tools are critical for continued success in meeting our emission reduction goals. While the Cleveland Climate Action Fund (see page 7) has served as a national model in providing resources for climate action at the neighborhood level, larger project financing is necessary for implementation. Given this, the Cleveland Climate Action Fund kicked off a parallel strategic planning process during the update of this plan. This strategy will be informed by how foundations, government, and business see alignment among climate action priorities, larger investment trends and tools.

Early findings from this planning process has identified some needs going forward:

- Buy-in of key leadership across multiple sectors such as City, County, Foundations, Civic/Economic Development, Non-Profit, and Corporate
- Prioritization of Climate Action goals within an over-arching civic agenda focused on equitable and sustainable economic development
- Specific financing goals and measurable outcomes
- Dedicated funding stream
- Need for translation on impact and messaging

While many actions in this plan require some level of financial support, others, like those listed below, require community-wide support to achieve our goals, including:

- **Trees:** Corporate and regional public funding resources to implement the Cleveland Tree Plan, supported by investment in tree maintenance.
- **Energy:** Corporate power purchase agreements and public financing, Green Bank, and Revolving Loan Fund development, continued Cleveland Public Power investment, and state-level advocacy. Meeting energy efficiency and clean energy goals will require new financing tools, such as a Green Bank, in addition to policy, business leadership, utility support, and advocacy.
- **Transit:** State-level advocacy and public funding. Increasing ridership will require additional funding and community-wide advocacy for public transit.

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List of Appendices

All appendices can be accessed at the following URL:
https://www.sustainablecleveland.org/climate_action

APPENDIX A:
Cleveland Climate Action Plan Racial Equity Tool
A framework to be used prior to making decisions within city government and other institutions looking to advance racial equity and shared prosperity.

APPENDIX B:
Green Jobs / Workforce Development Analysis
A baseline methodology for monitoring the impact that implementation of the CAP has on employment over time.

APPENDIX C:
Climate and Social Vulnerability Assessment
This assessment and template overlaps social factors with climate factors to determine geographies and populations most vulnerable to the negative impacts of climate change.

APPENDIX D:
City of Cleveland Greenhouse Gas Inventory: An Analysis of Citywide Emissions for 2010-2016 [Final Report: August 2018]
Cleveland's Carbon Footprint (including progress since 2010 and future projections)

APPENDIX E:
Climate Action Implementation Plans
Detailed action steps, key implementers, indicators to measure progress, and other notes.

APPENDIX F:
Corporate Environmental and Social Governance Analysis
An analysis of publicly available environmental and social governance (ESG) data for the largest public companies in Northeast Ohio.


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