Dear Friends,

Philadelphians are already feeling the local impacts of climate change in the form of heat waves, frequent heavy rain events, and increasingly volatile and severe weather throughout the year. The City, under Mayor Jim Kenney’s leadership, has committed to reducing citywide carbon emissions by 80 percent by 2050 to help slow the effects of climate change.

Buildings and industry make up the vast majority of citywide carbon emissions in Philadelphia at 79 percent, so energy efficiency and clean, renewable energy are the key drivers to help us reach this goal. Philadelphia can make a direct and significant impact on reducing local carbon emissions by improving the efficiency of its largest buildings through the Philadelphia 2030 District.

The Philadelphia 2030 District, convened by Green Building United, is a voluntary effort by property owners and managers to meet ambitious energy and water use reduction goals and contribute toward districtwide transportation emissions and stormwater goals. Partners that commit their buildings to the goals of the 2030 District are not only measurably improving the environment, but also save money on utility costs, improve the health and comfort of the Philadelphians who live and work in their properties, and stimulate the local economy.

Green Building United is proud to assist partners of the Philadelphia 2030 District with making behavioral and operational changes, investing in strategic capital projects, and engaging with complementary programs that can help them meet their goals. Green Building United regularly convenes this network of peers to share strategies, best practices, tools, and resources to improve performance and add asset value. In addition, we collect and aggregate progress toward each goal to demonstrate the significant and scaled impact of more than 21 million square feet of building space participating in the initiative.

We are excited to share the progress made since the Philadelphia 2030 District’s launch in October 2017 and look forward to continuing to do our part to advance a sustainable, healthy, and resilient built environment for all Philadelphians.

Sincerely,

Katie Bartolotta
Philadelphia 2030 District Director

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Challenge: Reduce Carbon Emissions in Philadelphia

**Sources of Carbon Emissions in Philadelphia**

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings and Industry</td>
<td>79%</td>
</tr>
<tr>
<td>Transportation</td>
<td>17%</td>
</tr>
<tr>
<td>Waste</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Citywide Goal:** 80% Reduction in Citywide Carbon Emissions by 2050

**Strategy: Prioritize Energy Efficiency Through the Philadelphia 2030 District**

Achieving Philadelphia’s climate goals will require an aggressive set of strategies for decarbonizing the building sector. An energy efficiency-first strategy can help accelerate carbon emissions reduction while providing important co-benefits to residents. The Philadelphia 2030 District exemplifies this strategy.

**Accelerate Decarbonization**

**Reduce Demand in Large Buildings**

Energy efficiency reduces the demand for energy in buildings and makes meeting electricity needs with renewable energy cheaper and easier. Prioritizing large buildings for energy efficiency helps to scale aggregate energy savings faster than focusing on smaller buildings first.

**Electrify Responsibly**

Electrifying all buildings, personal vehicles, and large fleets will add significant demand to the electricity grid. Aggressive energy efficiency efforts coupled with increased clean energy generation are necessary to meet this need without increasing carbon emissions.

**Prioritize Existing Buildings**

Even if we mandated net-zero carbon construction tomorrow, two-thirds of the building square footage that exists today will still exist in 2050. This underscores the importance of existing building retrofits to achieve carbon emissions reductions in the building sector.

**Reap Co-Benefits**

**Save Money**

The average commercial building wastes 30 percent of the energy it uses, making energy conservation and efficiency effective savings strategies.

**Improve Health**

The quality of our buildings impacts health and comfort, and people spend as much as 90 percent of their time indoors.

**Grow the Economy**

Nearly 69,000 Pennsylvanians make a living in energy efficiency jobs, a figure that will continue to grow with existing building retrofits and efficient new construction on the rise.

**Increase Resilience**

Energy efficient buildings are better able to weather power outages and increases in utility costs than the average building.

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What is the Philadelphia 2030 District?

The Philadelphia 2030 District is a voluntary effort by the owners, managers, and developers of the city’s largest buildings to achieve deep reductions in energy use, water use, transportation emissions, and to improve stormwater management.

The initiative seeks to improve efficiency in the building sector in Philadelphia with the goal to lower costs, reduce carbon emissions, improve indoor air quality and tenant comfort, and enhance the resiliency of the city’s new and existing building stock.

The Philadelphia 2030 District is convened by Green Building United and is part of the broader 2030 Districts Network, which includes 22 cities across North America.

While each of the 2030 Districts varies in its approach, all districts establish performance goals based on the 2030 Challenge for Planning. Developed by the non-profit organization Architecture 2030, the Challenge for Planning is a set of defined performance targets that steadily reduce carbon emissions from the built environment from a designated boundary area. The challenge sets goals for both existing buildings as well as new construction and major renovations.

GREEN BUILDING UNITED

Green Building United, founded in 2001 as Delaware Valley Green Building Council, is a member-driven, mission-based 501(c)(3) nonprofit organization. Through education, advocacy, and strategic initiatives, Green Building United informs and engages individuals and organizations to transform the way buildings are designed, built, and operated to better serve all communities.

2030 DISTRICTS NETWORK

The 2030 Districts Network is a 501(c)(3) nonprofit organization comprised of the twenty-two established 2030 Districts throughout the world. The districts total 494 million square feet of committed building space.
## Participating Buildings

<table>
<thead>
<tr>
<th>Participating Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence Blue Cross</td>
</tr>
<tr>
<td>IRS 30th Street Campus</td>
</tr>
<tr>
<td>John C. Anderson Apartments</td>
</tr>
<tr>
<td>Julia R. Masterman School</td>
</tr>
<tr>
<td>Juniper Street Parking Garage</td>
</tr>
<tr>
<td>Juvenile Justice Center</td>
</tr>
<tr>
<td>Medical Exam Building</td>
</tr>
<tr>
<td>Municipal Services Building</td>
</tr>
<tr>
<td>Myers Hall</td>
</tr>
<tr>
<td>North Hall</td>
</tr>
<tr>
<td>One Commerce Square</td>
</tr>
<tr>
<td>One Drexel Plaza</td>
</tr>
<tr>
<td>One Logan Square</td>
</tr>
<tr>
<td>One Parkway Building</td>
</tr>
<tr>
<td>Parkway Center City Middle College</td>
</tr>
<tr>
<td>Parkway Central Library</td>
</tr>
</tbody>
</table>

- **21,902,357** total square feet committed to the district
- **16.3%** total square feet of eligible buildings in district committed
- **47** committed properties from **15** property partners

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**LIST OF PARTICIPATING BUILDINGS**

- 1100 Ludlow
- 1650 Arch Street
- 1900 Market Street
- 2101 Cooperative
- 2401 Walnut
- 3010 Market Street
- 3020 Market Street
- African American Museum
- Albert M. Greenfield School
- Benjamin Franklin High School
- Cira Centre
- City Hall
- Criminal Justice Center
- Fire Administration Building
- FMC Tower
- Hampton Inn Philadelphia Center City
- Philadelphia Family Court
- Philadelphia Museum of Art & Perelman Building
- Philadelphia Ronald McDonald House
- Police Administration Building
- Rittenhouse Claridge
- Samuel Powel School
- SEPTA Headquarters
- The School District of Philadelphia
- Three Logan Square
- Two Commerce Square
- Two Liberty Place
- Two Logan Square
- URBN Center
- Westin Philadelphia
A Holistic Model for Sustainability in the Built Environment

While the Philadelphia 2030 District prioritizes building energy efficiency, the initiative takes a holistic approach to sustainability in the built environment. Progress to improve building energy use, water use, transportation emissions, and stormwater management is measured, as each area has an impact on human health, the environment, and the bottom line.

District Goals

The 2030 Challenge for Planning (Existing Buildings)

The 2030 Challenge for Planning (New Construction & Major Renovations)

*Transportation emissions reductions will be shared in a future report.

*Districtwide Greened Acres.
Goals in Detail

The goals of the Philadelphia 2030 District are more nuanced than simply a percent reduction by the initiative’s end date. Each metric area has its own data source, baseline, and means of measurement. Detailed baseline and measurement guidance documents can be found on our website.

<table>
<thead>
<tr>
<th>Baseline Type</th>
<th>ENERGY</th>
<th>WATER</th>
<th>TRANSPORTATION</th>
<th>STORMWATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Source</td>
<td>National Baseline</td>
<td>Local Baseline</td>
<td>Local Baseline</td>
<td>Local Baseline</td>
</tr>
<tr>
<td>Baseline Considerations</td>
<td>2003 Commercial Building Energy Consumption Data</td>
<td>2016 Philadelphia Citywide Benchmarking Data</td>
<td>2006-2010 Census Transportation Planning Products Program (CTPP) Data with Delaware Valley Regional Planning Commission (DVRPC) Distance Matrix Data</td>
<td>2018 Philadelphia Water Department (PWD) GSI Project Data</td>
</tr>
<tr>
<td>Goal Metric</td>
<td>Annual Site Energy Use Intensity (EUI)</td>
<td>Annual Water Use Intensity (WUI)</td>
<td>Carbon Emissions Per Commuter Per Year</td>
<td>Verified Greened Acres</td>
</tr>
<tr>
<td>Metric Units</td>
<td>kBtu/square foot/year</td>
<td>gallons/square foot/year</td>
<td>kgCO₂/commuter/year</td>
<td>Greened Acres</td>
</tr>
<tr>
<td>Performance Level</td>
<td>Individual building-level goal</td>
<td>Individual building-level goal</td>
<td>Districtwide goal of 2352 kgCO₂/commuter/year</td>
<td>Districtwide goal of 100 Greened Acres</td>
</tr>
<tr>
<td>Tracking Method</td>
<td>ENERGY STAR Portfolio Manager</td>
<td>ENERGY STAR Portfolio Manager</td>
<td>Updated CTPP and DVRPC Distance Matrix Data and Future District Survey</td>
<td>Updated PWD GSI Project Data</td>
</tr>
<tr>
<td>Reported 2018 Data</td>
<td>• 43 Buildings • 20,143,850 Sq ft</td>
<td>• 39 Buildings • 17,734,242 Sq ft</td>
<td>In progress*</td>
<td>All public and private projects districtwide</td>
</tr>
</tbody>
</table>

*Transportation emissions reductions will be shared in a future report.
Energy

With buildings and industry accounting for 79 percent of carbon emissions in Philadelphia, the 2030 District presents the region’s best opportunity to reduce its impact on climate change. Better building energy performance also lowers operational costs, improves indoor air quality and tenant comfort, and enhances the resiliency of the city’s new and existing building stock to the effects of climate change.

DISTRICTWIDE PERFORMANCE

- **↓29.8%** Site EUI Reduction from Baseline
- **719,799,224** kBtus Avoided
- **69,906** Metric Tons of Avoided Carbon Dioxide Equivalent
- **$17,315,932** Cost Savings*

The avoided CO₂e from 2030 District buildings is equivalent to the emissions from a year’s supply of energy to **8400 homes** in Philadelphia.

**Two Liberty Place Chilled Water Plant Upgrade**

Two Liberty Place’s Chilled Water Plant Project redesigned and reconstructed a 4000-ton thermal plant serving a 58-story building, including multi-tenant office space, residential condominiums, and a restaurant without interrupting chilled water delivery to its tenants and residents. Four new high-efficiency centrifugal chillers and twelve new cooling towers were assembled on site, replacing two existing 1000-ton chillers and all of the building’s cooling towers. In addition, a plate and frame heat exchanger for water-side economizing and a chiller optimization program were installed. The project achieved an impressive 47 percent energy reduction during its first 10 months of operation.

**SEPTA Headquarters Deep Energy Retrofit**

SEPTA is conducting a comprehensive energy retrofit of their headquarters building at 1234 Market Street using an ESCO financing model that pays for itself over time with the generated energy savings. The project’s energy conservation measures include remote lighting and control upgrades, building envelope improvements, motorized shades, air handling system and cooling tower refurbishments, electricity and cooling tower submetering, and a switch from off-site to on-site steam generation. The renovations are projected to produce 19 percent water usage reduction, 33.1 percent energy reduction, 85.4 percent reduction in heating load costs, and a combined annual savings of over $781,000.
Water Use

Using water efficiently in a building results in both direct operational cost savings and related energy savings. Common tactics to reduce water use include identifying leaks, installing efficient fixtures, reusing water, and educating end-users.

**DISTRICTWIDE PERFORMANCE**

<table>
<thead>
<tr>
<th>Reduction Districtwide from Baseline</th>
<th>Gallons of Water Avoided</th>
<th>Cost Savings*</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ 20%</td>
<td>94,916</td>
<td>$369,225</td>
</tr>
</tbody>
</table>

Savings from the average 2030 District building could supply a year’s worth of water to **23 households** in Philadelphia.


*Calculated with data from “How We Use Water.” U.S. Environmental Protection Agency. [https://www.epa.gov/watersense/how-we-use-water](https://www.epa.gov/watersense/how-we-use-water)

**Water Reduction (WUI) By Building**

![Water reduction graph]

- Buildings performing better than baseline
- Buildings performing worse than baseline

2020 GOAL

2030 GOAL
Philadelphia Ronald McDonald House Water Conservation and Efficiency Strategies

The Philadelphia Ronald McDonald House (PRMH) has implemented several measures to reduce their water use and manage stormwater. Operational efficiency at PRMH is mission-critical, as every dollar saved can be re-invested to support families in need.

PRMH outfitted all of their existing fixtures with low-flow toilets, shower heads, and faucet aerators and, as they expanded their main site, installed only low-flow fixtures from the outset. Their dining room is outfitted with a commercial quick-cycle dishwasher.

On their site, PRMH has a zoned and programmed irrigation system and uses rain barrels to collect runoff. Lastly, PRMH installed an approximately 5,000 square foot green roof for resident recreational use that is compliant with the City of Philadelphia’s stormwater management requirements.
Transportation Emissions

Transportation is the second largest source of carbon emissions in Philadelphia. Discouraging single-occupancy vehicle commuting not only reduces transportation emissions but also improves quality of life by improving air quality and travel times.

The Philadelphia 2030 District will track its progress toward meeting its transportation emissions goal by analyzing new regional survey data to gauge how trends in transportation are progressing and whether commuters in and out of the district are utilizing less carbon-intensive modes of transit.

**DISTRICTWIDE PERFORMANCE**

<table>
<thead>
<tr>
<th>In progress*</th>
<th>2353 kgCO₂/Commuter/Year Goal</th>
</tr>
</thead>
</table>

*Progress toward the transportation emissions reduction goal will be shared in a future report.

**STRATEGIES TO MEET GOAL: PARTNER SPOTLIGHT**

**FMC Tower at Cira Centre South**

Brandywine Property Trust offers many alternative transportation opportunities for residents, employees, and visitors who come to the FMC Tower on 2929 Walnut Street. Through careful site selection, the tower provides access to high quality public transportation at 30th Street Station, promotes walking on the adjacent Schuylkill River Trail, and encourages biking with on-site storage and changing rooms. In addition, Brandywine Realty Trust partnered with Ride Systems to offer shuttle bus services for those commuting to and from the tower, serving 3,200 riders per month. Brandywine Realty Trust also has a strategic partnership with Lyft rideshare services to offer discounted rates to FMC Tower tenants and visitors.
Stormwater Management

Stormwater management has been added to the 2030 District goals to align with Green City, Clean Waters (GCCW.) GCCW is the City of Philadelphia’s plan to reduce stormwater pollution entering its combined sewer system using green stormwater infrastructure (GSI). GSI projects beautify communities, improve public health, create ecological habitat, and enhance local economic vitality.

The Philadelphia 2030 District supports the goals of GCCW by communicating the value of GSI and sharing and expanding the resources available to owners and managers of the city’s largest properties.

**DISTRICTWIDE PERFORMANCE**

43.3
Verified Greened Acres*

100
Greened Acres Goal

*A Greened Acre is a unit of measure used by the Philadelphia Water Department to track its progress toward GCCW goals. Greened Acres represents the area (in acres) of impervious surface runoff managed by a stormwater management system multiplied by the depth (in inches) of water managed by the system.

**WHAT IS GSI?**

Green stormwater infrastructure (GSI) is a soil-water-plant system that intercepts stormwater, infiltrates it into the ground, evaporates it into the air, and, in some cases, gradually releases it into the sewer system. Examples of GSI features include green roofs, stormwater tree trenches, and rain gardens, among others.
2030 District Partners

PROPERTY PARTNERS
Building owners and/or managers that commit property to meet the district goals.

1650 Arch  
Drexel University  
Pennrose  
2101 Cooperative  
Hersha Hospitality Trust  
Ronald McDonald House  
Bedrock Group LLC  
Independence Blue Cross  
School District of Philadelphia  
Brandywine Property Trust  
Kaiserman Company  
SEPTA  
City of Philadelphia  
Two Liberty Place  
SSH Real Estate

BENEFITS:
• Invitations to bi-monthly, member-only district partner meetings with the opportunity to present at the meetings.  
• Recognition of properties in all publicized property partner lists and maps.  
• Education and training opportunities from Green Building United.  
• Confidential building-level performance reports.  
• Marketing tool to attract tenants and demonstrate a commitment to sustainability.

COMMUNITY PARTNERS
Government, non-profit, and civic organizations that provide support and expertise for the district.

BOMA Philadelphia  
Indigo JLD  
Reinvestment Fund  
Delaware Valley Regional Planning Commission  
Lion Advisors  
Sustainable Business Network  
Greater Philadelphia Association of Energy Engineers  
Philadelphia Building Managers and Operators Association  
ULI Philadelphia  
Greater Philadelphia Hotel Association

RESOURCE PARTNERS
Energy services companies, utilities, and professional firms that provide expertise, deliver services, and sponsor the district.

AKF Group  
Veolia Energy  
Albireo Energy  
WGL Energy  
Graboyes Smart Buildings  
Tozour Energy Systems  
PECO  
Turner Construction  
WRT
WATER AND TRANSPORTATION WORKING GROUPS

Unlike energy, water and transportation emission baselines are developed by each 2030 District to reflect regional conditions.

The Philadelphia 2030 District convenes working groups comprised of subject matter experts and district property partners for both water and transportation emissions. Working groups are charged with determining appropriate baselines, identifying means of measuring progress, and compiling implementation strategies and complementary policy levers that can help further scale the positive impact of participating buildings.

WATER WORKING GROUP

Chair: Alesa Rubendall, Design Moxie
AKF Group
Drexel University
Indigo JLD
Langan Engineering
Meliora Design
NV5
OLIN
Pennsylvania Environmental Council
Philadelphia Water Department
Ronald McDonald House
School District of Philadelphia
Stantec
Sustainable Business Network

TRANSPORTATION WORKING GROUP

Chair: Yogesh Saoji, WRT
City of Philadelphia - Office of Transportation, Infrastructure, and Sustainability (oTIS)
Philadelphia City Planning Commission
Delaware Valley Regional Planning Commission
Drexel University
Duke University
Indigo JLD
Langan Engineering
Philadelphia 3.0
SEPTA
School District of Philadelphia
WRT

STAFF INTERNS: Isabelle Coupet and Jay Dennis

How to Get Involved

The district is seeking additional property partners who commit buildings to the goals, resource partners who can deliver services and sponsor the district, as well as community partners who can provide specialized expertise and support to the district as needed.

Please contact Katie Bartolotta, Green Building United’s Policy and Program Director, at kbartolotta@greenbuildingunited.org to learn more.
District Sponsors

PROGRAM SPONSOR

VEOLIA

MEETING SPONSOR

Tozour Energy Systems

Graboyes Smart Buildings

WGL Energy

Albireo Energy

BUDDERFLY

GREEN BUILDING UNITED
greenbuildingunited.org