2019
Cincinnati 2030 District Progress Report
“The road to energy independence, economic recovery, and greenhouse gas reductions runs through the building sector.”

- Edward Mazria, Founder of Architecture 2030
FROM THE DIRECTOR

Imagine a city that unites to combat the worst effects of climate change. Imagine a group of leaders committing to a set of shared goals to transform the community and the planet. Imagine a network of healthy, sustainable buildings that become a showcase for the nation. The Cincinnati 2030 District members have imagined a resilient community that emerges stronger than ever from the threat of climate change, and they have voluntarily committed to the ambitious goals of the 2030 District.

The Cincinnati 2030 District is a collective of commercial buildings that aims to cut emissions from energy, water, and transportation in half by 2030. In addition to this work, we are proud to announce the launch of the first 2030 Healthy Building Pillar. This inspiring program affirms how we in the Greater Cincinnati region take pride in our community, respect our people, and value our resources.

For our first reporting year, we are proud that 81% of our District’s square footage has reported its energy data, an unprecedented level for a new District to achieve. We have granted $65,000 for energy efficiency projects through the Duke Class Benefit Fund for our members. We have convened impact teams for Occupant Health and Energy and expanded our District Boundary.

I believe our District owes its success to the committed leaders, whose engagement helps us continue to grow and strive towards a cleaner future. We could not do this critical work without the support of our volunteers, sponsors, funders, and partner organizations.

As we look ahead into 2021, we ask our members to set their budgets for energy water, and transportation. We encourage the community to think about buildings in a holistic manner to maximize synergies in occupant health, energy, and water. We are here to connect our local 2030 District network to a robust community of talented leaders in each of the four goal pillars. We look forward to taking the journey with our members and partners, to make Greater Cincinnati a healthy, resilient, attractive community in which to live, work and play.

Elizabeth Rojas
Cincinnati 2030 District Director
INTRODUCTION

What is a 2030 District?
The 2030 Districts Network, founded by Architecture 2030 and now an independent organization, includes twenty-two high performance urban building districts across North America. Created to drastically improve buildings’ environmental impact by 2030, these performance targets steadily reduce carbon emissions from the built environment within a designated boundary area. Together these districts comprise over half billion square feet of committed commercial building space. As we aggregate each district’s data, we can see how the collective network performs towards the reduction goals.

The Cincinnati 2030 District
According to the United Nations and Architecture 2030, the urban built environment is responsible for 75% of annual global greenhouse gas emissions, with buildings alone accounting for 39%. Eliminating these emissions is the key to addressing climate change and meeting Paris Climate Agreement targets.

As we address this challenge locally, we engage our building members and partners in a unique private/public partnership to form collaborations that guide our property owners, managers, and developers to success. Our professional and community partners include leaders in the areas of technology, construction, design, and engineering, as well as product and service providers. Together we benchmark, develop, and implement creative strategies, best practices, and verification methods for measuring progress towards a common goal.

“It is time to scale, Greater Cincinnati. We have all the expertise and exuberance locally to effectively design and renovate our buildings to be net positive instead of negative. Greater Cincinnati has world-leading examples by local talent, with local organizations, for local people that debunk the myth that high performance equals high costs. It is Time.”

-Chad Edwards, emersion DESIGN
Social Equity

We are working to create a healthier, more sustainable environment for all Greater Cincinnati and Northern Kentucky. The effects of climate change disproportionately affect our lower-income neighbors and people of color. Flooding, air pollution, heat-island effect and the price of energy all create additional, unnecessary burdens. To mitigate this, we must address these systemic issues now. The commitment of our members can lead to cleaner air, more affordable resources, and better access to transportation.

Creating a Sustainable Community

Green Umbrella, the region’s sustainability alliance, was founded 20 years ago to advocate for and bring collaboration to our community around issues of sustainability. Green Umbrella leads collaboration, incubates ideas and catalyzes solutions that create a resilient, sustainable region for all. We envision a vibrant community where sustainability is woven into our ways of life. Our systems-level work has the goal of improving the health of our region’s people, climate and landscape. We do this by convening collective impact teams in four areas: People, Policy, Built Environment and Landscape.

Some Green Umbrella priorities include equitable access to a connected active transportation network, healthy local food, clean waterways, protected greenspace, and time outside in nature. In 2018 Green Umbrella added the Cincinnati 2030 District as an initiative to address the built environment’s carbon footprint.

The City’s Green Cincinnati Plan

According to the 2018 Green Cincinnati Plan, the two largest areas of emissions are in the commercial building and transportation sectors. The largest energy use of city operations is the water system. As such, establishing a 2030 District was a key goal set forth in the Green Cincinnati Plan because it had the highest potential for emissions reductions. We support the City’s work by helping property owners make reductions to their energy, water and transportation emissions, while improving the health of the community.

2015 Community Emissions by Sector
Our Members

As a 2030 District, we select a boundary to measure our progress towards our goals. Our district boundaries are chosen to target the highest amount of building square footage. For this reason, we include our central business district and uptown. Our affiliate properties, those outside of the district boundaries are also an important part of the story, all contributing to making this a resilient, sustainable, and healthy community.
"The Cincinnati 2030 District creates a common vision for the future for our city."

- Ollie Kroner,
  City of Cincinnati
CINCINNATI 2030 DISTRICT

Founding Building Members

84.51°
Cincinnati 580 Commercial Development, LLC
Cincinnati Bell Inc.
Cincinnati Zoo & Botanical Garden
City of Cincinnati
Contemporary Arts Center
Cushman & Wakefield
Deskey
emersion DESIGN
Fifth Third Bank
Jones Lang LaSalle (JLL)

MCA Center LLC
Melink Corporation
National Underground Railroad Freedom Center
Neyer Properties
P&G
Sol Design & Consulting
The Kroger Co.

Building Members

City Club Apartments CBD Cincinnati
Community Action Agency
University of Cincinnati
Donovan Energy
M+A Architects
Christ Church Cathedral
Northern Kentucky University (NKU)
Xavier University
Hamilton County
Cincinnati Art Museum
The Port of Greater Cincinnati

Village of Silverton
Sleepy Bee Cafe
Great Parks of Hamilton County
St. Ann Church
City of Forest Park
Enriching Spaces
3CDC
"I feel strongly that our contemporary global commons is at stake and I don’t think it’s a problem of tomorrow, it’s a problem of today."

- Rafaella Platow, Contemporary Art Museum
## Baseline & Performance Metrics

The Cincinnati 2030 District works with individual property owners and managers to compile and assess their progress. We collect data on energy and water at the meter-level for each building, then measure it against a baseline using the ENERGY STAR® Portfolio Manager®. For transportation, we will develop a survey to calculate greenhouse gas emissions per commuter. Each building member receives a report highlighting their performance. This information is then aggregated to achieve a district-wide progress report. All the individual properties’ data remains confidential. This information enables us to formulate a plan to meet our goals.

### Summary of Metrics

**Energy** consumption is measured and baselined the same way throughout the 2030 District network utilizing ENERGY STAR Portfolio Manager and baselining against the 2003 CBECS.

**Water** usage is calculated in ENERGY STAR Portfolio Manager, with each District setting its own baseline.

**Transportation** emission measurements and baselines are uniquely developed in each 2030 District.

**Health** is a new model for 2030 Districts. The baseline and measurements are under development.

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ENERGY

2030 Energy Goals

The Urban Built Environment is responsible for 75% of annual global GHG emissions (Architecture 2030). According to the U.S. Energy Information Agency (EIA), Ohio is the sixth-largest emitter of carbon dioxide emissions (million metric tons) of all U.S. States annually (EIA). Ohio continues to rely heavily on coal and natural gas to meet the demands of our built environment. Reducing energy use in buildings decreases carbon dioxide emissions by lessening our need to burn carbon-emitting fuel sources.

Our Building Members voluntarily commit to sharing their data with the Cincinnati 2030 District. Over 80% of our District’s committed square footage is sharing energy data with the District in just the first year of reporting.

Key Strategies

- Building Audit
- LED Retrofit
- Retro-Commissioning
- Data Analysis
- Building Automation Systems
- Onsite Solar

Breakdown By The Numbers:

21% Energy reduction from baseline for all participating buildings

27% Energy reduction from baseline for participating office buildings

Our participating buildings had a 302.6 M reduction from Baseline.

$1,136,723,492.00 kBtu (2019 total energy) - $1,439,293,159.01 kBtu (baseline) = $302,569,667.01 kBtu reduction (21%).

80,468.7 Metric Tons CO2e reduction.

$2.5M Dollars saved
Methodology

Districts calculate the energy consumption as weather-normalized site Energy Use Intensity (EUI), measured in kBtu per square foot per year. The EUI is established for each building to track its progress towards the goal. Aggregating this data allows us to see the baseline and goals for the District as a whole.

Districts use ENERGY STAR Portfolio Manager, a free program from the U.S. Environmental Protection Agency (EPA), to collect the meter-level energy consumption, taking into account the building type, location, and number of occupants, among other inputs, to calculate and measure our progress. Each district utilizes the same baseline year informed by the 2003 U.S Energy Information Agency's Commercial Building Energy Consumption Survey (CBECS). Portfolio Manager updated its baseline from the 2003 (CBECS) data to a 2012 version. Districts recreate the 2003 baseline for consistency.

For this report, we included our participating buildings that had accurate, up-to-date Portfolio Manager accounts through December 2019. This progress report includes data from 67 member buildings equaling 53% of our reporting buildings' square footage. We eliminated unique space types such as hospitals, museums, stadiums and ballparks. We find the Portfolio Manager baseline for these types of properties is not representative due to small sample sizes in their CBECS survey used to set baselines.
2030 Water Goals

Water and energy are intrinsically linked. Pumping, treating, heating, and delivering water all increase carbon emissions. Addressing water use reduces the greenhouse gas production in our region by reducing the amount of electricity necessary to pump water from the Greater Cincinnati Water Works to our properties. The results of a 2012 (CBECS) survey indicated that the average water use intensity (WUI) for commercial offices and education facilities is 14.6 gal/sq. ft. In other words, a 100,000 sq. ft. building in the U.S. consumes, on average, 1.46 million gallons of water per year.

Approximately 22% of our district’s square footage is reporting their water usage to the Cincinnati 2030 District. We receive this data through ENERGY STAR Portfolio Manager in the same way as energy. As we move into 2021, our water team will be working with the local utilities, building members, and partners to help establish the baseline WUI for the District.

An important aspect of this team’s work will be to establish educational programming for our 50% Solutions Series with the support of our professional and community partners.

In November, the Cincinnati 2030 District received a grant from Northern Kentucky University’s Mayerson Student Philanthropies to protect our resources and to continue the work of establishing a baseline and creating this working team.

Key Strategies

- Leak detection
- Site irrigation management
- District Chilled Water
- Cooling tower inspection
- Aerators on faucets
- Low flow fixtures

2030 Transportation Goals

According to the Green Cincinnati Plan, air quality deteriorates as hotter weather causes more pollutants—ozone and fine particles—which exacerbates respiratory conditions like asthma and chronic obstructive pulmonary disease. As air pollution increases, so do negative the negative effects on our health. As extreme temperatures become the new normal, Cincinnati could see heat-related deaths increase by 70-120% by the 2080’s.

Combustion of fossil fuels in transportation increases air pollution which leads these health impacts. Cincinnati’s geography, climate, and dependence on single-occupancy motor vehicles rank our region as the 14th highest metropolitan areas for annual particle pollution out of 204 cities assessed in American Lung Association State of the Air rankings. Reducing reliance on fossil fuel-powered vehicles improves the health of our region’s people and the environment.

“Our research has shown significant reductions of vehicle emissions are very likely to have a positive impact on public health.”

-Andy Meyer, OKI

Working with the OKI Regional Council of Governments, we are developing the survey which will inform not only our metrics for future transportation emissions reports, but also the recommended approaches to solving our transportation challenges locally and strategizing toward the goal.

Key Strategies

- Increase active transportation such as biking and walking
- Increase mass transportation ridership by incentivizing programs for employees
- Work from home policies
- Vanpool and carpool program
HEALTHY BUILDINGS

The First District to Establish a Healthy Building Model

The built environment has a tremendous impact on the wellbeing of its occupants, and our buildings can and must do more for the community. The movement to design buildings that promote wellness and improve the health of their occupants offers an opportunity to significantly enhance community health outcomes, while increasing the performance and capabilities of organizations and individuals.

This innovative Healthy Building Model, created by the Cincinnati 2030 District, focuses on regional health needs and promotes healthy behaviors and building performance to address chronic diseases such as heart disease, cancer, asthma, and diabetes. In collaboration with the International WELL Building Institute, and using the local Community Health Needs Assessment conducted by The Health Collaborative, this program was created using the building blocks of the WELL Building Standard and has been fine-tuned to the unique health needs in the Greater Cincinnati community.

With COVID-19, health and its connection to the built environment has assumed new importance. Employees understand that air quality, filtration and ventilation are key to preventing virus transmission. This leads to a growing understanding that our buildings can do more to improve the health of their occupants.

The Cincinnati 2030 Building Occupant Health Guide helps building owners and managers implement strategies that have a proven positive impact on the employees. The Cincinnati 2030 District will measure the adoption rates of these proven strategies.

“We spend 90% of our time indoors, but the impact of building design on occupant health and performance is setting a new standard for what people expect from their buildings. Growing research, and an understanding of human performance, have led us to a new set of principles that can increase productivity and enhance mental and physical wellness. The Cincinnati 2030 District has brought these principles together in a streamlined way to support Cincinnati’s leading buildings. Cincinnati has become the first community in the nation with a healthy-building district, and can lead the county in the next phase of health-focused design.”

- Jeremy Faust, Fifth Third Bank

Building Optimizations

AIR
Good air quality increases productivity and reduces respiratory disease.

WATER
Poor water quality can lead to gastrointestinal illness and neurological disorders.

MIND
The built environment can mitigate adverse cognitive health outcomes by supporting mental health.

LIGHT
Light is the main driver of circadian systems, supporting our alertness and sleep cycles.

MOVEMENT
Regular movement increases mental clarity and decreases sick days.

MATERIALS
Chemicals in building materials can be harmful, causing headaches and respiratory issues.

NOURISHMENT
Proper nutrition increases mental clarity and productivity.
CINCINNATI 2030 DISTRICT

Professional Partners

CoolCo
Pepper Construction Company
Creekwood Energy Partners, LLC
M+A Architects
Emcor Services Automated Controls
Donovan Energy
Plug Smart
EVunited
Graphet, Inc.
Siemens Building Technology Division
Go Sustainable Energy, LLC
BHDP Architecture
Pro Lighting & Solar, LLC
Trane
CMTA Engineering
My Utility Cabinet (MUC)
Spectra Tech Ltd
PEDCO E & A Services, Inc.
Blue Ocean Solids, LLC
Electrada LLC
ThermalTech Engineering
GBBN
Enriching Spaces
Skanska USA Building Inc.
Paff Electric, LLC
egression DESIGN
ESI Electrical Contractors, Inc.
Melink Corporation
Johnson Electric
Commute with Enterprise

Community Partners

Hamilton County
The International Brotherhood of Electrical Workers (IBEW) Local 212
City of Cincinnati
Metro
American Institute of Architects (AIA) Cincinnati
Hamilton County Department of Environmental Services
Duke Energy Ohio & Kentucky
The Port of Greater Cincinnati
The Urban Land Institute Cincinnati
Green Cincinnati Education Advocacy
Civic Garden Center of Greater Cincinnati
Nielsen
HCDC Business Center
The Public Library of Cincinnati and Hamilton County
Flywheel
Great Parks of Hamilton County
Cincinnati Red Bike
Newsy
3CDC
U.S. Green Building Council (USGBC) Ohio
OKI Regional Council of Governments
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