

# *Philadelphia 2030* *District* **2022 Annual Report**

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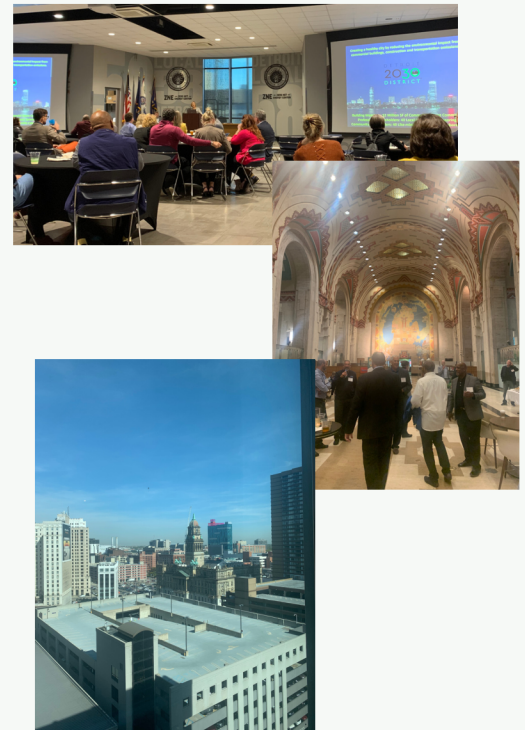
# Introduction

Each year, there is something new to celebrate in the world of green building and efficiency. This year was a landmark year for investments and incentives for smarter and greener building, with the passing of the Bipartisan Infrastructure Law in August, followed by the Infrastructure Investments & Jobs Acts in October of 2022. The Inflation Reduction Act also created and increased incentives for existing buildings to pursue energy efficiency upgrades - a huge step forward for making our building sector greener and more efficient.

Our data since the onset of the COVID-19 Pandemic has shown that the ideas of work and home have greatly shifted, impacting the energy and water use of our largest buildings, our commuting patterns and related emissions, as well as our perception of what it means to live and work in the city. As we adapt to this new normal, we hope to continue to engage with our largest commercial buildings, the multifamily sector, and our institutions to make sure that our committed properties play a role in meeting Philadelphia's climate goals and set examples for cities across the region to begin thinking about holistic approaches to energy, emissions, and water use reductions in the building sector.

## Highlights from 2022

- In 2022 we added 5 new multifamily properties totaling 288,728 square feet
- We held 3 events, 2 virtual and 1 in person
- Launched our new transportation survey and gathered close to 200 responses
- City of Philadelphia's Office of Sustainability released its newest Greenhouse Gas Inventory, showing that Philadelphia's buildings make up 69% of carbon emissions in the city
- Philadelphia 2030 Attended the National 2030 Summit in Detroit, Michigan
- We awarded our first ever 2030 Groundbreaker Award to Marion Pulsifer & Independence Place for the work she is doing to promote building and city-wide involvement in green initiatives in the multifamily sector



Snapshots from the 2030  
National Summit in  
Detroit, MI



# Understanding the Goals

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. As we expand our 2030 District to include large property portfolios, we continue to measure our year end results based on our individually committed commercial and residential properties, including Drexel University and the City of Philadelphia. The School District of Philadelphia properties are excluded from the methodologies explained below. Energy, Water, and Stormwater data is based on 2021 data, while our transportation survey reflects 2022 data.

	ENERGY	WATER	TRANSPORTATION	STORMWATER
<b>Baseline Type</b>	National Baseline	Local Baseline	Local Baseline	Local Baseline
<b>Baseline Source</b>	2003 Commercial Building Energy Consumption Data (2003 CBECS)	2016 Philadelphia Citywide Benchmarking Data	2006-2010 Census Transportation Planning Products Program (CTPP) Data with Delaware Valley Regional Planning Commission (DVRPC) Distance Matrix Data	2018 Philadelphia Water Department (PWD) GSI Project Data
<b>Baseline Considerations</b>	<ul style="list-style-type: none"> <li>•Climate Zone</li> <li>•Building Use Type(s)</li> <li>•Occupancy</li> </ul>	<ul style="list-style-type: none"> <li>•Building Use Type(s)</li> </ul>	<ul style="list-style-type: none"> <li>•Origin and destination</li> <li>•Longest traveled mode</li> <li>•Local emissions factor by mode</li> </ul>	<ul style="list-style-type: none"> <li>•Greened Acres by project phase</li> <li>•Total impervious surface districtwide</li> </ul>
<b>Goal Metric</b>	Annual Site Energy Use Intensity (EUI)	Annual Water Use Intensity (WUI)	Carbon Emissions per Commuter per Year	Verified Greened Acres
<b>Metric Units</b>	kBtu/square foot/ year	gallons/square foot/year	kgCO4/commuter/year	Greened Acres
<b>Performance Level</b>	Individual Building-Level Goal	Individual Building-Level Goal	Districtwide goal of 591 kgCO4/commuter/year	Districtwide goal of 100 Greened Acres
<b>Tracking Method</b>	ENERGYSTAR Portfolio Manager	ENERGYSTAR Portfolio Manager	Updated CTPP and DVRPC Distance Matrix Data and Future District Survey	Updated PWD GSI Project Data
<b>Reported 2021 Data</b>	<ul style="list-style-type: none"> <li>•85 Buildings</li> <li>•25,314,353 Sq ft</li> </ul>	<ul style="list-style-type: none"> <li>•84 Buildings</li> <li>•26,195,034 Sq ft</li> </ul>	*Transportation emissions to be calculated in future reports	All public and private projects districtwide



# Overall Progress

This year The Philadelphia 2030 District has made strides by reducing the Energy Use Intensity (EUI) of the district as a whole. The District EUI provides a grand view of district performance and when compared with district inventory shifts, such as an increase in multifamily buildings. The overall progress of the District can guide all types of buildings in reaching the goal of 50% reduction by the year 2030.

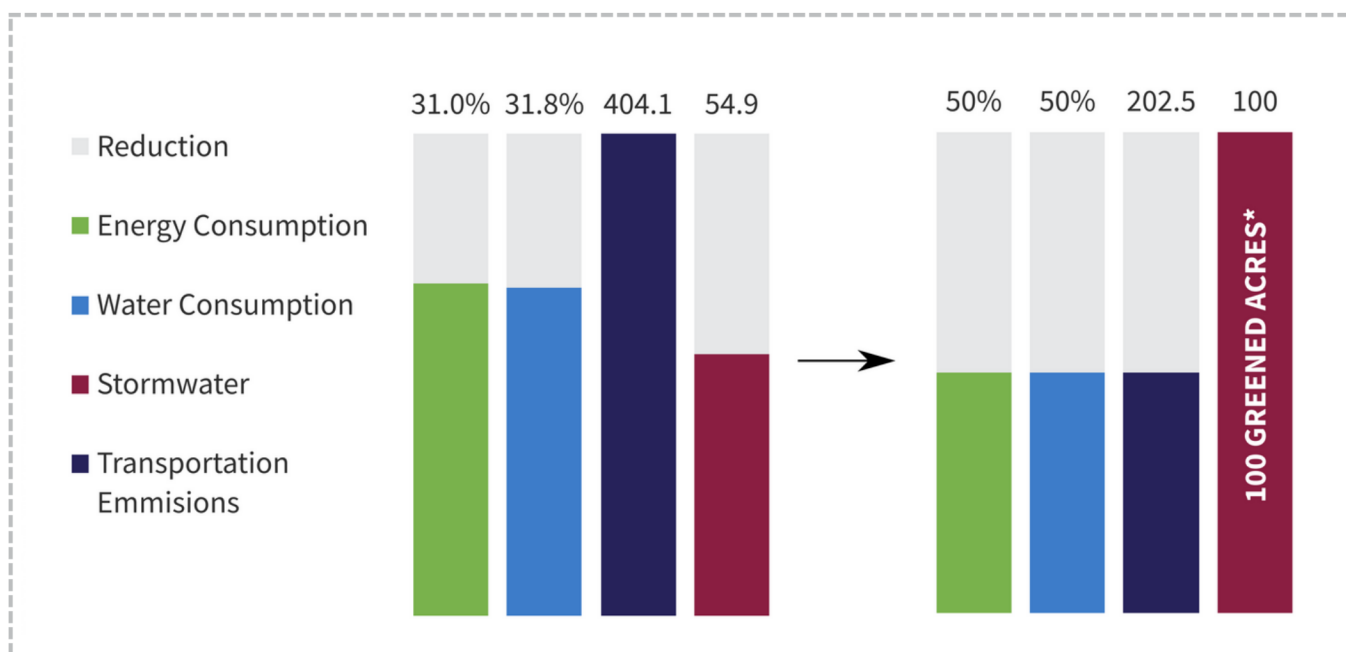
Progress towards our goal stands as follows for the years 2021 & 2022

- **31% District wide reductions in energy consumption**
- **31.8% District wide reduction in water consumption**
- **New total of 54.9 Verified Green Acres in our Center City Boundary**
- **A new goal of 202.5 metric tons of carbon per commuter each year by 2030 as our new Transportation Emissions target**

Meeting our district goals and pursuing an accelerated rate of decarbonization has added co-benefits:

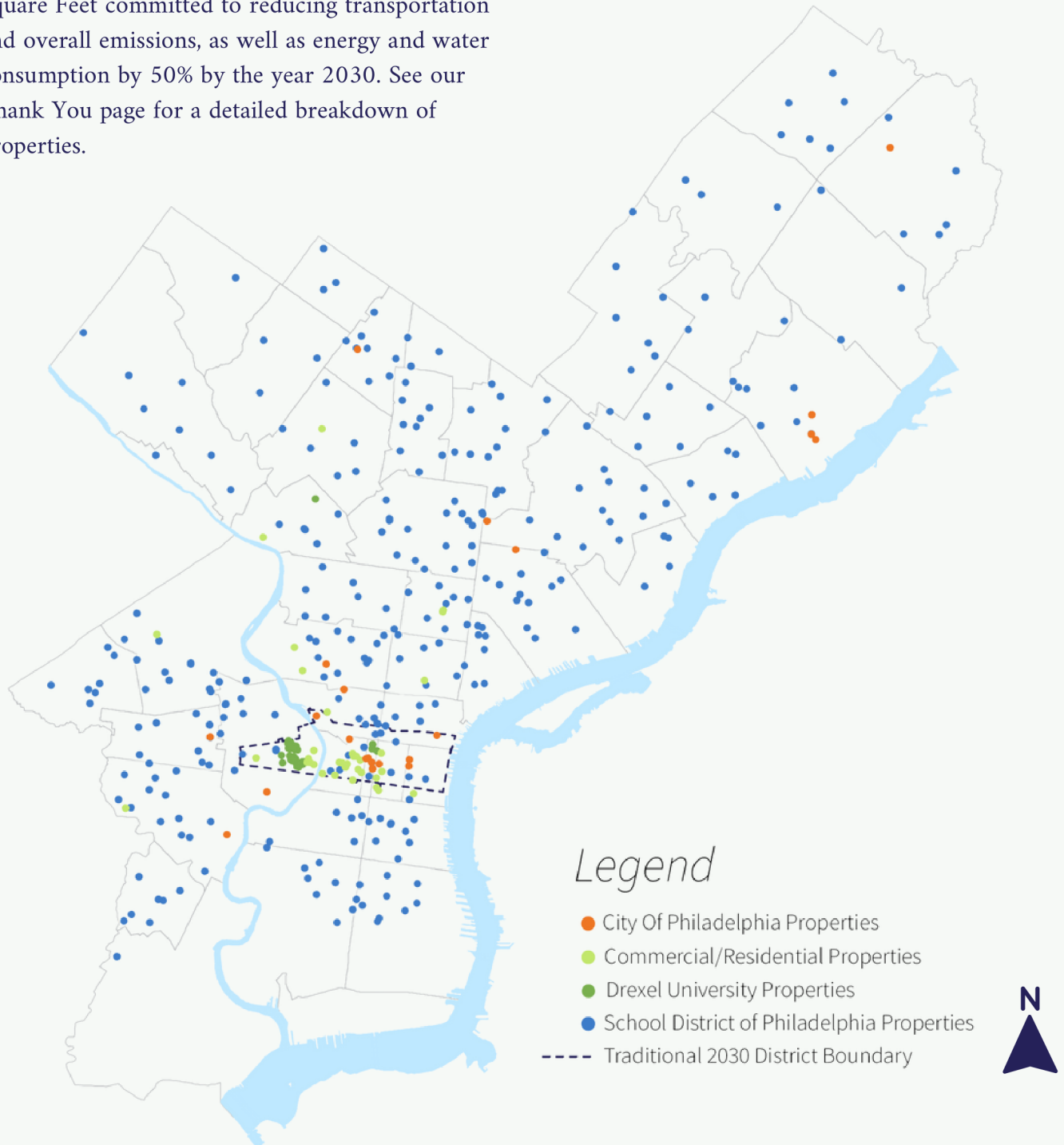
- **Saving money**
- **Improving health and tenant comfort**
- **Growing the economy and the green job market**
- **Increasing resilience against the effects of climate change**

## Progress Towards Our Goals in 2021 & 2022



# 2030 Properties

Over 200 properties have signed onto Philadelphia's 2030 Pledge - that's over 48 Million Square Feet committed to reducing transportation and overall emissions, as well as energy and water consumption by 50% by the year 2030. See our Thank You page for a detailed breakdown of properties.



# Emissions



Emissions are calculated using the EPA's eGRID Power Profiler, which provides specific emission factors based on the geographic area of the buildings in question. Philadelphia is located within the EPA's Mid-Atlantic Region, which takes into account the fuel sources used to generate electricity in this region. The Mid-Atlantic region relies on gas to fuel over half of electricity generation, around 10% higher than the national fuel mix average. On this page, you'll see emission rates based on the Mid-Atlantic (also known as RFCE) factor for the years 2020 & 2021.

## 2021 Emissions

In 2021, all reporting 2030 buildings produced 233,875 Metric Tons of CO<sub>2</sub>e, this represents a reporting building total of 287. We would have to reduce this number to 116,938 by 2030 to meet our 50% reduction goal.

## 2020 Emissions

In 2021, all reporting 2030 buildings produced 205,341 Metric Tons of CO<sub>2</sub>e, this represents a reporting building total of 284. The increase between 2020 and 2021 is likely due to the shift back to large commercial buildings and schools after a year spent mostly in residential settings.

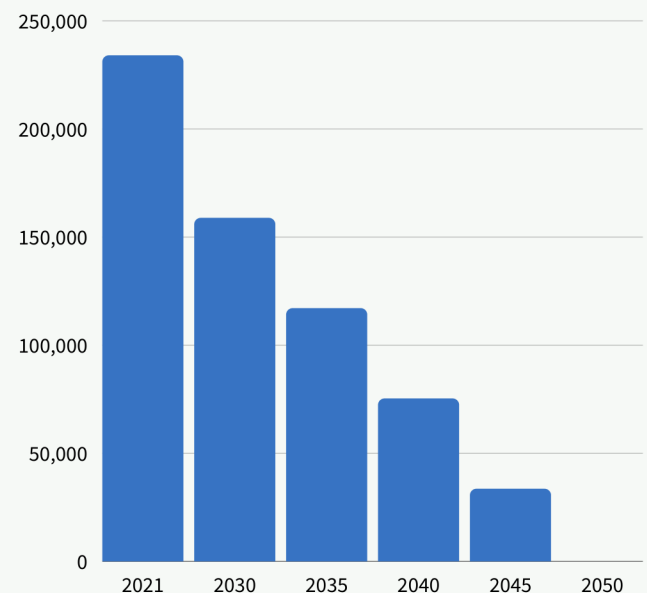
## How do we Reach Carbon Neutrality by 2050?

Based on the emissions produced in 2021, we would have to reduce Carbon emissions by 8,353 Metric Tons of Carbon each year until the year 2050. But what exactly is 8,353 Metric Tons of Carbon?

### 8,353 Metric Tons of Carbon is Equivalent to

- The power saved by using 2.3 Wind Turbines
- The energy usage of 1,052 residential properties
- The power saved by replacing 316,587 incandescent bulbs with LEDs
- The amount of carbon sequestered by 9,885 acres of US forest every year

Carbon Reduction Targets





# Energy

In Philadelphia, buildings make up 69% of carbon emissions. The Philadelphia 2030 District works with property and resource partners to help large building owners and stakeholders reduce energy usage and set science-based targets to meet by the year 2030. Building owners that prioritize energy efficiency benefit from improved indoor air quality, tenant comfort, and lower operational and utility costs.

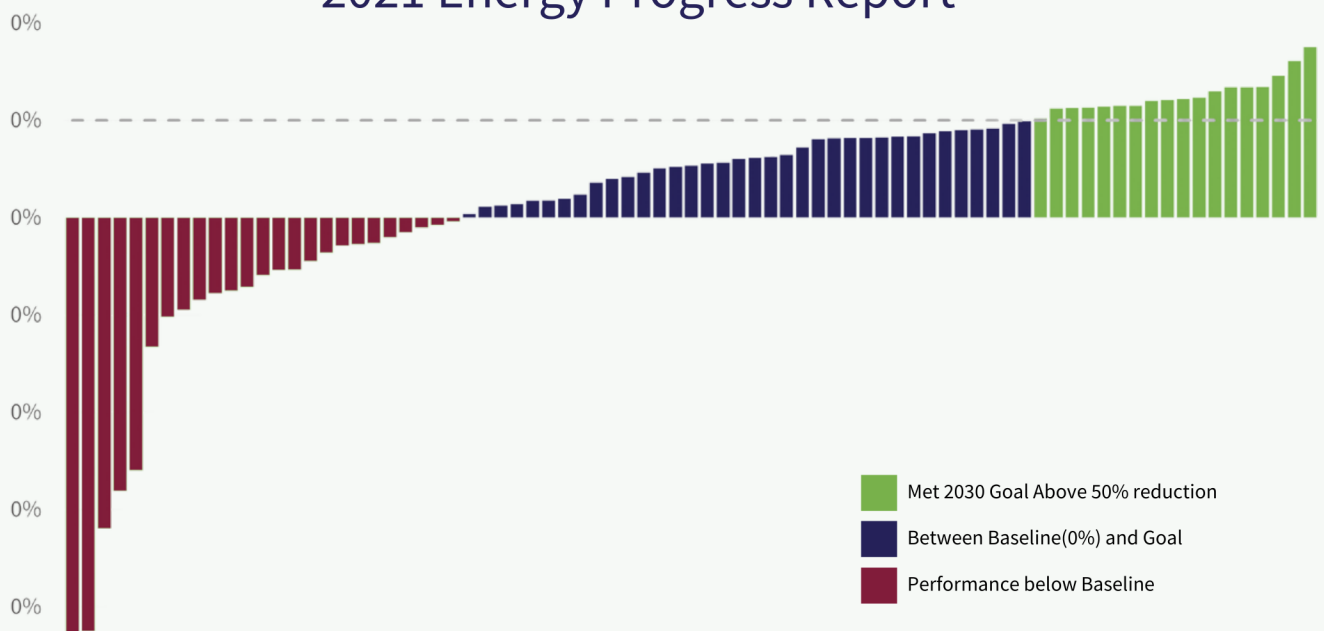
This year many of our property partners were able to continue the projects and initiatives they started before the COVID-19 Pandemic. 2022 Groundbreaker Awardee for Sustainable Building Operations, Brandywine Realty Trust and InSite, continued their Building Automation System optimization program and were able to save over 1.7million kWh in the last three years.

## +10,000 Homes

In 2021 the Philadelphia 2030 District Buildings were able to save the equivalent of 10,286 homes in annual energy use according to data from the 2015 Residential Energy Consumption Survey for Households in the Northeast



## 2021 Energy Progress Report



## Case Study

### Upgrading the Fire Administration Building

The Fire Administration Building (FAB) houses some of Philadelphia's most valiant public servants, but for many years, employees of the Fire Administration Building had complained of cold temperatures in the winter, and extreme heat in the Summer. As part of the City of Philadelphia's Municipal Energy Master Plan, the FAB was high on the list for a whole building retrofit that would not only improve energy and water efficiency but increase tenant comfort as well. In May of 2021, the FAB and the City Energy Office completed the LED lighting and HVAC upgrades for the building, including a boiler replacement, digital controls, new chiller and gas-fired water heater, air handlers, variable frequency drives, and air cleaners.



Above are pictures of the Fire Administration Building's updated boiler, chiller, and cooling tower. Together, the upgrades to these pieces of equipment have led to significant cost savings and have improved the trajectory of performance for this building

The upgrades have removed fuel oil as an energy source, meaning the building now runs entirely on electricity and natural gas. Since undergoing the retrofit, electric use has seen a 31% decrease (measured in Million British Thermal Units or MMBtu) between 2020 and 2021. The overall savings in electricity has gone down from \$107,069 to \$72,724, a decrease of 32%, proving that upgrades to the building can improve the operational budget, improve tenant comfort, and help meet climate goals across Philadelphia.

# Water

During the summer of 2022, The PA department of Environmental Protection placed Philadelphia and surrounding counties under a drought watch. This drought watch introduced our region to water conservation practices that are more common in the U.S. Southwest than in our mid-Atlantic region. The year before, Philadelphia saw historic flooding from Hurricane Ida. While flooding is an expected outcome of climate change, and much work has been done mitigate these effects, drought and water conservation is still lacking in the region. As we continue to focus city efforts on flood preparedness and mitigation, we must also think about our water resources as a whole. Our partners in Tucson and San Antonio and other cities in more drought prone climates are key resources in implementing smart water consumption strategies that will help reduce water use by 50% in Philadelphia.

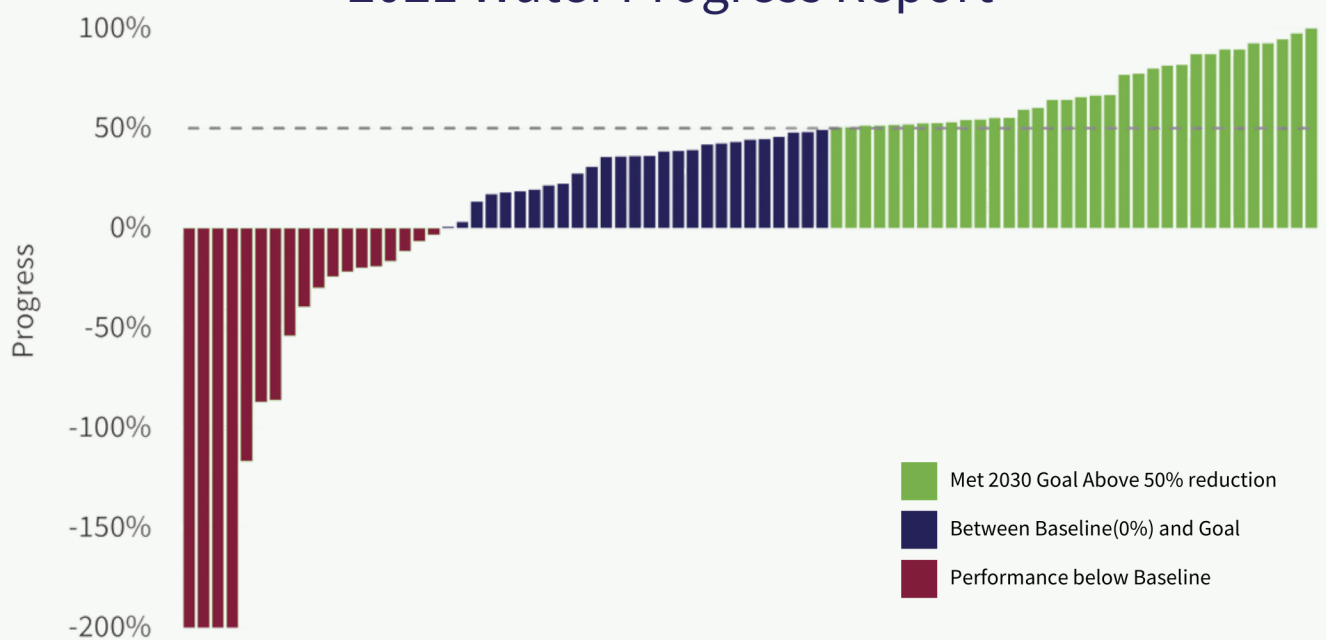


## +\$1,000,000 Dollars Saved

In 2021 the Philadelphia 2030 District Buildings were able to save over \$1,000,000 in water savings. Coupled with stormwater charge discounts these measures can drastically reduce Philadelphia Water Department Utility Bills

See below how our Commercial & Residential properties met their 2021 water reduction goals

## 2021 Water Progress Report



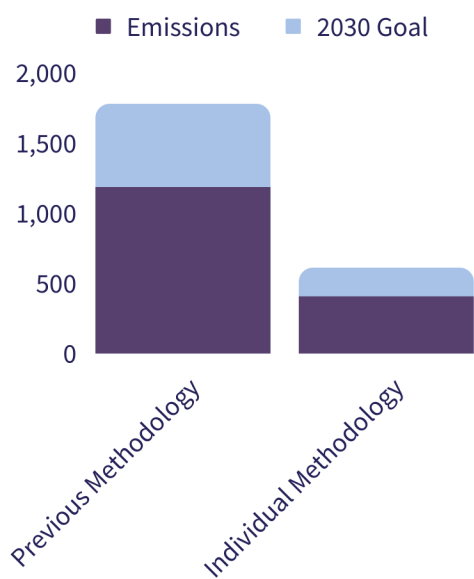


# Transportation



2022 was the first year the Philadelphia 2030 District implemented a new transportation emission methodology. This new methodology takes individual survey responses and calculates transportation emissions based on mode of transportations used and daily miles traveled. The calculation tool was created, and is free to use, by the Ann Arbor 2030 District in conjunction with students from the University of Michigan.

Previous methodology utilized 2010 Census Transportation Planning Products data, along with Traffic Analysis Zone data produced by the Delaware Valley Regional Planning Commission. Through this methodology, it was determined that the annual baseline emission rate per commuter was 1182 kg of Carbon/year - meaning the goal by 2030 was to reach 591 kg CO<sub>2</sub> per commuter annually. The new methodology brings this number much lower, to a total of 404.10 kg of Carbon per commuter annually, setting the 2030 goal to 202.05 kg CO<sub>2</sub> per commuter annually.



## Case Study

### Increasing Tenant Engagement Through Survey Collection

The updated transportation methodology requires input from people living or working inside of participating 2030 buildings – unlike our previous method, this requires a lot of engagement. Independence Place was the only multifamily building to take part in this survey and they collected the most responses of any building with a total of 168 responses. What does it take to collect responses and engage tenants? Our representatives at Independence Place noted that they put up fliers in the elevators, spoke at board meetings, and even waited outside between towers to spread the word about the transportation survey.

The data collected shows that the average commute from their multifamily building to a place of work is, on average, 10 miles. Although around 15% of respondents indicated that they have transitioned to working mostly from home. The most popular mode of transportation for tenants of Independence Place is walking, with the second being driving alone, and the bus coming in at 3rd place. Independence Place's total emissions per commuter came in 13% below the district total of 404.10 kg CO<sub>2</sub>e. With this information, Independence Place has engaged their community to think about commuting choices and plans to leverage the data to advocate for more bike and electric vehicle infrastructure in their neighborhood and garage.

# Transportation



## Case Study Transportation Emissions in the Age of Working From Home

2022 is the first data year post-pandemic that represents what some might call “the new normal,” which entails a mix of work from home and commuting days. 2401 Walnut St is an 8-story office building in Center City Philadelphia that took part in our new transportation survey and helped give us an insight into what commuting patterns look like in this new age of work from home.

The collected responses indicated that the average commute to the office is 12.76 miles round trip, slightly above the total district average of 10.9 miles round trip. On average, employees in 2401 come to the office 3.6 days of the week, compared to a district wide total of 2.7. The primary mode of transportation to and from 2401 Walnut is walking, a commuting choice that emits zero carbon. Driving alone was the second most utilized mode of transportation, with biking coming in third. When asked what policy incentives would help employees make cleaner commuting decisions, 18.75% of respondents indicated that subsidized public transit would help them move away from more carbon intensive modes of transportation, a sentiment that has largely been echoed by the passing of Mayor Kenney’s Employee Commuter Transit Benefit Program, which will go into effect on December 21st, 2022, and will require certain businesses to provide subsidized public transit passes to employees.

## Transportation Takeaways

In the first year utilizing the self-reporting data collection methodology, the Philadelphia 2030 District learned a lot about commuting habits and potential policies that would help commuters make more green choices to and from their homes to place of work. We are looking forward to expanding the survey in the years to come to gather more information from even more buildings in our 2030 District.



2401 Walnut photo by Steven Kasich

# Stormwater

Stormwater management is one of the facets of our 2030 District that gets reported and measured by the Philadelphia Water Department. Each year, PWD continually adds green stormwater infrastructure, such as green roofs, underground retention basins, bioswales, and more to reach the goals set by the Green City, Clean Waters guiding document - a 25-year plan that aims to green our streets, therefore cleaning our waterways and reducing unwanted run-off into the Schuylkill & Delaware Rivers.



## Understanding our Green Acres

While the Water Department measures green acres added throughout the city, we track green acres and stormwater projects added within our traditional 2030 District Boundary. The 2030 District has verified that a total of .06 green acres were added to the Center City boundary in 2021. Bringing out total green acres to 54.9 Verified Green Acres.



# News from 2030 National

Across the United States and Canada, there is a robust network of 23 cities implementing their own version of a 2030 District and setting goals and standards for efficient buildings large and small. Attending the National 2030 Summit earlier this year shed light into all the amazing work that our national partners are doing including some of the following:

- **Providing building audits to houses of worship in Detroit, Michigan - an initiative that was highlighted by the Biden Administration**
- **Working with small businesses to provide free energy assessments in Cincinnati, Ohio**
- **Recently, the Pittsburgh 2030 District began a partnership with the Pittsburgh School District to get them on board to meet reduction goals**
- **Ann Arbor 2030 continues to partner with students at the University of Michigan to assist in high level data analyses - their open-source tool was the basis for our new transportation methodology**
- **In Seattle, Washington, where a statewide Building Performance Standard has taken effect, the Seattle 2030 District is working closely with property partners to meet state and local emission and consumption goals**

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## Accelerating to Zero - Beyond 2030

Together, the 2030 District Cities and Board of Directors have crafted language about our goals as we approach the year 2030 and beyond. The official statement is as follows:

*"The 2030 Districts Network provides critical leadership and resources to reduce emissions in the entire built environment by 50-65% by 2030 and reach zero emissions by 2040.*

*The 2030 Districts Network leads building sector efforts to achieve these urgent goals through a just and equitable transition and aligns its goals with current climate science.*

*The 2030 Districts Network collaborates with its members to drive down energy and water use, building and transportation related emissions and promote healthy buildings.*

*Accelerating to Zero emissions requires energy efficiency, electrification, clean grids, reduced embodied emissions, and advocating for building codes, policies and incentives that promote a resilient and vibrant future for all. "*

# Thank you to our 2030 Partners



Interested in getting your building involved or learning more?

## Contact

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