Philadelphia 2030 District 2020 Annual Report

GREEN BUILDING UNITED

What is the Philadelphia 2030 District?

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Philadelphia 2030 District

- Energy
- Water
- Transportation
- Stormwater

Dollars

Carbon emissions

Air quality

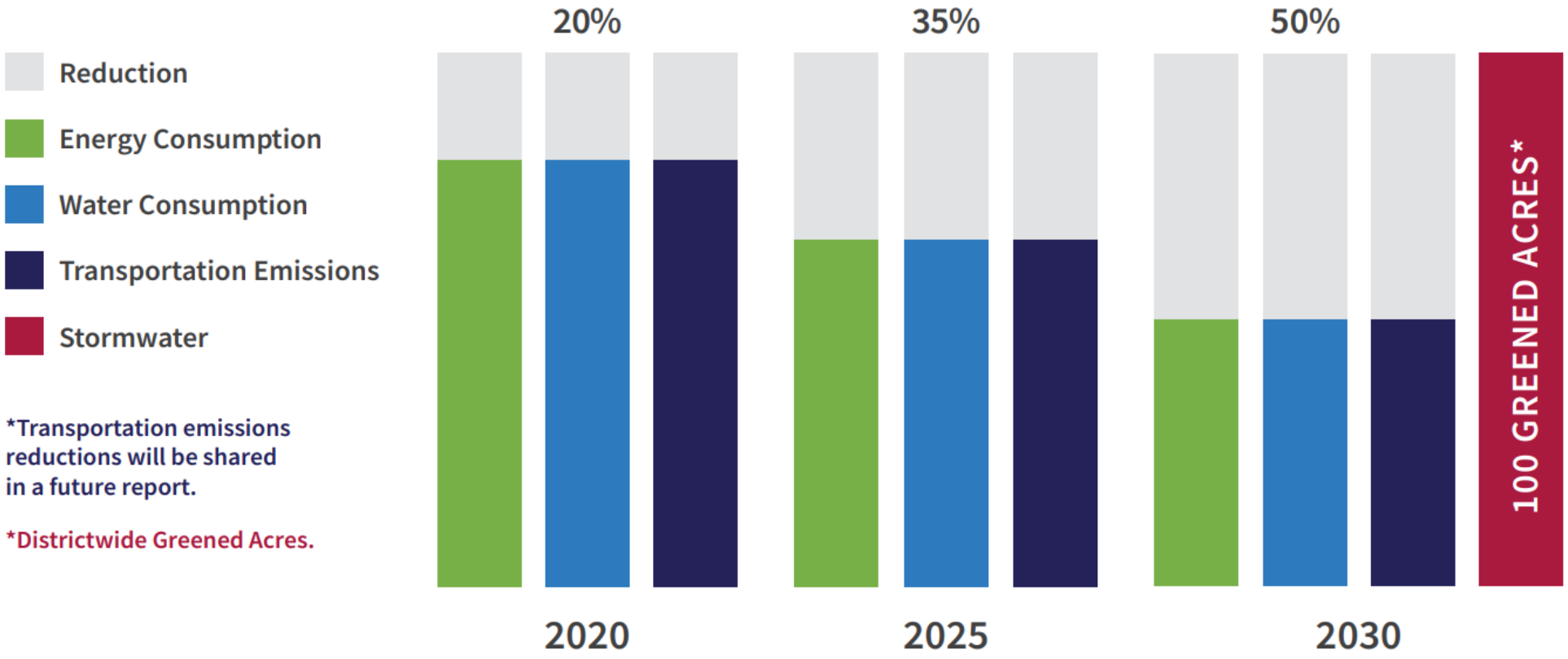
Comfort

Resilience

District Network

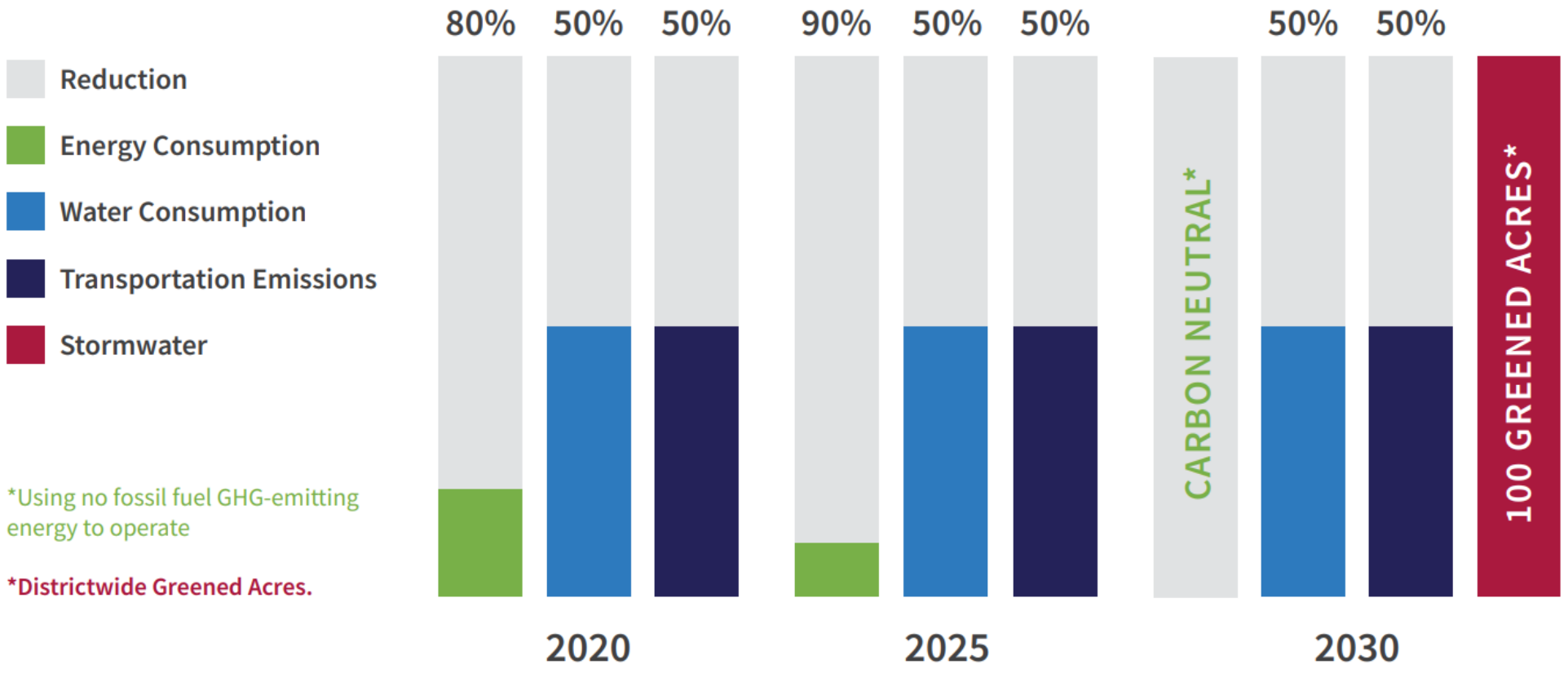
2030 Challenge for Planning

Existing Buildings



2030 Challenge for Planning

New Construction & Major Renovations



*Using no fossil fuel GHG-emitting energy to operate

*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.

	ENERGY	WATER	TRANSPORTATION	STORMWATER
Baseline Type	National Baseline	Local Baseline	Local Baseline	Local Baseline
Baseline Source	2003 Commercial Building Energy Consumption Data	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
Baseline Considerations	• Climate zone • Building use type(s) • Occupancy	• Building use type(s)	• Origin and destination • Longest traveled mode • Local emissions factor by mode	• Greened Acres by project phase • Total impervious surface districtwide
Goal Metric	Annual Site Energy Use Intensity (EUI)	Annual Water Use Intensity (WUI)	Carbon Emissions Per Commuter Per Year	Verified Greened Acres
Metric Units	kBtu/square foot/year	gallons/square foot/year	$kgCO^2$/commuter/year	Greened Acres
Performance Level	Individual building-level goal	Individual building-level goal	District-wide goal of 591 $kgCO_2$/person/year	Districtwide goal of 100 Greened Acres
Tracking Method	ENERGY STAR Portfolio Manager	ENERGY STAR Portfolio Manager	Updated CTPP and DVRPC Distance Matrix Data and Future District Survey	Updated PWD GSI Project Data
Reporting 2019 Data for 2020 Annual Report	• 46 Buildings • 20,170,675 Sq ft	• 45 Buildings • 22,432,772 Sq ft	Districtwide commuter data	Districtwide public and private projects

Why Philadelphia?

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Challenge: Reduce Carbon Emissions in Philadelphia

SOURCES OF CARBON EMISSIONS IN PHILADELPHIA

79% Buildings and Industry

17% Transportation

3% Waste

CITYWIDE GOAL: 80% REDUCTION IN CITYWIDE CARBON EMISSIONS BY 2050

Energy Benchmarking

320+ Million Square Feet

2700+ Buildings Reported

55 Median Energy Star Score

Represents **20%** of total citywide square footage

85% Compliance Rate

Who's involved?

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Partner Type

PROPERTY PARTNERS
Building owners and/or managers that commit property to meet the district goals. Must constitute at least 40% of district participants.

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

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

District Participation

23,255,664 total square feet committed to the district

17.3% total square feet of eligible buildings in district committed

49 committed buildings from 17 property partners

Property Partners

Drexel University

Seal of the City of Philadelphia

SEPTA

brandywine Realty Trust

Bedrock | Group
Strengthening Communities

1650 ARCH

Independence

2101 Cooperative

Pennrose
Bricks & Mortar | Heart & Soul

Ronald McDonald House® Philadelphia

2LP

SSH Real Estate
A Full Service Real Estate Company

The Philadelphian

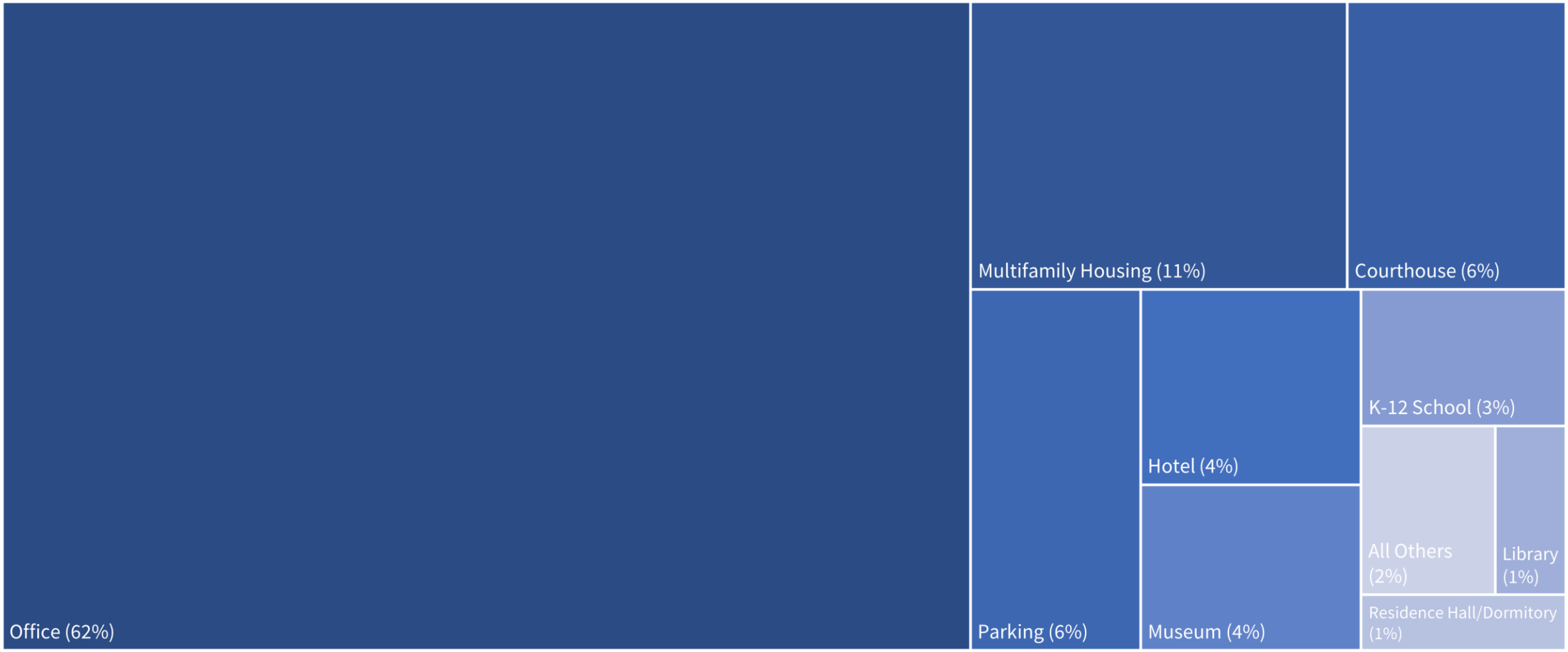
The School District of Philadelphia

Kaiserman Company
Responsible Real Estate Services and Solutions

HERSHA
Hersha Hospitality Trust

Historical Society of Pennsylvania
Philadelphia's Library of American History

Building Type Breakdown



How are we doing?

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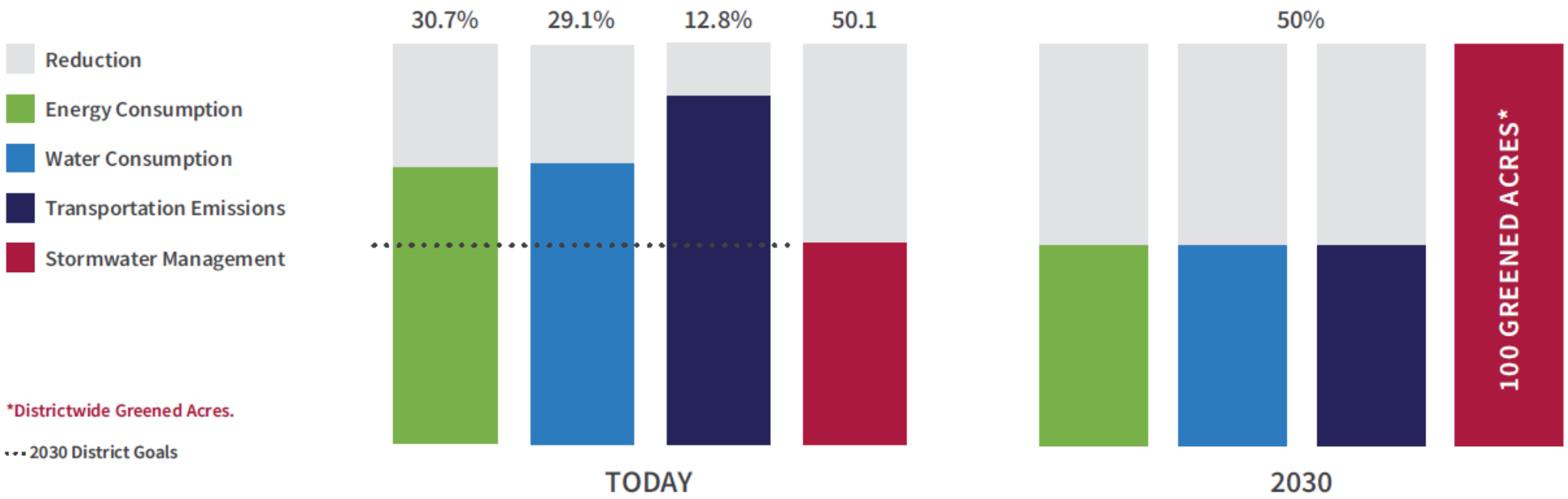
Progress Toward Goals



How are partners meeting the goals?

- Property Partners are meeting the goals of the Philadelphia 2030 District through:
  - sophisticated operations,
  - robust tenant engagement,
  - and strategic investments in conservation and efficiency

Energy

Energy Metric

Baseline Type	National Baseline
Baseline Source	2003 Commercial Building Energy Consumption Data
Baseline Considerations	• Climate zone • Building use type(s) • Occupancy
Goal Metric	Annual Site Energy Use Intensity (EUI)

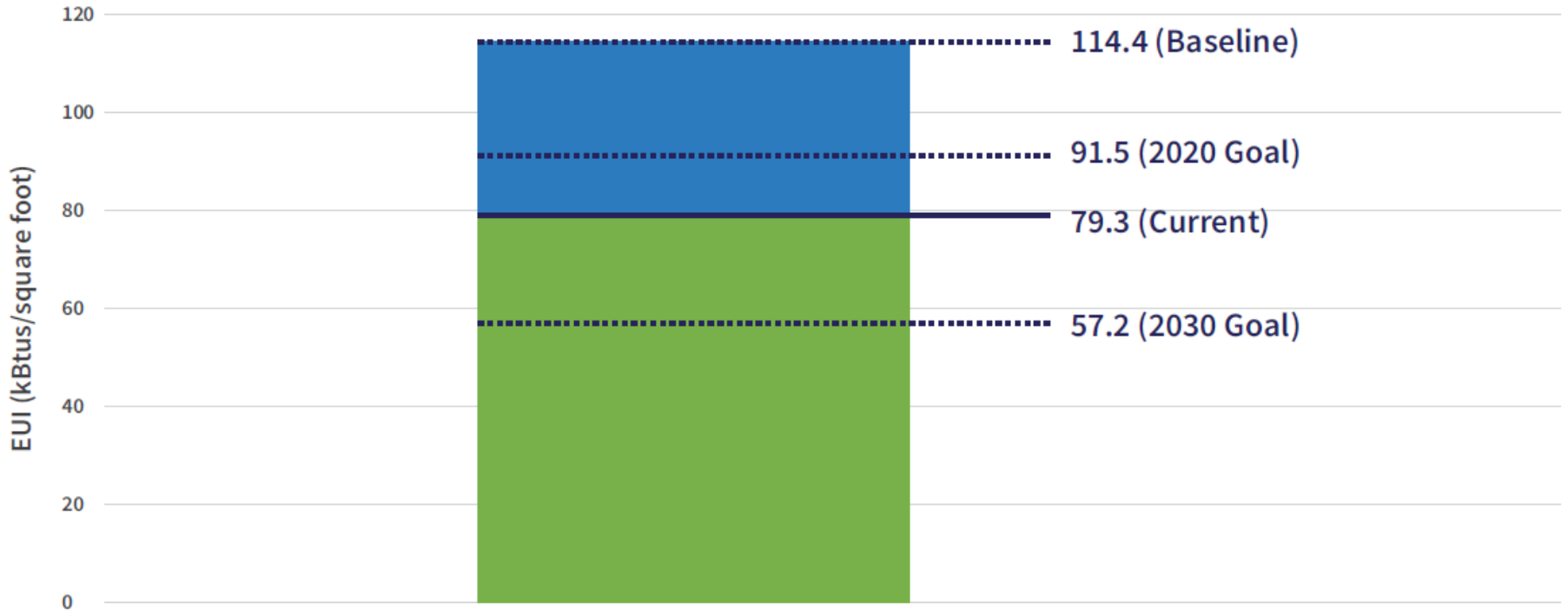
Metric Units	kBtu/square foot/year
Performance Level	Individual building-level goal
Tracking Method	ENERGY STAR Portfolio Manager
Reporting 2019 Data for 2020 Annual Report	• 46 Buildings • 20,170,675 Sq ft

Energy Progress

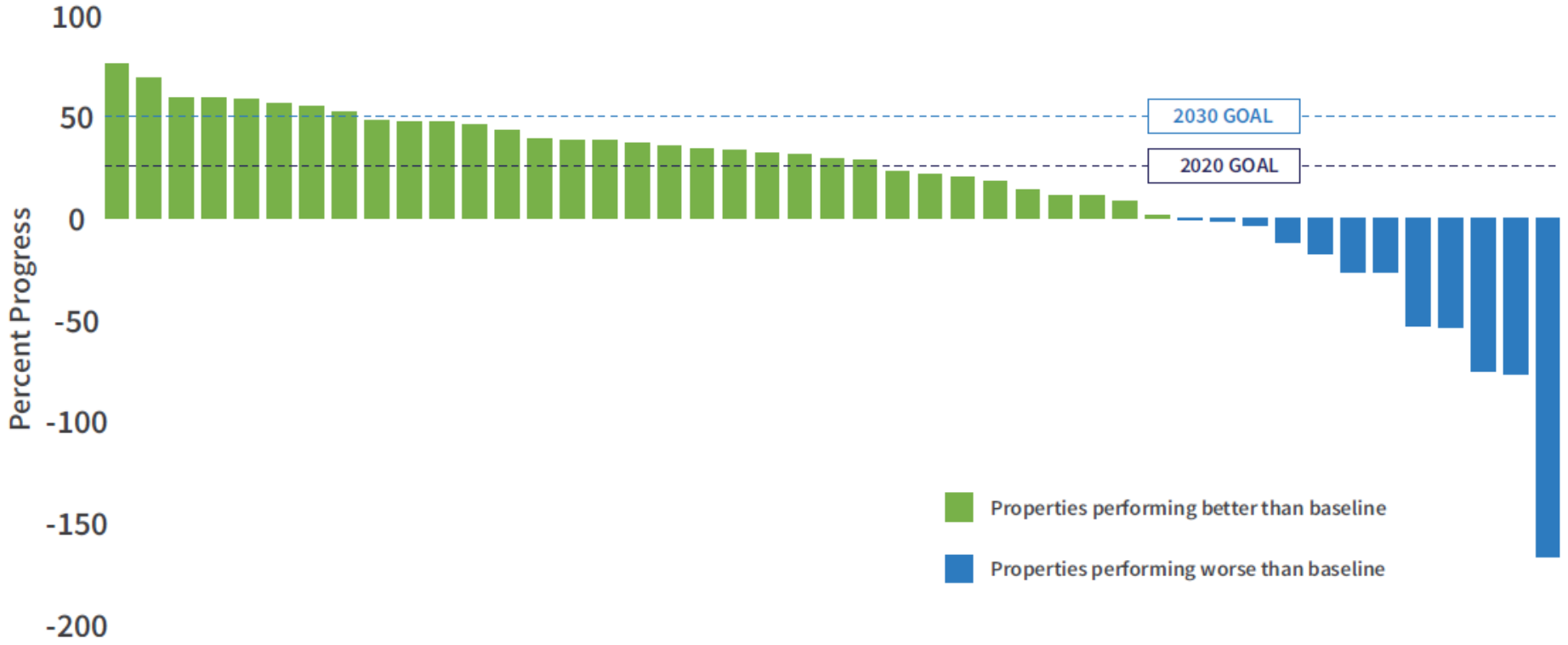
DISTRICTWIDE PERFORMANCE

↓ 30.7%	⊘ 707,863,356	⊘ 68,312	$16,794,638
Site EUI Reduction from Baseline	kBtus Avoided	Metric Tons of Avoided Carbon Dioxide Equivalent	Cost Savings

Aggregate Energy Reduction



Energy Reduction By Property



Annual Changes to Property-Level Energy Reduction

	2017	2018	2019
Buildings exceeding the 2030 Goal (50%+ reduction from baseline)	6	7	8
Buildings exceeding the 2020 Goal (20%-49% reduction from baseline)	16	14	18
Buildings performing above baseline (0%-19% reduction from baseline)	5	8	7
Buildings performing below baseline	13	16	13
Total buildings reporting	39	43	46

Meeting the Goals

Improved building performance:

- lowers operational costs,
- improves indoor air quality and tenant comfort,
- and enhances resilience to the effects of climate change.

Strategies to meet goal:

- Existing buildings
  - Benchmark energy use
  - Conduct an audit or retrocommissioning
  - Take advantage of rebates and incentives
- New construction
  - Design your building to meet the 2030 Challenge for Planning goals
  - Take advantage of rebates and incentives

Water

Water Metric

Baseline Type	Local Baseline
Baseline Source	2016 Philadelphia Citywide Benchmarking Data
Baseline Considerations	• Building use type(s)
Goal Metric	Annual Water Use Intensity (WUI)

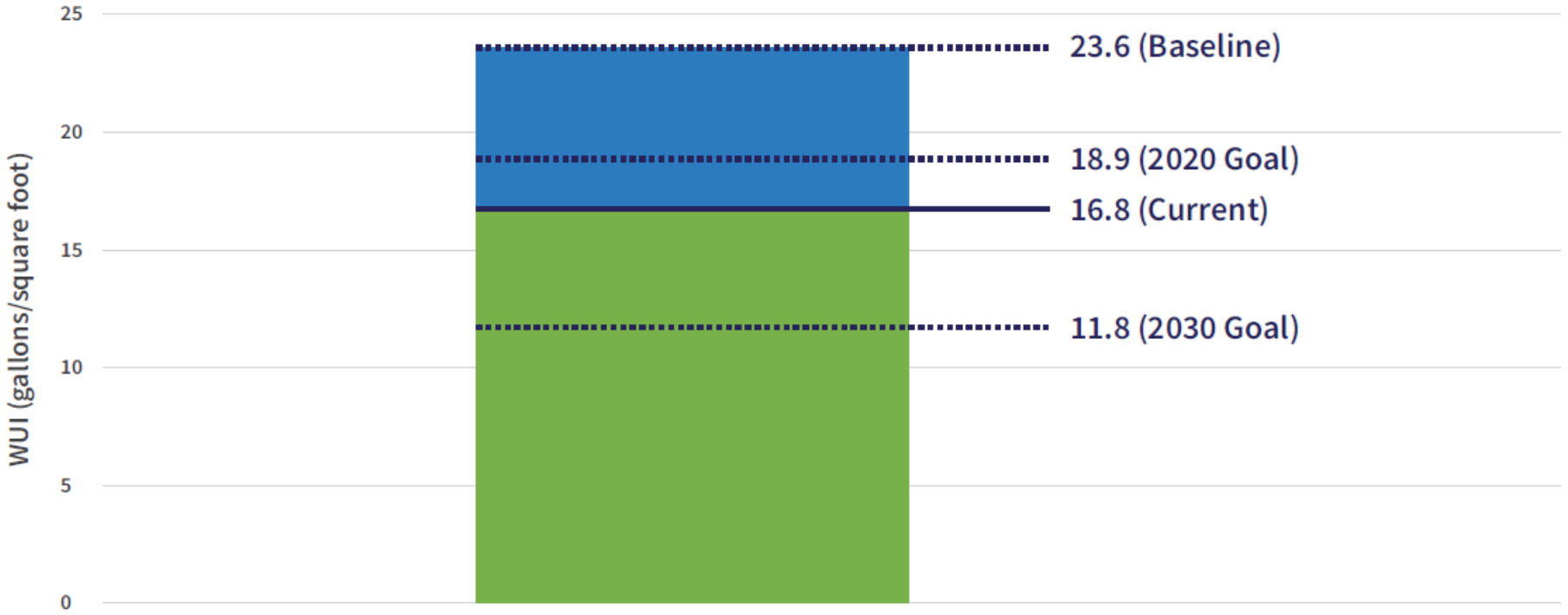
Metric Units	gallons/square foot/year
Performance Level	Individual building-level goal
Tracking Method	ENERGY STAR Portfolio Manager
Reporting 2019 Data for 2020 Annual Report	• 45 Buildings • 22,432,772 Sq ft

Water Progress

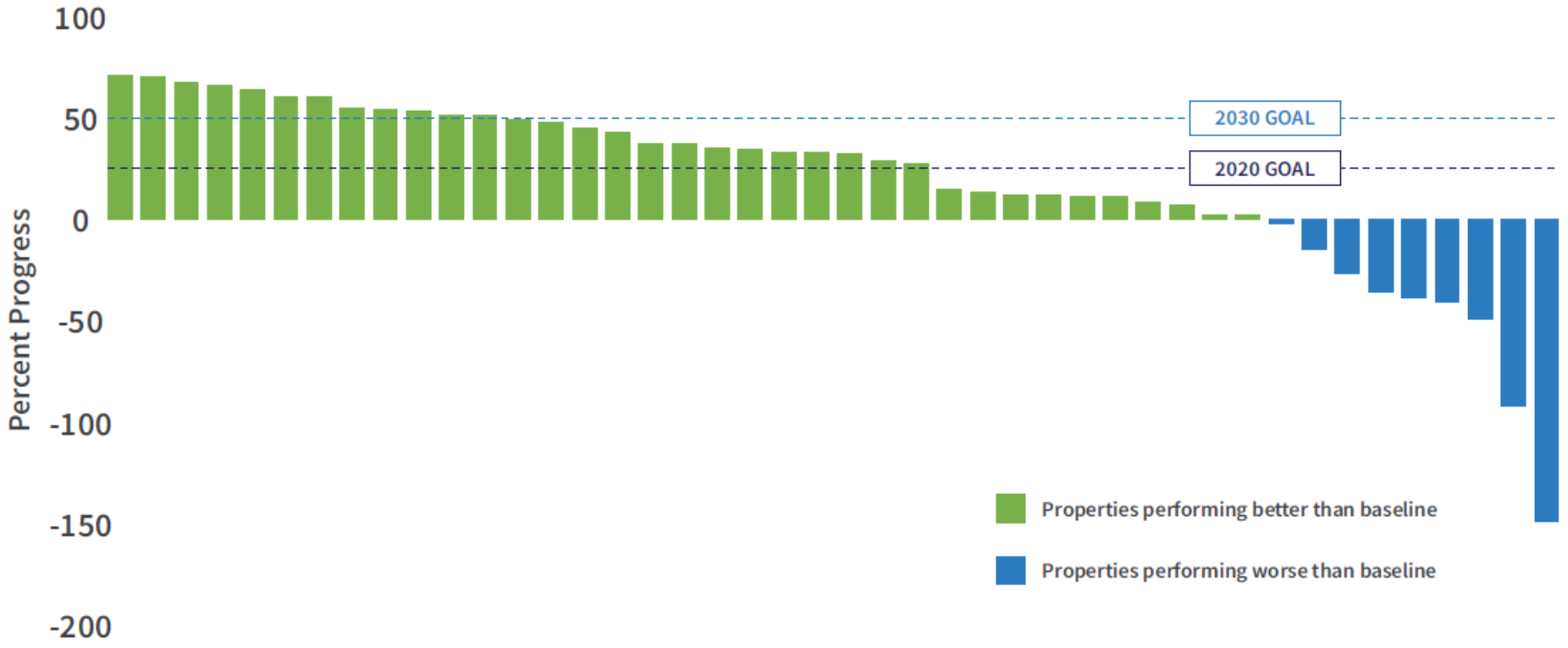
DISTRICTWIDE PERFORMANCE

↓ 29.1%	⊘ 145,547,683	$566,180
Reduction Districtwide from Baseline	Gallons of Water Avoided	Cost Savings

Aggregate Water Reduction



Water Reduction (WUI) By Property



Annual Changes to Property-Level Water Reduction

	2018	2019
Buildings exceeding the 2030 Goal (50%+ reduction from baseline)	9	12
Buildings exceeding the 2020 Goal (20%-49% reduction from baseline)	10	13
Buildings performing above baseline (0%-19% reduction from baseline)	5	10
Buildings performing below baseline	15	10
Total buildings reporting	39	45

Meeting the Goals

Using water efficiently in a building results in both:

- direct operational cost savings,
- and related energy savings.

Strategies to meet goal:

- Existing buildings
  - Benchmark water use
  - Take advantage of existing resources
- New construction
  - Use existing beyond-code resources to design your building to meet the 2030 Challenge for Planning goals

Transportation Emissions

Transportation Emissions Metric

Baseline Type	Local Baseline
Baseline Source	2006-2010 Census Transportation Planning Products Program (CTPP) Data with Delaware Valley Regional Planning Commission (DVRPC) Distance Matrix Data
Baseline Considerations	• Origin and destination • Longest traveled mode • Local emissions factor by mode
Goal Metric	Carbon Emissions Per Commuter Per Year

Metric Units	$kgCO^2$/commuter/year
Performance Level	District-wide goal of 591 $kgCO_2$/ person/year
Tracking Method	Updated CTPP and DVRPC Distance Matrix Data and Future District Survey
Reporting 2019 Data for 2020 Annual Report	Districtwide commuter data

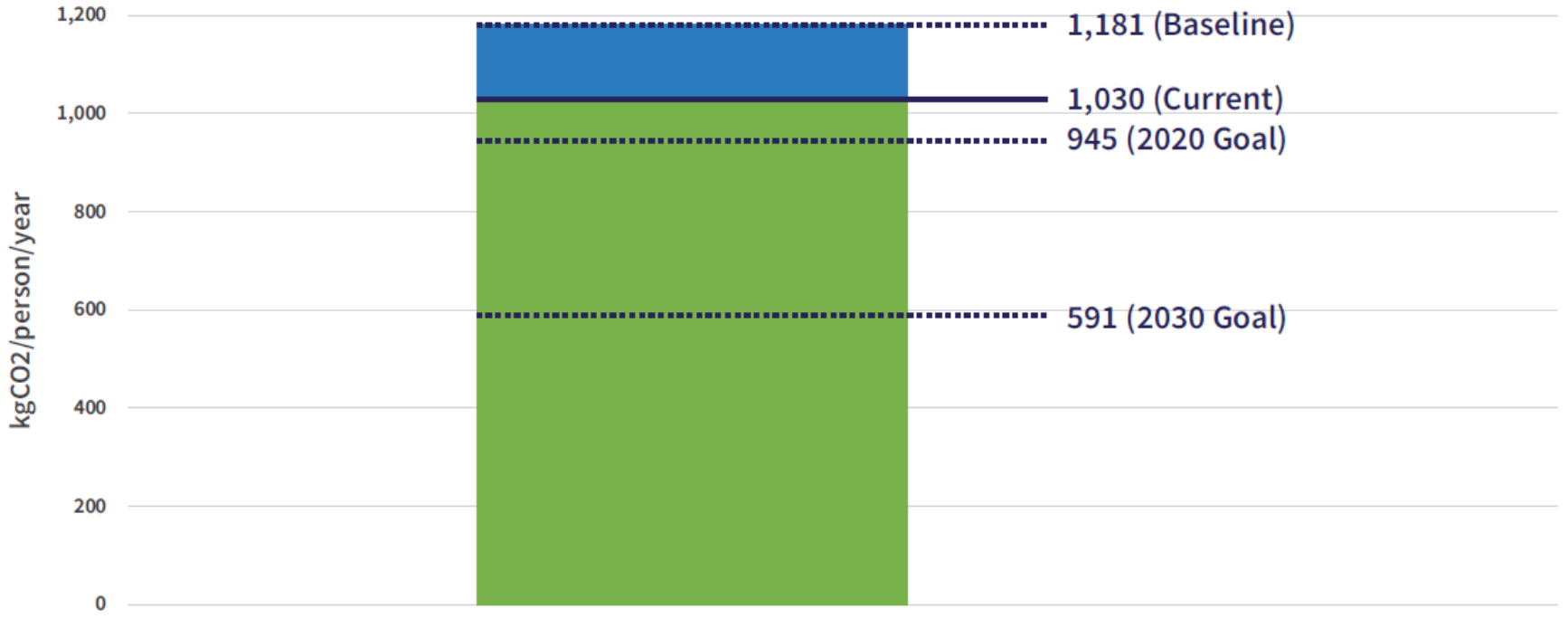
Transportation Emissions Progress

DISTRICTWIDE PERFORMANCE

⊘ 12.8%
Reduction from Baseline

↓ 32,763
Metric Tons of Avoided Carbon Dioxide Equivalent

Aggregate Transportation Emissions Reduction

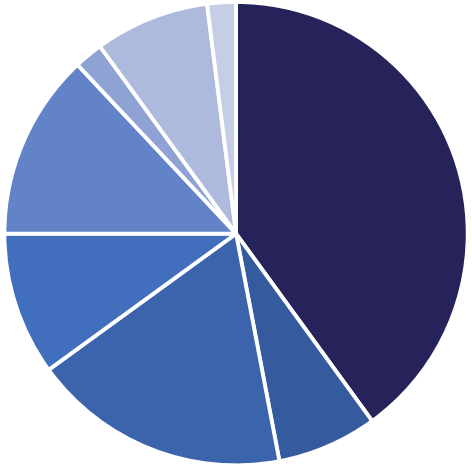


Emissions Factors by Mode

Mode	lbs CO_2e per PMT
Single-occupancy vehicle	.96
Carpool	.96/occupant number
Bus	.64
Subway	.351
Regional rail	.376
Bicycle	0
Walk	0
Other (including work from home)	Varies

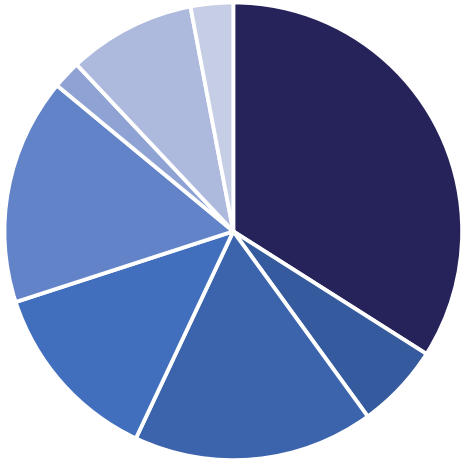
Changes to Transportation Emissions

Baseline 2006-2010



- Single-occupancy vehicle
- Carpool
- Bus
- Subway
- Regional rail
- Bicycle
- Walk
- Other (including work from home)

Current 2012-2016



- Single-occupancy vehicle
- Carpool
- Bus
- Subway
- Regional rail
- Bicycle
- Walk
- Other (including work from home)

Meeting the Goals

Transportation is the second largest source of carbon emissions in Philadelphia.

Discouraging single-occupancy vehicle commuting in the Philadelphia 2030 District:

- reduces transportation emissions and
- improves quality of life issues including improving air quality and travel times.

Strategies to meet goal:

- Building owners/managers
- Employers
- Institutions

Stormwater Management

Stormwater Management Metric

Baseline Type	Local Baseline
Baseline Source	2018 Philadelphia Water Department (PWD) GSI Project Data
Baseline Considerations	• Greened Acres by project phase • Total impervious surface districtwide
Goal Metric	Verified Greened Acres

Metric Units	Greened Acres
Performance Level	Districtwide goal of 100 Greened Acres
Tracking Method	Updated PWD GSI Project Data
Reporting 2019 Data for 2020 Annual Report	Districtwide public and private projects

Stormwater Management Progress

DISTRICTWIDE PERFORMANCE	
50.1	100
Verified Greened Acres	Greened Acres Goal

Meeting the Goals

The Philadelphia 2030 District aligns with the goals of *Green City Clean Waters (GCCW),* the City of Philadelphia's plan to reduce stormwater pollution entering its combined sewer system through the use of green stormwater infrastructure (GSI.)

Strategies to meet goal:

- New Construction Regulatory Compliance
  - Review PWD Stormwater Regulations
  - Evaluate eligibility for development bonuses and incentives
  - Consult case studies
- Existing Building Retrofits
  - Review PWD Stormwater Retrofit Guidance Manual
  - Evaluate eligibility for programs and incentives
  - Consult case studies
- Non-compliance strategies
  - Consult PWD’s GSI Infrastructure Tools

Data Limitations

Data Limitations – Property Level

Year-to-year aggregate percent changes are not always clear indicators of progress

- The aggregate data set changes every year
- Properties self-report
- 2020 was an unusual year for building energy and water use

Data Limitations – Districtwide

Neither transportation nor stormwater management have a building-level goal

- Progress indicative of districtwide trends, not just district participants
  - Commuters for transportation
  - Public and private projects for stormwater management

Annual districtwide data are not always available nor are they clear indicators of progress

- Transportation data published every 5 years
- Stormwater data available annually, but our data only reflects verified projects
- 2020 was an unusual year for commuting and construction

Data Solutions

If there are so many limitations, then why do we aggregate and publish the data annually?

- To maintain privacy
- To demonstrate the scale of our impact
- To track progress long-term
    - Supplement with year-over-year performance at the property level to inform our short-term progress and strategy