2022 CAP

CHICAGO CLIMATE ACTION PLAN

CHICAGO
MAYOR LORI E. LIGHTFOOT

TABLE OF CONTENTS

VI **2022 CAP At A Glance**

2 **Plan Background**

- 5 Glossary
- 9 Vision, Principles, And Objectives: Leading With Justice And Equity
- 14 Climate Change And Climate Justice 101
- 23 Climate Financing And Delivery Capacity

34 **Chicago's GHG Reduction Targets**

- 35 Chicago GHG Emissions Reduction Target Pathway

38 **Climate Action Strategies**

- 43 Pillar 1 | Increase Access To Utility Savings And Renewable Energy, Prioritizing Households
- 59 Pillar 2 | Build Circular Economies To Create Jobs And Reduce Waste
- 69 Pillar 3 | Deliver A Robust Zero-Emission Mobility Network That Connects Communities And Improves Air Quality
- 93 Pillar 4 | Drive Equitable Development Of Chicago's Clean-Energy Future
- 123 Pillar 5 | Strengthen Communities And Protect Health

146 **Adaptation And Resiliency**

152 **Accountability And Implementation**

- 154 Looking Ahead
- 155 Implementation Table

Land Acknowledgement

The historic Land Acknowledgement was adopted by the City on November 17th, 2021. The City of Chicago is located on land that is and has long been a center for Native peoples. The area is the traditional homelands of the Anishinaabe, or the Council of the Three Fires: the Ojibwe, Odawa, and Potawatomi Nations. Many other Nations consider this area their traditional homeland, including the Myaamia, Ho-Chunk, Menominee, Sac and Fox, Peoria, Kaskaskia, Wea, Kickapoo, and Mascouten. The City specifically acknowledges the contributions of Kitihawa of the Potawatomi in fostering the community that has become Chicago. We acknowledge all Native peoples who came before us and who continue to contribute to our city. We are committed to promoting Native cultural heritage.

This acknowledgement is offered to bring awareness and understanding of the legacy of Indigenous peoples as traditional and contemporary stewards of the local land and waterways. It is also an invitation to rethink the relationships between the city, the land, and the environment.

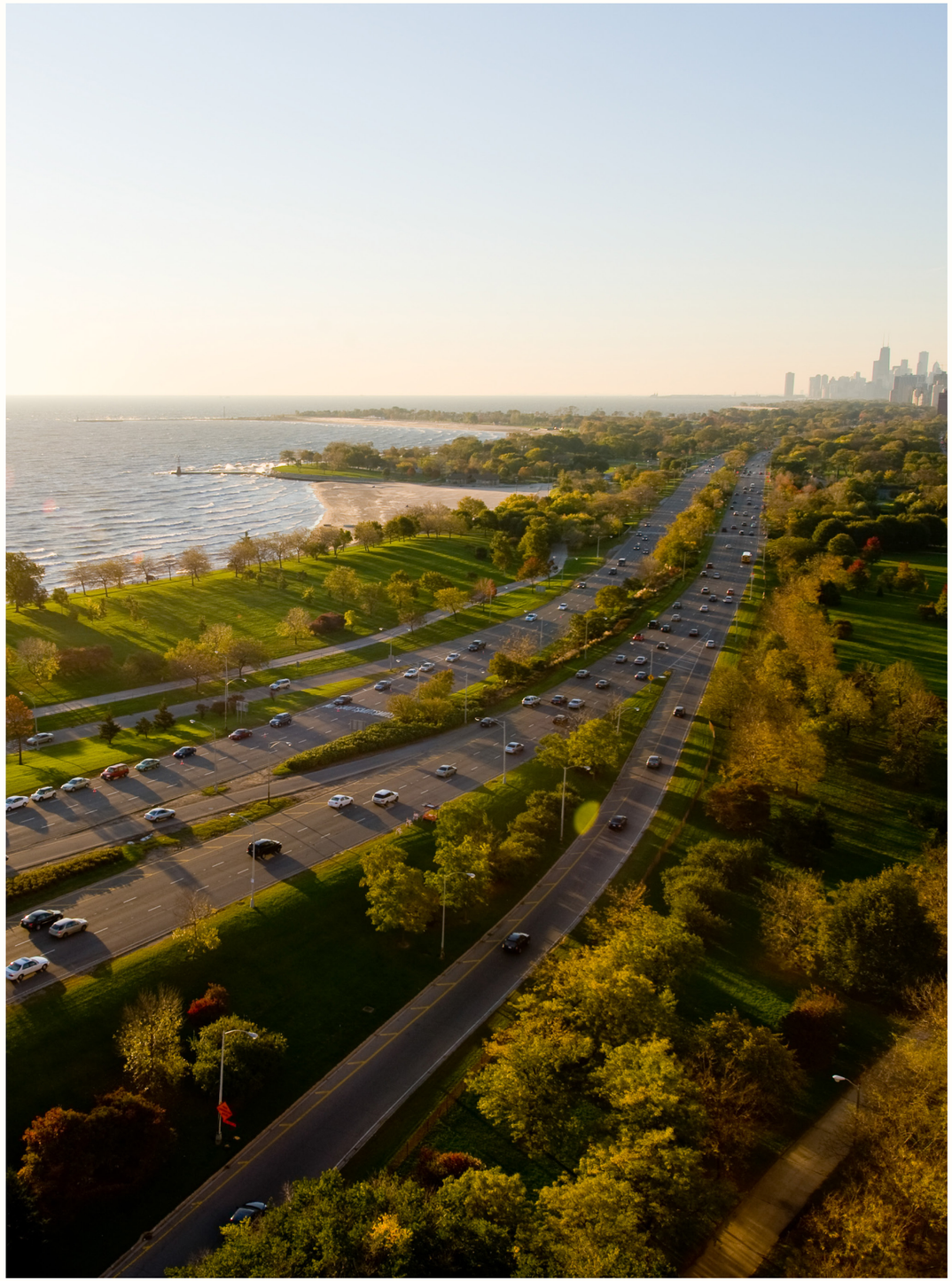
Team Acknowledgement

The 2022 Climate Action Plan was developed with a sincere sense of hope, urgency, and ambition for Chicago's future. City departments, community partners, business leaders, and other stakeholders are working together to bring direct relief to residents and local businesses. Stakeholders are modernizing systems, policies, and investments to heal and restore communities; climate and environment priorities are part of that work. With historic local, state, and federal investments becoming available, the time is now for transformative climate leadership.

The Office of the Mayor extends a warm note of appreciation to the various department liaisons, advocates and residents, and others who engaged in the development of this plan. Along with the thousands of resident voices who participated in developing this plan, the collective leadership of the 2022 Climate Action Plan team has created bold climate goals that seek to rectify historic practices that have perpetuated harm and to reimagine systems in order to achieve a more just, safe, resilient, and vibrant future for those who inherit our city.

Thank you for all your contributions.

CHICAGO
Mayor Lori E. Lightfoot



OFFICE OF THE MAYOR
CITY OF CHICAGO

Angela Tovar
Chief Sustainability Officer

Kyra Woods
2022 Climate Action Plan Lead
Project Manager

Jared Policicchio
Deputy Director of Policy

Gabriela Wagener-Sobrero
Environmental Policy Advisor

Gavin Taves
Climate and Energy Program Manager

TECHNICAL ADVISORS
WSP

Jenny Carney
Vice President

Ryan Dick
Senior Project Director

Jeff Irvine
Senior Project Director

Elias Menninger
Associate Consultant

Alec Iacovelli
Graphic Designer

COMMUNITY ENGAGEMENT CONSULTANT
MUSE COMMUNITY + DESIGN

Uri Pachter
Director

Shashwat Arya
Associate

Aaron Gatdula
Associate

Adam Glueckert
Associate

Letter from the

MAYOR

My Fellow Chicagoans,

It is with great pride that I share the 2022 Climate Action Plan (CAP) for the City of Chicago. The 2022 CAP is a strategic document that outlines updated goals and actions that city departments and sister agencies can lead, in coordination with community partners, institutions, civic leaders and residents, to mitigate the disastrous effects of climate change and to collectively realize a thriving green economy for all of our 77 communities. In 2008, Chicago became one of the first cities in the country to release a climate action plan, and I am honored to continue this legacy of climate leadership.

I am also incredibly proud to lead this City guided by our North Star of equity and inclusion. I urge all readers to apply an equity lens as you review the CAP. We must all recognize that low-income communities and communities of color, many of which are overburdened by pollution and other forms of environmental injustice in this City, are disproportionately impacted by climate change. As we continue our recovery from the COVID-19 pandemic and deal with the harsh realities of the climate crisis, the 2022 CAP proposes bold new actions to deliver ambitious emissions reductions, emphasizing key equitable co-benefits including: improved air quality; increased household savings; and environmental justice for our most overburdened communities.

This plan recognizes that equity is a process, not solely an outcome. To this end, my administration focused its efforts on connecting thousands of Chicagoans to the CAP development process to both amplify and integrate the voices and insights of historically marginalized Chicagoans, ensuring their seat at the decision-making table.

The world has changed drastically since the release of our first Climate Action Plan fourteen years ago. Scientists and climate experts have since issued a stark warning urging leaders across the globe to act boldly and decisively. This plan offers a responsive pathway to advance actions to mitigate climate change while equitably centering our communities, our people and our City. To kick-start the implementation of my administration's climate strategy, we are investing $188 million in equity-focused interventions, spanning building retrofits, the expansion of the air quality monitoring network, to the planting of over 75,000 trees. The sum of these actions represents the beginning of our transition to a climate just society, the future of which is defined in this document.

Chicagoans, this is our opportunity to maximize local benefits for communities by prioritizing those most vulnerable to climate change, generating wealth and workforce opportunities through a thriving green economy. By drastically reducing our reliance on fossil fuels, developing renewable energy resources, and centering nature-based solutions, we can sustain our communities for generations to come. I am confident that our Climate Action Plan, built for and by this great City, will deliver the thriving, sustainable, and just future that Chicago deserves.

Sincerely,

Lori E. Lightfoot

Mayor

Letter from the

CHIEF SUSTAINABILITY OFFICER

Dear Chicagoans,

One of the greatest honors of serving as Chief Sustainability Officer is having the opportunity to ensure a more vibrant, safe, and resilient future for the City of Chicago. The overarching theme of the 2022 Climate Action Plan (CAP) is to ensure widespread delivery of equitable benefits that both reduce carbon emissions and provide relief and opportunity to individuals and communities. In a city with 2.7 million residents and seventy-seven community areas, and the third largest city in the U.S., there is no one-size approach to Chicago's climate issues. To achieve the ambitious goals of the plan, more holistic solutions that reach beyond GHG reduction targets that are centered on equity and justice and prioritize health and safety were identified and included in the CAP.

We recognize that ongoing oppression, racism, and discrimination in Chicago have led to disparities and inequities in public health, economic stability and overall quality of life, for our Black, Brown, and low-income communities. Additionally, due to historical lack of community investment, the impacts and effects of climate issues and challenges are exacerbated in these communities, increasing their vulnerability. Our commitment to equity will require continued focus and targeted actions to ensure that communities on the frontlines of the climate crisis are prioritized in the future implementation of the CAP.

Crafting holistic solutions requires an understanding of the concerns and challenges everyday Chicagoans face. For this reason, we embarked on a year-long public engagement process that involved multiple townhalls, public comment periods, and informational sessions. These were critical to developing a plan that not only set the path forward to achieve the broader goals of the administration, but a plan that is based in the reality of Chicagoans from all sides of the city.

The COVID-19 pandemic, the exposure of deep and systemic racism, and the compounding impacts of the climate crisis have radically changed our world and have underscored the importance of prioritizing our residents, our communities, and our health. The City of Chicago accepts the responsibility of advancing this plan and are committed to creating more opportunities for collaboration with the City's robust network of frontline leaders, experts and stakeholders, to ensure that the plan remains aligned with the climate solutions and community priorities that Chicagoans have offered throughout the year-long engagement process. We know that advancing the plan equitably will take dedicated effort and continued practice. We invite all readers of this plan to join us in this effort.

In partnership,

Angela Tovar

CHICAGO WILL REDUCE ITS CARBON FOOTPRINT BY 62% BY 2040

CHICAGO
MAYOR LORI E. LIGHTFOOT

Chicago's 2022 CAP Centers On Equity

To better serve communities that disproportionately experience the chronic stress of the changing climate and the shocks of extreme weather events, the 2022 CAP anchors all climate strategies with the objective to create a more just and equitable city. Alongside aggressive carbon emission reduction investments, governments must invest in climate actions that address and prevent furthering the legacy of social injustices in frontline and overburdened communities.

Co-benefits

- **Economic inclusion and savings**
- **Reduced Pollution Burden**
- **Equitable access to critical infrastructure**
- **Community health and resiliency**

BUSINESS AS USUAL

2022 CAP TRAJECTORY

2017 GHG Emissions

31M metric tons CO_2 equivalent total

69% buildings

24% transportation

7% waste

2017

Progress for the People

- Expand use of commuter benefits
- Install 5 megawatts of co-owned community solar projects

- Establish a robust outdoor air quality monitoring network
- Strengthen policies that support green roofs, walls, trees, and other vegetative cover
- Introduce community-wide organic waste collection

- Increase Chicago-based community renewables to 20 megawatts
- Ensure 150 megawatts of energy storage

- Resource community-led climate infrastructure projects
- Integrate community resilience and climate justice criteria into department-level strategic planning and annual budget setting

2025

Build Scale and Capacity

- Retrofit residential and industrial buildings
- Increase community renewables subscriptions

- Increase Divvy and shared micromobility trips
- Update land use policies to encourage sustainable development, accessibility, and street safety

- Aggregate clean renewable energy in proximity to Chicago
- Support equitable electrification of ride hail and taxi fleets

- Develop a fossil-fuel plants transition strategy
- Increase CTA ridership

2030

Achieve and Exceed Targets

- Retrofit City-owned, sister agency-owned, and commercial buildings

- Achieve building electrification targets
- Enable 100% electrification of delivery fleets
- Electrify the City's fleet
- Divert 90% of residential waste

- Enable 2,500 new public passenger electric vehicle charging stations
- Achieve 100% clean renewable energy community-wide
- Encourage 3,000 megawatts of new energy demand reduction

- Enable Chicagoans to walk, bike, take transit, or use shared micromobility for 45% of all trips

2035

2040

PLAN BACKGROUND

WHAT IS A CLIMATE ACTION PLAN?

Chicago cannot solve the global climate crisis on its own, but the city will continue to be a global leader in the fight. In 2008—while grappling with the effects of the Great Recession—Chicago became the first major American city to create a comprehensive climate action plan. Guided by residents, climate experts, and community organizations, Chicago's original CAP outlined a strategic framework for measuring and mitigating greenhouse gas (GHG) emissions and related climate impacts. The 2008 CAP identified detailed climate actions that city officials, businesses, and residents could take that aligned with community goals. While the 2008 CAP was ahead of its time, a lot has changed since then. It is time for an update that reflects the latest climate science, community needs, and commitment to a more just society. We have an opportunity to learn from our past and build upon Chicago's history of climate leadership.

Our new plan is a strong, bold response to the climate crisis that is rooted in equity and collaboration. This plan serves as a playbook to guide and enable actions that reduce Chicago's contribution to global climate change, prepare our communities for the effects of a changing climate, and support a just transition to a thriving green economy. Delivering a just transition requires enacting principles and processes that support communities that have been burdened by harmful economic, policy, and environmental practices so that all Chicagoans have access to clean environments and thriving economies.

The 2022 CAP prioritizes emission-reduction initiatives that increase household monetary savings, create new workforce opportunities, reduce pollution burden, improve access to public services, and support community health. The goals and strategies of this plan are ambitious and cannot be achieved with current budgets, organizational structures, and labor markets. Advancing environmental justice and striving toward a more equitable city requires resources to support public education and engagement through community organizations, zero-carbon-economy skills training, cross-sector collaboration, and accountability.

Accountability

To achieve the ambitious goals of the 2022 CAP, the written strategies must become real policies, programs, and partnerships that benefit all Chicagoans. The scale of change envisioned in this plan requires many groups to take transformative actions. A strong accountability and reporting framework is needed to make sure that these actions begin and that continual and meaningful progress is made until the city achieves a just zero-carbon economy. This plan was written knowing that changes across government leadership can greatly affect the rate of progress toward the 2022 CAP's goals. Therefore, priorities and measurements of success must be co-developed and regularly evaluated with diverse stakeholders to support consistent implementation despite staff or leadership changes. Progress reports must be easy to access and understand. They must track actions relevant to all Chicago communities, particularly traditionally underserved communities.

Governance and Reporting

City departments and sister agencies will be key to executing many of the actions listed in the 2022 CAP. These departments will explore, share, and publicly track incremental targets that will keep pace with the vision of the 2022 CAP. The City will also establish community-led climate advisory boards and forums for regular community participation in implementing, reporting, and achieving the actions related to the 2022 CAP.

The City also practices accountability by reporting progress on carbon-reduction strategies and other climate goals to national and global institutions. This level of reporting supports implementation continuity between mayoral administrations. In addition, many of these institutions provide access to technical help or networks of other global cities leading on climate-change policies and action. These networks support Chicago in setting and achieving bold climate targets.

City carbon-reduction reports include citywide data, but details can be added to enable a deeper evaluation of community-level impact. Examples of this reporting include greenhouse gas (GHG) inventory reporting every 3 to 5 years, annual reporting to the Chicago Department of Public Health (CDPH), and an annual Clean Energy Scorecard rating by the American Council for an Energy-Efficient Economy.

Investing in Climate Equity

While climate change will affect all Chicagoans, its impact will not be felt equally across communities. To strive toward greater climate equity, the City must evaluate and optimize practices across departments and sister agencies. These evaluations will involve community leadership to ensure that a community's needs influence the improvements. In addition to refining existing practices, the City will continue to identify funding opportunities that support building the capacity and capital required for progress.

As a part of the 2022 budget, the City has committed significant funding to strengthen existing, introduce new, and anticipate future initiatives. The Climate Financing and Delivery Capacity section provides more detail about the historic climate action investments the City has made. Results from these investments will inform future climate policies, and strong performance will build momentum for more funding.

Policy Levers

The 2022 CAP serves as a goal-setting initiative to support future policy development and strategic planning. Formal resolutions have often been effective drivers of the City's sustainability vision. Resolutions must be introduced and passed by the City Council and highlight City priorities. For example, the 2019 resolution—Support for Implementation of Clean Energy Transition Plan (R2019-157)—established the City's goal to transition to citywide renewable energy by 2035. This resolution has kickstarted initiatives like the Request for Proposals for renewable energy supply to all City operations. The City will develop more resolutions and ordinances to bolster the actions of the 2022 CAP.

Policies can establish incentives for compliance and penalties for non-compliance. All good policymaking requires intentional consideration for those facing the greatest impacts from the issue(s) being addressed through the policy. It is important to meaningfully engage these residents to ensure that further, unintentional harm is not caused.

GLOSSARY

The 2022 CAP covers a diverse set of topics and issues. This glossary contains key words and definitions to support readers in better understanding the material covered throughout the report.

Adaptation | Adaptation is the process of adjusting to or preparing for a changing environment. Adaptation reduces the harmful effects of climate change by managing economic resources and critical infrastructure, encouraging technological innovation, and applying equity principles.

Affordable housing | Units with or without public subsidy that can be rented at a below-market rate are considered "affordable" if a family spends no more than 30% of their income to live there.

Building electrification | Building electrification refers to the replacement of fossil-fuel burning appliances and equipment with efficient electric-powered options.

Building retrofits | Building retrofits are used to improve the energy efficiency and enable energy conservation of a building. Retrofits can include installing energy efficient heating, ventilation and cooling equipment, and appliances and lighting; insulating walls, roofs, and openings; or optimizing building operations.

Circular economy | A circular economy prevents pollution and the degradation of natural systems by streamlining product design to reduce waste, keeping products and materials in use, and regenerating natural systems. This contrasts with the current linear economy, in which materials are extracted from nature, transformed into products, and then thrown out as waste. By refocusing supply chains on local goods and services, circular practices support existing local businesses, create new jobs, and deliver significant pollution-reduction benefits.

Climate change | Climate change is the significant change in weather patterns that continue over multiple decades or longer. Effects include changes in precipitation, increases or decreases in temperature, duration, frequency, and intensity of extreme weather events.

Community renewables | Community renewables refer to a renewable energy installation with multiple owners or subscribers. This model is helpful when a subscriber cannot install renewable energy on a property such as renters or those with insufficient solar capacity on their property.

Community resiliency | Community resiliency is the sustained ability of a community to use available resources to respond to, withstand, and recover from adverse situations. This allows for the adaptation and growth of a community after disaster strikes.

Cumulative burden | The cumulative burden of climate change is a combination of exposure to pollution, extreme weather events, and other factors that can negatively contribute to these problems. Such factors include limited access to healthcare and healthy foods, poor housing quality, and lack of open green spaces. Social stressors and preexisting health conditions in frontline communities can also negatively affect environmental risks.

Electrification | Electrification refers to transitioning away from direct fossil-fuel combustion in equipment and vehicles by replacing fossil-fuel powered equipment with alternatives that run on electricity.

Embodied carbon | Embodied carbon is the carbon footprint of a material. Embodied carbon considers the environmental impact of materials throughout the supply chain as well as manufacturing and transportation processes. Construction materials such as steel and concrete are high in embodied carbon. Embodied carbon can be reduced by reusing and recycling materials.

Energy burden | Energy burden is the percentage of household income spent on energy costs such as utility bills. According to the US Department of Energy, the energy burden for low-income households is three times higher than for non-low-income households.

Energy efficiency | Energy efficiency is using less energy to perform a specific task than is typically required.

Energy storage | Energy storage is the capture of energy produced at one time for use at a later time to reduce imbalances between energy demand and energy production.

Equitable transit-oriented development (ETOD) | This kind of development enables people of all incomes, races and ethnicities, ages, gender, and ability to experience the benefits of dense, mixed-use, pedestrian-oriented development near transit hubs.

Equity | The City of Chicago defines equity as both an outcome and a process that results in fair and just access to opportunity and resources that provide everyone the ability to thrive.

Freight fleet | A freight fleet is a small or large number of vehicles operating under the same ownership to transport goods by truck, train, ship, or planes, as in the transportation of consumer goods.

Frontline communities | Frontline communities are those that experience the most immediate and worst impacts of climate change due to factors such as chronic exposure to sources of pollution, weakened community resilience due to compounding economic, health, and environmental challenges, and limited ability to influence decision-making processes. They are typically communities of color, Indigenous communities, and low-income communities.

Grid reliability | Grid reliability is the capacity of a power system to deliver the quantity and quality of electricity needed by all customers who use the grid.

Interconnection | Interconnection is the linkage of energy generation systems (for example, residential solar) to the electric power system. Interconnection enables renewable energy sources to connect to power grids.

Just Transition | The trade union movement developed this framework to encompass social interventions needed to secure workers' rights and livelihoods when economies are shifting to sustainable production. A "just transition" approach ensures that decision-makers prioritize the needs of communities most affected by a policy not limited to labor workers.

Low- or moderate-income (LMI) | Low- or moderate-income is used to identify people and households who make less than 80% of an area's median income.

Mitigation | Mitigation refers to methods for reducing the human impact on the environment—specifically climate systems—including strategies to reduce GHG emissions (such as energy efficiency) and methods of capturing carbon (such as planting trees).

Nature-based climate solutions | Nature-based climate solutions are actions that conserve or restore ecosystems or improve land management practices.

Net-zero | Net-zero refers to the balance of remaining emissions after climate action with removal and permanent storage of carbon from the atmosphere.

Protected bike lanes | Protected bike lanes separate cyclists from vehicular traffic using concrete curbs or other types of physical barriers.

Quality-of-life metrics | Quality of life is associated with the extent to which individuals can meet their needs, wants, and aspirations. Standard quality-of-life indicators may include wealth, employment, the environment, physical and mental health, education, recreation and leisure time, social belonging, religious beliefs, safety, security, and freedom.

Redlining | Redlining is the illegal practice of denying investment to residents, business owners or community institutions based on race. Though illegal today, the effects of this well enforced, historic policy can be seen today in disparities in homeownership and other community-level economic investments.

Renewable energy | Renewable energy is collected from resources that are naturally replenished on a human timescale, including from sources like sunlight, wind, rain, tides, waves, and geothermal heat, which are carbon neutral.

Resiliency | Resiliency is the ability to anticipate, prepare for, respond to, and recover from the impacts of climate change. These impacts include extreme weather events, flooding, and sea level rise, as well as the various social and economic impacts of such shocks and stresses.

Ride hail | Ride hailing is when riders hire a car and driver on a short-term basis to take them to a specified destination. Ride hailing includes taxi services as well online ride-hailing platforms such as Uber and Lyft.

Transit | Transit is a system of local transportation such as buses and trains used by people to commute to work, school, entertainment, etc. It is distinct from personal vehicular and long-distance travel.

Transit electrification | Transit electrification is the process of replacing technologies that use fossil fuels (coal, oil, and natural gas) with alternatives that use electricity as an energy source. The greatest health and climate benefits of electrification are achieved when the new systems are powered by electricity generated by clean renewable sources.

Transportation | The term transportation includes transit, private vehicles, ride-hailing services, and freight.

Underserved | An underserved population or community has limited access to health care and other types of services. People who are underserved face economic and social barriers that prevent them from accessing services or receiving the same quality of services as those who are not underserved.

Urban heat island | Urban heat islands are areas that absorb and retain heat due to dense concentration of pavement, buildings, and other urban features. These areas are hotter than surrounding areas and have limited natural land cover to reduce temperatures.

Vulnerable | Vulnerability is used to describe populations or an area that may be more prone to negative impacts due to a combination of sociodemographic, health, and occupational factors. When compounded, these conditions may reduce a group's ability to avoid, recover from, or adapt to hardship.

Waste management | Waste management is the process of collecting, transporting, treating, and disposing of waste. It also involves reducing waste production through reuse and recycling.

CITY OF CHICAGO DEPARTMENTS AND SISTER AGENCIES:

AIS, Department of Assets, Information and Services

BACP, Business Affairs and Consumer Protection

CCC, City Colleges of Chicago

CDA, Chicago Department of Aviation

CDOT, Chicago Department of Transportation

CDPH, Chicago Department of Public Health

CFD, Chicago Fire Department

CHA, Chicago Housing Authority

CPD, Chicago Park District

CPS, Chicago Public Schools

CTA, Chicago Transit Authority

DOB, Department of Buildings

DOH, Department of Housing

DPD, Department of Planning and Development

DSS, Department of Streets and Sanitation

DWM, Department of Water Management

OEMC, Office of Emergency Management and Communications

OERJ, Office of Equity and Racial Justice

PBC, Public Building Commission

VISION, PRINCIPLES, AND OBJECTIVES

LEADING WITH JUSTICE AND EQUITY

As greenhouse gas (GHG) emissions rise, changes in climate will continue to accelerate and pose greater risks to our health, economy, and general livelihoods. Like other public health threats, the climate crisis has a greater impact on certain populations. Populations who are most vulnerable to climate impacts include health-compromised individuals, older adults, pregnant individuals, children, individuals with less income stability, communities located closer to sources of pollution, and communities with limited access to goods, social services, and other resources. Some of these vulnerabilities are the result of harmful discrimination and underinvestment policies such as economic disinvestment practices or redlining. Therefore, to better serve communities that disproportionately experience the chronic stress of the changing climate and the shocks of extreme weather events, the 2022 CAP anchors all climate strategies with the goal to create a more just and equitable city.

Alongside aggressive carbon emission-reduction investments, governments must intentionally practice advancing equity through modernizing programs, processes, and targets. The City of Chicago defines equity as both an outcome and a process that results in fair and just access to opportunities and resources that provide everyone with the ability to thrive. In practice, this means investing in climate actions that solve the priorities of overburdened- and frontline communities and using climate related investments to drive new opportunities and benefits to those most at risk of impact or further burden. Due to the complexity of the climate crisis and the different ways impacts are experienced, the issue must be approached comprehensively from multiple angles and points of view. Furthermore, addressing the climate crisis holistically requires interconnected strategies and solutions that work together and get at the root causes of issues.

The 2022 CAP is built around climate actions that deliver multiple, meaningful benefits to residents and their communities while also reducing emissions. These co-benefits include:

1. Economic inclusion and savings
2. Reduced pollution burden
3. Equitable access to critical infrastructure
4. Community health and resiliency

Actions that deliver co-benefits in the following categories form the backbone of a new era of climate action in Chicago.

Economic Inclusion and Savings

In the transition to a clean-energy economy, the City will explore pathways to better connect residents to resources and services to save money by saving energy; to better understand and address barriers to owning clean-energy power and storage; to build out procurement and workforce development strategies to stimulate greater inclusion and diversity; and to expand the clean-energy labor force. To realize these benefits locally, the 2022 CAP aims to retrofit a large portion of the city's residential buildings and to enact meaningful updates to the city's building codes and standards. In both domains, the goal is to use less energy and to get energy from cleaner sources. The financial benefits to low-income households can come in multiple forms. Lower monthly utility costs increase household savings, job training provides economic upward mobility, and growth of the clean-energy economy provides access to new forms of business ownership and employment in the fields of community education and services, building efficiency, electrification, and solar installation.

Reduced Pollution Burden

Fossil-fuel energy use causes harm beyond climate change. Diesel- and gas-powered vehicles contribute to pollution burden along busy roadways. Waste transport and processing heightens pollution in adjacent neighborhoods. Gas-powered furnaces and cookstoves can create unhealthy air in homes. The 2022 CAP promotes actions that go beyond reducing GHGs to also preventing the local air pollution that contributes to asthma and other health issues. Because frontline populations have higher exposure to these pollutants, the City is committed to advancing environmental justice to address a range of issues: establishing more circular practices to divert waste from landfills and pollution-heavy processing; electrifying municipal, commercial, and industrial fleets; and providing affordable access to clean renewable energy and related technologies like electric vehicles.

Equitable Access to Critical Infrastructure

Many climate actions require adopting new technology, with upfront costs that can be out of reach for low- and moderate- income households. Without equitable access to clean energy, clean transit, and the broadband networks that enable full participation in today's economy, climate actions have the potential to increase disparities between low- and high-income households. To address this potential adverse effect, the 2022 CAP prioritizes actions and investments that ensure that no Chicagoan is left behind in the transition to cleaner technologies.

Community Health and Resiliency

Taken together, climate actions shaped through the lens of equity and justice can reduce the quality-of-life disparities that persist across US cities, including Chicago. To be considered successful, the actions in the 2022 CAP must not only reduce GHG emissions but also improve health and quality-of-life indicators. These include reduced levels of energy burden; improved water, soil, and air quality; and easy access to transit and healthy food. The CAP supports the vision of a future in which a zip code is no longer a determinant of life expectancy in our city, but instead we are equally protected from and sufficiently prepared to bounce back from chronic health problems, heat waves, power outages, and flash floods. Nature-based climate solutions are actions that conserve or restore ecosystems or improve land management practices. These solutions store carbon and are key to balancing the carbon that is emitted throughout the city. They also enhance economic, social, and environmental vitality to improve community well-being and resiliency. The CAP integrates nature-based climate solutions across each pillar of climate action.

EVALUATING FOR BALANCE AND SOCIAL IMPACT

Leading with justice and equity in climate action requires that actions deliver measured improvements for communities. Systems of accountability must expand to reflect both social impact and emissions outcomes. In practice, this means working more closely with community networks to develop new systems for implementation, monitoring, and evaluation. Together, there can be a better understanding of social impact and effective program improvements. The City and partners developed the mitigation pillars and initiatives in this plan to meet all five of the following criteria:

Equitable

Each pillar aims to maximize benefits and minimize burdens on marginalized communities, alleviate resource disparities, and respond to community vulnerability and resiliency.

Balanced

The plan balances the need for local impact and global leadership with strategies that support connecting and strengthening Chicago communities alongside ambitious mitigation and adaptation strategies. Similarly, the CAP elevates the need to invest in both nature-based climate solutions and technology for holistic progress.

Realistic

Initiatives are timely and actionable within the City's legal and functional sphere of control. They are cost-effective and fiscally responsible, relying on strong financial mechanisms. Most importantly, each initiative is measurable.

Ambitious

CAP actions are responsive to the climate crisis. They incorporate the most up-to-date climate science and recognize the urgency of both immediate and game-changing actions that significantly reduce emissions and improve the lives of Chicagoans. Successful implementation of CAP actions will require the City to update or set up new operating models that support, monitor, and ensure progress toward target achievement.

Adaptive

Initiatives leave flexibility to accommodate technological, political, and cultural shifts during the life of the CAP's implementation.

CLIMATE CHANGE AND CLIMATE JUSTICE 101

The damaging effects of climate change are happening now in our city. Compared to the early 1900s, Illinois' climate is warmer (particularly in the winter and spring) and wetter. Precipitation has increased 12% to 15%, meaning rainier summers in Chicago. Importantly, storm events are becoming more intense, with large amounts of rain falling over short periods of time. These changes are expected to continue with additional increases in air temperature and precipitation. Climate change is no longer an abstract concept.

Already, climate change disrupts our daily lives in significant ways:

- Heat waves cause heat-related deaths and illness, worse air quality, and increased reliance on costly electricity for fans and air conditioning.
- More frequent heavy downpours cause basement flooding and property damage, sewage overflows, contamination of local waterways, and transit disruptions.
- Warmer spring temperatures lengthen the pollen season and increase exposure to allergens.
- Changing Lake Michigan water levels and temperature increase shoreline erosion, property damage, and the potential for toxic algae blooms.

While all Chicagoans directly experience climate-change impacts, frontline communities experience the most immediate and worst effects. Adding to this climate injustice, these same populations bear the least responsibility for industrial pollution and have gained the least economically from the wasteful and polluting actions that are driving climate change. Approaching the City's climate action and investment with the lens of climate justice acknowledges these disparities and prioritizes the approaches that best address the needs of underserved communities.

The tragedy of climate injustice is evident in Chicago's history, with the city's 1995 heat wave remaining one of the deadliest climate disasters in the United States. Many of the 739 victims were elderly, low-income and Black, living in apartments without ventilation or air conditioning, in neighborhoods lacking social infrastructure and critical resources. An extreme-heat event in 1999 was also deadly, revealing a pattern of greater risk to those living in neighborhoods in more industrialized parts of the city. In these areas, with less greenspace and more asphalt, heat islands spur devastating health challenges for people battling a combination of worse air pollution and higher temperatures. Meanwhile, wealthier residents living near parks or by the lakeshore, in well-equipped buildings, can take easy refuge from the dangers of extreme heat.

Since those two tragic heat waves in the 1990s, the City has developed extreme-heat emergency response plans, bringing critical infrastructure like cooling centers and buses online, and deploying wellness checks for vulnerable residents. Continued assessment and investment in the needs of frontline communities is core to meeting the challenges of climate change with a lens of climate justice.

CHICAGO'S FRONTLINE CLIMATE LEADERSHIP

Community leaders on the frontlines of the climate crisis, here in Chicago and throughout the world, have long advocated for and are leading their communities through a just transition away from fossil-fuel based economies to more regenerative solutions that prioritize the health and well-being of residents and prevent future environmental harms. An important element of equitably addressing the climate crisis is to ensure that the solutions deriving from communities most affected by climate change are uplifted and that their leadership and expertise are valued in all planning and implementation processes. Chicago is home to many frontline community organizations leading on climate solutions including Blacks In Green (BIG), Little Village Environmental Justice Organization (LVEJO), and People for Community Recovery (PCR). Building upon their respective local programs and advocacy, these organizations have expanded their advocacy work to ensure sustained impact. BIG, LVEJO, and PCR supported the development and passage of Illinois' historic energy legislation, including the Future Energy Jobs Act (FEJA) and Climate and Equitable Jobs Act (CEJA) and continue to support communities most impacted by industrialization and climate across Chicagoland, the state of Illinois, and the nation.

Blacks In Green

Pioneered and piloted by BIG! Blacks In Green, The Sustainable Square Mile™ works at the intersection of environment and economy, pollution and poverty, reinventing local economies where Black families can walk-to-work, walk-to-shop, walk-to-learn, walk-to-play – here in the Age of Climate Crisis. BIG's vision creates a buffer of resilience for Black communities by generating health and wealth through economies in clean energy, green infrastructure, affordable housing, heritage tourism, and waste management. By connecting one sustainable-square-mile at a time, BIG hopes to create a "City of Villages" – self-sustaining, mixed-income, walkable-villages that reduce greenhouse gases; circulate investment to neighbor-owned businesses and lands; and measurably increase the household income of its residents – BIG's core goal. In this way, with its allies, BIG envisions helping close America's racial health-wealth gap. To learn more about BIG's work, visit www.blacksingreen.org

Little Village Environmental Justice Organization

Located in the Little Village community area of Chicago, LVEJO is a nonprofit organization that works with communities across Chicago to address the root causes of environmental justice issues. LVEJO has successfully advocated for closing the Fisk and Crawford Power plants, for improving public transit in areas of high demand and minimal access, and for reducing air pollution and expanding green spaces through remediating and redeveloping brownfields. Beyond successful clean power, public transit, and open space campaigns, LVEJO remains committed to advocating for safe and affordable drinking water for residents and serves on the City's Lead Service Line Replacement Advisory Group. LVEJO is proactively building the green economy in their community by creating a 1.3-acre urban farm, which will include a fruit orchard, local vendor opportunities, and urban agriculture training for local residents. To learn more about LVEJO's work, visit www.lvejo.org

People For Community Recovery

People For Community Recovery (PCR) is a local nonprofit organization that advocates for housing justice and enhancing the quality of life of residents living in communities that are affected by chronic industrial pollution. Their community-driven projects address the underlying causes of environmental injustice, such as lack of transit, poor air quality, inadequate housing, and lack of green spaces. PCR is devoted to honoring founder Hazel Johnson's legacy by holding polluters accountable to their community impacts and working with local residents to envision climate solutions that improve their environment and their community. PCR is working on preserving, restoring, and redeveloping the national landmark Altgeld Gardens; securing local clean-energy projects and workforce development opportunities for the far South Side and ensuring that various development projects (such as the CTA Red Line Extension and riverfront revitalization) benefit community members rather than displacing them. To learn more about PCR's work, visit www.peopleforcommunityrecovery.org

EXAMINING HOW HISTORIC INEQUITIES WORSEN CLIMATE IMPACTS

POLLUTION PATTERNS AND THE LINES OF URBAN SEGREGATION

The patterns of disproportionate pollution burden and climate inequities within Chicago follow familiar lines. Tonika Johnson's Folded Map Project explores how the practice of redlining in the 1930s—and other racist policies—set the stage for harmful race-based segregation, leading to underinvestment in Black neighborhoods that can be readily seen by comparing the buildings, streets, and community spaces in different Chicago neighborhoods. The consequences continue nearly 100 years later as climate vulnerability, pollution burden, and economic insecurity bring new and old threats to those same communities.

ADDRESS PAIRS

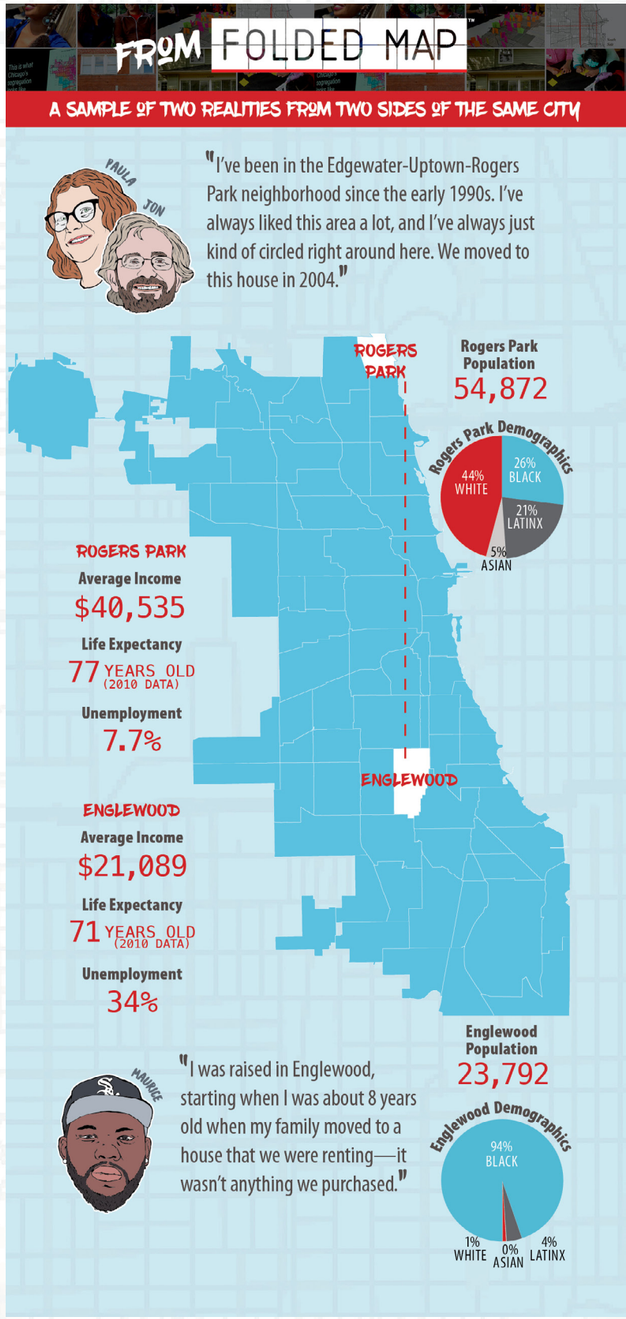
6329 S. Paulina

6330 N. Paulina

MAP TWINS

6400 N. Hermitage residents

5400 S. Hermitage resident

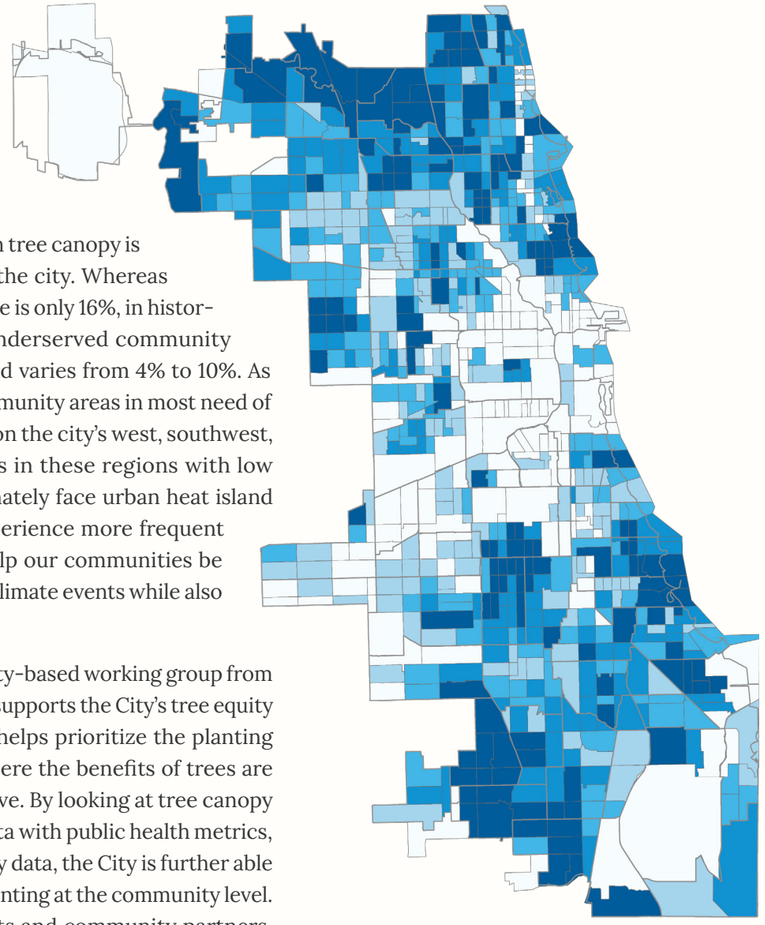


Photos and Infographic Credit: *Tonika Johnson, Folded Map Project*

TREE EQUITY

Data shows that Chicago's urban tree canopy is not equally distributed across the city. Whereas the city average canopy coverage is only 16%, in historically under-resourced and underserved community census tracts, it is even less and varies from 4% to 10%. As demonstrated by the map, community areas in most need of trees are largely concentrated on the city's west, southwest, and south sides. Communities in these regions with low tree canopy also disproportionately face urban heat island effects in the summer and experience more frequent flooding. Planting trees can help our communities be more resilient to the impact of climate events while also reducing GHGs.

A diverse 70-member community-based working group from across Chicago neighborhoods supports the City's tree equity strategy. A tree data tool that helps prioritize the planting of trees in areas of Chicago where the benefits of trees are most needed guides the initiative. By looking at tree canopy coverage and overlaying this data with public health metrics, heat vulnerability, and air quality data, the City is further able to analyze and prioritize tree planting at the community level. Together with city departments and community partners, Chicago has the goal of planting 75,000 trees by 2026.



Concentration of Trees

Lowest Tree Coverage

Highest Tree Coverage

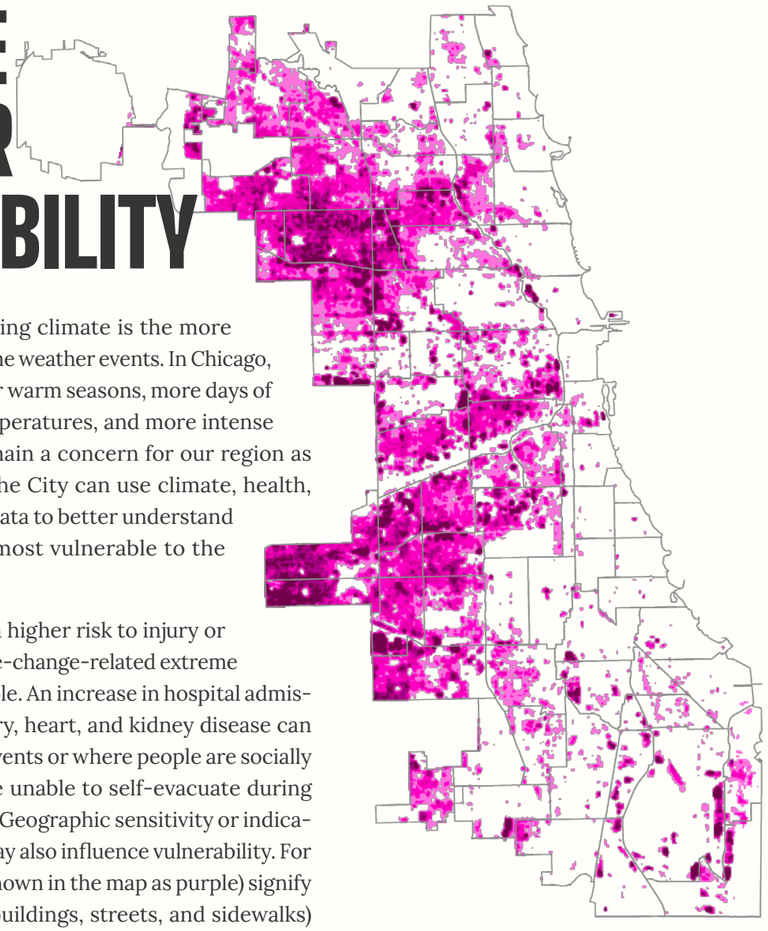
N

EXTREME WEATHER VULNERABILITY

One clear result of our changing climate is the more frequent or more intense extreme weather events. In Chicago, climatologists anticipate longer warm seasons, more days of extreme heat, rising night temperatures, and more intense rains. Intense winters will remain a concern for our region as well. In any of these events, the City can use climate, health, geographic and demographic data to better understand which communities may be most vulnerable to the forthcoming event.

Vulnerable Chicagoans are at a higher risk to injury or death from the effects of climate-change-related extreme weather events than most people. An increase in hospital admissions of people with respiratory, heart, and kidney disease can occur during significant heat events or where people are socially isolated, lack mobility, and are unable to self-evacuate during heavy snows, rains, and floods. Geographic sensitivity or indicators related to infrastructure may also influence vulnerability. For instance, urban heat islands (shown in the map as purple) signify that built environments (like buildings, streets, and sidewalks) are much warmer than their surroundings because they absorb heat, making them difficult to cool.

The City can use various data sets to develop a heat vulnerability index to better discern areas where communities may be in greatest need of strategic climate resilience or public health support. This data informed decision-making process can prioritize green infrastructure investments, ensure development plans don't increase community risks, and identify where community-led resiliency networks and hubs could support local health workers and emergency management teams.



Urban Heat Severity

Above Average Severity

Highest Severity

N

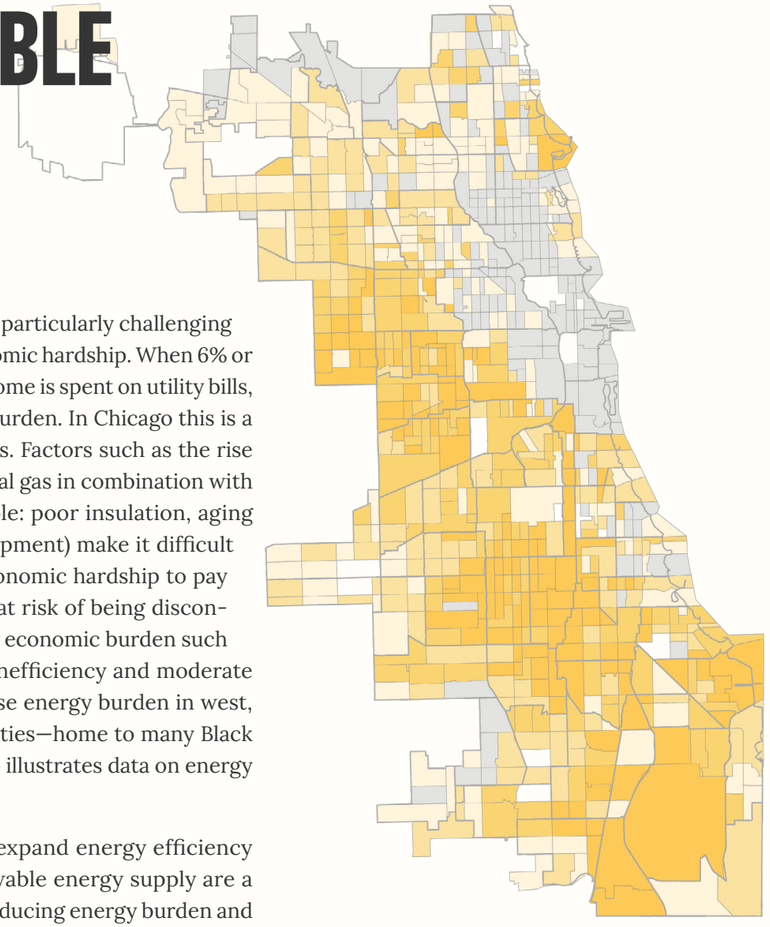
Credit: *Dr. Christian Braneon, Data Scientist at d3i Systems*

This map was created as a result of activities associated with the NASA-Microsoft partnership through collaboration between NASA, Microsoft, ESRI, City of Chicago Department of Planning and Development and City Tech Collaborative.

AFFORDABLE ENERGY ACCESS

Unstable energy prices can be particularly challenging for families experiencing economic hardship. When 6% or greater of gross household income is spent on utility bills, residents experience energy burden. In Chicago this is a reality for 4% of all households. Factors such as the rise of cost of electricity and natural gas in combination with home inefficiency (for example: poor insulation, aging appliances, and outdated equipment) make it difficult for residents experiencing economic hardship to pay their bills, thus putting them at risk of being disconnected or having an additional economic burden such as a bad credit score. Home inefficiency and moderate wages disproportionately cause energy burden in west, south, and far south communities—home to many Black and Latinx residents. This map illustrates data on energy burden across Chicago.

Chicago's equity strategy to expand energy efficiency programs and increase renewable energy supply are a critical step forward toward reducing energy burden and relieving those having trouble paying their utility bills. Additionally, targeted interventions such as the federally sponsored programs (Weatherization Assistance Program and the Low-Income Home Energy Assistance Program) for income-qualified households are essential assistance tools. Furthermore, continuing the Chicago Department of Housing's Home Repair Program and leveraging the $26 million in new low-income housing retrofit projects in the Chicago Recovery Plan to equitably decarbonize, weatherize, and retrofit homes can also provide critical long-term solutions for overburdened households.



Energy Burden

N

Lowest energy burden

Highest energy burden

CLIMATE FINANCING AND DELIVERY CAPACITY

In 2008, Chicago became the first major American city to create a comprehensive climate action plan. The goals within the plan aimed to reduce citywide emissions 25% by 2020 and 80% by 2050 from 1990 levels. In 2011, Chicago updated its climate action strategies in the Chicago Sustainability Agenda 2015. The report sharpened strategies to accelerate efforts to reach the goals in the 2008 CAP. Since 2011, the City has launched building-block policies and initiatives to build greater capacity to deliver on the City's climate targets.

- Benchmarking Ordinance, 2013: This ordinance supports greater transparency on energy usage across the building sector. Existing municipal, commercial, and residential buildings that are 50,000 square feet and larger are called to track energy use, report to the City annually, and verify data accuracy every three years. Chicago's benchmarking program was expanded in 2019 with the Chicago Energy Rating System, which assigns an energy rating to covered buildings based on their reporting and requires buildings to display the rating in a prominent location onsite.

- Chicago Solar Express, 2013: This program simplified the administrative process required to install rooftop solar.
- Drive Clean Chicago, 2014: This program provides funding to support Chicago fleet operators and businesses for the adoption of clean vehicles.
- Sustainable Development Policy, 2016: This policy requires development projects that receive financial assistance or special approvals from the City that include sustainable elements.
- EV Readiness Ordinance, 2020: This ordinance requires new construction of a residential building with 5 or more units and on-site parking to have 20% of parking spaces EV Ready, and in non-residential buildings with 30 or more parking spaces to provide 20% of parking spaces as EV ready.

Despite these efforts, the City fell short of its 2020 reduction target primarily because of funding gaps, limited City staff capacity, and less coordination of climate targets and accountabilities across City departments and sister agencies. This shortfall has not been unique to Chicago. Many cities that established early CAPs have struggled to allocate the necessary finances, staff resources, or policy attention to address the climate crisis.

Calls for bold climate action continue to resonate globally across all demographics, and governments are responding. In 2015, to drive greater global coordination and ambition, 195 countries and the European Union adopted the Paris Agreement, establishing a legally binding global target to limit global warming preferably to 1.5° Celsius. In 2017, Chicago joined more than 200 cities in formally adopting the guidelines of the Paris Agreement despite a lack of federal leadership at the time. On September 20, 2019, millions of youths protested for immediate climate action in more than 800 marches around the world. Youth leadership in Chicago led to the formal declaration of a climate emergency and led thousands of young Chicagoans to demand greater leadership from the state legislature as well. In 2021, the US government passed the Infrastructure Investment and Jobs Act. The law provides federal funding to deliver carbon-free power ($75 billion) and support resiliency ($47 billion) by improving public transportation, addressing pollution in overburdened communities, rebuilding roads and bridges, and enabling electric vehicles. The same year, the Climate and Equitable Jobs Act (CEJA) became law in Illinois, which commits the state to 100% carbon-free power by 2045 and 100% clean energy by 2050.

In October 2021, Chicago's City Council approved $188 million for climate resiliency and mitigation, as part of Mayor Lori Lightfoot's $2.5 billion Chicago Recovery Plan. This historic level of investment toward climate action will provide funding for resilient infrastructure and green workforce development opportunities. Additional complementary investments will be made in affordable housing ($157.4 million); health and wellness ($108 million); environmental justice ($86.8 million); community climate investments ($101.3 million); community development ($166 million); and small business and workforce support ($87 million). In addition to these newly available resources, the Build Back Better framework proposed by the US Congress would further enable the conditions needed to successfully deliver Chicago's CAP.

For the first time, awareness, expertise, and funding are aligned to support ambitious climate action in Chicago. The City has allocated budget and operational capacity to achieve the first next steps of the CAP and demonstrate success to solidify climate action as a standard line item in future annual budgets. The initiatives in the tables following are fully funded.

Chicago Recovery Plan funding overlap with Chicago's 2022 Climate Action Plan

(total climate funding of $188M)

Investments	Allocated Budget	Intended Deliverables	Expected Co-Benefits
Decarbonize Affordable Multifamily Buildings	$6 million	Retrofit and decarbonize 200 multifamily affordable housing units in underserved communities. This program will support existing building retrofits and in-unit interventions led by Chicago's Department of Housing.	• Increased household savings • Improved thermal comfort • Economic inclusion • Improved air quality • Decreased emissions • Increased resiliency to extreme weather
Low- or Moderate-Income (LMI) Housing Retrofits	$15 million	Retrofit and decarbonize 250 LMI homes in underserved communities. This program will support existing building retrofits and in-home interventions led by the Department of Housing.	
Neighborhood Power Project Expansion	$10 million	Complete deep retrofits in at least 10 community anchor buildings in neighborhoods that lack access to existing capital improvement funds. The project will decrease the energy burden on organizations and provide critical services to underserved communities. This program aims to develop a network of resiliency hubs throughout Chicago and provide energy education services and shelter during extreme weather.	
Library Power Project	$5 million	Enable retrofits and install solar panels at up to 10 Chicago Public Libraries, minimizing utility costs and ensuring that we sustain our library assets for the long term.	• Improved grid reliability • Increased household savings • Decreased emissions • Increased resiliency to extreme weather
Community Solar on Industrial Roofs	$5 million	Generate solar energy to power at least hundreds of households via a community solar in an industrial community. Community solar subscriptions to be prioritized in environmental justice, frontline, and/or underserved communities that are in close proximity to the site (s).	
Expand Canopy Coverage	$46 million	Plant 75,000 trees over 5 years in underserved community areas.	• Reduced pollution burden • Increased home value • Lower energy burden • Improved thermal comfort • Increased carbon sink • Stormwater absorption • Reduced urban heat island
Community Green Infrastructure Investments	$5 million	Install green alleys and develop targeted green infrastructure flood mitigation projects in flood-burdened communities.	• Reduced flooding and sewage overflow • Increased home value • Increased resiliency to extreme weather
Community Composting Pilot	$45 thousand	Install new community compost collection hubs in neighborhoods underserved by organics collection services.	• Reduced pollution burden concentrations • Improved soil quality
City Fleet and Building Decarbonization	$8.3 million	Invest in municipal fleet electrification combined with electric vehicle charging. This program will prioritize fleet electrification in pollution-burdened neighborhoods.	• Reduced emissions from City operations • Procurement opportunities for Minority/Disadvantaged/Women Business Enterprises (MBE/WBE/DBE/BEPD)
Low-Carbon Mobility Projects	$10 million	Expansion of bike and micromobility infrastructure and walkability investments in priority communities. This project will provide 5,000 bikes, helmets, and locks to underserved Chicagoans.	• Reduced emissions from avoided vehicle trips • Increased personal mobility • Procurement opportunities for MBE/WBE/DBE/BEPDs
Air Quality Monitoring and Land Remediation Project	$24 million	Investment in a Citywide air monitoring network and partial remediation of the former Schroud Superfund site.	• Data transparency for local air pollution monitoring by residents • Procurement opportunities for MBE/WBE/DBE/BEPDs

Climate Financing And Delivery Capacity (cont.)

In addition to the City's historic Chicago Recovery Plan climate investments, several existing, expanded, and new sources of funding can help Chicago meet its climate goals. These sources exist at the local, state, and federal levels. Some examples include:

- Energy efficiency building improvements and repairs through Chicago Small Business Improvement Funds
- Programs created or expanded by Illinois' Climate and Equitable Jobs Act covering a variety of areas such as clean-energy workforce development, solar investments in Illinois' Black, Indigenous, and people of color (BIPOC), low-income, and environmental justice communities, and transportation electrification
- Programs created or expanded by the federal Infrastructure Investment and Jobs Act and implemented by the US Environmental Protection Agency, US Department of Transportation, and US Department of Energy
- For the next 4 years, Chicago's current electric distribution utility will implement an energy efficiency program with a total budget likely exceeding $400M per year (for its full Northern Illinois service territory), with significant program spending focused on low- and moderate-income programs as well as programs focused on public sector energy efficiency and electrification switching, among other measures

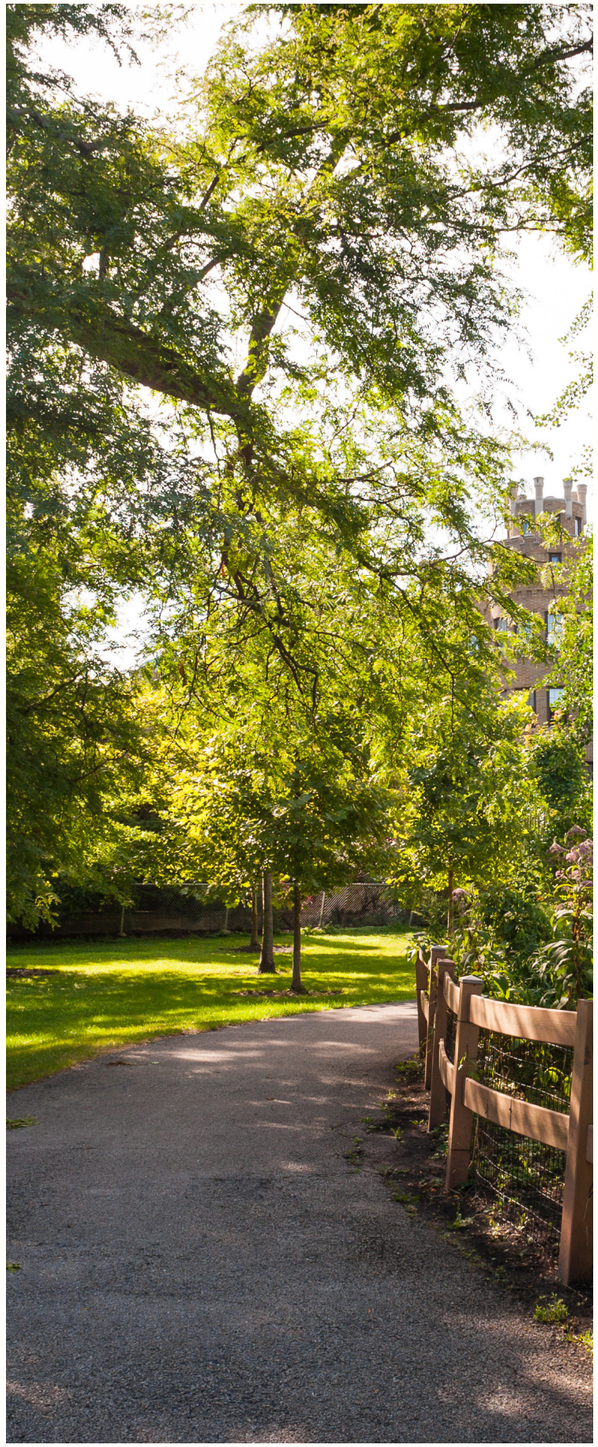
This is an exciting moment for Chicago to pursue expanded funding through sources such as the above, but it also underscores the importance of updating Chicago's climate goals.

Plan Development Process And Timeline

Fourteen years after our first CAP, we face a renewed energy for bold initiatives. In comparison to previous years, renewable energy is cost competitive or often cheaper than fossil fuel sources, clean-energy funding has increased, and implementation capacity has grown. While economic trends and policies continue to support climate and infrastructure investments, the 2022 CAP seeks to reflect the current needs and ambitions of our communities.

Beginning in Summer 2021, the Office of the Mayor hosted listening sessions to seek input from residents, community-based organizations, local nonprofits, industry associations, and other partners. The feedback from these sessions drove the inclusion of many initiatives in the CAP, particularly sections related to equity and justice. Throughout the Fall/Winter 2021, City departments and sister agencies offered feedback on CAP strategies, actions, and targets. The insights helped to ensure that the 2022 CAP goals are both ambitious and attainable.

In January 2022, the Office of the Mayor hosted two citywide town halls drawing 150+ attendees and launched two community surveys to assess what issues matter most to Chicagoans. In an effort to avoid excessive surveying of community partners and residents, community feedback from other City-led planning initiatives such as the ETOD Policy Plan (2020), We Will Chicago (2021-present), and the 2021 Budget Engagement Tours, were consulted. In March 2022, the Office of the Mayor released a draft 2022 CAP for a one-month public comment period. Chicagoans' feedback has been incorporated throughout this revised document and the City is grateful for commenters' time and input.



Alignment with C40

C40 is a global initiative that catalyzes and supports cities to take immediate actions that address the climate crisis. The C40 network includes nearly 100 city members whose membership is determined by action and performance-based outcomes. Chicago has been a C40 member since 2005. C40 provides cities with resources and expertise to shape climate ambition and action that align with science-backed targets. The City is grateful to the C40 team for its guidance that has helped to shape this plan and its ambitions.

EXTERNAL PARTNERS

- Blacks In Green
- Chicago Environmental Legal Clinic
- Chicago Lawyers Committee for Civil Rights
- Elevate
- Environmental Law and Policy Center
- Friends of the Parks
- Illinois Environmental Council
- Illinois Youth Climate Movement
- Metropolitan Mayors Caucus
- Metropolitan Planning Council
- The Morton Arboretum
- The Nature Conservancy
- Neighbors for Environmental Justice
- NeighborSpace
- Office of Modern Composition
- Openlands
- People for Community Recovery
- Southeast Environmental Task Force
- University of Illinois at Urbana-Champaign

THANK YOU

to everyone who has contributed to the 2022 CAP. From interactive virtual town halls, two online surveys, facilitated conversations with community partners, and comments on the draft plan, over 2,100 Chicagoans from 70+ community areas have shared with us their climate priorities. We also acknowledge due to the COVID-19 pandemic (and the Omicron variant in particular), partner organizations found it difficult to connect with constituents January-February 2022. While we sought greater in-person engagement, we will continue to leverage these partnerships moving forward to maximize accountability and to successfully implement the 2022 CAP.

Residents engaged

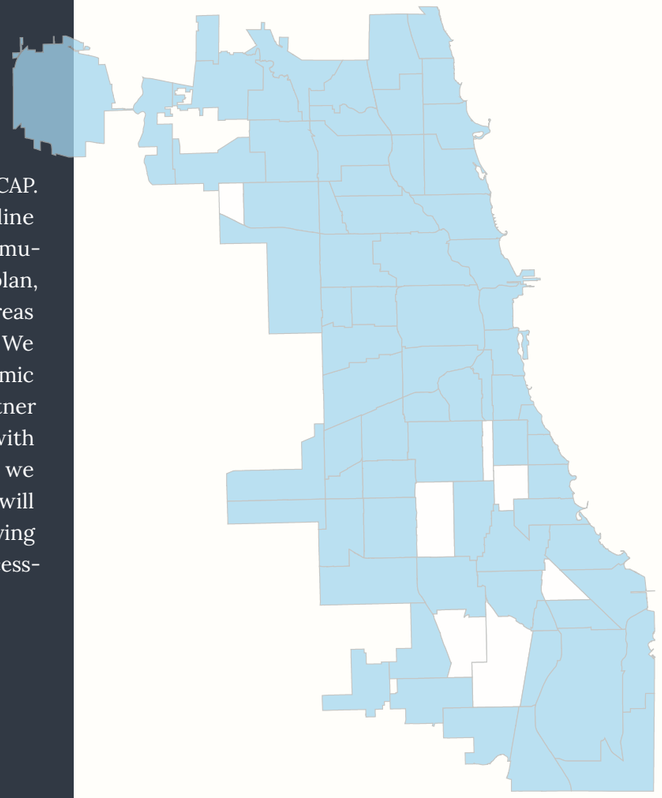
2,145

Community areas represented (91%)

70 communities

Survey responses submitted by Chicago youth (under 18)

8%

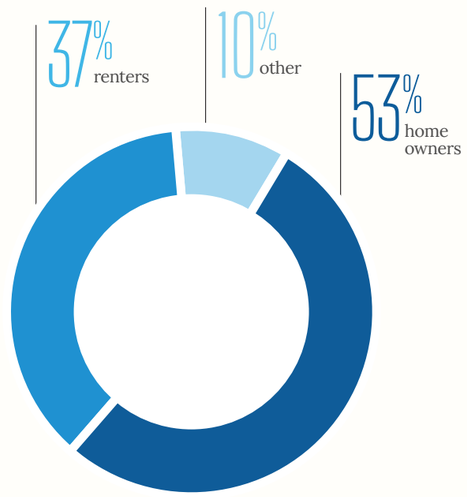


Community Areas We Heard From

By collecting responses throughout the public engagement process, the City was able to shape the 2022 CAP to address resident priorities and update outreach strategies.

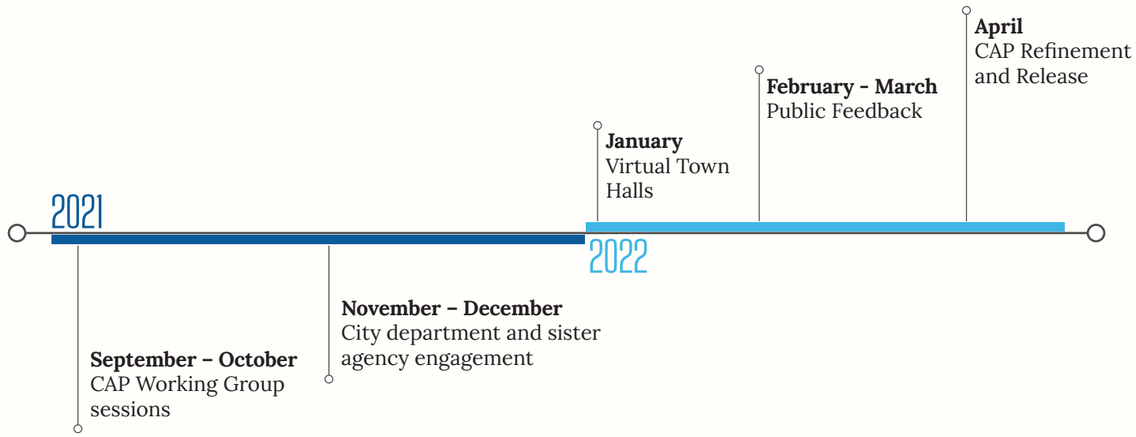
To track and evaluate engagement, participants were asked to identify their neighborhood, along with other information. Submissions were received from communities in red. The City looks forward to continued engagement with residents, particularly in communities with lower response rates.

Survey Response Profile



Survey Response Profile

Timeline



What Matters to You:

In collaboration with local urban planning and public engagement firm MUSE Community + Design, the City developed a survey to hear from Chicagoans on what they would like to see in the 2022 CAP. The survey covered four goals of the CAP: 100% renewable energy, increase household savings, advance environmental justice, and improve community health. Respondents ranked the level of importance of potential approaches and outcomes in achieving these goals.

Total Survey Submissions

1,311

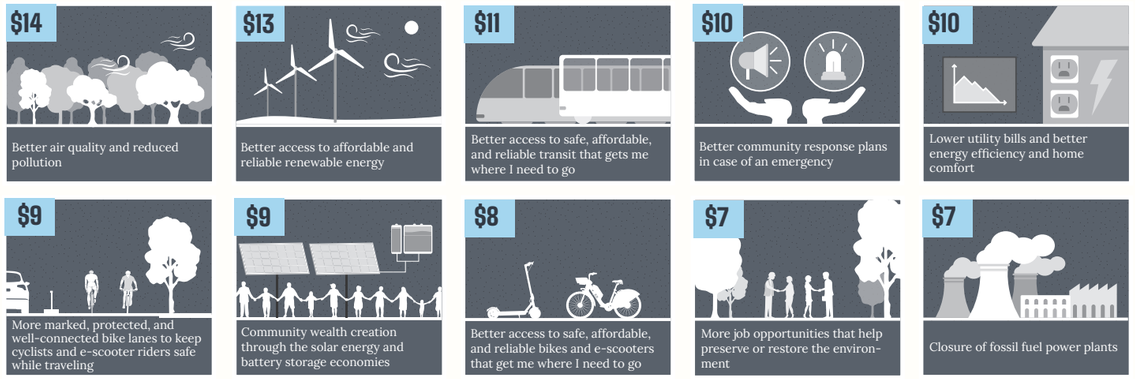
Key Outcome	What Matters Most?
100% Renewable Energy	Make it easy for families and businesses to sign up for renewable energy (*75% of all respondents, 75% of BIPOC respondents*)
Household Savings	Better access to renewable energy (*75% of respondents, 75% of BIPOC respondents*)
Environmental Justice	Better access to reliable transit (*82% of respondents, 82% of BIPOC respondents*)
Community Health	Better access to reliable transit (*78% of respondents, 76% of BIPOC respondents*)

Funding Your Future

In collaboration with MUSE Community + Design, the City also developed a survey to hear from Chicagoans how they value 10 significant climate outcomes. Having $100 to spend on these 10 climate outcomes, Chicagoans were tasked with funding the outcomes that would most improve their quality of life. The results from the submissions prioritized better air quality and reduced pollution and better access to affordable and reliable renewable energy.

Total Survey Submissions

335



Chicagoans are passionate about better air quality, improved access to renewable energy, and better access to reliable transit, and the goals of increasing household savings, and improving community health and environmental justice. Survey responses and all other forms of public feedback directly influenced the selection of 2022 CAP actions by prioritizing initiatives with the greatest community benefits.

What We Heard:

- "We ought to prioritize benefits to community members who have been marginalized historically."
- "We need to restore our canopy with diverse and native trees and plants. This will beautify neighborhoods and provide crucial habitat for endangered species and clean our air."
- "Investing in clean energy will reduce bills, reduce air pollution, and reduce the risk of climate disasters in the future. It's a win-win-win."
- "Rebalancing planning decisions to heavily favor mass transit can reshape our city for the better."
- "Community ownership is important; we are all impacted by climate change and so we all need to feel part of the solution."

The City will need ongoing support and engagement from across our communities to determine meaningful metrics in support of the 2022 CAP's goals. Expanding existing partnerships and creating new ones will foster innovation, speed up progress, and give all Chicagoans a voice in shaping our future.

Community Feedback Has Shaped The 2022 CAP

Several priority themes emerged from over 300 submissions during the March to April 2022 public comment period. The following table summarizes how community feedback priorities have shaped the 2022 CAP. This represents some of the most commented on areas but is not inclusive of all community feedback.

Community Priority	Updates Made Between the Draft and Final 2022 CAP
Address parking minimums	A new action was added (3.2.D): Update citywide car and bike parking requirements by 2025
Provide details for priority bus lanes	Bus priority treatments were added to action 3.1.C
Provide details for bike-lane network growth	Bike network targets were added to actions 3.1.A and 3.1.C
Increase ambitions for community-wide composting	Ambition has increased for introducing community-wide organic waste collection and decomposition. Initially, 2040 was targeted for this action; 2025 is now targeted (see action 1.1.A)
Operate in alignment with principles of environmental justice and equity	Feasible processes to evaluate impact were identified in action 5.2.B

Chicago's

GHG REDUCTION TARGETS

The 2022 CAP aims to chart an equitable path to reduce Chicago's GHG emissions by a minimum of 62% by 2040. Following the principles defined in this plan, this pathway prioritizes improving the lives of all Chicagoans by promoting environmental justice, generating household savings, improving community health, transitioning away from fossil-fuel dependency, and ensuring that all Chicago communities are prepared for the undeniable impacts of climate change, by 2040.

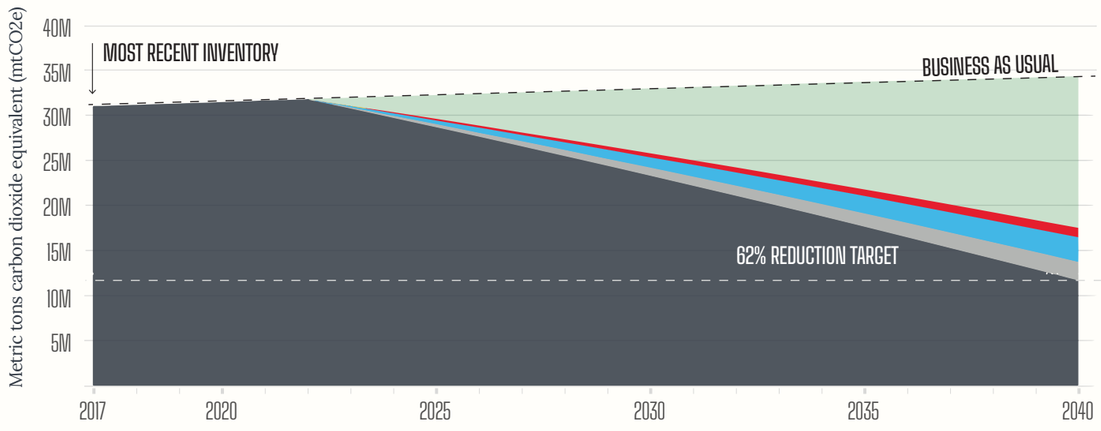
Outlined below are Chicago's GHG reduction targets based on mitigation pillars:

Pillars		
1	Increase energy savings, prioritizing households:	8% reduction
2	Create jobs, develop circular economies, and improve air quality by pioneering clean last-mile logistics:	3% reduction
3	Enable personal mobility and well-being by providing access to clean transport options and a first-class walking and biking network:	6% reduction
4	Reduce household cost burdens and improve grid reliability by powering Chicago with clean renewable energy:	45% reduction
5	Reduce disparities in quality-of-life metrics across communities by integrating health and equity criteria in decision-making: Pillar 5 actions do not directly reduce GHG emissions, however; they enable co- benefits for individual Chicagoans.	

CHICAGO GHG EMISSIONS REDUCTION TARGET PATHWAY

Greenhouse Gas Inventory Summary

The emissions reductions expected from the actions in this plan use the 2017 GHG Emissions Inventory, the most recent report, as a baseline. This inventory estimates the total GHG emissions generated from residential, commercial, institutional, and industrial activities within the city boundary. In 2017, Chicago generated 31,035,000 metric tons of carbon dioxide equivalent (mtCO2e) from the activities highlighted in the chart.



Drive equitable development of Chicago's clean-energy future

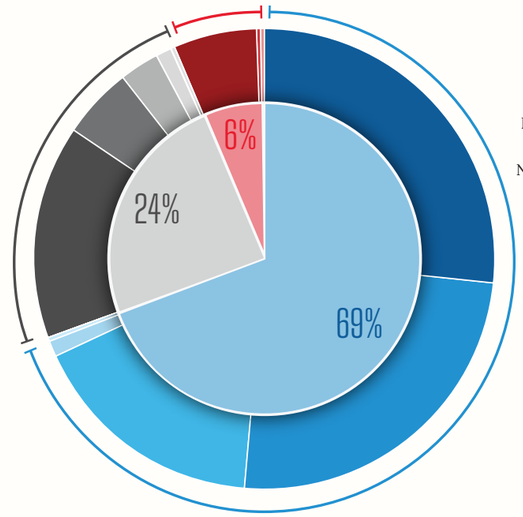
Build circular economies to create jobs and reduce waste

Increase access to utility savings and renewable energy, prioritizing households

Deliver a robust zero-emission mobility network that connects communities and improves air quality

Remaining GHG emissions

Building decarbonization provides the greatest opportunity to reduce the city's emissions. Buildings account for approximately 70% of total citywide emissions. Building decarbonization also delivers significant environmental justice and equity co-benefits, including lower utility bills, improved air quality, and improved resident safety and thermal comfort.



The Role of Offsets

Carbon offsets represent carbon reduced, avoided, or removed from the atmosphere. Cities, companies, and individuals can purchase carbon offset certificates from projects located elsewhere to compensate for their own GHG emissions. Independent third parties assess and monitor offset projects to verify their credibility.

Chicago will not count offset credits toward its 62% GHG reduction goal achievement. Furthermore, the City will reduce its own emissions before taking action beyond its borders. Slowing and ultimately reversing climate change requires reaching a state of net-zero GHG emissions. Net-zero refers to the balance of remaining emissions after climate action with removal and permanent storage of carbon from the atmosphere. Achieving the 62% reduction target puts Chicago on a path toward net-zero, but more work will be needed after we achieve the goal.

As the City's energy agenda evolves, carbon offsets may be considered for their potential role to reach net-zero. In parallel, the City will assess options to remove and store carbon within City limits, including urban forestry and soil management. This assessment will include the evaluation of climate resiliency benefits, support for historically overburdened communities, and other environmental justice impacts.

Each greenhouse gas has different climate warming effects. Many gases, such as methane and nitrous oxide, warm the climate many times more than carbon dioxide. For simplicity and consistency, GHG inventories convert GHGs to a common measurement called "carbon dioxide equivalent." This is the amount of CO2 that would result in the same warming as the measured amount of another GHG. For example, methane warms the climate 28 times more than carbon dioxide (1 metric ton of methane is expressed as 28 metric tons of carbon dioxide equivalent).

CLIMATE ACTION STRATEGIES

HOW TO READ THE 2022 CAP

The initiatives in this plan are organized into three levels: pillars, strategies, and actions. The five pillars support the high-level goals of the plan:

Pillars	
1	Increase access to utility savings and renewable energy, prioritizing households
2	Build circular economies to create jobs and reduce waste
3	Deliver a robust zero-emission mobility network that connects communities and improves air quality
4	Drive equitable development of Chicago's clean-energy future
5	Strengthen communities and protect health

Each pillar includes multiple strategies to achieve it. These strategies call for specific, quantifiable actions—the most granular initiatives in the plan. This hierarchy provides specific measures of success, impact, and accountability. Many individuals and departments hold authority over the designing and implementing approaches under these strategies. To guide those efforts, an initial list of considerations for equity, resilience, and environmental justice are provided at the strategy level. Each pillar, strategy, and action is described in detail in the following table.

Pillar	Strategy	Action
1 **Increase access to utility savings and renewable energy, prioritizing households**	**1. Retrofit buildings**	A. Retrofit residential buildings with 4 or fewer units: 20% by 2030 and 50% by 2040, prioritizing low- or moderate-income households
		B. Retrofit 20% of total 5+ unit residential buildings by 2030
		C. Retrofit 20% of total industrial buildings by 2030
		D. Retrofit 90% of total City-owned and sister agency-owned buildings by 2035
		E. Retrofit 20% of total commercial buildings by 2035
	2. Connect communities to renewable energy	A. Install 5 megawatts of co-owned community solar projects by 2025
		B. Increase Chicago-based community renewables to 20 megawatts by 2025
		C. Increase community renewables subscriptions to achieve 25% subscribed by low-income and/or environmental justice low-income residents by 2030

Pillar	Strategy	Action
2 **Build circular economies to create jobs and reduce waste**	**1. Reduce waste and landfilling**	A. Introduce community-wide organic waste collection and decomposition by 2025
		B. Implement equitable waste source prevention strategies by 2030
		C. Divert 90% of commercial, industrial, and institutional waste by 2030
		D. Divert 75% of construction and demolition waste by 2030
		E. Enable building design for disassembly and reuse by 2035
		F. Divert 90% of residential waste by 2040

Pillar	Strategy	Action
3 **Deliver a robust zero-emission mobility network that connects communities and improves air quality**	**1. Make walking, biking, or transit viable options for all trips**	A. Expand high-quality and low-stress on-street bikeways and off-street trails
		B. Increase Divvy bikes and shared micromobility trips 30% by 2030
		C. Enable Chicagoans to walk, bike, take transit, or use shared micromobility for 45% of all trips by 2040
	2. Increase transit performance and encourage equitable transit-oriented development	A. Update land use policies to encourage sustainable development, accessibility, and street safety by 2023
		B. Expand use of commuter benefits by 2024
		C. Require transportation demand management plans for new development by 2025
		D. Update citywide car and bike parking requirements by 2025
		E. Increase CTA ridership 20% by 2030
	3. Enable zero-emission transit and fleets	A. Enable electric freight loading docks at commercial and industrial buildings, addressing new buildings by 2025 and existing buildings by 2030
		B. Support equitable electrification of ride-hail and taxi fleets by 2030
		C. Enable 100% electrification of delivery fleets by 2035
		D. Electrify 100% of the City's fleet by 2035
		E. Achieve zero-emission transit fleets across Chicagoland by 2040

Pillar	Strategy	Action
4 **Drive equitable development of Chicago's clean-energy future**	**1. 100% clean renewable energy**	A. Aggregate 5,000 megawatts of clean renewable energy within a 250-mile radius of Chicago by 2030
		B. Install 30 megawatts of clean renewable energy projects on City property by 2030
		C. Achieve 100% clean renewable energy community-wide by 2035
	2. Enable building and personal vehicle electrification	A. Enact policies that support electrified renovations and new construction by 2023
		B. Electrify 30% of total existing residential buildings by 2035
		C. Electrify 20% of total existing industrial buildings by 2035
		D. Electrify 10% of total existing commercial buildings by 2035
		E. Electrify 90% of total existing City-owned buildings by 2035
		F. Enable 2,500 new public passenger electric vehicle charging stations by 2035
	3. Align building codes and standards with climate best practices	A. Strengthen policies that support installation of green roofs and walls, tree planting, and other vegetative cover by 2023
		B. Enable net-zero-carbon construction by 2040
	4. Decommission fossil power	A. Develop a fossil-fuel plants transition strategy by 2024
	5. Enable interconnection and storage	A. Ensure 150 megawatts of energy storage by 2025
		B. Encourage 1,000 megawatts of new energy demand reduction by 2030, and 3,000 megawatts by 2040

Pillar	Strategy	Action
5 **Strengthen Communities and Protect Health**	**1. Collect relevant data**	A. Report energy burden by community area by 2023
		B. Develop a water and soil quality measurement and mitigation strategy by 2023
		C. Establish a robust outdoor air quality monitoring network by 2025
	2. Enable data-driven decision-making	A. Publish clean energy just transition metrics by 2022
		B. Integrate community resilience and climate justice criteria into department-level strategic planning and annual budget setting by 2023
		C. Develop a Heat Vulnerability Index and integrate into planning and development, community safety, and public health planning processes beginning in 2023
		D. Publish citywide and community-level quality-of-life metrics on equity and sustainability by 2023
		E. Assess and optimize community-level emergency management strategies related to climate preparedness by 2024
	3. Enable community resiliency	A. Resource community-led climate infrastructure projects by 2022
		B. Integrate community resiliency strategies with the City's Emergency Operations Plan by 2023

PILLAR 1

INCREASE ACCESS TO UTILITY SAVINGS AND RENEWABLE ENERGY, PRIORITIZING HOUSEHOLDS

All Chicagoans rely on buildings as a base for their businesses, homes, and places to gather. The COVID-19 pandemic highlighted how important efficient, healthy homes and properties are for people's emotional, physical, and economic health. In Chicago, most buildings run on electricity and natural gas.

We will not be able to achieve our climate goals without an aggressive approach that reduces overall building energy use and carbon emissions. In 2017, energy use in Chicago's buildings accounted for 70% of the city's carbon footprint. From lighting and appliance updates to weatherization retrofits, increasing energy efficiency helps to reduce this footprint. Electrifying building systems and powering them with renewable electricity will further reduce building GHG emissions. The City aims to power buildings community-wide with 100% renewable electricity by 2035.

Aggressively accelerating energy efficiency in new and existing buildings, along with rapid building electrification, is needed to achieve the ambitious goals set in the 2022 CAP. The proposed strategies will tackle broader linked issues, including energy burden, housing affordability, and public health. Climate resilient and energy efficient buildings use less energy, save money on utility bills, reduce negative health outcomes, and protect us during extreme weather events. We plan to support these strategies with complementary policy reforms, empowering building owners to take action by reducing implementation barriers.

As the cost of energy efficient and electrified buildings declines, programs must be designed and implemented to ensure that renters, homeowners, businesses, and building owners are adequately supported through the necessary transition. At the core of the 2022 CAP's equitable building decarbonization proposals, all Chicagoans should benefit from building improvements without adding to the existing concerns of rising rents and displacement.

Nature Based Solutions

1. Nearby trees and vegetated roofs and walls can reduce building energy use by keeping interiors cooler, reducing stormwater runoff, and improving air quality.
2. Minimizing hard pavement and maximizing vegetation enables stormwater infiltration and minimizes heat islands.
3. Strengthen enforcement of Chicago's Landscape Ordinance that requires landscape measures to be incorporated into all new or substantially renovated business, commercial and large residential buildings.

STRATEGY 1

RETROFIT BUILDINGS

Chicago's residential, commercial, and industrial buildings account for nearly 69% of the City's carbon footprint. Reducing building energy use through efficiency will reduce the city's GHG emissions, save residents and businesses money, and improve the city's resiliency to climate shocks and stressors. Upgraded technologies that deliver reliable efficiency outcomes within reasonable payback periods are readily available, making scaled implementation of available technology a priority for the many buildings that have not yet undergone retrofits.

Retrofit implementation strategies vary by building type and each building's unique needs. Retrofits for most building types can include weatherization, smart thermostats, lighting and appliance replacements, and heating, ventilation, and air conditioning equipment upgrades. Industrial buildings that use energy for manufacturing must explore efficiency opportunities specific to their specialized equipment and processes.

It is important to prioritize energy efficiency retrofits prior to electrification and the transition to renewable energy to lower overall costs and maximize savings. In addition, these investments make buildings healthier and more comfortable for people. Efficiency enables the transition to 100% renewable energy by reducing the amount of new wind and solar power required to meet all energy needs.

When strategically designed and executed, workforce development programs related to energy efficiency and retrofit investments can create new jobs for priority populations, expanding the 80,000 clean-energy job ecosystem in Chicagoland.

> "Prioritize low-income and minority communities as they will be negatively affected the most from climate change and include policy that prevents gentrification of these areas so the residents actually see the benefits rather than being displaced.
>
> *- Resident of Humboldt Park*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about building retrofit approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Do retrofit activities provide equitable job training, employment, and contracting opportunities in priority communities? ☐ Will post-retrofit performance be monitored to ensure achievement of projects' savings and benefits? ☐ Are diverse workforce development, procurement, and contracting strategies used? ☐ In residential buildings, are savings benefiting renters?
Reduced pollution burden 	☐ Is remediation of non-energy issues such as lead, mold, and indoor air quality being addressed?
Equitable access to critical infrastructure 	☐ Are designated environmental justice areas or communities with high pollution burden being prioritized by incentive and financing programs? ☐ Do financing options include protections from predatory lending? ☐ Is access to affordable housing being maintained or expanded?
Community health and resiliency 	☐ Do efficiency strategies improve thermal comfort, indoor air quality, and resiliency to extreme weather?

STRATEGY 1

KNOWN HURDLES

- Upfront cost barriers for comprehensive retrofits
- Vendor capabilities, available vendors, and vendor contracting support
- Variability of industrial building uses
- Concerns about equitable benefits of on-bill financing mechanisms

FIRST NEXT STEPS

- Conduct a baseline retrofit assessment to determine building typologies and community areas for prioritization
- Conduct a landscape analysis of workforce development opportunities and barriers
- Work with frontline community leaders to prioritize buildings for energy efficiency retrofits

PERFORMANCE METRICS

- Total number of trained professionals
- Number and percentage of buildings retrofitted
- Average utility bill reductions

Senior and Family Apartment Retrofits

To increase building resiliency, lower energy costs, and improve comfort for building residents, the Chicago Housing Authority (CHA) is working with its senior living facilities and family apartment buildings to replace inefficient central heating systems and old hot water heaters. CHA has completed large-scale energy-efficiency projects that replaced outdated systems in its public housing portfolio, allowing improvements in more than 10,000 apartments and providing residents with better comfort and lower energy costs.

Neighborhood Power Project: Family Matters

Family Matters, a youth development and community leadership nonprofit located in Rogers Park, participated in the Neighborhood Power Project. This program, created by Illinois Green Alliance, Environmental Defense Fund and Elevate in 2020, provides free consulting services and financial support to save nonprofit Chicago organizations money by addressing sustainable building operations and identifying retrofit opportunities. Through the support of utility incentives, rebates, and Neighborhood Power Project mini-grants, Family Matters was able to retrofit and upgrade many of their buildings' critical systems, which included replacing their natural gas water heater with a more efficient electric heater, improving boiler pipe insulation, and installing new LED lighting and smart thermostats. Thanks to this program, the youth enrolled in The Family Matters School and afterschool youth development programs, along with their families, are experiencing greater comfort and the sensory benefits of a more efficient and customizable learning environment. In addition, the organization saves money because of the reduction of water and power use in the building. As of April 2022, 15 organizations, spanning 11 Chicago neighborhoods, have enrolled in the Neighborhood Power Project.

STRATEGY 1

ACTIONS

A

Retrofit residential buildings with 4 or fewer units: 20% by 2030 and 50% by 2040, prioritizing low- or moderate-income households

GHG Impacts

◆◆◆

City Partners

CHA, City Treasurer, DOB, DOH, DPD

Smaller residential buildings, including the city's nearly 400,000 single-family homes and small multifamily properties, generated 14% of the city's total carbon emissions in 2017. These households can benefit from the same types of retrofits that apply to larger residential buildings. Bundling simple updates like weatherization, lighting, and appliance upgrades with the conversion of furnaces, boilers, and air conditioners to advanced heat pump technology makes it realistic to cut energy use in half, even with Chicago's hot summers and cold winters. Nearly 93% of Chicagoans live in this type of building, making this retrofit action an important aspect of ensuring equitable access to the benefits of the clean-energy transition. To reach the City's 2030 goal, 78,500 smaller residential buildings must be retrofitted, and to reach the City's 2050 goal, 196,000 smaller residential buildings must be retrofitted. Achieving equitable retrofit implementation requires that landlords engage in programs and pass utility savings and comfort to renters.

B

Retrofit 20% of total 5+ unit residential buildings by 2030

GHG Impacts

◆◆◆

City Partners

CHA, DOB, DOH, DPD

This action will bring improved efficiency and living conditions to nearly 140,000 units in large multifamily buildings. Utility costs are among the largest operating expenses for multifamily buildings in Chicago, and this portion of Chicago's housing stock accounted for 12.9% of the city's total carbon footprint in 2017. Large savings from retrofits such as weatherization (insulation and air sealing), lighting and appliance upgrades, smart thermostat installations, and high-efficiency heating and cooling equipment are well-established, though paying for these improvements can be an obstacle for landlords. Particularly for building owners in underserved communities, it is important to address how unfair appraisals, limited access to capital, and other legacy forces of redlining reinforce barriers to energy efficiency investments. For renters, efficiency retrofits can help preserve affordable housing when thoughtfully planned, though they also have the potential to drive rent increases.

C

Retrofit 20% of total industrial buildings by 2030

GHG Impacts

◆◆◇

City Partners

BACP, DOB, DPD

Industrial buildings use large amounts of energy for manufacturing and other processes, comprising 16.6% of the City's 2017 carbon footprint. The same energy-intensive industrial processes can also generate other types of air pollution that directly affect the health of local residents, illustrating the importance of the role retrofits can play in addressing both carbon and overall pollution. Unlike other building types, energy retrofits are often highly specific to each industrial facility and require careful analysis and engineering.

STRATEGY 1

ACTIONS

(cont.)

D

Retrofit 90% of total city-owned and sister agency-owned buildings by 2035

GHG Impacts

◆◆◇

City Partners

AIS, CCC, CDA, CDOT, Chicago Park District, CPS, CTA, DOB, DPD, DWM, PBC

City and sister agency buildings include public schools, community centers, libraries, fire and police stations, offices, and other buildings that serve the public. Although they generated only 1% of the city's total carbon footprint in 2017, it is important for the City to lead by example and bring energy efficiency technology to its own facilities. This action will expand upon earlier investments in energy efficiency by the City and sister agencies, including the Retrofit One upgrades pursued in 60 buildings in 2018, and the complete replacement of all streetlights with LED technology.

E

Retrofit 20% of total commercial buildings by 2035

GHG Impacts

◆◆◆

City Partners

DOB, DPD

Commercial buildings include offices, restaurants, and stores. These facilities accounted for 23.5% of the city's carbon footprint in 2017, or nearly as much as residential buildings of all sizes. Through programs like Retrofit Chicago and utility incentive programs, many large commercial buildings have already benefited from energy efficiency investments. Spreading proven efficiency practices to more of the city's commercial buildings will strengthen businesses while reducing cost and GHG emissions. LED lighting retrofits typically provide the fastest payback period, often within two years. Other retrofits appropriate to commercial buildings include heating, ventilation, and air conditioning upgrades, adding controls so that systems can be shut down when not in use, and carefully monitoring energy consumption for signs of waste or unusual usage.

STRATEGY 2

CONNECT COMMUNITIES TO RENEWABLE ENERGY

Expanding innovative community ownership models for renewable energy projects on City property and utilizing state funding will help Chicago achieve 100% clean renewable energy community-wide by 2035. The City will support the development of renewable energy generation to bring the economic and pollution-reduction benefits of renewable energy to Chicago homes and businesses. Connection to renewable energy can increase community resiliency and decrease household energy costs. Community ownership models where community members own shares of the renewable energy infrastructure enables residents to generate income as energy is produced. The City will prioritize models that expand access to the most energy-burdened households.

> “Help create BIPOC ownership of the clean energy economy.
>
> *- Resident of East Garfield Park*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about clean-energy approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Does the approach align with existing energy assistance programs and prioritize reducing energy costs for low-income households? ☐ Have documentation requirements for income-eligible benefits been streamlined? ☐ Are diverse workforce development, procurement, and contracting strategies used? ☐ Do new infrastructure development activities provide equitable job training, employment, and contacting opportunities in priority communities?
Reduced pollution burden 	☐ Is distributed and local generation prioritized within the approach, including on remediated brownfield sites?
Equitable access to critical infrastructure 	☐ Are outreach and education strategies holistic and include multilingual and varied approaches to reach all audiences? ☐ Are consumer protections in place to prevent unintended energy costs and to protect from predatory lending? ☐ Do communities hold shared leadership and decision-making in siting and developing community solar projects?
Community health and resiliency 	☐ Are sites for community-scale or utility-scale renewable generation development being evaluated for community impacts and potential adverse effects?

STRATEGY 2

KNOWN HURDLES

- Vendor capabilities, available vendors, and vendor contracting support
- Community adoption requires significant education, outreach, and relationship building
- Needed modifications to Illinois municipal aggregation law
- Predatory practices by some alternative suppliers
- Identifying proper government department ownership
- No current formal clean-energy partnership or programs between the City of Chicago and its electric distribution utility

FIRST NEXT STEPS

- Assess and evaluate the use of municipal aggregation
- Strengthen and establish diverse clean-energy career development pathways
- Prioritize communities and buildings for solar deployment
- Develop clear educational materials and compelling outreach strategy
- Establish robust consumer protections to prevent predatory supplier behavior

PERFORMANCE METRICS

- Total megawatts of community-owned solar projects developed
- Total number of community renewable subscriptions
- Total megawatts of Chicago-based community renewable energy

STRATEGY 2

ACTIONS

A

Install 5 megawatts of co-owned community solar projects by 2025

GHG Impacts

◆◇◇

City Partners

AIS, CCC, CHA, CPS, DOB, DPD

By 2025, 5 megawatts of co-owned community solar projects will be installed within city limits, prioritizing households with the highest energy burden. This amount of solar can power more than 1,100 Chicago homes each year. Community energy infrastructure owned by individual Chicagoan shareholders brings unique benefits, including protection from cost instability. Community-owned solar allows residents, including renters, to take advantage of reduced energy rates and clean energy without having to install or own a solar array on their property.

B

Increase Chicago-based community renewables to 20 megawatts by 2025

GHG Impacts

◆◆◇

City Partners

BACP, DFSS, DPD

By 2025, the City will increase Chicago-based community renewables to 20 megawatts. Expanding access to renewable energy for all Chicagoans starts by building energy infrastructure within the city limits. Community renewables provide all Chicagoans access to the benefits of renewable generation, including lower electric bills, even if they are unable to have an on-site solar system at their home or business. These projects bring tremendous benefits to Chicago, including cleaner air, reduced energy costs for households, and jobs. The City will explore all options to host these projects, including City-owned sites and Chicago-based nonprofit organizations and businesses.

C

Increase community renewables subscriptions to achieve 25% subscribed by low-income and/or environmental justice low-income residents by 2030

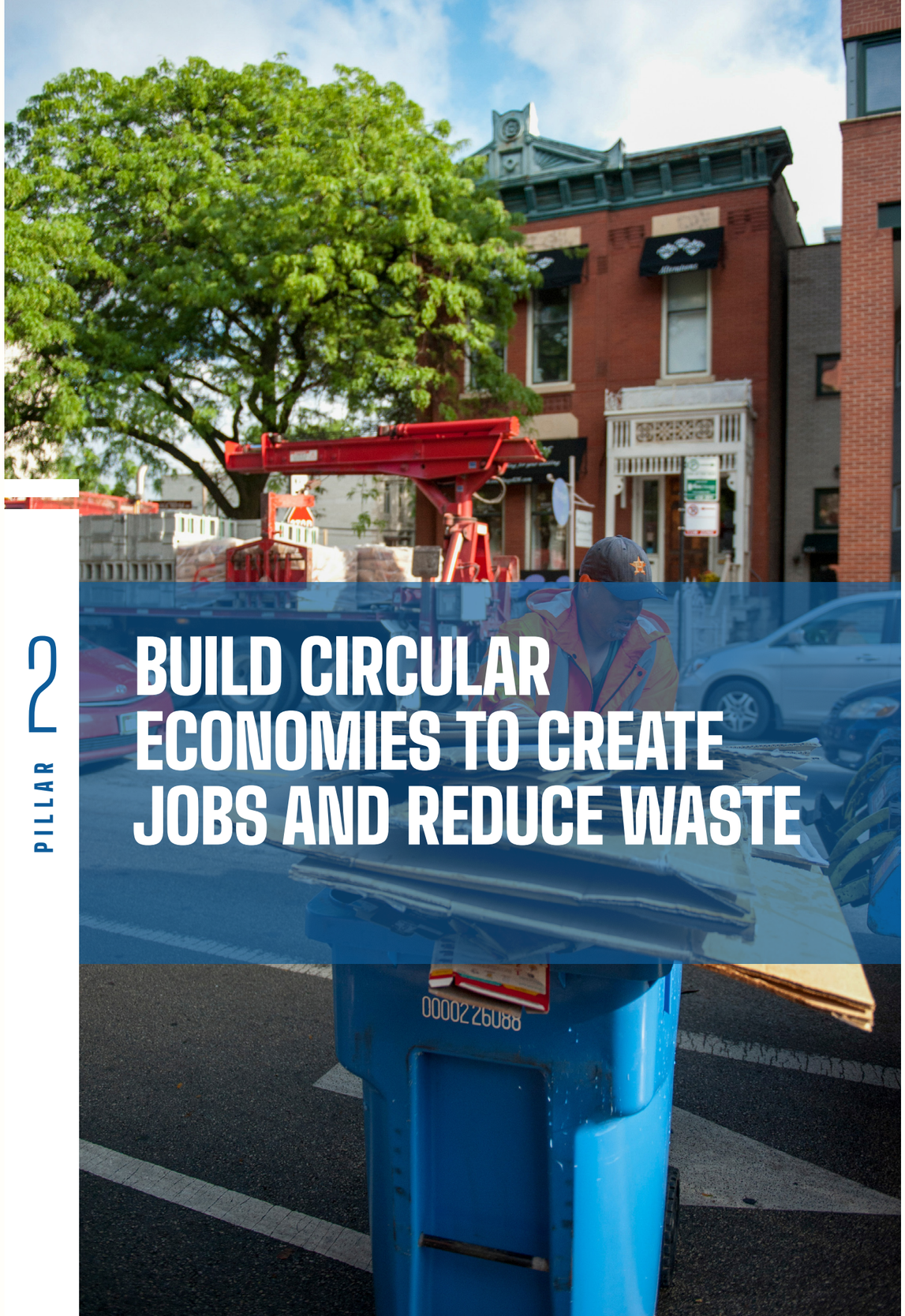
GHG Impacts

◆◇◇

City Partners

BACP, DFSS, DPD

By 2030, the City will increase community renewable subscriptions to achieve a 25% subscription rate by low-income and/or environmental justice low-income residents. Community renewable subscriptions allow residents to take advantage of reduced energy rates and clean energy without having to install or own a solar array on their property. This expands access to the benefits of solar to both renters and homeowners without suitable roofs for solar. Providing access to community renewables for low-income or environmental justice households reduces energy cost burdens.



PILLAR 2

BUILD CIRCULAR ECONOMIES TO CREATE JOBS AND REDUCE WASTE

With more than 2.7 million residents, Chicago generated 4.13 million tons of materials in 2020, or more than 1.5 tons of waste per person per year. The collection, transportation, processing, and treatment of solid waste and wastewater account for 7% of Chicago's GHG emissions. Many more emissions across the global supply chain are associated with the initial manufacturing of those wasted materials. Reducing waste generation through prevention and diverting materials from incineration and landfills provides climate, health, and economic benefits.

Between 2018 and 2021, Chicago decreased its annual waste generation by 200,000 tons each year. The 2022 CAP builds upon this progress and sets forth goals for the sectors that contribute to generating waste across the city, including residential, commercial, and industrial activities.

A more circular materials management system can provide many benefits to communities. For example, new businesses might arise that are focused on keeping food waste out of landfills. By collecting surplus food and scraps separately for donation or composting, individuals experiencing food insecurity gain access to high-quality meals, food growers gain access to important soil nutrients, and the emissions from landfilling food waste are avoided. Circular solutions focused on reducing, reusing, repairing, and recycling materials can be community-designed to address hyperlocal needs and concerns with traditional waste management practices.

Circular economies depend on reverse logistics that return used materials and products to manufacturers for processing. Enabling reverse logistics will increase commercial traffic across all neighborhoods. To support better air quality and emissions reductions as reverse logistics infrastructure is built, the City will enable electrified commercial fleets.

The 2022 CAP aligns with the recommendations made in the 2021 City of Chicago Materials Management Strategy. Waste diversion goals are guided by the following principles:

- Reframe Chicago's materials as resources, instead of waste
- Center equity and environmental justice in program design
- Prioritize initiatives with revenue potential, no/low cost, or a positive return on investment when applied at scale
- Equip consumers with the education and tools needed to drive innovation in evolving waste systems

Nature Based Solutions

1. Composting provides nutrients that support healthy trees and vegetation.
2. Small-scale wastewater treatment can reduce runoff and maintain balanced water cycles.
3. Using products made by biological feedstocks products through regenerative agricultural practices supports ecosystem health.
4. Reducing single-use products preserves forests and other ecosystems.
5. Regenerating marshes, sloughs, and wetlands for stormwater management reduces wastewater treatment energy use.

STRATEGY 1

REDUCE WASTE AND LANDFILLING

Acknowledging that reducing overall waste provides the greatest benefits, it is also important to improve the convenience and effectiveness of waste management infrastructure, so that it is easier for individuals and businesses to divert waste from landfills. Reusing durable materials for as long as possible, improving recycling rates and addressing contamination issues, and composting organic waste are key starting points. Under current conditions, too many residents do not have access to convenient recycling and composting infrastructure.

> “Supporting adaptive reuse techniques whenever possible, rather than demolition and construction.
>
> *- Resident of The Loop*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about waste prevention and diversion approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are low-income individuals protected from new fees? ☐ Do new materials-management infrastructure development and processes provide equitable job training, employment, and contacting opportunities in priority communities?
Reduced pollution burden 	☐ Have hauling routes and fleets been optimized to protect populations from further pollution burden?
Equitable access to critical infrastructure 	☐ Are reuse and donation opportunities—particularly to ensure that surplus edible food reaches food-insecure residents—being prioritized over recycling or composting, when applicable? ☐ Are outreach and education strategies holistic and include multilingual and varied approaches to reach all audiences? ☐ Do new approaches focus on gaining support and building awareness in communities with the lowest waste diversion rates?
Community health and resiliency 	☐ Do new processing sites (for example, transfer stations, commercial composting sites, or recycling facilities) cause disproportionate pollution or other negative effects for one community more than others?

STRATEGY 1

KNOWN HURDLES

- Lack of institutional capacity within city and budget for transitioning from black cart system to more effective options
- Promoting and evaluating the success of prevention approaches
- Communicating materials management procedures effectively with diverse audiences
- Complexity of regulatory structures

FIRST NEXT STEPS

- Improve high-density residential recycling ordinance compliance based on 2020 Chicago Office of the Inspector General report findings
- Support ambitious statewide extended producer responsibility legislation
- Leverage Chicago's participation in the NRDC (Natural Resources Defense Council) Food Matters Great Lakes Regional Cohort to pilot food waste prevention and recycling programs

PERFORMANCE METRICS

- Quantity and geographic distribution of community organic waste collection sites
- Compliance rates of low- and high-density residential buildings
- Electronic waste diversion rates

Department of Streets and Sanitation Launches Community-Wide Composting

Leveraging the support from the Natural Resources Defense Council's Food Matters Program, the Department of Streets and Sanitation (DSS) will launch five community organic waste drop-off sites located at NeighborSpace community gardens. The five drop-off sites will act as hub locations to accept organic waste materials and compost materials on-site from surrounding neighborhood residents. Locations for the pilot sites will be in Back of the Yards, Pilsen, Englewood, Old Irving Park, and West Garfield Park neighborhoods. The project also includes an evaluation that will help the City achieve the goal of expanding community composting to more community gardens.

In 2014, commercial composting and recycling pilots launched at five public schools and today are found in 14 schools. As of 2021, Chicago Public Schools (CPS) intends to expand the program to support 24 schools. The program aims to divert 80% of all cafeteria and kitchen waste from landfills, while also educating staff and students on the impacts of waste reduction and composting.

STRATEGY 1

ACTIONS

A

Introduce community-wide organic waste collection and decomposition by 2025

GHG Impacts

◆◇◇

City Partners

CDPH, CPS, DPD, DSS

In households and restaurants, food waste is typically the largest portion of the waste stream. When sent to landfills, food waste causes detrimental methane emissions. When recovered for donation or composted and returned to the soil as fertilizer, food waste feeds food-insecure residents, enables growers to produce more healthy food, reduces the need for irrigation, and prevents flooding during heavy rainfall.

B

Implement equitable waste source prevention strategies by 2030

GHG Impacts

◆◇◇

City Partners

BACP, CDPH, DOB, DPD, DSS

Eliminating waste, particularly by avoiding single-use products, brings many benefits. These single-use products are the materials most likely to "leak" out of the waste collection system, causing pollution and negative health effects, clogging stormwater management systems, and hampering quality of life. Further, manufacturing these materials causes GHG emissions and other types of pollution, which is an important consideration even if those effects are mostly felt by people on the other side of the globe. One example of source elimination is the 2015 plastic bag ordinance, through which the City banned the use of freely available single-use plastic bags. Exploring the many other alternatives for single-use items will support this goal, with a particular focus on options that create new businesses and are cost-neutral or better for consumers and small businesses.

C

Divert 90% of commercial, industrial, and institutional waste by 2030

GHG Impacts

◆◆◆

City Partners

CDPH, DOB, DPD, DSS

Commercial and industrial waste generation refers to waste generated outside of homes, including offices, stores, restaurants, large institutions like schools and hospitals, and factories. These facilities are required by ordinance to contract with private companies for waste and recycling services, though a 2020 audit by the Inspector General found many businesses lack recycling capacity. Between 2010 and 2020, Chicago's commercial and industrial waste increased from 1.2 million tons in 2010 to almost 1.5 million tons, with most of this waste ending up in landfills. The largest categories of waste included easily recyclable materials like cardboard, paper, and food waste that can be transformed into valuable products like compost. To achieve a 90% diversion goal by 2030, the City will help commercial and industrial businesses implement new source reduction and prevention techniques and improve reuse and recycling.

STRATEGY 1

ACTIONS

(cont.)

D

Divert 75% of construction and demolition waste by 2030

GHG Impacts

◆◆◇

City Partners

CDPH, DOB, DPD, DSS

By 2030, the city will divert 75% of construction and demolition waste from landfills and incineration. Current construction and demolition waste disposal practices contribute significantly to resource loss through material degradation, increased raw materials extraction, and increased waste transportation emissions. When building materials are sent to landfills instead of being reused, an additional carbon impact occurs because of the need to spend energy on manufacturing replacement materials. Deconstruction, compared to demolition, preserves materials for reuse and is less likely to cause air quality harm. Improved business practices to ensure that salvageable materials are identified and removed for reuse instead of being incinerated or disposed of will be key to this action's success.

E

Enable building design for disassembly and reuse by 2035

GHG Impacts

◆◇◇

City Partners

DOB, DPD

When materials are reused, they are kept out of landfills and new material manufacturing is avoided. Buildings that are slated for demolition are filled with thousands of useful materials, though only highly valuable or easily recoverable materials are typically salvaged. Buildings can be designed as high performing and durable modular material assemblies that can be easily deconstructed by skilled professionals. Once disassembled, material assemblies can be installed in new projects. Disassembly and reuse eliminate waste and enable building spaces to change to meet evolving occupant needs. It also protects neighbors from dust, debris, and other harmful effects of less-controlled demolitions.

F

Divert 90% of residential waste by 2040

GHG Impacts

◆◆◆

City Partners

CDPH, DOB, DPD, DSS

Smaller residential buildings in Chicago are currently served by the City's Blue and Black Cart Programs for recycling and garbage. The programs rely on individuals placing materials in the correct bin. Mistakes cause contamination, add to processing costs, and ultimately lead to many recyclables ending up in the landfill. In larger multifamily buildings, landlords are responsible for providing recycling services for residents. Some may not be in compliance or may use a hauler with confusing rules around which materials can be recycled. In both cases, access to composting services is rare unless individuals go out of their way to find options. This patchwork of practices creates challenges and can be improved by standardizing recycling practices and expanding composting options.

PILLAR 3

DELIVER A ROBUST ZERO-EMISSION MOBILITY NETWORK THAT CONNECTS COMMUNITIES AND IMPROVES AIR QUALITY

All Chicagoans need equitable access to safe, reliable, and affordable clean transportation choices. This is especially true in Black and Brown communities that experience longer commute times, have less access to transit, and pay more for transportation. There is an opportunity to align and build upon the 2022 CAP goals with CDOT's strategic plan, which aims to connect people of every age and physical ability in every neighborhood while also systematically reducing transportation costs, breaking the cycle of intergenerational poverty, and making geographic, social, and economic mobility possible.

The commitment to equity and the health of Chicagoans that guides the 2022 CAP requires looking at how transportation contributes to pollution and the negative health impacts that trucks, cars, buses, and their emissions have on residents. It also requires investment in infrastructure improvements that prioritize walking, biking, and transit use to reduce emissions and fatalities from car trips, planting trees to increase shade in neighborhoods to reduce the urban heat island effect, and designing and building streets that reduce stormwater runoff and mitigate flooding. Steps must be taken to address structural inequities that prevent investments from reaching Black and Brown neighborhoods and look at how our investments can bring out the best in our city.

On-road transportation accounts for 15% of total citywide GHG emissions. Reducing these emissions requires that Chicagoans travel fewer miles in fossil-fuel-burning vehicles and shift to lower-emission transportation options like walking, biking, or transit. More efficient travel is key as well, as to avoid emissions that result from traffic on congested roads. To achieve this goal, neighborhoods will be connected with sidewalks, bike paths, and public transit that residents of every age and ability can navigate. City processes must also evolve to place higher priority on road repair, street lighting, and sidewalk construction that targets the most disconnected neighborhoods. Policies must enable clean transportation options and enable zero-emission transit, freight, and personal vehicles. Better data and reporting must be publicly available to measure progress toward delivering equitable access to safe, reliable, and affordable clean transportation.

Nature Based Solutions

1. Some parking areas, sidewalks, roads, and bike lanes can be paved with permeable surfaces to avoid runoff and support balanced water cycles.
2. Tree and forest buffers along highways and transportation corridors reduce heat islands, air pollution, and noise.
3. Streetscapes and parking lots can be explored for vegetated planters, bioswales, and rain gardens.

STRATEGY 1

MAKE WALKING, BIKING, OR TRANSIT VIABLE OPTIONS FOR ALL TRIPS

Virtually every Chicagoan must navigate the city's roads and sidewalks as part of their transit journey. Streets that are safe to cross and sidewalks that are maneuverable and wide enough to accommodate a wheelchair or stroller are necessary preconditions for a livable and well-connected communities. Every neighborhood should have streets with the necessary infrastructure to ensure safe and comfortable travel for everyone. Sidewalk condition assessments must be conducted, prioritizing historically underserved communities. Poor quality sidewalks must be improved, and new sidewalks must be added where they are missing. Crosswalks and curb ramps at transit stops and other priority locations will continue to be installed or enhanced.

> "A network of fully protected bike lanes throughout the city.
>
> *- Resident of Albany Park*

Continuing to make cycling a greater part of how we get around in Chicago requires a biking network that serves all neighborhoods and makes everyday bicycling safe and convenient for people of all ages and abilities. Biking must feel safe, in addition to being statistically safe. The City aims to make cyclists feel safe and experience a low level of traffic stress. The network of protected lanes, neighborhood greenways, and off-street trails will continue to grow citywide, and traffic flows will continue to be evaluated to optimize bike routes for safety and convenience.

To ensure that walking, biking, and transit use remain viable for all trips, the City must prioritize sidewalk and road maintenance by using an equity lens along with condition assessments to address historic imbalances in the upkeep of City infrastructure. Continued coordination between CTA, Metra, and PACE is also critical to enable riders to use all three systems as a seamless transit network.

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about personal mobility and transit approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are low-income households being prioritized for incentive programs (such as subsidized access)?
Reduced pollution burden 	☐ Are designated environmental justice areas or communities with high pollution burden being prioritized for infrastructure expansion programs?
Equitable access to critical infrastructure 	☐ Are communities with lower levels of existing infrastructure investments and maintenance activities being prioritized? ☐ Are outreach and education strategies (such as learn-to-ride classes) holistic and include multilingual and varied approaches to reach all audiences?
Community health and resiliency 	☐ Is the approach a priority based on community mobility needs assessments?

STRATEGY 1

KNOWN HURDLES

- Time-intensive nature of network planning to seek meaningful input from community stakeholders
- Funding for total system completion
- Acceptance of bike lanes
- Sidewalk quality data
- Biking network, while in progress, has gaps

FIRST NEXT STEPS

- Evaluate effectiveness of e-bike charging stations
- Complete 50 miles of bike lane network expansion with a focus on South/West Sides
- Establish a framework for Neighborhood Bike Network planning and begin the process in three West Side communities
- Implement CDOT Strategic Plan
- Conduct and publicly report sidewalk condition assessments
- Establish transit mode measurement and reporting
- Install 200 (total) new Divvy bike stations on the South, Southwest, West, and Northwest Sides

PERFORMANCE METRICS

- Daily Divvy bike trips of 1.5 per 1,000 residents in five economic hardship areas from May to October
- Miles of protected bike lanes
- Miles of total bike lanes
- Miles of off-street trails
- Transportation mode distribution
- Sidewalk quality indicators

Trail Extension

In March 2022, Chicago's Department of Transportation (CDOT), Department of Planning and Development (DPD), and Chicago Park District (CPD) unveiled a new citywide vision for connected trails and corridors. This plan, backed by more than $15 million in funding, will connect transit, housing, and parks citywide to create new outdoor offerings and aims to catalyze community investment. Working closely with community stakeholders, the leadership committee will identify funding opportunities, organize federal grants, and construct over 48 miles of new assets. This vision will enact anti-displacement strategies and prioritize regions that have been marginalized or forgotten in green space planning. Overall, these extensions will enhance connectivity and mobility throughout the region and improve the biking and pedestrian experience in many neighborhoods.

Southwest Collective: Green Spaces

Local nonprofit, Southwest Collective, works with residents and community groups on Chicago's Southwest Side to identify and address environmental justice and equity issues. By creating community gardens, library boxes in the parks and educational outreach, tree planting and bicycle accessibility, Southwest Collection educates communities about the need for additional green spaces, walkable streets, clean air, and alternative transit options.

STRATEGY 1

ACTIONS

A

Expand high-quality and low-stress on-street bikeways and off-street trails

GHG Impacts

◆◇◇

City Partners

CDOT, DPD

Chicago's bikeways network includes 345 miles of on-street facilities, in addition to 55 miles of off-street trails such as the Lakefront Trail and Major Taylor Trail. Through the Chicago Works program, the City has significantly increased its construction of low-stress bikeways, including both protected bike lanes and neighborhood greenways. These facilities provide an increased level of comfort for people biking by providing both physical and network separation from traffic speed and volume. To continue improving community mobility and support citywide transportation emissions reductions, by the end of 2024 the City aims to add 25 more miles of protected bike lanes, 25 more miles of neighborhood greenways, and meet the CDOT Strategic Plan goal of eliminating 15 miles of gaps in the citywide bikeways network. Through these and other investments that support community cycling, by 2030 the City aims to double current biking rates to achieve a reduction in motor vehicle miles traveled by 50 million miles annually.

B

Increase Divvy bikes and shared micromobility trips 30% by 2030

GHG Impacts

◆◇◇

City Partners

CDOT

Chicago's Divvy Bikes service is the largest bike-share program in the United States. Over 5.5 million Divvy bike rides were taken in 2021—a 60% increase over 2020 ridership (3.4 million rides) and a 44% increase over 2019 ridership (3.81 million rides). Over 200 new Divvy bike stations will be delivered to the South, Southwest, West, and Northwest Sides. By the end of 2022, the Divvy bike network will expand to serve the entire city with 16,500 bikes. The City targets achieving a ridership of at least 1.5 Divvy bike trips per day from May to October for every thousand residents in five economic hardship areas (identified via census and public health data). Increasing Divvy bike ridership to reduce vehicle miles traveled by 2.2 million miles will improve city air quality, public health, and reduce citywide transportation emissions.

C

Enable Chicagoans to walk, bike, take transit, or use shared micromobility for 45% of all trips by 2040

GHG Impacts

◆◆◆

City Partners

CDOT, CTA, DPD

Decreasing the number of miles traveled by a vehicle, and in particular reducing single-occupancy vehicle trips, presents as significant opportunity to reduce Chicago's transportation emissions. In 2017, on-road transportation generated 63% of all transportation GHG emissions (and 15% of total, citywide GHG emissions). Strategies and actions that focus on making roads and sidewalks safer for all users will make the city more walkable, bikeable, and transit friendly. Currently, it is estimated that walking, biking, and transit-riding account for 36.5% of commuting trips in Chicago. The City will invest in the lowest carbon and highest efficiency modes of transportation to increase walking, biking, transit, and shared micro-mobility use to 45% of all trips by 2040, and should continue to measure how various modes are used to evaluate the effectiveness of its strategies to increase the use of these lower-carbon modes of travel. From 2022 through 2024, the City intends to meet the CDOT Strategic Plan goals of designing and installing bus priority treatments along three corridors. The City will also complete the Better Streets for Buses Study and continue to invest in planning and designing additional corridors for bus priority treatments to support high-quality bus service. Between 2025 and 2040, the City will continue to set annual benchmarks for infrastructure investments in protected bike lanes, neighborhood greenways, vision zero safety improvements and transit priority treatments that facilitate additional non-car trips and help meet the 45% mode-share goal by 2040.

STRATEGY 2

INCREASE TRANSIT PERFORMANCE AND ENCOURAGE EQUITABLE TRANSIT-ORIENTED DEVELOPMENT

Whether traveling within your neighborhood or criss-crossing the city for a longer adventure, reliable transit plays a vital role in keeping our city connected. Despite the dramatic decrease in ridership, the COVID-19 pandemic proved that public transit is a critical part of an equitable economy and must be preserved and expanded. By increasing access to reliable transit, Chicagoans can reduce the number or distance of vehicle trips and related emissions. It can also help Chicagoans pursue work opportunities in more locations. Walkable neighborhoods, accessible sidewalks, and transit-supportive improvements on key bus and rail corridors will increase transit ridership, reduce congestion and travel times, and improve air quality.

> “
>
> Increasing pedestrian safety and comfort in transitional areas, e.g. improving walkability under highways, over bridges, etc. in order to link neighborhoods and encourage walking and biking.
>
> *- Resident of Avondale*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about transit approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are low-income households being prioritized for incentive programs, such as subsidized access?
Reduced pollution burden 	☐ Are designated environmental justice areas or communities with high pollution burden being prioritized for infrastructure expansion programs?
Equitable access to critical infrastructure 	☐ Is there a plan for measuring and reporting access to safe, reliable, and affordable clean transportation choices by zip code? ☐ Are outreach and education strategies such as learn-to-ride classes holistic and include multilingual and varied approaches to reach all audiences? ☐ Is there a plan to preserve or expand housing affordability near transit, including proactively mitigating the risk of displacement?
Community health and resiliency 	☐ Is the approach a priority based on community mobility needs assessments?

STRATEGY 2

KNOWN HURDLES

- The ongoing COVID-19 pandemic and shifts to remote working have reduced transit ridership
- Reliable charging infrastructure and updated maintenance protocols are needed for electric buses

FIRST NEXT STEPS

- Establish transportation mode measurement and reporting
- Complete CDOT's Congestion Pricing and Mobility Study
- Expand electric buses to additional routes

PERFORMANCE METRICS

- CTA ridership
- Transportation mode distribution
- Total number of electric buses
- Total miles and percentage of transit miles traveled by electric buses

A Year-Round Healthy Food Incubator: Food Matters

To help spur commercial development around transit corridors in underserved areas and provide residents with healthy, affordable access to food, Food Matters is constructing a healthy food incubator at 435 East 43rd Street near the Green Line. The City's equitable transit-oriented development (ETOD) pilot program awarded Food Matters $15,000 in October 2021 to support implementation. This incubator will have a year-round farmers market, shared commercial kitchens, and a community gathering space centered around nutrition and access. Food Matters envisions future spaces like this around the city to provide residents with year-round access to fresh food and produce.

STRATEGY 2

ACTIONS

A

Update land use policies to encourage sustainable development, accessibility, and street safety by 2023

GHG Impacts

◆◆◇

City Partners

CDOT, CTA, DOH, DPD

Chicago has the country's second-largest public transportation system, with 8 train lines and 129 bus routes. Encouraging equitable development near transit nodes to make more households and businesses transit-accessible will make it easier for residents, workers, and visitors to use transit for all trips. Equitable Transit-Oriented Development (ETOD) leverages planning and development as a strategy to reduce vehicle miles traveled and GHG emissions. Existing zoning rules mandate excessive and costly parking and restrict building density. The City's current Transit-Oriented Development Ordinance incentivizes pedestrian-oriented development through offering voluntary parking reductions and density bonuses in transit-served locations. Chicago can expand and strengthen this land use policy to apply across the city more equitably and to promote a diversity of housing options and mixed-use developments near transit.

Access to public transit is most useful if people can safely and comfortably reach transit stops. Unfortunately, sidewalk interruptions, poor lighting, or unwelcoming or vacant storefronts on streets near transit cause people to hesitate to use, or avoid, transit. Many Chicagoans—especially seniors, people with disabilities, families, and children—express feeling unsafe when walking to and from transit due to vehicles that interrupt pedestrian ways while using driveways or drive-throughs, for example. Ensuring that new developments prioritize pedestrian safety and accessibility—especially near transit—is critical to making it easier to live car-free or car-lite and thereby reduce GHG emissions.

B

Expand use of commuter benefits by 2024

GHG Impacts

◆◇◇

City Partners

BACP, CDOT, CTA

Providing incentives for workers to take transit can increase transit ridership. Several cities require or encourage some companies to provide pre-tax commuter benefits to their employees. While traditional programs also provide car-centered incentives, modernizing program offerings can encourage commuters to consider ways to drive less and utilize transit and low-carbon mobility options. By encouraging greater utilization of transit benefits, Chicago's business community can actively partner in increasing ridership to pre-pandemic levels and stabilize investment in this critical infrastructure for Chicago.

C

Require transportation demand management plans for new development by 2025

GHG Impacts

◆◇◇

City Partners

CDOT, DPD

Transportation Demand Management (TDM) plans encourage the use of transit, bikes, and reduce single-occupancy vehicle trips while also reducing traffic congestion and associated emissions. By requiring or incentivizing new larger development to develop TDM plans, our planning and development strategies can intentionally support sustainable transportation and local ETOD policy implementation.

STRATEGY 2

ACTIONS

(cont.)

D

GHG Impacts

◆◆◇

City Partners

CDOT, DPD

Update citywide car and bike parking requirements by 2025

The current zoning code parking minimums mandate that new developments build on-site car parking spaces based on 2004 zoning policy standards. These mandates frequently lead to an oversupply of off-street parking, which unnecessarily encourages more residents to drive, increasing vehicle miles traveled and GHG emissions. Chicago will use this opportunity to modernize parking standards to establish a better balance between all transportation modes (including biking and micromobility options) and make the city safer for pedestrians. Updated car and bike parking regulations will be critical to meeting the City's climate goals.

E

GHG Impacts

◆◆◆

City Partners

CDOT, CTA, DPD

Increase CTA ridership 20% by 2030

When Chicagoans use more sustainable transportation modes, the number of miles traveled by vehicles will decrease and reduce GHG emissions. The ongoing COVID-19 pandemic, however, has created many challenges, including for transit. Health and safety protocols have kept many Chicagoans at home and off transit. Total CTA rail ridership for 2019 was 455.7 million, including 237.3 million bus rides and 218.4 million rail rides. Ridership fell 57.6% in 2020; CTA bus and rail ridership totaled 197.5 million in 2020, including 121.5 million bus rides and 76.0 million rail rides. The 20% increase that this action targets is based on pre-pandemic ridership (2019) though. CTA ridership must first rebound to pre-pandemic ridership levels before increasing. The City is committed to prioritizing citywide clean transit and incentivizing its use.

Increasing CTA ridership will require sustained investment in infrastructure and service improvements to make it more competitive to driving and to ensure a convenient, affordable, and safe option for all residents. A suite of policies will be implemented to reduce single-occupancy vehicle trips. These policies will improve transit comfort and reliability through priority bus lanes, transit stops, and signals, and the consideration of congestion pricing. The City will require or enable new larger developments to proactively encourage sustainable transportation use through Transportation Demand Management (TDM) plans. Studies show that TDM plans can reduce the number of miles traveled by residents using a vehicle by up to 20% in these new developments. This action aligns with the City's ETOD Policy Plan. The City will also explore transit subsidies to enable overburdened residents to access transit options. Moreover, the City will implement new ways to measure how people move through Chicago to reliably track progress toward ridership goals.

STRATEGY 3

ENABLE ZERO-EMISSION TRANSIT AND FLEETS

In 1883, Chicago's elevated train became the world's first electrified elevated train and is still powered by electricity. Zero-emission transit options are necessary to curbing emissions and improving local air quality. It is equally important to determine how to maximize the use of clean renewable energy power for electrified trains and buses to eliminate the broader inventory of carbon emissions from this sector.

Shifting to electric taxis, ride hail fleet, and City vehicles will replace approximately 50,000 combustion-engine vehicles. The equitable expansion and distribution of charging stations will enable more residents to benefit from electric vehicle use. This fleet electrification will reduce citywide emissions, reduce vehicle operating and maintenance costs, and improve air quality across the city.

> "Reduce diesel trucks in residential areas. Eliminate toxic pollution or companies that emit them.
>
> *- Resident of Little Village*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about transit approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are low-income households being prioritized for incentive programs, such as subsidized access? ☐ Are individual drivers protected from bearing the cost of electric vehicle conversion? ☐ Do new infrastructure development and retrofit activities provide equitable job training, employment, and contacting opportunities in priority communities?
Reduced pollution burden 	☐ Are designated environmental justice areas or communities with high pollution burden being prioritized for infrastructure expansion programs, such as communities overburdened by intensive truck traffic?
Equitable access to critical infrastructure 	☐ Are small businesses supported in transitioning to electric vehicles, such as by low-cost financing? ☐ Does this investment or installation support beneficial electrification?
Community health and resiliency 	☐ Is the approach a priority based on community mobility needs assessments?

STRATEGY 3

KNOWN HURDLES

- Incremental cost of electric vehicles
- Availability of commercialized electric vehicle products for each vehicle use case
- No existing mechanisms to benchmark or monitor transition by industry or commercial building owners
- Diverse types of municipal fleet vehicles
- Financial burden of ride-hail vehicle owners to replace and maintain electric vehicles

FIRST NEXT STEPS

- Access to regulatory options to require fleet electrification
- Develop fleet electrification plan, including various vehicle types in the municipal fleet
- Conduct commercial loading dock electrification study
- Prioritize existing buildings for loading dock electrification
- Explore feasibility and impact of electrified cargo bike delivery

PERFORMANCE METRICS

- Percentage of zero-emission vehicles fleets
- Total miles and percentage of miles traveled by zero-emission transit and transportation
- Number and percentage of loading docks equipped with electric vehicle chargers

Chicago Transit Authority Fleet Electrification

In February 2022, CTA released Charging Forward, its strategic plan for achieving full bus system electrification by 2040. Charging Forward will serve as a comprehensive roadmap to guide the bus replacement schedule, garage modernization timeline, and charging infrastructure installation projects required for complete electric transition. CTA plans to prioritize early adoption among its bus routes and garages on the West and South Sides of Chicago. Bringing the environmental benefits of electric buses to these neighborhoods will help mitigate air quality issues and provide more consistent transportation services. Electric buses are in service on the Chicago Avenue route #66.

STRATEGY 3

ACTIONS

A

Enable electric freight loading docks at commercial and industrial buildings, addressing new buildings by 2025 and existing buildings by 2030

GHG Impacts

◆◆◇

City Partners

CDOT, DOB, DPD

All electric vehicles, including freight vehicles, have range limits and require periodic charging. A robust vehicle charging infrastructure is needed across the city to make freight vehicle electrification feasible. Loading docks across the city's commercial and industrial buildings are important nodes that will create an electric vehicle charging network. For new buildings, electric vehicle chargers must be considered during initial design and construction stages where implementation is easiest and most cost-effective. Existing commercial and industrial buildings must be evaluated for loading dock electrification feasibility. Some buildings may require electrical service upgrades to handle added load or improved structural support for charging equipment.

B

Support equitable electrification of ride-hail and taxi fleets by 2030

GHG Impacts

◆◆◆

City Partners

BACP, CDOT

Both Uber and Lyft have committed to transition to zero-emission fleets by 2030. The federal Infrastructure Investment and Jobs Act includes $7.5 billion for electric vehicles. By 2030, electric vehicle sales are expected to reach 50% of total US vehicle sales. The time to transition to electric vehicles is now. Ride-hail and taxi fleet electrification will reduce citywide emissions, reduce fuel costs for ride hail and taxi drivers, and improve air quality across the city.

C

Enable 100% electrification of delivery fleets by 2035

GHG Impacts

◆◆◆

City Partners

BACP, CDOT

The last miles that packages travel from distribution centers to homes and businesses create significant GHG emissions and street-level air pollution. As online commerce increases, so too will delivery truck traffic. Major delivery companies, including FedEx, UPS, and Amazon have all committed to delivering 100% zero-emission fleets. The City will enable fleet electrification to ensure these providers and others to meet their fleet electrification targets.

STRATEGY 3

ACTIONS

(cont.)

D

Electrify 100% of the City's fleet by 2035

GHG Impacts

◆◆◇

City Partners

AIS, CDOT, CPS

With a fleet of more than 9,400 vehicles serviced at 13 maintenance facilities and 11 fuel sites citywide, the City has an opportunity to leverage an institutional process to alleviate inequitable pollution burdens. As the Department of Assets, Information and Services (AIS) continues to invest in its Green Fleet and the electrification of the city fleet, the department is practicing equity through beneficial electrification. By prioritizing the installation of chargers and conversion of vehicles in community areas experiencing higher air quality vulnerability, this standard procurement is being leveraged to create jobs, reduce emissions, and improve health and well-being. Currently, AIS is projected to convert 182 light-duty vehicles (25% of its fleet) by 2023. The City continues to explore technical and financial support for the transition of medium- and heavy-duty vehicles, such as street sweepers and snowplows.

E

Achieve zero-emission transit fleets across Chicagoland by 2040

GHG Impacts

◆◆◇

City Partners

CTA, DOB, DPD, Metra, PACE

In 2014, CTA was the first large transit agency in the United States to pilot electric buses. In 2019, the CTA committed to electrifying its entire bus fleet by 2040. Today, the #66 Chicago route carries passengers on its electric buses, and further investment in the bus fleet charging infrastructure will enable CTA to expand the number of electric buses across their routes. New e-buses will be phased into CTA's fleet to replace older buses. CTA bus fleet electrification will reduce citywide GHG emissions and improve air quality across the city. To learn more about the opportunities and strategies of the electrification process, explore Charging Forward: CTA Bus Electrification Planning Report.

Metra and PACE both aim to operate zero-emission fleets by 2040. Metra is exploring more efficient locomotives and battery electric-powered switch engines. PACE is modeling its routes to evaluate the feasibility of bus electrification.

PILLAR 4

DRIVE EQUITABLE DEVELOPMENT OF CHICAGO'S CLEAN-ENERGY FUTURE

As the effects of climate change grow more serious, decreasing reliance on fossil fuels is critical to reducing emissions and mitigating climate-related impacts. In 2017, more than 42% of Chicago's GHG footprint came from electricity consumption. Coal and natural gas generate more than half of the electricity on the regional grid that serves Chicago. Transitioning from these sources to 100% renewable energy will dramatically reduce citywide emissions and improve regional air quality. It is imperative that these investments and programs be structured to maximize community-level benefits and prioritize residents who have historically experienced energy burden, pollution burden, and/or other systemic burdens.

Renewable energy is naturally replenishing, virtually inexhaustible, and emissions-free. It can also increase the reliability and resiliency of the electric grid. Like all power sources, wind and solar do not operate 100% of the time. But their flexibility and predictability can increase grid stability when equipment is designed to withstand a broad range of weather conditions. Combining renewable energy with energy storage further enhances power reliability. Community energy resiliency from local renewable energy generation will help Chicagoans withstand severe weather and power-loss events.

Solar and wind power are the cheapest sources of electricity today. By expanding community-owned solar projects, investing in regional renewable energy generation, and increasing accessibility and affordability for low-income communities, Chicagoans who pay for electricity, whether directly or indirectly, can save money. Installing local renewable energy will also spur economic growth and create career development opportunities.

Chicago is well-positioned to access federal, state, and local funding to achieve our ambitious renewable energy goals. In Illinois, the Climate and Equitable Jobs Act (CEJA) commits the state to deliver 100% carbon-free power by 2045 and 100% clean energy by 2050. In Chicago, a $188 million Climate Bond has been invested as down payment on climate resiliency and mitigation. Funds will provide the city's underserved communities with resilient infrastructure and green workforce development opportunities. The $1.887 billion Chicago Recovery Plan includes budget for climate action, specifically including funding for environmental justice ($86.8 million), community climate investments ($101.3 million), community development ($166 million), and small business and workforce support ($87 million). In partnership with several Chicago-based renewable providers, the City can use this funding to create energy resiliency in our communities and ready our city for the future.

Nature Based Solutions

1. Utilize permeable surfaces such as low, no-mow native grasses and vegetation, to reduce runoff, support pollinators, and protect balanced water cycles where solar power installations are placed in Chicago or as part of any off-site power purchase agreement.

STRATEGY 1

100% CLEAN RENEWABLE ENERGY

We can make our electric grid "cleaner" and enhance power reliability by investing in the development of new renewable energy generation sources and storage. Installing and expanding in-city and in-state renewable energy will spur economic growth and create employment opportunities. As the renewable electricity supply grows, highly polluting fossil-fuel electricity plants can be retired and remediated. As Chicago electrifies its buildings and vehicles, powering these systems with renewable energy will clean our air while reducing the impact on the climate. Installing renewable projects on city property and utilizing state funding will help Chicago achieve its goal to achieve 100% clean, renewable energy community-wide by 2035. While it is not realistic for dense urban cities like Chicago to produce all their energy within city limits, utility-scale renewable developments located outside the city can still deliver benefits for Chicagoans, such as cost savings or workforce development opportunities. When done thoughtfully, developing new clean-energy sources can help underserved communities by creating high-quality jobs and reducing household energy burden.

> "Using our city's commitments to launch clean energy projects close to home and create local, good paying jobs for Chicagoans.
>
> *-Resident of Bronzeville*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about clean-energy approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Does the approach align with existing energy assistance programs and prioritize reducing energy costs for low-income households? ☐ Have documentation requirements for income-eligible benefits been streamlined? ☐ Are diverse workforce development, procurement, and contracting strategies used? ☐ Do new infrastructure development activities provide equitable job training, employment, and contracting opportunities in priority communities?
Reduced pollution burden 	☐ Is distributed and local generation prioritized within the approach, including on remediated brownfield sites?
Equitable access to critical infrastructure 	☐ Are outreach and education strategies holistic and include multilingual and varied approaches to reach all audiences? ☐ Are consumer protections in place, including preventing rate increases and protections from predatory lending? ☐ Do communities hold shared leadership and decision-making in siting and developing community solar projects?
Community health and resiliency 	☐ Are sites for community-scale or utility-scale renewable generation development being evaluated for community impacts and potential adverse effects? ☐ Do long-term power purchase agreements with renewable developments located outside of Chicago include community investment benefits for Chicagoans?

STRATEGY 1

KNOWN HURDLES

- Vendor capabilities, available vendors, and vendor contracting support
- Community adoption requires significant education, outreach, and relationship building
- Identifying proper government department ownership
- No current formal clean-energy partnership or programs between the City and its electric utility

FIRST NEXT STEPS

- Assess and evaluate the use of municipal aggregation
- Strengthen and establish diverse clean-energy career development pathways
- Finalize electricity supply agreement to meet municipal power needs with 100% renewable energy
- Prioritize communities and buildings for solar deployment
- Develop clear educational materials and compelling outreach strategy
- Establish robust consumer protections to prevent predatory supplier behavior
- Finalize new Electricity Franchise Agreement and Energy and Equity Agreement with an electricity distribution utility

PERFORMANCE METRICS

- Percentage of clean, renewable energy supplied to the City
- Total megawatts of clean, renewable energy developed within a 250-mile radius of the City
- Total megawatts of clean, renewable energy installed on City property

Chicago Public Schools Goes Solar!

In January 2021, CPS established the CPS Goes Solar! project, which aims to achieve 100% renewable energy electricity consumption by 2025. This would reduce GHG emissions from fuel combustion and purchased energy by 45% by 2030 and 100% by 2050. The project also aims to educate students and staff on the benefits and impacts of solar installations on school roofs. CPS leads this project and has partnered with a robust technical committee of for-profit and nonprofit organizations for implementation support. Beyond GHG emissions reductions, CPS Goes Solar! could also reduce operating costs by 25%, which would save taxpayer money and further improve the energy resiliency of CPS schools.

STRATEGY 1

ACTIONS

A

GHG Impacts

◆◆◆

City Partners

AIS, DPD

Aggregate 5,000 megawatts of clean renewable energy within a 250-mile radius of Chicago by 2030

By 2030, Chicago will bolster its relationships with surrounding counties to promote the growth of clean renewable energy, aligned with Illinois' goal of reaching 100% clean energy statewide by 2050. To achieve Chicago's goal of 100% clean renewable energy, the City will need to enable installations outside Chicagoland. Because of economies of scale, utility-scale development that leverages state and federal funding is important for making clean energy affordable. Chicago will boost the regional clean-energy economy and improve air quality by focusing on development within a 250-mile radius of the city. This amount of clean energy can power more than 1.1 million Chicago homes each year.

B

GHG Impacts

◆◆◇

City Partners

AIS, CCC, CHA, CPS, DOB, DPD

Install 30 megawatts of clean renewable energy projects on City property by 2030

The City will lead by example in the transition to clean energy by taking advantage of its physical assets. Installing solar arrays on City-owned properties will ensure that previously underutilized space can reduce energy costs, increase local job opportunities, and improve citywide energy resiliency. As a first step, the City will work with technical consultants and utility partners to assess the feasibility of installing solar arrays on City-owned properties, prioritizing installations in environmental justice and low-income communities.

C

GHG Impacts

◆◆◆

City Partners

AIS, CCC, CHA, CPS, DOB, DPD

Achieve 100% clean renewable energy community-wide by 2035

By 2035, the City will work with utilities to provide 100% clean renewable energy community-wide. The City will prioritize local generation and provide communities shared leadership in determining where renewable projects are constructed. The transition to a cleaner future will help the City reduce carbon emissions, improve air quality, increase economic opportunities, and build a more resiliency energy grid.

STRATEGY 2

ENABLE BUILDING AND PERSONAL VEHICLE ELECTRIFICATION

Many buildings use natural gas to run furnaces, boilers, hot water heaters, cooking ranges, and other equipment and appliances. Diesel is commonly used in the backup generators that help maintain power if the electric grid is down. Most personal vehicles still use gasoline. Electrification refers to transitioning away from direct fossil-fuel combustion in equipment and vehicles by replacing fossil-fuel-powered equipment with alternatives that run on electricity. When paired with renewable electricity, equipment electrification significantly reduces GHG emissions. Beyond the carbon benefit, electrification is also important for improving air quality, including inside homes. At present, electric-powered equipment and vehicles are occasionally more expensive than fossil-fuel options. Therefore, it is important to improve efficiency at the same time to make the transition affordable.

> “Home electrification would have two major benefits for Chicagoans. When paired with clean renewable energy, electrification is a huge decarbonization driver. It also has a second benefit of improving air quality inside homes.
>
> *- Resident of Uptown*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about electrification approaches should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Do retrofit activities provide equitable job training, employment, and contracting opportunities in priority communities? ☐ Are diverse workforce development, procurement, and contracting strategies used? ☐ In residential buildings, are savings benefiting renters? ☐ Are building efficiency retrofits being combined with electrification to ensure long-term affordability? ☐ Is the impact on energy bills being assessed prior to retrofits to inform residents and enable subsidies for low-income households?
Reduced pollution burden 	☐ Is remediation of non-energy issues such as lead, mold, and indoor air quality being addressed? ☐ Are facilities with fuels that contribute the most to adverse health impacts being prioritized, such as those that have fuel combustion within living spaces local or frequently use diesel generators? ☐ Are designated environmental justice areas or communities with high pollution burden being prioritized by incentive and financing programs?
Equitable access to critical infrastructure 	☐ Do financing options include protections from predatory lending? ☐ Is access to affordable housing being maintained or expanded? ☐ Are vehicle electrification approaches designed to ensure equitable distribution of charging stations, including public areas, multifamily housing, and areas of interest? ☐ Are outreach and education strategies holistic and include multilingual and varied approaches to reach all audiences?
Community health and resiliency 	☐ Do building electrification strategies improve thermal comfort, indoor air quality, and resiliency to extreme weather? ☐ Are vehicle electrification approaches a priority based on community mobility needs assessments? ☐ Is community-designed and community-led programming and education being invested in?

STRATEGY 2

KNOWN HURDLES

- Vendor capabilities, available vendors, and vendor contracting support
- Affordability protections
- Lack of scalable technology and system reliability planning
- Buy America requirements for federal funding

FIRST NEXT STEPS

- Develop educational materials for communities
- Work with frontline community leaders to prioritize buildings for electrification
- Establish robust consumer protections
- Release charging station implementation priorities and plan

PERFORMANCE METRICS

- Total number of trained professionals
- Total and percentage of buildings electrified
- Number and capacity of charging stations installed

STRATEGY 2

ACTIONS

A

Enact policies that support electrified renovations and new construction by 2023

GHG Impacts

◆◆◇

City Partners

BACP, CDOT, DOB, DPD

By 2023, the City will enable electrified renovations for all existing building types (residential, commercial, and industrial) and new construction. For existing buildings, incentivizing electrified renovations will not only help the City achieve its climate goals, but will also standardize building performance and provide clear benefits to owners and occupants. For new buildings, the transition to all-electric buildings must begin in initial design and construction stages where it is easiest and most cost-effective. Electrified buildings can lower energy costs, improve occupant comfort and healthier air quality, and reduce GHG emissions. Enacting electrification incentives will send a strong signal to Chicago's construction workforce that they need to prepare for a rapid transition to all electric appliances and equipment. Additionally, this policy can ensure that all building types will benefit from electrification.

B

Electrify 30% of total existing residential buildings by 2035

GHG Impacts

◆◆◆

City Partners

CDOT, CHA, DOB, DOH, DPD

Residential building electrification is one of the most important climate actions Chicagoans can take that also provides immediate health benefits for households. To achieve this goal, the City and its private, nonprofit, and public-sector partners will support homeowners and landlords in installing new electric heat pumps for heating, cooling, and hot water. Electric resistance heat can complement heat pumps in cold weather, but most new heat pumps operate efficiently at extreme temperatures. Other residential electrification actions will include replacing existing stoves, dryers, and other appliances with electric technology. Weatherization and other efficiency measures should be in place in parallel to electrification to make energy bills affordable.

C

Electrify 20% of total existing industrial buildings by 2035

GHG Impacts

◆◆◇

City Partners

BACP, DOB, DPD

In industrial buildings, fuel-intense processes are often related to heat generation for drying, melting, or cracking materials. For industrial activities with very high heat requirements that go beyond 1,000 degrees Celsius, current electrification technologies are limited, but this level of heat is needed only for certain processes like the production of virgin steel, cement, and ceramics. For other process with lower temperature requirements and moderate heating, ventilation, and air conditioning needs, using electric boilers, electric furnaces, heat pumps, and electric evaporation equipment are feasible. Helping industrial facility owners identify and invest in available equipment alternatives are key to achieving this strategy.

STRATEGY 2

ACTIONS

(cont.)

D

Electrify 10% of total existing commercial buildings by 2035

GHG Impacts

◆◆◆

City Partners

DOB, DPD

The ease of electrifying commercial buildings depends on many factors, including building size. Smaller commercial buildings can often follow a similar electrification strategy as residential buildings, where swapping appliance-sized equipment is straightforward. Medium- and large-sized commercial buildings with central heating systems face more complexity, including a potential need to upgrade electrical service to handle the added load, improve structural support for heavier equipment, and/or improve refrigerant management practices.

E

Electrify 90% of total existing City-owned buildings by 2035

GHG Impacts

◆◆◇

City Partners

AIS, CDA, DOB, DPD, DWM, PBC

Because electrifying buildings requires new equipment and workforce techniques, the City can spur local capacity by transitioning most of its own buildings. City leadership in implementing building electrification will enable installers to invest in workforce training and technology partnerships, making it easier for private building owners to also transition to electric equipment.

F

Enable 2,500 new public passenger electric vehicle charging stations by 2035

GHG Impacts

◆◆◇

City Partners

CDOT, CTA, DPD

Electric vehicles provide a clean mobility option for those in communities where a car is a necessity, provide significant cost savings to drivers due to lower operation costs and fuel savings, reduce street-level air pollution, and lead to reduced GHG emissions if the charge source is powered with clean energy. While continuing to invest in strategies that enable residents to reduce the number of vehicle miles traveled, the City will also support equitable adoption of electric vehicles by expanding and improving Chicago's charging infrastructure. In 2020, every community area has a registered electric vehicle. However, 70% of public electric vehicle charging infrastructure is concentrated in 3 community areas, and 47 community areas don't have a single public electric vehicle charger. In coordination with private and public electric vehicle charger operators and building owners, the City will enable the installation of 2,500 new commercial-grade, Level 2 public passenger electric vehicle charging stations by 2035, with priority given to low- and middle-income communities. Because electric vehicle uptake will not enable the City to provide safe, affordable and efficient transportation for all, the City will continue to prioritize investments in transit, walking, biking, and shared mobility.

STRATEGY 3

ALIGN BUILDING CODES AND STANDARDS WITH CLIMATE BEST PRACTICES

To support Chicago's transition to a low-carbon future, the City must modernize its planning, zoning, and building codes. Retrofits can be expanded and accelerated by codes related to electrifying buildings, and upon major renovations requiring greater energy efficiency, integrating renewable energy and electric vehicle charging, and improving resiliency. Codes and standards also present an opportunity to ensure new building construction is climate-change ready, which prevents the waste associated with retrofitting recently constructed buildings. City planning policies and regulations must be aligned with goals and priorities outlined in the 2022 CAP.

> "Reforestation of the City. Vacant lots that are owned by the City of Chicago should be turned over to the community to convert to greenspaces and gardens or replanted (trees, etc.) by the City.
>
> *- Resident of South Shore*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about building codes and standards should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ In residential buildings, are savings benefiting renters? ☐ Are building efficiency retrofits being combined with electrification to ensure long-term affordability? ☐ Are investments in workforce development and low-carbon construction practices being made to ensure affordable access to code compliance? ☐ Are investments in contractor training being made to support their transition towards new building practices?
Reduced pollution burden 	☐ Are facilities with fuels that contribute the most to adverse health impacts being prioritized, such as those that have fuel combustion within living spaces local or frequently use diesel generators? ☐ Are designated environmental justice areas or communities with high pollution burden being prioritized by incentive and financing programs?
Equitable access to critical infrastructure 	☐ Is access to affordable housing being maintained or expanded?
Community health and resiliency 	☐ Do building electrification and efficiency strategies improve thermal comfort, indoor air quality, and resiliency to extreme weather? ☐ Do code adjustments take into account likely shifts in future weather patterns over the life of the building?

STRATEGY 3

KNOWN HURDLES

- Lack of policy enforcement resources

FIRST NEXT STEPS

- Update the City's Sustainable Development policy
- Evaluate alignment with federal policies including the 30x30 Executive Order
- Develop a Building Performance Standard policy, and a general decarbonization policy

PERFORMANCE METRICS

- Vegetated acreage increased
- Surface area of roofs and walls retrofit with vegetation
- Total and percentage of electrified projects
- Number and percentage of net-zero-carbon buildings built each year
- Building energy intensity

STRATEGY 3

ACTIONS

A

Strengthen policies that support installation of green roofs and walls, tree planting, and other vegetative cover by 2023

GHG Impacts

◆◇◇

City Partners

AIS, CDOT, Chicago Park District, CFD, DOB, DPD, DSS

By 2023, the City will enable green-roof and green-wall installations, tree planting, and other vegetative cover on both existing buildings and new construction. Expanding and protecting Chicago's green spaces reduces urban heat, improves air quality, and decreases GHG emissions. Establishing a clear and sustainable strategy aimed at greening our environment will benefit all Chicagoans.

B

Enable net-zero-carbon construction by 2040

GHG Impacts

◆◆◆

City Partners

DOB, DPD, CFD

In alignment with Building Decarbonization Working Group report by the Intergovernmental Panel on Climate Change, the City will enable net-zero-carbon construction by 2040. Net-zero construction standards can dramatically reduce built environment GHG emissions. In addition to targeting energy-related emissions once buildings are in use, net-zero-carbon construction incentives will also target embodied carbon—the emissions associated with the production, transportation, and disposal of building materials and the building construction process. Cement production, for example, is a carbon-intensive building material. By substituting traditional materials for low-carbon alternatives, a project can reduce its embodied carbon.

STRATEGY 4

DECOMMISSION FOSSIL POWER

Making our electric grid cleaner requires more than improving access to renewable energy generation or incentivizing demand response. The City must also look to where our energy is being produced and how it is being produced. Illinois continues to rely on fossil-fueled power plants for backup power generation when energy demand is extremely high. Besides these peaker plants (power plants used only when there is a high demand for electricity), no fossil-fueled plants are within city limits. Nonetheless, these "dirty" plants emit large amounts of unchecked GHGs when activated and disproportionately affect communities near the site.

> "Decarbonization of industrial facilities located in and around vulnerable Chicago communities and cleaning up heavy-duty vehicle emissions/criteria air pollutants from shipping.
>
> *- Resident of Lincoln Park*

KNOWN HURDLES

- Clean renewable back-up power or storage must be available in parallel with decommissioning

FIRST NEXT STEPS

- Create a decommissioning transition strategy and implementation plan that also addresses community needs

PERFORMANCE METRICS

- Number and capacity of decommissioned fossil plans

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about decommissioning fossil power plants should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings	☐ Are career transition and development resources being provided to ensure just transition for workers at these plants?
Reduced pollution burden	☐ Are the dirtiest plants being prioritized for closure first?
Equitable access to critical infrastructure	☐ Do reliability and energy access indicators demonstrate that modernized clean electricity generation and storage infrastructure have been scaled enough to enable fossil plant shutdowns?
Community health and resiliency	☐ Do communities have shared leadership in decommissioning plans and prioritization?

STRATEGY 4

ACTIONS

A

Develop a fossil-fuel plants transition strategy by 2024

GHG Impacts

◆◆◆

City Partners

AIS

By 2024, the City will develop a peaker plant (power plant used only when there is a high demand for electricity) transition strategy with guidance for an equitable, safe, and inclusive process. Transitioning to the use of alternatives such as battery storage and renewable energy will reduce emissions and alleviate the burden of legacy pollution exposure. In addition, the City will work with local, state, and regional partners during implementation of the Climate and Equitable Jobs Act (CEJA) to ensure the benefits of a just energy transition support Chicago residents and businesses as well. By reducing Chicago's reliance on fossil fuels and helping Illinois retire its polluting energy infrastructure, the City can not only improve overall grid resiliency, but also improve air quality, reduce pollution, and dramatically decrease GHGs. A just energy transition to renewable sources and energy storage will also provide new economic opportunities for Chicagoans while safeguarding reliable and safe service.

STRATEGY 5

ENABLE INTERCONNECTION AND STORAGE

To ensure that cleaning our electric grid enhances power reliability and resiliency, Chicago will increase energy storage and distribution, and will promote better demand response during periods of peak electricity usage. Community energy resiliency, via renewable energy generation combined with energy storage, can help communities withstand power-loss events. Power losses caused by severe weather or surges in energy consumption can pose serious threats to Chicagoans, particularly those who are low-income, medically dependent, elderly, or who have disabilities. For many, losing food, heat, or medical equipment due to power outages can be life-threatening. Fossil-fuel burning backup generators can help during these events, but they are often expensive, energy inefficient, and polluting. Clean, local microgrids make those systems unnecessary.

> “Make it easy to bring new solar onto the grid so permitting and grid interconnection fees don’t limit clean energy installations within the city.
>
> *- Resident of Hyde Park*

KNOWN HURDLES

- Vendor capabilities, available vendors, and vendor contracting support
- Equitable ownership and placement of energy storage

FIRST NEXT STEPS

- Integrate equitable interconnection and storage strategies into the City’s electricity franchise agreement
- Engage with utility provider to align on shared energy demand reduction plans and efficiency goals

PERFORMANCE METRICS

- Energy storage capacity
- Demand response capacity

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about enabling interconnection and storage should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Do new infrastructure development activities provide equitable job training, employment, and contracting opportunities in priority communities? ☐ Are diverse workforce development, procurement, and contracting strategies used? ☐ Are Chicagoans benefiting from reduced energy bills and improved reliability?
Reduced pollution burden 	☐ Are demand response aspects being optimized to reduce the dirtiest fossil peak use in the most vulnerable environmental justice communities?
Equitable access to critical infrastructure 	☐ Are consumer protections and access to demand response benefits, programs, and technology in place?
Community health and resiliency 	☐ Do communities have shared leadership in project siting, prioritizing resiliency, renewable generation and local emission reductions?

STRATEGY 5

ACTIONS

A

Ensure 150 megawatts of energy storage by 2025

GHG Impacts

◆◇◇

City Partners

AIS, CCC, CFD, CHA, CPS, DOB, DPD

Investing in energy storage capacity is necessary to enable a full transition to renewable energy. Wind and solar production vary daily and seasonally, making storage critical to reliable supply from renewables 24 hours a day. Building storage capacity adds grid flexibility and reliability and has air quality benefits. During peak demand (like hot summer days requiring heavy air condition use), electricity generators need to turn on their backup peaker plants (power plants used only when there is a high demand for electricity), which often create more pollution than the main generation plants. Batteries can fill the gap created by these energy surges without activating the dirtiest supply options. By working with partners to build energy storage, the City can prioritize enhancing reliability in communities particularly susceptible to climate-related power-loss events. Since these power-loss events pose a serious threat to Chicagoans, combining renewable energy generation with energy storage can help reduce community vulnerability by keeping life-saving equipment turned on and running. This combination will also lower energy bills for Chicago utility customers.

B

Invest in 1,000 megawatts of demand response by 2024, and 3,000 megawatts by 2035

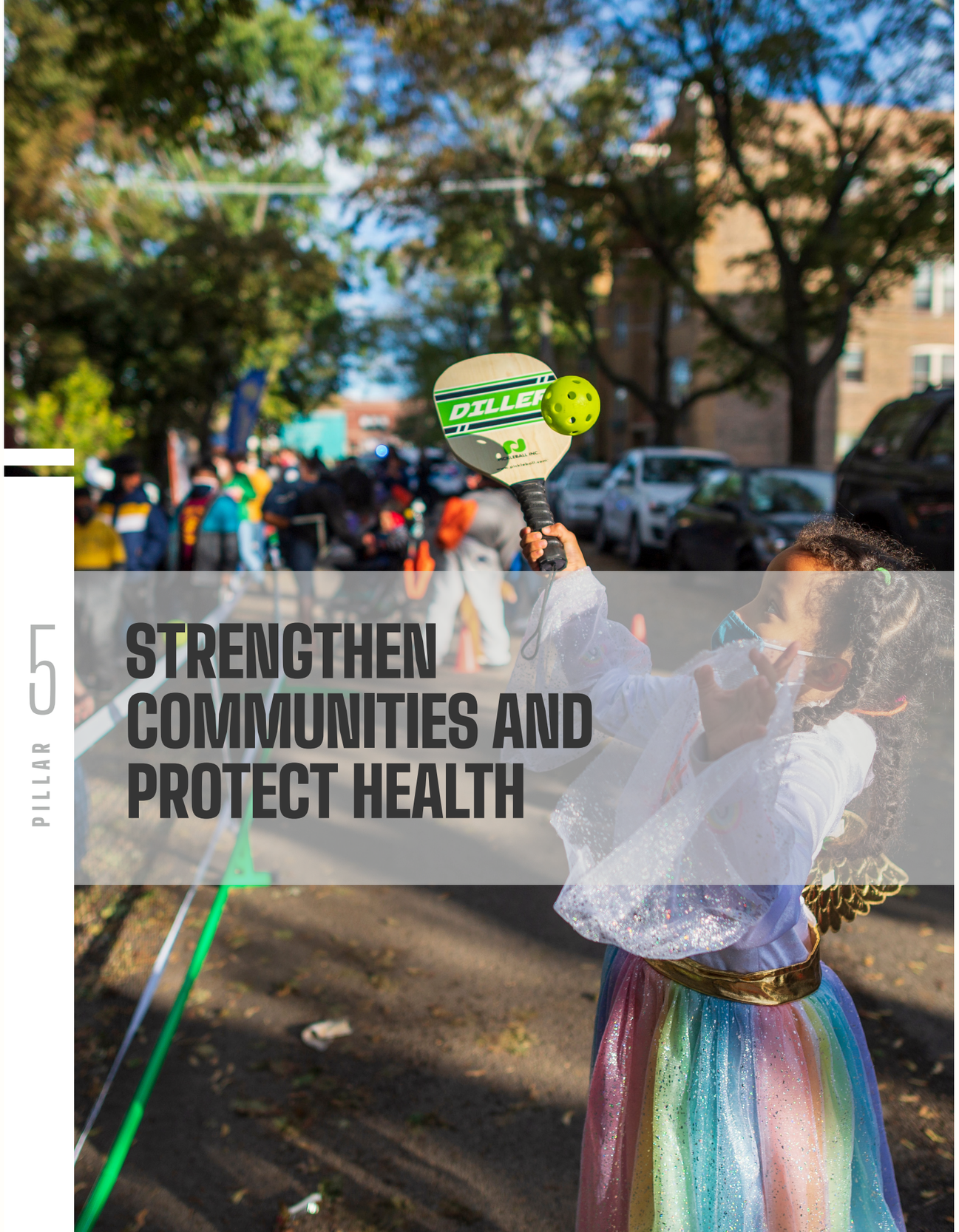
GHG Impacts

◆◆◆

City Partners

AIS, CCC, CHA, CPS

Energy demand surges occur when many energy customers use significant amounts of energy at the same time (for example: using air conditioning during heat waves). These surges can exacerbate air pollution and cause power losses for many Chicagoans. To avoid this, energy demand reduction programs enable users to consume less power overall, including during peak hours. By achieving 1,000 megawatts of new energy demand reduction capacity by 2030, and increasing to 3,000 megawatts by 2040, Chicagoans will be better protected during extreme weather events, when electrical grids are unable to supply enough power to meet surge in demand. Effective energy demand reduction programs can not only reduce energy consumption and make our grid more reliable but can also reduce emissions by decreasing reliance on Chicago's peaker plants (power plants used only when there is a high demand for electricity).



PILLAR 5

STRENGTHEN COMMUNITIES AND PROTECT HEALTH

Delivering climate equity for all Chicagoans requires decision-making that is informed by relevant, accurate, and consistently measured metrics. Quality-of-life metrics can track progress and hold the City and partners accountable for delivering equitable outcomes and can illustrate how well the City is measuring up to closing the racial life-expectancy gap. The City will continue working with communities on the frontline of the climate crisis to define metrics that enable and encourage equity-forward decisions by City departments and policymakers.

Relevant

Quality-of-life metrics will be used to evaluate progress and gaps toward achieving climate equity for all Chicagoans. To inform impactful decisions, metrics must show where further action is needed to reverse harmful impacts on overburdened, underserved, vulnerable, frontline, and other communities. These metrics will include but are not limited to the following indicators: economic inclusion and savings, reduced pollution burden, community health and resiliency, equitable access to critical infrastructure, and community resiliency. Metrics should be understandable and accessible to all Chicagoans.

Accurate

The City will work to develop quality-of-life metrics that are built using both lived experiences and scientific evidence. To ensure transparency, the City will disclose the data sources and how the data is used to create its metrics.

Consistent

The City will work to develop quality-of-life metrics that are complete and regularly reported. Incomplete data will be avoided to ensure that the needs of residents in all communities are correctly reflected in reported metrics and the decisions they inform. However, incomplete data will not be an excuse to ignore communities underserved by current data collection and reporting. The City will endeavor to ensure data collection and reporting are comprehensive and equitable.

Nature Based Solutions

1. Access to nature-based community assets can be integrated into community health and resilience metrics.
2. Plant enough trees or vegetation to match or exceed the environmental and public health benefits lost by the removal of trees during demolition, construction, or other development.
3. Optimize use of permeable materials, reflective surfaces, and tree and vegetative cover in communities experiencing greatest impacts from urban flooding or heat index.

STRATEGY 1

COLLECT RELEVANT DATA

The percentage of household income spent on energy costs (energy burden) and pollution exposure are unique to each household. Proximity to pollution sources like roadways or industrial facilities determines the quality of air and soil that each household experiences. Electricity and gas rates that customers pay determine the percentage of household income spent on energy services (amount of energy burden). City-level data cannot help identify where pollution exposure is high, or where or when residents must choose between buying food and heating or cooling their homes.

Energy burden, water quality, soil quality, and air quality data can be used to measure the equity of climate action across Chicago neighborhoods. Data will be collected by community area, where possible, to show decision-makers where and how their decisions most affect residents. By tracking these data points in each neighborhood, residents can hold City leadership accountable to make equitable decisions that address energy burden and pollution exposure.

> “Environmental justice needs to be at the forefront of every aspect of the CAP.
>
> *- Resident of Buena Park*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about climate and pollution-related data collection should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are diverse workforce development, procurement, and contracting strategies used?
Reduced pollution burden 	☐ Are there plans for equitable corrective action when monitoring shows problems with poor water, soil, or air quality?
Equitable access to critical infrastructure 	☐ Are monitors and testing for air, water, and soil testing equitably deployed and maintained? ☐ Are designated environmental justice areas or communities with high pollution burden being prioritized by data collection approaches?
Community health and resiliency 	☐ Are communities empowered to use monitoring data to advance their priorities for health and resiliency investments?

STRATEGY 1

KNOWN HURDLES

- Current energy burden data cannot be used at zip-code levels
- Funding and operational support are needed to install and maintain water and air quality monitors, conduct soil tests, and address poor results

FIRST NEXT STEPS

- Evaluate reporting requirements and data availability in collaboration with utilities and other public agencies such as the Illinois Commerce Commission
- Establish reporting and governance requirements
- Define minimum water, air, and soil quality levels and consistently address problems when these minimum levels are not met

PERFORMANCE METRICS

- Percentage decrease in energy burden over time
- Percentage of students with access to healthy soil, reported citywide and per neighborhood
- Coverage percentage of air quality monitoring at CTA stations, and targeted bus stops

STRATEGY 1

ACTIONS

A

Report energy burden by community area by 2023

GHG Impacts

◆◇◇

City Partners

CDPH, OERJ

Energy burden is experienced when households spend so much income on electricity or gas bills that it is difficult to buy food, access transportation, and grow wealth. The City will analyze energy reports and other data sources to identify where building retrofits or energy subsidies are most needed. Tracking this data over time will also measure progress toward achieving the City's equity goals.

B

Develop a water and soil quality measurement and mitigation strategy by 2023

GHG Impacts

◆◇◇

City Partners

AIS, Chicago Park District, DWM

A commitment to advancing environmental justice recognizes the difference in exposure to contaminants based on proximity to sources of pollution. Water quality can change as water infrastructure ages or as water sources become polluted. Poor water quality can expose people to dangerous contaminants and chemicals, which can adversely affect the health of individuals. Similarly, soil contamination can also expose residents to dangerous chemicals and reduce property values.

In partnership with City-operated facilities, sister agencies, and community-based organizations, proactive measurement, public reporting, and application of water and soil quality data can inform where infrastructure improvements are needed and help prioritize investments to ensure healthy, safe, and vibrant communities.

C

Establish a robust outdoor air quality monitoring network by 2025

GHG Impacts

◆◇◇

City Partners

AIS, CDOT, CDPH, CPS, CTA

Exposure to pollutants such as ozone and PM2.5 (particulate matter that is 2.5 microns in size) is associated with increased risk of respiratory infections, lung irritation, asthma, cardiovascular disease, cancer, and early death. Fossil-fuel combustion has a negative impact on climate change and air quality, both indoors and outdoors. By reducing fuel combustion and increasing nature-based solutions (for example, planting trees in neighborhoods), climate action can improve air quality. Measuring and reporting air quality at various sites such as CTA bus and "L" stations, schools, or city facilities will demonstrate the impact of the City's climate investments and the modernization of planning policies. In addition, a monitoring network will help identify where more action is needed to ensure all residents have access to healthy air.

STRATEGY 2

ENABLE DATA-DRIVEN DECISION-MAKING

Achieving equity across neighborhoods will require that City policymakers and implementers have relevant and accurate data when making decisions. By integrating decision-making with equity criteria, City decisions can be made to objectively prioritize health outcomes. In collaboration with community groups and frontline leaders, the City will define health and equity indicators building on the past framework of the Health in All Policies City resolution and the Healthy Chicago 2025 plan advancing racial equity to close Chicago's life expectancy gap. It will also create a consistent measure of which communities lack equitable access to a quality life.

> "Transparency and accountability measures.
>
> *- Resident of Edgewater*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about including equity criteria into planning should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are community members compensated for their insights and contributions to planning processes?
Reduced pollution burden 	☐ Are overburdened communities' needs and aspirations prioritized?
Equitable access to critical infrastructure 	☐ Is relevant data broadly available and made understandable to a broad audience? ☐ Do health and equity criteria enable decisions to be made while considering impacts across communities, gender, race, ethnic groups, and socioeconomic groups?
Community health and resiliency 	☐ Are community groups and frontline leaders included when establishing decision-making criteria and quality-of-life metrics into plans?

STRATEGY 2

KNOWN HURDLES

- Government leadership and operational support are needed to ensure that health and equity criteria are consistently considered when making decisions
- Balancing the needs of data privacy and data transparency
- Limited ability for community to influence decision-making related to infrastructure
- Existing reliable, granular data may not exist for all desired metrics
- Resourcing is needed for data collection and reporting

FIRST NEXT STEPS

- Establish health and equity criteria and process for integrating them with decision-making processes
- Convene community working groups to establish quality-of-life and just transition metrics and to review and update community resiliency metrics
- Encourage owners and operators of key infrastructure systems to perform climate risk analysis to determine how climate will affect their systems
- Develop equity risk criteria for evaluating the performance of adaptation plans and actions

PERFORMANCE METRICS

- Qualitative and quantitative descriptions of anticipated equity outcomes of each decision
- Realized equity outcomes of decisions
- Year-over-year progress across established metrics

STRATEGY 2

ACTIONS

A

Publish clean energy just transition metrics by 2022

GHG Impacts

◆◇◇

City Partners

CDOT, CDPH, DPD

The transition from fossil fuels to a clean-energy economy will certainly bring significant health and environmental benefits. The City must meet this moment of transition with tools and processes that support greater pathways to participation, access to workforce development and employment opportunities, and safe, healthy communities. A collaboration between diverse, local stakeholders affected by the clean-energy transition will support the optimal alignment and application of the parameters set forth in the Climate and Equitable Jobs Act (CEJA).

B

Integrate community resilience and climate justice criteria into department-level strategic planning and annual budget setting by 2023

GHG Impacts

◆◇◇

City Partners

CDPH, DPD, OERJ

In alignment with the City's mission to advance structural change to deliver equitable transformation with our communities, departments will begin to intentionally consider how standard practices can be used to support or impair community resilience and climate justice. The City will work with stakeholders to identify key health, resilience, climate, and equity criteria to assess. Leaning upon lessons from the We Will Chicago strategic planning process and OERJ's work to support departmental equity strategic plans, the City will develop a standard practice that can be used to support departments' assessments and refine their strategies.

C

Develop a Heat Vulnerability Index and integrate into planning and development, community safety, and public health planning processes beginning in 2023

GHG Impacts

◆◇◇

City Partners

CDPH, DFSS, DPD, MOPD, OEMC

In 1995, Chicago experienced the loss of more than 700 residents during an extreme heat wave. Residents who were socially isolated, didn't have indoor cooling appliances, or were unable to open their windows for cooling were more likely to experience dangerous heat levels within the home. To this day, this historic event serves as a reference point for the Office of Emergency Management and Communications (OEMC) and partners who develop and execute strategies to keep residents and businesses safe during times of crisis. Climate science indicates that Chicagoland will continue to experience more days of extreme heat and increased precipitation. Therefore, it is important to proactively consider how these climate shifts will affect vulnerable communities and to explore diverse pathways for mitigation and adaptation.

STRATEGY 2

ACTIONS

(cont.)

D

Publish citywide and community-level quality-of-life metrics on equity and sustainability by 2023

GHG Impacts

◆◇◇

City Partners

CDPH, OERJ

Quality of life is commonly measured at the country or city level. When income and access to services and amenities are evaluated citywide, Chicago consistently ranks as an affordable city with excellent job opportunities and many recreation options. In reality, many Chicagoans struggle to afford life in the city. They cannot access the jobs and recreation options that the city offers. Quality of life must be measured at the zip-code level to identify where investment, services, and support are needed to ensure all Chicagoans can live well and thrive. The City will work with community groups and frontline leaders to identify metrics that meaningfully reflect community needs, aspirations, and well-being. These metrics will be measured and publicly reported every year.

E

Assess and optimize community-level emergency management strategies related to climate preparedness by 2024

GHG Impacts

◆◇◇

City Partners

CDPH, DFSS, DPD, MOPD, OEMC

The Office of Emergency Management and Communications (OEMC) is Chicago's lead coordinating agency during emergency situations, including weather-related incidents. The OEMC proactively plans for hazards and oversees citywide operations for public safety such as the initiation of the City's Emergency Operation Plan, activation of warming and cooling sites, and communicating through public messages systems such as Notify Chicago. While a climate hazard may affect the greater city or region, its impact may be unequally felt due to communities' underlying physical, socioeconomic, and health conditions. As Chicago invests in climate resiliency and adaptation, it is critical that OEMC and relevant partners intentionally consider how to prepare and service communities that will feel the pressures of a climate hazard first and longest, and that have the greatest needs for a full recovery.

STRATEGY 3

ENABLE COMMUNITY RESILIENCY

Throughout the COVID-19 pandemic, neighbors, community groups, civic organizations, and local businesses banded together to assess and meet the needs of fellow community members during an unbelievably tumultuous time. Again, community cohesion and ready access to resources served as a lifeline for thousands during a crisis. As the City strives to reduce emission levels, there must also be an effort to enable greater community resilience to withstand the impacts that are underway. By co-designing resiliency projects with community members, local civic leaders, and businesses, initiatives can stem from a shared understanding of historic events, community needs, and other critical insights unique to that community. By prioritizing community collaboration and equitable capacity-building, the City enables more efficient and effective community response during the times when every minute counts.

> “Work with existing environmental justice organizations in Chicago to fund and implement plans already created.
>
> *- Resident of Rogers Park*

Equity, Resiliency, and Environmental Justice Considerations

Those making decisions about including resiliency planning should consider these initial questions to improve the equity, resiliency, and environmental justice outcomes of their efforts:

Co-Benefits	Considerations Checklist
Economic inclusion and savings 	☐ Are diverse workforce development, procurement, and contracting strategies used?
Reduced pollution burden 	☐ Does the approach consider the complexity of cumulative impact?
Equitable access to critical infrastructure 	☐ Is the approach and funding flexible enough to respond to shifting needs around critical infrastructure?
Community health and resiliency 	☐ Are community groups and frontline leaders included in co-developing programs and investments?

STRATEGY 3

KNOWN HURDLES

- Vendor capabilities, available vendors, and vendor contracting support

FIRST NEXT STEPS

- Enhance urban forestry management and administration of Chicago landscaping processes by increasing the planting and maintenance of native tree and plants
- Develop an equity-centric complement to City-sponsored emergency-response volunteer workforce programs
- Support the development of an equity evaluation framework, actions and metrics that supports community climate adaptation and resiliency strategies, including the expansion nature-based solutions
- Co-define and assess the impact of developing community-level climate resilience networks or hubs with community-based organizations

PERFORMANCE METRICS

- Annual reporting of community-led infrastructure projects, per community area
- Confirmation of resiliency strategy inclusion in the City's hazard mitigation planning

Faith in Place: Windsor Park Lutheran Church

The Windsor Park Lutheran Church of South Shore implements sustainability programs that benefit the surrounding community and its congregation. The church maintains a community garden that supports the church-hosted food pantry and serves 150-200 families each week. The garden also serves as an educational tool for over 500 congregation members, youth, and community residents interested in learning about sustainable food production and the value of nature in the urban space. Windsor Park Lutheran is currently striving to improve South Shore's "connectivity gap", where nearly 27% of residents do not have reliable access to the internet. Working with Faith In Place, Elevate NFP, and Chicago Permaculture Convergence in 2015, Windsor Park Lutheran Church installed a Wi-Fi repeater on the roof of the Church allowing it to offer free Wi-Fi to anyone within a half block radius. In 2021, the church organized and implemented an ambitious tree planting program, distributed reusable bags, worked with facility managers to reduce energy use and to employ sustainable landscaping practices, and engaged directly with the residents on the importance of green spaces, renewable energy, and air quality.

STRATEGY 3

ACTIONS

A

Resource community-led climate infrastructure projects by 2022

Pairing citywide infrastructure investments with community-designed resiliency projects creates more effective and relevant projects to those living within a community. By engaging residents and local leadership in project design, development, and implementation, the City can foster deeper relationships with those experiencing the climate hazards most directly and better serve those communities.

GHG Impacts

◆◇◇

City Partners

DPD

B

Integrate community resiliency strategies with the City's hazard mitigation planning by 2023

As part of the City's regular hazard mitigation planning process, senior residents, people with disabilities, and residents living in high-risk geographic areas are recognized as most vulnerable to the negative impacts of hazards and natural disasters. As a part of the next planning cycle, OEMC will continue to explicitly develop resiliency goals and metrics to reduce the social, economic, and environmental impacts of disasters with a particular analysis of how to foster greater community resiliency during times of crisis.

GHG Impacts

◆◇◇

City Partners

CDPH, DFSS, DPD, MOPD, OEMC

ADAPTATION AND RESILIENCY

The goals of the 2022 CAP are ambitious and illustrate the need for collective, coordinated, and equitable action for optimal impact. As we work together to slow the pace of climate change through mitigation strategies, it is important to take action to minimize the impact of the changes we can no longer avoid. A wide variety of strategies can be used to stabilize current emissions levels and adapt to known shifts in our region's climate patterns. Community-level empowerment and investment must be a part of any strategy to ensure that community leaders have accurate information and an awareness of which resources and systems are available for their community's use. Responses to the climate crisis will become more difficult and expensive to implement the longer equitable adaptation and resiliency efforts are deferred.

Effective and responsive climate action planning can be complex and requires highly coordinated efforts from the local government, individual households, communities, businesses, and other stakeholders. This section is focused on two related pathways toward climate stability: adaptation and resiliency. To illustrate this, we can think about extreme heat events caused by climate change. Adaptation accepts the new reality—an increase in extreme heat days —and modifies systems and practices given the new reality. Resiliency, on the other hand, is the ability to recover quickly from future extreme heat events due to sufficient anticipation and preparation.

Community residents on the frontlines of climate change across Chicago have learned to anticipate a flooded basement or impassable street after a heavy summer storm. During the winter, commuters adjust their schedules to allow extra travel time or may miss work if transit systems are unable to operate. However, current and anticipated changes to our region's climate will make these seemingly simple, expected shifts more serious and less predictable. With extreme rainfall, more intense and unpredictable flooding may cause damage and loss to personal and public property; create hazardous health conditions due to exposure of contaminated sewer water; or destroy crops and disrupt access to fresh produce and the livelihoods of affected farmers.

Extreme heat is expected to bring more days of extreme temperatures and longer seasons of heat. More days of these heat conditions may worsen air quality and put residents with existing health conditions such as asthma or heart disease at greater risk; require extended use of cooling appliances and increase utility costs over the season; or require more frequent activation of cooling centers and support services like transportation services and well-being checks.

Worsening winter weather conditions of heavy snow, ice accumulation, and intense winds present safety risks associated with hazardous driving conditions; endanger the health and safety of those experiencing homelessness, housing insecurity, or who cannot afford to pay their utility bills; and burden City services and resources such as plows and salt trucks, 911, and other emergency responders.

These familiar weather patterns are gradually increasing in frequency and intensity. When unaddressed, slow-moving disasters can place tremendous pressure on families and communities, especially those who experience multiple impacts over a short time or are already vulnerable based on medical or economic status, quality of housing, and age. Mitigation efforts alone are not sufficient to protect communities burdened by the cumulative impact of various social, economic, health, and environmental inequities. Community-level education and engagement is needed to ensure those communities most affected by the impacts of climate change have the necessary tools and preparation to act quickly and decisively to save lives in a time of need.

Historically, planning and investments for adaptation and resiliency have benefited high-income and/or politically active communities. Due to unjust practices in planning and political engagement, there are greater barriers to participation and decision-making for older adults, low-income, people of color, as well as those with medical or mobility challenges. As a result, these communities lack the necessary access and resources

to efficiently respond to the climate hazards they are more likely to face. The simultaneous challenges of facing climate risks at a disproportionate rate while not being involved in the processes to design possible solutions underscore the imbalanced way that climate change is affecting communities. To prevent further harm and to restore and prepare Chicago communities to be climate-ready, all adaptation and resiliency actions must be anchored in the values of equity, racial justice, and community leadership.

Given the outsized role in affecting climate that dense urban cities play, Chicago stands as a ready partner in several regional hazard mitigation and adaptation planning spaces. As member of the 2019 Steering Committee for the update of the Cook County Multi-Jurisdictional Hazard Mitigation Plan, the City—along with more than 115 municipalities across Cook County, federal agencies, and other partners—worked to identify risks and make appropriate response plans for natural hazards like flooding, extreme winter weather, and tornadoes in the county. Chicago is a founding member of the Metropolitan Mayors Caucus, which brings 275 cities across Chicagoland together to work on public policy issues.

Adaptation

Climate adaptation involves adjustments to major systems to better respond to expected events and their effects. Deciding which systems to adjust, what changes should be made, and which to prioritize requires an accurate understanding of local assets and risks, and collaboration between diverse stakeholders, including community-based organizations, government entities, local businesses and corporate partners, industrial associations, and philanthropic organizations.

In its 2021 Chicagoland Region Climate Action Plan, the Metropolitan Mayors Caucus elevated five climate adaptation objectives for cities to consider while developing their climate action strategies and policies. The

2022 CAP embraces an evidence-based approach to these objectives for the development of appropriate adaptation and resiliency plans.

1. Engage and educate the community about climate resiliency and adaptation.
2. Incorporate equity and inclusion into climate adaptation efforts.
3. Collaborate and build capacity for a more resilient community.
4. Enact plans and policies focused on adaptation and resiliency.
5. Adapt operations and investments for future climate conditions.

No matter the scope (community-level or citywide), transformational climate adaptation will reflect local priorities and practice meaningful community engagement throughout the design, implementation, and evaluation of actions.

Resiliency

Resiliency describes the capability of a system to withstand and recover from an adverse event. Resiliency is important because it addresses the direct needs of local communities. Given Chicago's vibrant diversity, there cannot be one solution for all neighborhoods. Heat waves, flooding, and other climate and weather events each affect the broader Chicago community differently. The need to address these problems varies widely and requires that existing and future climate risks be well understood, monitored, and considered in planning and policy development. Governments and institutions are generally well-equipped to understand the risks or impacts that affect them. Resilient planning, however, must go further to engage a network of relevant local stakeholders who can contextualize efforts in terms of the community's unique needs and assets.

Climate resiliency is often associated with severe events (like heat waves, droughts, hurricanes, or wildfires). However, the best resiliency planning also accounts for common, less extreme events (like flooding, worsening water and air quality, and migration caused by the impacts of climate change). The best climate resiliency plans for Chicago residents are those designed to build the capacity of systems, agencies, communities, businesses, and residents to withstand and perhaps avoid climate disasters occurring in slow motion across the city that may not rise to the level of an emergency declaration according to county or federal standards.

Effective resiliency planning involves:

- Maintaining access to life essential services: energy, food, water, shelter, and healthcare.
- Ensuring reliable access and operating capacity for critical infrastructure such as renewable energy, battery storage, and telecommunication assets.
- Engaging residents in the process of assessing community assets, risks, and needs.
- Investing in the redevelopment of existing or construction of new facilities that flexibly meet community-identified needs for resiliency.
- Providing accessible, culturally relevant, and understandable educational materials about City-sponsored services and programs.
- Supporting and empowering local communities and vulnerable populations to assist themselves in various types of crises, especially, the elderly, young children, the sick, and low-income populations.
- Integrate policies with climate- change risks and hazards in mind.
- Developing policies and social infrastructure to provide or improve emergency preparedness and communication among agencies, first-responders, and local community organizations.
- Offering diverse transportation and access options to support residents of varying physical ability.

Extreme weather events have shown that resiliency is an essential component of any climate action plan. Resiliency efforts address the asset, neighborhood, and individual levels of how to deal with climate impacts. Resiliency supports sustainable development and the construction of better, more durable physical, social, and local neighborhood systems (like resiliency hubs). It will take a combined and coordinated effort that centers equity to effectively and affordably address the issue of climate change. Building a resilient community not only helps to protect Chicagoans, but also generates beneficial economic activity. Investments in resiliency stimulate investments in jobs and infrastructure that can uplift entire communities, or help communities uplift themselves. Effective municipal planning must intentionally protect and strength community resiliency to ensure residents and businesses can adapt, plan for, and thrive in the face of a changing climate. The message is clear: Investment in infrastructure, communication, and community-driven processes brings greater resiliency and secures a more sustainable, stable, and prosperous future.

ACCOUNTABILITY AND IMPLEMENTATION

Guided by the strategies and actions of this plan, the City of Chicago aims to reduce the city's level of GHG emissions by 62% by 2040, based on 2017 GHG inventory levels. While the urgency of the global climate crisis demands ambitious GHG reduction, the City also recognizes the monumental opportunity to invest in Chicago's residents, our communities, and our shared future. Intentional and coordinated implementation between city departments, sister agencies, community-based organizations, residents, and advocates can drive transformational changes.

The 2022 CAP is a dynamic document that must evolve alongside our communities, technology, and economies for sustained progress. Through the 8-month series of stakeholder engagement process, participants raised the following aspirations for a foundational accountability framework for the 2022 CAP:

- Focused support for critically impacted or vulnerable communities
- Data transparency to support community empowerment and meaningful participation
- Accurate project evaluation through community-level feedback pathways
- Long-standing accountability structures to withstand political transitions
- Community partnership and oversight for any implementation process

To support continued advancement of the plan's targets over time, the City will formalize the plan's actions through legislation and coordination with the citywide planning process—We Will Chicago. Furthermore, the City remains committed to broader and iterative community conversations about the best structures and tools for community-level collaboration while minimizing engagement fatigue. Our strategy will include:

- Supporting a 3-year review and revision cycle of the 2022 CAP targets
- Formalizing the plan's actions through legislation and policy co-design with local stakeholders
- Leveraging and/or optimize the use of the City's racial equity impact assessment tools for equitable implementation of climate actions
- Integrating relevant climate, resilience, sustainability, and environmental metrics into citywide planning reporting platforms
- Co-developing meaningful key performance indicators, evaluation processes, and reporting strategies in coordination with diverse stakeholders
- Fostering collaborative partnerships between communities and with City representatives to effectively monitor and refine CAP initiatives based on community-level assessments

LOOKING AHEAD

A truly resilient city is one that not only adapts and performs during stable periods but also recovers safely and effectively after challenges (Resilient Chicago). A city's ability to cope with climate change should be defined by the ability of its residents, communities, institutions, businesses, and systems to endure, adapt, and grow despite any sudden or slowly unfolding shocks and any lingering stresses. The hazards and impacts associated with climate change require policy changes, engagement with frontline and other communities, and strategic and appropriate infrastructure investments designed to protect our whole community—people, natural systems, and our built environment.

Proactive and consistent collaboration between community members, local government, neighboring community areas, utility partners, and other stakeholders can begin immediately. Led by values of equity and mutual respect, and accounting for cumulative burden, local government can facilitate spaces to deliver the most affordable and effective climate and safety solutions. Actions must follow an ongoing cycle of preparation, response, evaluation, and revision. It is a dynamic, participatory process that should be revised over time based on measured progress and technological advancements. Through meaningful and decision-guiding engagement, communities, local governments, businesses, and other stakeholders can build local capacities to adapt to climate impacts while also innovating in policy and development. Cities that incorporate adaptation and resiliency within existing planning processes will be best positioned to thrive through a new era of climate change. The 2022 CAP serves as a guide for the city. The actions detailed the plan, once achieved, will position Chicago and residents to thrive in the dynamic future that lies ahead.

IMPLEMENTATION TABLE

Action Code	2022 CAP Action	Metrics	City Partners	Timeframe	Action Status
1.1.A	Retrofit residential buildings with 4 or fewer units: 20% by 2030 and 50% by 2040, prioritizing lower- and middle-income households	Percentage of buildings retrofitted; greenhouse gases avoided	CHA, DOB, DOH, DPD	5+ years	In progress
1.1.B	Retrofit 20% of total 5+ unit residential buildings by 2030	Percentage of buildings retrofitted; greenhouse gases avoided	CHA, DOB, DOH, DPD	5+ years	In progress
1.1.C	Retrofit 20% of total industrial buildings by 2030	Percentage of buildings retrofitted; greenhouse gases avoided	DOB, DPD, BACP	5+ years	In progress
1.1.D	Retrofit 90% of total City-owned and Sister Agency-owned buildings by 2035	Percentage of buildings retrofitted; greenhouse gases avoided	AIS, CCC, CDA, CDOT, CHA, CPD, CPS, CTA, DOB, DWM, PBC	5+ years	In progress
1.1.E	Retrofit 20% of total commercial buildings by 2035	Percentage of buildings retrofitted; greenhouse gases avoided	DOB, DPD	5+ years	In progress
1.2.A	Install 5 megawatts of co-owned community solar projects by 2025	Megawatts installed	AIS, CCC, CHA, CPS, DOB, DPD	5+ years	In progress
1.2.B	Increase Chicago-based community renewables to 20 megawatts by 2025	Megawatts installed	BACP, DFSS, DPD	5+ years	In progress
1.2.C	Increase community renewables subscriptions to achieve 25% subscribed by low-income and/or environmental justice low-income residents by 2030	Number of subscriptions from lower- to middle-class households; number of subscriptions from environmental justice neighborhoods	BACP, DFSS, DPD	5+ years	In progress
2.1.A	Introduce community-wide organic waste collection and decomposition by 2025	Number of compost sites; pounds of organics collected annually	CDPH, CPS, DPD, DSS	1 to 3 years	In progress
2.1.B	Implement equitable waste source prevention strategies by 2030	Number of communities served; percentage waste diversion	BACP, CDPH, DOB, DPD, DSS	5+ years	Not in progress
2.1.C	Divert 90% of commercial, industrial, and institutional waste by 2030	Percentage waste diverted	CDPH, DOB, DPD, DSS	5+ years	Not in progress
2.1.D	Divert 75% of construction and demolition waste by 2030	Percentage waste diverted	CDPH, DOB, DPD, DSS	5+ years	Not in progress
2.1.E	Enable building design for disassembly and reuse by 2035	Percentage waste diverted	DOB, DPD	5+ years	Not in progress
2.1.F	Divert 90% of residential waste by 2040	Percentage waste diverted	CDPH, DOB, DPD, DSS	5+ years	Not in progress

IMPLEMENTATION TABLE (cont.)

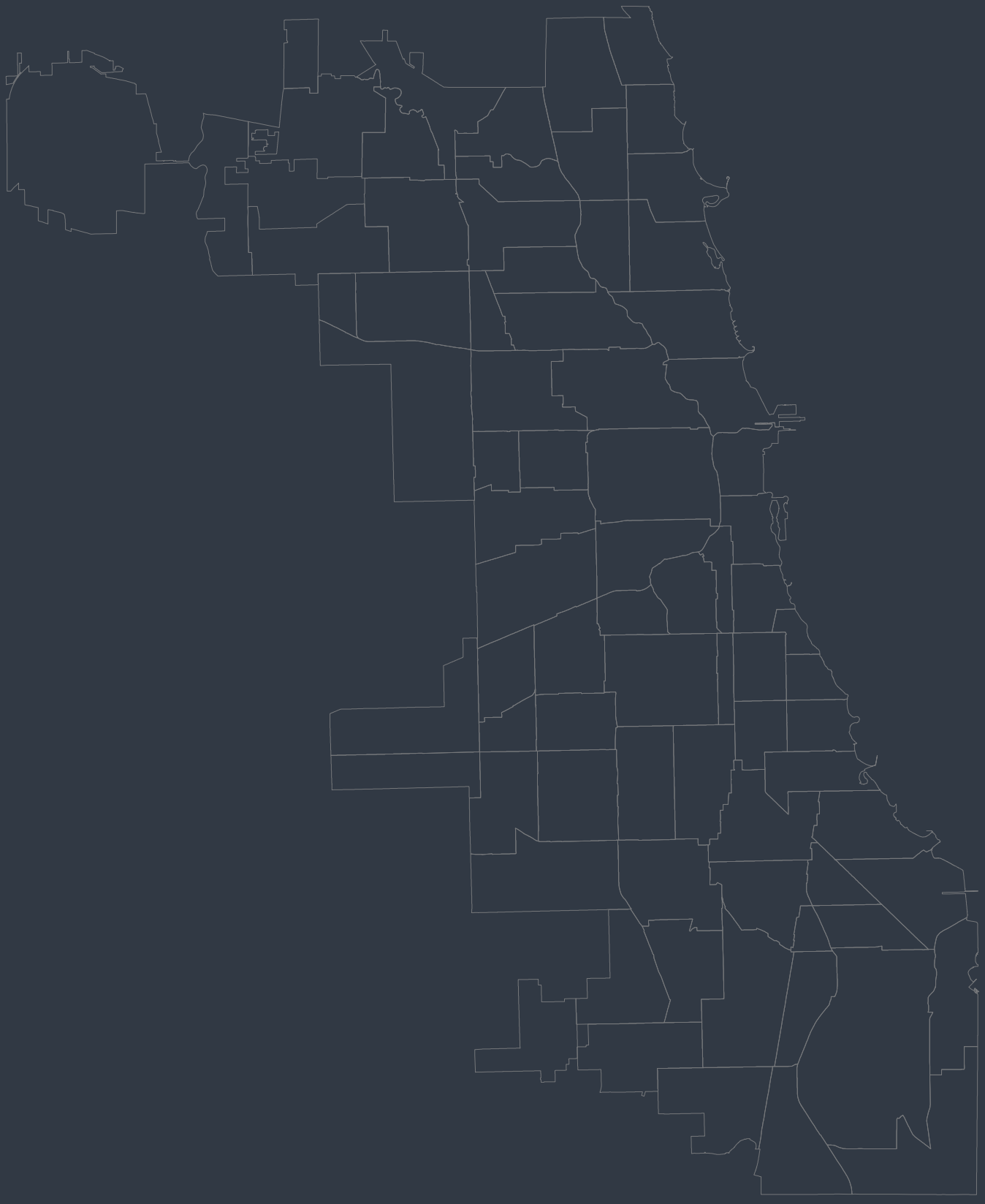
Action Code	2022 CAP Action	Metrics	City Partners	Timeframe	Action Status
3.1.A	Expand high-quality and low-stress on-street bikeways and off-street trails	Number of miles of new bikeways and trails; GHG avoided	CDOT, DPD	5+ years	In progress
3.1.B	Increase Divvy bikes and shared micromobility trips 30% by 2030	Percentage increase in Divvy bikes and micromobility use; GHG avoided	CDOT, DPD	5+ years	In progress
3.1.C	Enable Chicagoans to walk, bike, take transit, or use shared micromobility for 45% of all trips by 2040	Percentage increase in non-car mode share; greenhouse gases avoided	CDOT, CTA, DPD	5+ years	In progress
3.2.A	Update land use policies to encourage sustainable development, accessibility, and street safety by 2023	Date of passage/adoption	CDOT, CTA, DOH, DPD	1 to 3 years	In progress
3.2.B	Expand use of commuter benefits by 2024	Percentage increase in commuter benefits	BACP, CDOT, CTA	1 to 3 years	In progress
3.2.C	Require transportation demand management plans for new development by 2025	Date of passage/adoption	CDOT, DPD	5+ years	Not in progress
3.2.D	Update citywide car and bike parking requirements by 2025	Date of passage/adoption	CDOT, DPD	3 to 5 years	Not in progress
3.2.E	Increase CTA ridership by 20% by 2030	Percentage increase in CTA ridership	CDOT, CTA, DPD	5+ years	In progress
3.3.A	Enable electric freight loading docks at commercial and industrial buildings, addressing new buildings by 2025 and existing buildings by 2030	Number of new electric freight loading docks installed	CDOT, DOB, DPD	5+ years	Not in progress
3.3.B	Support equitable electrification of ride-hail and taxi fleets by 2030	Percentage of fleet electrified; greenhouse gases avoided	BACP, CDOT	5+ years	In progress
3.3.C	Enable 100% electrification of delivery fleets by 2035	Percentage of fleet electrified; greenhouse gases avoided	DOB, DPD	5+ years	Not in progress
3.3.D	Electrify 100% of the City's fleet by 2035	Percentage of fleet electrified; greenhouse gases avoided	AIS, CDOT, CPS	5+ years	In progress
3.3.E	Achieve zero-emission transit fleets across Chicagoland by 2040	Percentage of fleet electrified; greenhouse gases avoided	CTA, DOB, DPD, Metra, PACE	5+ years	In progress

IMPLEMENTATION TABLE (cont.)

Action Code	2022 CAP Action	Metrics	City Partners	Timeframe	Action Status
4.1.A	Aggregate 5,000 megawatts of clean renewable energy within a 250-mile radius of Chicago by 2030	Megawatts installed	AIS, DOB, DPD	1 to 3 years	In progress
4.1.B	Install 30 megawatts of clean renewable energy projects on City property by 2030	Megawatts installed	AIS, CCC, CHA, CPS, DOB, DPD	5+ years	In progress
4.1.C	Achieve 100% clean renewable energy community-wide by 2035	Megawatts installed	AIS, CCC, CHA, CPS, DOB, DPD	5+ years	In progress
4.2.A	Enact policies that support electrified renovations and new construction by 2023	Percentage electrified; date of passage/adoption	BACP, CDOT, DOB, DPD	1 to 3 years	In progress
4.2.B	Electrify 30% of total existing residential buildings by 2035	Percentage of buildings electrified; greenhouse gases avoided	CDOT, CHA, DOB, DOH, DPD	5+ years	In progress
4.2.C	Electrify 20% of total existing industrial buildings by 2035	Percentage of buildings electrified; greenhouse gases avoided	BACP, DOB, DPD	5+ years	Not in progress
4.2.D	Electrify 10% of total existing commercial buildings by 2035	Percentage of buildings electrified; greenhouse gases avoided	DOB, DPD	5+ years	In progress
4.2.E	Electrify 90% of total existing City-owned buildings by 2035	Percentage of buildings electrified; greenhouse gases avoided	AIS, CDA, DOB, DPD, DWM, PBC	5+ years	In progress
4.2.F	Enable 2,500 new public passenger electric vehicle charging stations by 2035	Number of stations	CDOT, CTA, DPD	5+ years	In progress
4.3.A	Strengthen policies that support installation of green roofs and walls, tree planting, and other vegetative cover by 2023	Date of passage/adoption	AIS, CDOT, CPD, DOB, DPD, DSS	1 to 3 years	In progress
4.3.B	Enable net-zero-carbon construction by 2040	Date of passage/adoption; greenhouse gases avoided	CFD, DOB, DPD	5+ years	In progress
4.4.A	Develop a fossil-fuel plants transition strategy by 2024	Date of final plant closure	AIS	3 to 5 years	In progress
4.5.A	Ensure 150 megawatts of energy storage by 2025	Megawatts of energy storage installed	AIS, CCC, CFD, CHA, CPS, DOB, DPD	3 to 5 years	Not in progress
4.5.B	Encourage 1,000 megawatts of new energy demand reduction by 2030, and 3,000 megawatts by 2040	Megawatts of demand response increased	AIS, CCC, CHA, CPS, DOB, DPD	5+ years	In progress

IMPLEMENTATION TABLE (cont.)

Action Code	2022 CAP Action	Metrics	City Partners	Timeframe	Action Status
5.1.A	Report energy burden by community area by 2023	Date when data is published	CDPH, OERJ	1 to 3 years	Not in progress
5.1.B	Develop a water and soil quality measurement and mitigation strategy by 2023	Date when strategy is adopted	AIS, CPD, DWM	1 to 3 years	Not in progress
5.1.C	Establish a robust outdoor air quality monitoring network by 2025	Percentage increase in City-coverage; number of new air quality monitors installed	AIS, CDOT, CDPH, CPS, CTA	1 to 3 years	In progress
5.2.A	Publish just energy transition metrics by 2022	Date when report is published	CDPH, DPD, OERJ	1 to 3 years	Not in progress
5.2.B	Integrate community resilience and climate justice criteria into department-level strategic planning and annual budget setting by 2023	Date when policy is adopted	CDPH, DFSS, DPD	1 to 3 years	In progress
5.2.C	Develop a Heat Vulnerability Index and integrate into planning and development, community safety, and public health planning processes beginning in 2023	Date when index is published	CDPH, DFSS, DPD, MOPD, OEMC	1 to 3 years	Not in progress
5.2.D	Publish citywide and community-level quality-of-life metrics on equity and sustainability by 2023	Date when report is published	CDOT, CDPH, DOB, DPD	1 to 3 years	Not in progress
5.2.E	Assess and optimize community-level emergency management strategies related to climate preparedness by 2024	Date when report is published	CDPH, DFSS, DPD, MOPD, OEMC	1 to 3 years	Not in progress
5.3.A	Resource community-led climate infrastructure projects by 2022	Money allocated	DPD	1 to 3 years	In progress
5.3.B	Integrate community resiliency strategies with the City's Emergency Operations Plan by 2023	Date when policy is adopted	CDPH, DFSS, DPD, MOPD, OEMC	1 to 3 years	Not in progress



CHICAGO

MAYOR LORI E. LIGHTFOOT