





## Dear Friends,



**THIS YEAR'S GREENWORKS PROGRESS REPORT REFLECTS THE CULMINATION OF FIVE YEARS OF WORK TOWARD THE ENERGY, ENVIRONMENT, EQUITY, ECONOMY, AND ENGAGEMENT TARGETS ESTABLISHED IN THE INITIAL 2009 PLAN.** With the leadership and support of City staff, community partners, and elected officials, Philadelphia has seen gains in all of the Greenworks focus areas.



Work on 160 of our 164 initiatives is underway or complete. For the first time, Philadelphia exceeded the Greenworks goal for air quality; weather will continue to cause yearly fluctuations in this measure, but the encouraging long-term trend is toward better air quality. We also continue to exceed our waste diversion goal, and in 2014 the Philadelphia Streets Department began diverting all waste from landfill through a combination of recycling and energy-from-waste practices.

One great benefit of tracking data on a yearly basis is that, after five years of work, we are able to identify interesting and informative trends. We know, and can document, that weather patterns are a very influential driver of energy use, greenhouse gas emissions, and air quality. By reporting on citywide building energy use, we came to understand that the city's commercial sector uses the most energy and provides the greatest opportunity for reducing both energy use and greenhouse gas emissions citywide.



Despite tremendous progress, work to advance sustainability in Philadelphia is far from complete. Having experienced and tracked the outcomes of five years of extreme weather events, we understand firsthand that our climate is changing. We know that climate change will require the City to adapt its programs, policies, and infrastructure, and we're spearheading an effort to identify ways in which Philadelphia can prepare for coming shifts.



These challenges and gains highlight the importance of sustaining sustainability work in Philadelphia. The Greenworks targets were designed to be met by 2015. As we look forward to the next administration, maintaining a strong base of support is important. We have been fortunate to have City Council as a major partner in this effort since the beginning. In April 2014 Council unanimously passed legislation to make the Office of Sustainability permanent within city government. This requires a change to the City Charter, which must be approved by voters on the November 2014 ballot. We hope we'll have your support!

The Office of Sustainability was established in response to your advocacy efforts, and your continued engagement is essential to make sure that the work progresses. Thank you.

Michael A. Nutter  
MAYOR

Katherine Gajewski  
DIRECTOR OF SUSTAINABILITY

## SUMMARY OF TARGETS

BASELINE	BASELINE YEAR	CURRENT	2015 GOAL
<b>TARGET 1 Lower City Government Energy Consumption by 30 Percent</b>			
3.77 Trillion BTUs	2008	3.84 Trillion BTUs	2.64 Trillion BTUs
<b>TARGET 2 Reduce Citywide Building Energy Consumption by 10 Percent</b>			
122.06 Trillion BTUs	2006	136.89 Trillion BTUs	109.85 Trillion BTUs
<b>TARGET 3 Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing, and Cool Roofs</b>			
3,500 Homes Retrofitted	2008	11,669 Homes Retrofitted	84,400 Homes Retrofitted
<b>TARGET 4 Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources</b>			
2.5% Alternative Energy	2008	14.8% Alternative Energy	20% Alternative Energy
<b>TARGET 5 Reduce Greenhouse Gas Emissions by 20 Percent</b>			
<b>MUNICIPAL</b>			
596,829 t CO <sub>2</sub> e	1990	507,871 t CO <sub>2</sub> e	477,463 t CO <sub>2</sub> e
<b>CITYWIDE</b>			
21.06 Million t CO <sub>2</sub> e	1990	20.89 Million t CO <sub>2</sub> e	16.85 Million t CO <sub>2</sub> e
<b>TARGET 6 Improve Air Quality toward Attainment of Federal Standards</b>			
20 Unhealthy AQI Days	2008	6 Unhealthy AQI Days	10 Unhealthy AQI Days
<b>TARGET 7 Divert 70 Percent of Solid Waste from Landfill</b>			
53% Diversion Rate	2008	73% Diversion Rate	70% Diversion Rate
<b>TARGET 8 Manage Stormwater to Meet Federal Standards</b>			
0 New Greened Acres	2011	323 New Greened Acres	450 New Greened Acres
<b>TARGET 9 Provide Walkable Access to Park and Recreation Resources for All Philadelphians</b>			
10,300 Acres of Open Space	2008	10,442 Acres of Open Space	10,800 Acres of Open Space
<b>TARGET 10 Provide Walkable Access to Affordable, Healthy Food for All Philadelphians</b>			
230 Markets, Gardens, and Farms	2008	340 Markets, Gardens, and Farms	316 Markets, Gardens, and Farms
<b>TARGET 11 Increase Tree Coverage Toward 30 Percent in All Neighborhoods by 2025</b>			
0 New Trees	2008	100,000 New Trees	300,000 New Trees
<b>TARGET 12 Reduce Vehicle Miles Traveled by 10 Percent</b>			
5.96 Billion Vehicle Miles Traveled	2005	5.45 Billion Vehicle Miles Traveled	5.36 Billion Vehicle Miles Traveled
<b>TARGET 13 Increase the State of Good Repair in Resilient Infrastructure</b>			
73% in State of Good Repair	2008	77% in State of Good Repair	80% in State of Good Repair
<b>TARGET 14 Increase the Size of the Regional Clean Economy</b>			
<b>GREEN GOODS AND SERVICES</b>			
27% of workplaces	2012	27% of workplaces	Report Best Available Metric
<b>GREEN TECHNOLOGIES AND PRACTICES</b>			
53% of workplaces	2012	53% of workplaces	Report Best Available Metric



**WITH THE 2014 REPORT**, we are sharing progress made since we last reported in June of 2013. Greenworks is made up of five goal areas, fifteen measurable targets, and 164 initiatives. The table below is a snapshot of progress to date, and reflects the number of initiatives that are complete, underway, or under consideration for the future.

## INITIATIVE PROGRESS BY TARGET

**TARGET 1** Lower City Government Energy Consumption by 30 Percent



**TARGET 2** Reduce Citywide Building Energy Consumption by 10 Percent



**TARGET 3** Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing, and Cool Roofs



**TARGET 4** Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources



**TARGET 5** Reduce Greenhouse Gas Emissions by 20 Percent



**TARGET 6** Improve Air Quality toward Attainment of Federal Standards



**TARGET 7** Divert 70 Percent of Solid Waste from Landfill



**TARGET 8** Manage Stormwater to Meet Federal Standards



**TARGET 9** Provide Walkable Access to Park and Recreation Resources for All Philadelphians



**TARGET 10** Provide Walkable Access to Affordable, Healthy Food for All Philadelphians



**TARGET 11** Increase Tree Coverage Toward 30 Percent in All Neighborhoods by 2025



**TARGET 12** Reduce Vehicle Miles Traveled by 10 Percent



**TARGET 13** Increase the State of Good Repair in Resilient Infrastructure



**TARGET 14** Increase the Size of the Regional Clean Economy



**TARGET 15** Philadelphians Unite to Build a Sustainable Future



49 Complete Initiatives



30%

111 Initiatives in Progress



68%

4 Future Initiatives





# ENERGY

**GOAL:** PHILADELPHIA REDUCES ITS VULNERABILITY TO RISING ENERGY PRICES

## TARGET 1

## Lower City Government Energy Consumption by 30 Percent

### METRICS

- **Adjusted Greenworks Baseline (FY08)**

**3.77** Trillion BTUs

- **Current (FY13)**

**3.84** Trillion BTUs

- **2015 Target**

**2.64** Trillion BTUs

City government energy usage rose in 2013 for the first time since 2007. As shown in the chart on the facing page, energy usage rises and falls with changes in weather, as extreme temperatures force heating and cooling systems to work longer and harder, increasing energy usage both at the municipal level and citywide. The Mayor's Office of Sustainability (MOS) is currently working to weather-normalize energy data to provide a more accurate picture of municipal energy efficiency.

To incentivize energy use reductions, the Mayor's Office of Transportation and Utilities worked with the Office of the Director of Finance to create a pilot program for five City departments to share cost savings achieved through employee education and more energy-efficient operations. To better track these savings, the City has invested in improved energy management software across its portfolio of more than 600 buildings.

Work also continues on City projects designed to reduce energy usage and save money. 2013 saw significant progress in the guaranteed energy savings project focused on the City's four largest downtown facilities (City Hall, the Criminal Justice Center, Municipal Services Building, and One Parkway Building), and the City anticipates energy savings from these retrofits beginning in 2014. This coming year, MOS will launch a building operator training program to help municipal employees maximize the value of these projects.

### BY THE NUMBERS

#### Install New Lighting

REPLACED 85,000 LED TRAFFIC SIGNALS

- 4,924 GHG Reduced (MT CO<sub>2</sub>e)
- 9,274 MWh Reduced
- 31,641 MMBTU Reduced (Electricity Only)

LIGHTING UPGRADES AT SIX RECREATION CENTERS

- 263 GHG Reduced (MT CO<sub>2</sub>e)
- 347 MWh Reduced
- 1,184 MMBTU Reduced (Electricity Only)

#### Develop Energy Load/Demand Management Practices

- 66 GHG Reduced (MT CO<sub>2</sub>e)
- 86 MWh Reduced
- 295 MMBTU Reduced (Electricity Only)

#### City Car Management Plan

REDUCED CITY FLEET BY 542 CARS SINCE 2003

- 10,780 GHG Reduced (MT CO<sub>2</sub>e)
- 136,393 MMBTU Reduced (Not Including Electricity)

#### Quadplex Guaranteed Energy Savings Project

- 3,794 GHG Reduced (MT CO<sub>2</sub>e)
- 6,179 MWh Reduced
- 21,083 MMBTU Reduced (Electricity Only)
- 9,791 MMBTU Reduced (Not Including Electricity)

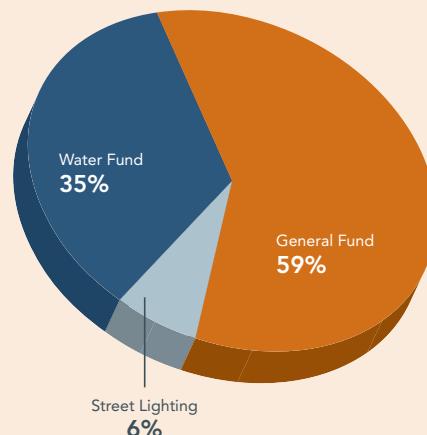
#### Energy Efficiency Capital Improvements

- 1,456 GHG Reduced (MT CO<sub>2</sub>e)
- 2,744 MWh Reduced
- 9,363 MMBTU Reduced (Electricity Only)
- 6,715 MMBTU Reduced (Not Including Electricity)



**PHILADELPHIA WATER DEPARTMENT** (PWD's) overall energy usage increased as its Biosolids Recycling Center, an energy-intensive facility that generates a high-value end product from wastewater, began running at full capacity. However, PWD will achieve major energy use reductions through its 5.6 megawatt biogas cogeneration plant at the Northeast Water Treatment facility, which provides 85 percent of the plant's electricity needs.

#### Municipal Energy Use



The lighting in City Hall's clock tower will be upgraded in 2014 as part of the guaranteed energy savings project. The clock tower upgrade is projected to save more than \$10,000 annually.

## TARGET 2

## Reduce Citywide Building Energy Consumption by 10 Percent

Similar to municipal energy use, citywide energy consumption increased in 2013, reversing a trend of reductions in previous years. The Mayor's Office of Sustainability (MOS) remains committed to achieving a 10 percent reduction in citywide energy use by 2015 and will continue to contextualize this progress by analyzing total energy usage by square footage and by considering the impact of weather as a driver of energy use (see chart below).

MOS and its partners in Philadelphia are tackling the challenge of energy efficiency in several ways. In 2013, Philadelphia became the sixth city in the United States to implement a mandatory building rating and disclosure policy, and the Philadelphia Redevelopment Authority and Office of Housing and Community Development took steps to advance green building in RFPs for new affordable housing development. Last year, representatives from Philadelphia also voted on the 2015 International Energy Conservation Code, helping to secure important wins that avoided major energy efficiency rollbacks in the new code.

As a result of these initiatives, Philadelphia continues to gain recognition as a leader in building energy efficiency nationwide. The American Council for an Energy-Efficient Economy rankings released in September 2013 placed Philadelphia among the top ten cities by building performance. Philadelphia also reached its highest-ever standing in the U.S. Environmental Protection Agency's tally of ENERGY STAR-certified buildings, jumping to 9th on the list with over 200 certified facilities region-wide.

## METRICS

- Adjusted Greenworks Baseline (2006)

**122.06** Trillion BTUs

- Current (2013)

**136.89** Trillion BTUs

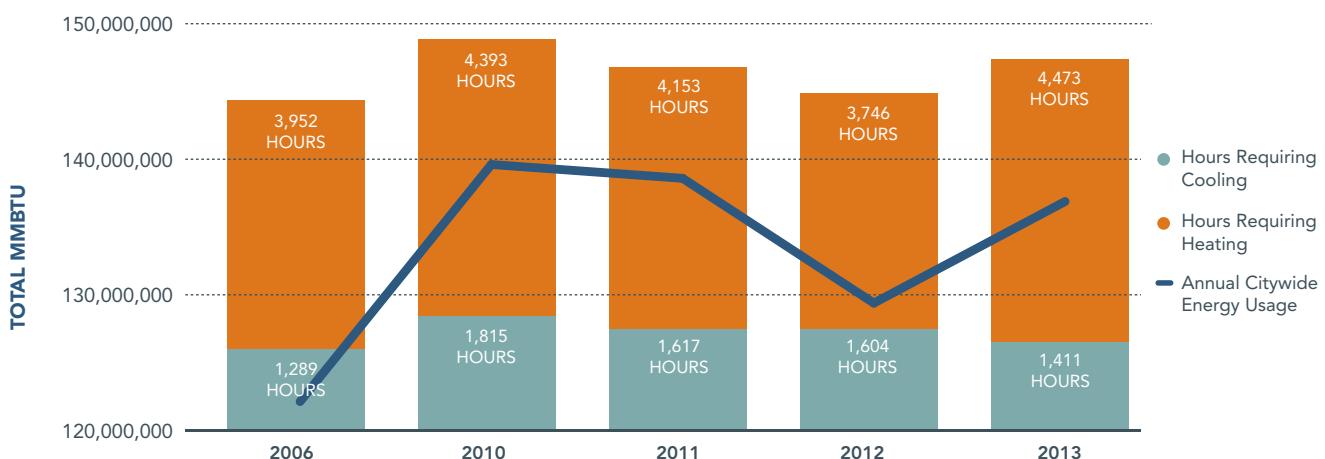
- 2015 Target

**109.85** Trillion BTUs

Philadelphia hosted 23,000 visitors for the 2013 Greenbuild Conference and Expo. Mayor Nutter is pictured here at the expo with staff from local construction and demolition recycling business Revolution Recovery.



## Weather as a Driver of Energy Use



Annual energy use is driven in part by cold winters and hot summers. The extreme winters of 2010 and 2013 resulted in higher-than-average citywide energy use, as reflected in this chart showing annual heating and cooling degree days.



# BENCHMARKING

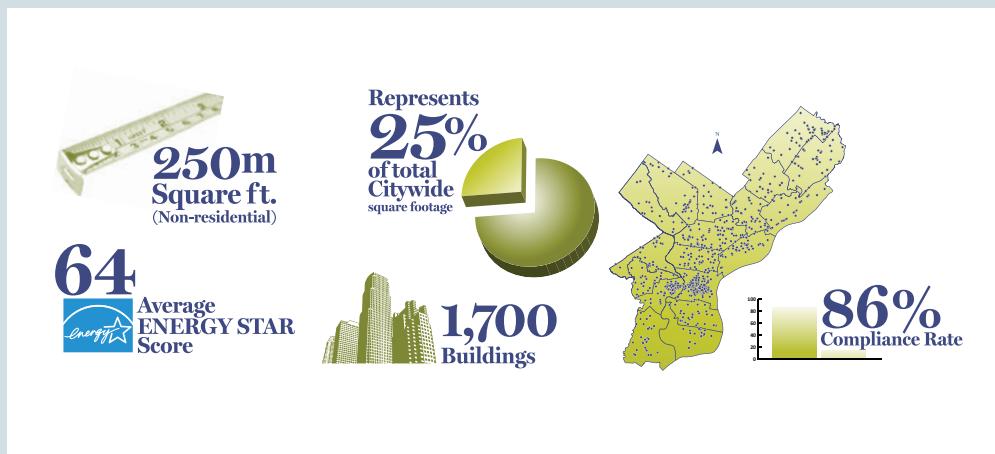
To achieve Greenworks Targets 1 and 2, the Mayor's Office of Sustainability (MOS) is committed to helping managers of both municipal and privately-owned buildings better understand energy usage data and trends at their facilities. Benchmarking can accomplish this by measuring energy performance against similar buildings in Philadelphia and nationwide. Buildings required to benchmark do so using the U.S. Environmental Protection Agency (EPA)'s Portfolio Manager tool, which generates a score based on usage and occupancy details and at least 12 months of utility information.

In 2013 MOS released the first report on energy usage at over 250 municipal facilities, ranging from police stations and libraries to City Hall. Benchmarking data helps City departments identify facilities with the greatest opportunity for improvement, as well as buildings whose performance makes them a model that similar buildings can follow.

More than 1,700 buildings participated in the first year of citywide benchmarking, thanks in large part to hard work by building owners and MOS partners, including the Delaware Valley Green Building Council, the Consortium for Building Energy Innovation (formerly the Energy Efficient Buildings Hub), and EPA Region 3. Philadelphia buildings eligible for a 1 to 100 ENERGY STAR score averaged a score of 64, 14 points higher than the national median. These results indicate that local buildings perform relatively well, but also highlight significant opportunities to save through improved building performance.

In 2014 MOS will publish 2013 municipal and citywide results. For the first time, a subset of citywide results will be publicly disclosed, giving owners, tenants, and prospective buyers valuable information about building performance.

Results from Year One Benchmarking Report,  
published in April 2014.



## TARGET 3

## Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing, and Cool Roofs

The residential sector is responsible for 40 percent of total building energy use in Philadelphia. Philadelphia's climate varies from high heat and humidity in the summer to long, cold stretches in the winter. After mortgage payments heating and cooling are the second-biggest costs of homeownership. The city's older building stock and electricity prices (16 percent higher than the national average) make energy retrofits a sound investment in Philadelphia.

Saving energy and money at home sounds simple, but knowing where to start can be tricky. To solve that problem, the City of Philadelphia and several utility and non-profit partner programs help residents identify and take advantage of opportunities to make their homes more comfortable and less expensive to operate. Since *Greenworks* launched in 2009, these programs have collectively helped retrofit 11,669 houses. With additional activity in the private contractor market and free homeowner trainings at local retailers, that number is just a fraction of the total number of retrofits.

The Philadelphia Housing Authority (PHA) continues to retrofit its single- and multi-family dwellings into efficient living spaces by participating in the Better Buildings Challenge. This challenge, run by U.S. Department of Energy, provides technical assistance and proven energy efficiency solutions to facility managers. In response to this challenge, PHA has created a Green Action Plan to reduce energy intensity 20 percent by 2020 in its 7.3 million square feet of housing.



## METRICS

- **Greenworks Baseline (2008)**

**3,500** Homes Retrofitted

- **Current (2014)**

**11,669** Homes Retrofitted

- **Adjusted 2015 Target**

**84,400** Homes Retrofitted

*Current figure includes only publicly funded retrofits*

## BY THE NUMBERS

### EnergyWorks Residential Retrofits

(468 HOUSES)

- 1,014 GHG Reduced (MT CO<sub>2</sub>e)
- 1,208 MWh Reduced
- 4,123 MMBTU Reduced (Electricity Only)
- 7,017 MMBTU Reduced (Not Including Electricity)

### ECA Residential Retrofits

(2,482 HOUSES)

- 5,375 GHG Reduced (MT CO<sub>2</sub>e)
- 6,408 MWh Reduced
- 21,864 MMBTU Reduced (Electricity Only)
- 37,216 MMBTU Reduced (Not Including Electricity)

### PDPH Green and Healthy Homes

(99 HOUSES)

- 214 GHG Reduced (MT CO<sub>2</sub>e)
- 256 MWh Reduced
- 872 MMBTU Reduced (Electricity Only)
- 1,484 MMBTU Reduced (Not Including Electricity)

### PHDC Residential Retrofits

(2,520 HOUSES)

- 5,458 GHG Reduced (MT CO<sub>2</sub>e)
- 6,506 MWh Reduced
- 22,199 MMBTU Reduced (Electricity Only)
- 37,785 MMBTU Reduced (Not Including Electricity)

### PGW EnergySense

(5,800 HOUSES)

- 12,561 GHG Reduced (MT CO<sub>2</sub>e)
- 14,974 MWh Reduced
- 51,092 MMBTU Reduced (Electricity Only)
- 86,966 MMBTU Reduced (Not Including Electricity)

### PHA (300 HOUSES)

- 650 GHG Reduced (MT CO<sub>2</sub>e)
- 775 MWh Reduced
- 2,643 MMBTU Reduced (Electricity Only)
- 4,498 MMBTU Reduced (Not Including Electricity)

## TARGET 4

## Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources

### METRICS

- Greenworks Baseline (2008)

**2.5%** Alternative Energy

- Current (2013)

**14.8%** Alternative Energy

- 2015 Target

**20%** Alternative Energy

Renewable energy production in Philadelphia doubled in the past year, reaching a new high of 11,402 MWh. A combination of smaller private solar installations and larger institutional co-generation projects helped achieve this gain, which is equivalent to the electricity used by 1,000 homes over the course of a year. If the trend of increased demand and rising prices for statewide renewable energy credit (REC)s continues, additional projects will once again be financially feasible.

Citywide REC purchases held steady from 2013, with institutions, small businesses, and residents continuing to opt for clean energy in large numbers. Municipal efforts to support renewable energy have shifted from national wind RECs to a local focus by purchasing higher impact RECs from nearby projects and developing a variety of alternative energy production sites.

In November 2013 the Philadelphia Water Department (PWD) completed construction on its 5.6 megawatt biogas cogeneration system at the Northeast Water Pollution Control Plant. The familiar gas flare on the side of I-95 has been replaced with a state of the art facility that captures a former waste product to generate 85 percent of the electricity and all of the heating needs for the site. This project received \$3.7 million in Act 129 rebates through the PECO Smart Ideas program, and will cut PWD's electricity use by 15 percent while eliminating 30,000 tons of carbon emissions annually.



PWD's 5.6 MW Biogas Cogeneration Plant went into service in November 2013.

### BY THE NUMBERS

**250 KW Solar Array Installed at SE Pollution Control Plant**

- 182 GHG Reduced (MT CO<sub>2</sub>e)
- 343 Renewable MWh Generated

**Citywide On-Site Generation**

- 6,054 GHG Reduced (MT CO<sub>2</sub>e)
- 11,402 Renewable MWh Generated

**Renewable Energy Credits**

**(City of Philadelphia) – 127,000 MWH**

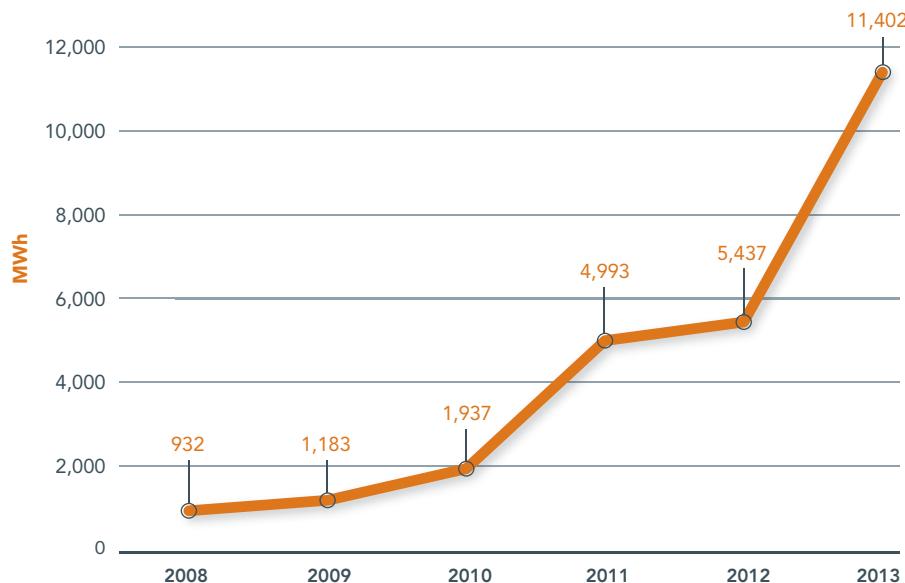
- 4,619 GHG Reduced (MT CO<sub>2</sub>e)
- 8,700 Renewable MWh Generated

**Renewable Energy Credits**

**(Rest of City) – 500,398 MWH**

- 265,6809 GHG Reduced (MT CO<sub>2</sub>e)
- 500,396 Renewable MWh Generated

### Renewable Energy Generation in Philadelphia (in MWh)



## TARGET 1: Lower City Government Energy Consumption by 30 Percent

INITIATIVE	PROGRESS 2014
COMPLETED	<b>Adopt Integrated Utility Bill Management System</b> In 2014 the City moved to a new platform for utility bill management, improving its ability to monitor, track and report on energy usage. It also allows for automatic transfer into Portfolio Manager, an online energy benchmarking tool.
	<b>Apply for All Available Utility Rebates</b> The Mayor's Office of Sustainability (MOS) is applying for rebates through Phase II of the PECO Act 129 Smart Ideas program, and will continue to pursue all available utility funding.
	<b>City Car Management Plan</b> The proposed FY15 budget for the Office of Fleet Management includes \$2 million for replacement of aged vehicles, which will increase the fuel efficiency of the fleet.
	<b>Develop Energy Load/Demand Management Practices</b> The City continues to participate in PJM's Demand Response program. In summer 2013 19 City facilities had a combined load reduction of 4.8 MW.
	<b>Establish Energy Efficiency Fund</b> The City's Energy Efficiency Fund was established in 2010. Since that time, the program has committed funding of approximately \$2.5 million to a variety of projects at City facilities with expected annual savings of more than \$480,000.
	<b>Establish Facilities Task Force</b> The Facilities Task Force completed its report in fall 2013, providing a series of actionable recommendations to the City that have the potential to save more than \$70 million over a five-year period.
	<b>Five-year Strategic Energy Plan (Water Department)</b> The Philadelphia Water Department (PWD) Utility Wide Strategic Energy Plan is in place. Project-specific plans are updated annually.
	<b>Implement Preventative Maintenance Plan</b> In the last year, the Department of Public Property provided Preventative Maintenance services to more than 100 City facilities with program savings exceeding \$500,000. Other City departments are exploring similar programs.
	<b>LEED Legislation for City Buildings</b> The recently completed Police SWAT building was awarded LEED Gold, and the City continues to pursue certification for new projects, including the Center for Law Enforcement and Public Health at 4601 Market Street, which is currently in initial design.
	<b>Re-establish Municipal Energy Office</b> Under the Nutter Administration, an energy office has been incorporated into MOS and the Mayor's Office of Transportation and Utilities. The office works on energy conservation and supply side strategies that reduce energy costs.
	<b>Upgrade Energy Efficiency of Vending Machines</b> Vending machines at Triplex buildings, City Hall, recreation centers, and other City facilities have been either retrofitted or replaced to increase energy efficiency. The City's current RFP requires new vending machines to be ENERGY STAR labeled.
	<b>Benchmark Large City Facilities</b> In January 2014 MOS released the first-ever benchmarking report for municipal buildings over 10,000 square feet, available for download on the MOS website. Municipal facilities will continue to report energy usage as part of the citywide benchmarking initiative.
	<b>Create Green Information Technology Plan</b> MOS and the Office of Innovation and Technology continue to work on implementing Green IT strategies. Recent work has produced policies regarding computer power management, IT purchasing, and remanufactured toner cartridge purchasing.
	<b>Encourage Conservation Among Employees</b> MOS and the Energy Office have conducted outreach and education on energy conservation at the Fire Department and Parks & Recreation.
	<b>Energy-Efficient Capital Investments</b> The City's first guaranteed energy savings project at the Triplex and City Hall will be completed in 2014. MOS continues to pursue additional projects as part of the Energy Efficiency Fund.
	<b>Green Building Training for City Employees</b> In 2014 MOS launched a training program to help municipal employees run City facilities more efficiently.
	<b>Identify Less-Expensive and Alternative Energy Sources</b> The City continues to purchase electricity and natural gas with a strategic wholesale approach and has expanded this approach to include vehicle fuel purchasing.
	<b>Implement Capital Budget Energy Guidelines</b> In FY14 the Office of Budget and Program Evaluation piloted a return on investment analysis for capital projects in several departments. The pilot identified the incremental capital and operating costs associated with each project as well as any operational savings, incremental revenue, or outside capital funding generated. Starting in FY16, the City plans to conduct this analysis for all new capital projects.
IN PROGRESS	<b>Include Energy Conservation in Future Building Maintenance Contracts</b> Through guaranteed energy savings projects, maintenance contracts at Triplex buildings will be updated to include energy efficient practices.
	<b>Install New Outdoor Lighting</b> Through the Energy Efficiency Fund, MOS and the Streets Department are installing new exterior LED lighting at sanitation yards. MOS continues to explore new opportunities for efficient outdoor lighting at City facilities.
	<b>Investigate Conversion of City Buildings from Steam Loop to Natural Gas</b> The City and the Philadelphia Museum of Art conducted an Investment Grade Audit (IGA) for a combined heat and power plant and are evaluating next steps.
	<b>Pilot AMI with City Buildings</b> PECO has begun the process of deploying smart meters in municipal buildings, with installation in most facilities to be completed by the end of 2014.
	<b>Pilot an Integrated Design Project</b> MOS is working with the Penn State Consortium for Building Energy Innovation to identify improvements to building controls and lighting systems at Health Center #5.

TARGET 1 (*continued*)

INITIATIVE	PROGRESS 2014
Remote Building Operations	As new building control systems are installed in City buildings, MOS has taken the lead in integrating them with IT infrastructure for remote operations. This allows for remote troubleshooting of building systems, increased accountability, and improved energy performance.
Use City Buildings to Test Emerging Energy Efficiency Technologies Where Feasible	MOS meets regularly with product manufacturers and entrepreneurs to keep track of new technology trends and their applicability to City facilities.
Use Future Energy Costs to Help Inform Building Acquisition/Expansion Decisions	As part of the Facilities Task Force recommendations, MOS and the Department of Public Property are considering a pilot space utilization redesign for the 13th floor of the One Parkway Building.

## TARGET 2: Reduce Citywide Building Energy Consumption by 10 Percent

INITIATIVE	PROGRESS 2014
Create a Revolving Loan Fund for Commercial and Industrial Energy Efficiency Retrofits	To date, the EnergyWorks commercial loan program has approved or closed more than \$18,859,410 of energy lending to support large-scale energy retrofit projects. Independently verified energy analyses estimate that these projects will save 71,800 MMBTUs per year.
Create an Energy Authority	The Philadelphia Energy Authority (PEA) was established in 2011 and continues to meet regularly to discuss current and future projects. The City and PEA are in close collaboration.
Develop Cool Roof Code	In May 2010 a law requiring all new construction and major renovation projects with low-sloped roofs to install ENERGY STAR-certified cool roofs was added to the building code. The Department of Licenses & Inspections now distributes ENERGY STAR Cool Roof information to contractors during the permit process.
Establish Power Purchase Pools for Small Businesses	Philly Buying Power (PBP), a City-endorsed program that aggregates small- and medium-size businesses forms large electricity-buying pools that can attract lower rates than businesses can find on their own. In 2013, businesses purchased 1,972,593 MWh of energy through PBP.
Explore Energy Benchmarking and Reporting for Large Commercial Buildings	Philadelphia City Council passed a mandatory energy benchmarking and disclosure law in 2012. Starting in 2013, commercial buildings over 50,000 square feet began annually benchmarking and reporting energy scores, which will become public beginning summer 2014.
Pursue Competitive Energy Efficiency and Conservation Block Grant through U.S. Department of Energy	The City of Philadelphia received a \$14 million formula EECBG grant, completing work on 12 supported energy efficiency programs in 2013. The City, in coordination with the Metropolitan Caucus and program partners, also received a competitive \$25 million Better Buildings grant to support the development of the EnergyWorks program, which offers low interest loans for energy efficiency improvements.
Consider Adoption of Green Building Code	The City integrated additional green building practices into the updated zoning code and solar installation regulations. City efforts continue to promote statewide adoption of energy efficient building standards which are necessary to maintain progress on local goals to reduce energy consumption, energy cost savings, and improve air quality.
Develop a Citywide Energy-Efficiency Marketing Campaign	The EnergyWorks marketing campaign ran from 2011-2013 and focused on educating homeowners in the five-county region about the benefits of energy efficiency and how they can take action. Valuable lessons were learned in understanding the target market for retrofits and what information, approaches and best practices resonated with consumers. The City has shared lessons learned with area utilities, participating contractors, and the U.S. Department of Energy.
Grant Floor-Area Ratio Bonuses	Zoning code adopted in August 2012 offers density bonuses on a sliding scale for development projects that receive LEED Gold or Platinum certification.
Install Advanced Metering Infrastructure	Through the Smart Future Greater Philadelphia project, funded by the U.S. Department of Energy and PECO, PECO is installing 600,000 smart meters and a meter data management system in the Philadelphia region.
Develop Energy-Efficiency Building Guidelines	The City continues to provide green building training for building inspectors and city planning staff. The Mayor's Office of Sustainability has also worked with the Philadelphia Redevelopment Authority and the Office of Housing and Community Development to promote energy efficiency and sustainable design.

IN PROGRESS

COMPLETED

IN PROGRESS

FUTURE

## INITIATIVE PROGRESS

### TARGET 3: Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing, and Cool Roofs

	INITIATIVE	PROGRESS 2014
COMPLETED	Explore Financing Options to Further Help Residents Access Capital for Retrofits	PECO Smart Ideas and PGW's EnergySense programs offer a variety of financing options for residential energy efficiency projects.
IN PROGRESS	Build Energy Efficiency Guidelines/ Requirements into Public and Low-Income Housing	MOS is collaborating with the Office of Housing and Community Development, the Philadelphia Redevelopment Authority, and the Philadelphia Housing Authority to adopt green building standards for all affordable housing projects in the city.
	Expand Current Low-Income Housing Weatherization Efforts	Funding from state and federal governments to support low-income home weatherization has been dramatically cut in recent years. Weatherization programs have reduced capacity given this context.
	Expand Scope of PGW's Weatherization Program and Increase Size	In 2011 PGW launched EnergySense, a portfolio of six energy efficiency programs available to residential, commercial and industrial customers. As of February 2014, EnergySense has weatherized nearly 6,000 homes, and provided over 1,200 rebates for new, high-efficiency natural gas equipment and another 20 grants towards energy efficiency projects at commercial and industrial properties.
	Promote Green and Healthy Homes	Since being selected as one of the fifteen sites in the country participating in the Green and Healthy Homes Initiative (GHHI), the Philadelphia Department of Public Health has combined energy efficiency with lead abatement and indoor air-quality improvements to enhance the well-being of children living in economically challenged neighborhoods. Through April 2014, with GHHI funding and a partnership with the PGW, 99 homes have been remediated.

### TARGET 4: Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources

	INITIATIVE	PROGRESS 2014
COMPLETED	Create Biogas Cogeneration Facility at Northeast Wastewater Treatment Plant	The Philadelphia Water Department (PWD) completed construction on its 5.6 megawatt biogas cogeneration system at the Northeast Water Pollution Control Plant. The system produces 85 percent of the electricity and all of the heating required on site.
IN PROGRESS	Join EPA Green Power Communities Program	The City of Philadelphia continues to support and promote the EPA Green Power Communities program. Large institutions, small businesses, and residents also participate by purchasing renewable energy credits.
	Recycle Deicing Fluid	Philadelphia International Airport sends deicing fluid directly to anaerobic digesters at the Philadelphia Water Department's Southeast Water Pollution Control plant. This program reduces aviation operating expenses, generates revenue for PWD, and produces useful biogenic methane.
	Report Solar Financing Options	The City is considering participating in a U.S. Department of Energy (DOE) funded Solar Market Pathways program which involves financial mechanisms for encouraging solar, such as community solar and Solarize.
	Write a Guide for Solar Development	The City is working with PECO and solar developers to ensure that existing policies and processes are up-to-date.
	Explore Vertical Axis Wind Turbines	Zoning code adopted in August 2012 allows small wind energy systems as an accessory use in all districts and allows wind energy equipment to encroach limited distances above building height limits.
	Install Geothermal System at Sewer Maintenance Facility	The West Philadelphia Maintenance Facility design is complete and includes a geothermal heat exchange system. Construction will be contingent on funding.
	Purchase Alternative Energy Credits for at Least 20 Percent of Municipal Electricity Use	The City is shifting its renewable energy purchasing goal from national wind credits to a focus on renewable projects closer to home. Starting in 2013 the City began purchasing higher impact RECs from local projects and developing a variety of alternative energy production sites.
	Reduce Regulatory Barriers to Solar Installation	The City is partnering with DVRPC and the National Association of Regional Councils to promote solar best management practices in the region through the DOE's SunShot Initiative Rooftop Solar Challenge II.
	Support Passage of State Legislation to Revitalize SAEC Market	Both Pennsylvania House Bill 1580 and Senate Bill 1350 remain stalled. Solar Alternative Energy Credit market prices in Pennsylvania increased slightly in 2013.
FUTURE	Educate Energy Purchasers on Benefits of Local Alternative Energy Credits	To support the growth of the local alternative energy industry, the City switched from purchasing national to Pennsylvania wind RECs. Several energy providers also offer local credits through www.papowerswitch.com.
	Explore Ways to Capture Water at Fairmount Park and Flat Rock Dams	New design of Flat Rock Dam is underway and includes space to accommodate a potential hydroelectric project.
	Promote Renewable Power Purchase Agreements for Public Buildings	The renewable energy market in Pennsylvania currently does not support viable renewable power purchase agreements. The City remains prepared to develop projects when the market improves.



# ENVIRONMENT

**GOAL:** PHILADELPHIA REDUCES ITS ENVIRONMENTAL FOOTPRINT

TARGET 5

## Reduce Greenhouse Gas Emissions by 20 percent

### METRICS

#### Municipal

- 1990 Baseline

596,829 t CO<sub>2</sub>e

- 2006 Baseline

557,170 t CO<sub>2</sub>e

- Current (2013)

507,871 t CO<sub>2</sub>e

- 2015 Target

477,463 t CO<sub>2</sub>e

#### Citywide

- Adjusted Greenworks Baseline (1990)

21.06 Million t CO<sub>2</sub>e

- 2006 Baseline

22.84 Million t CO<sub>2</sub>e

- Current (2010)

20.89 Million t CO<sub>2</sub>e

- Adjusted 2015 Target

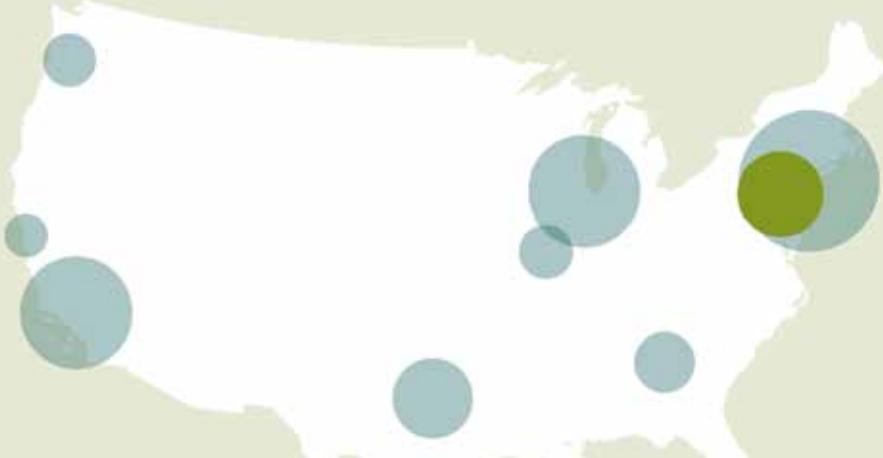
16.85 Million t CO<sub>2</sub>e

Effectively tracking greenhouse gas (GHG) emissions is an integral part of gauging progress on all of the City's sustainability initiatives, because most of the *Greenworks* targets contribute directly to reducing GHG emissions. The 2013 municipal inventory, which tracks emissions related to local government activities, shows a ten percent decrease since 2006, driven by continued energy conservation work, cleaner vehicle fuels, and new alternative energy generation projects.

MOS conducts GHG emissions inventories at both the municipal and citywide scales and tracks progress towards a 2015 goal, which is a relatively short time horizon for carbon accounting. Reducing GHG emissions in the near-term and at the local level shows that progress is achievable now. However, these incremental reductions do not eliminate the need for transformational change to meet ambitious long-term goals.

As mentioned on pages five and six of this report, MOS is currently working to reduce GHG emissions from buildings, which represent more than 60 percent of the city's total emissions. As one of ten cities selected to participate in the City Energy Project, Philadelphia will use energy benchmarking, building operator certification, and energy-aligned leasing to advance building efficiency. Based on year one benchmarking results, MOS estimates that bringing all of the underperforming buildings up to the national average could remove 500,000 tons of carbon dioxide from the atmosphere each year, while potentially saving building owners \$100 million in annual energy costs.

Carbon Emissions in American Cities



ATLANTA

NEW YORK

CHICAGO

PHILADELPHIA

DALLAS

PORLAND

LOS ANGELES

SAN FRANCISCO

MIAMI

ST. LOUIS

## TARGET 6

# Improve Air Quality Toward Attainment of Federal Standards

There were six unhealthy Air Quality Index (AQI) days reported by the Philadelphia Department of Public Health's Air Management Services (AMS) unit in 2013, 15 fewer than the previous year and the lowest number since 2009. Unhealthy AQI days have become less frequent over the past 25 years (see chart below), as stronger federal and local emissions standards have dramatically reduced concentrations of carbon monoxide, nitrogen dioxide, and other airborne pollutants.

To continue building awareness of Philadelphia's commitment to air quality action, AMS has set up a warning system at [www.phila.gov/aqi](http://www.phila.gov/aqi). This site provides real-time air quality data via the City's ten air quality monitoring stations as well as an easy-to-understand explanation of AQI values and links to services available to City residents and businesses during Action Days, when the AQI exceeds 100 on the 1 to 500 scale.

Philadelphiaans can improve air quality by factoring pollution into their transportation decisions. SEPTA continues to purchase hybrid buses, and anticipates that over half of its bus fleet will be low-emission hybrid diesel vehicles by 2015. In April 2014 the Mayor's Office of Transportation and Utilities announced that a bike share system will

launch in Philadelphia in 2015, giving residents, commuters, and visitors another emissions-free option for travelling within the city.



In fall 2013 the Chemical Heritage Foundation sponsored *Particle Falls*, a real-time visualization of air-quality data projected onto the façade of the Wilma Theatre on Broad Street.

## METRICS

### • Greenworks Baseline (2008)

20 Unhealthy AQI Days

### • Current (2013)

6 Unhealthy AQI Days

### • 2015 Target

10 Unhealthy AQI Days

## BY THE NUMBERS

### Purchase Biodiesel for Use in City Fleet

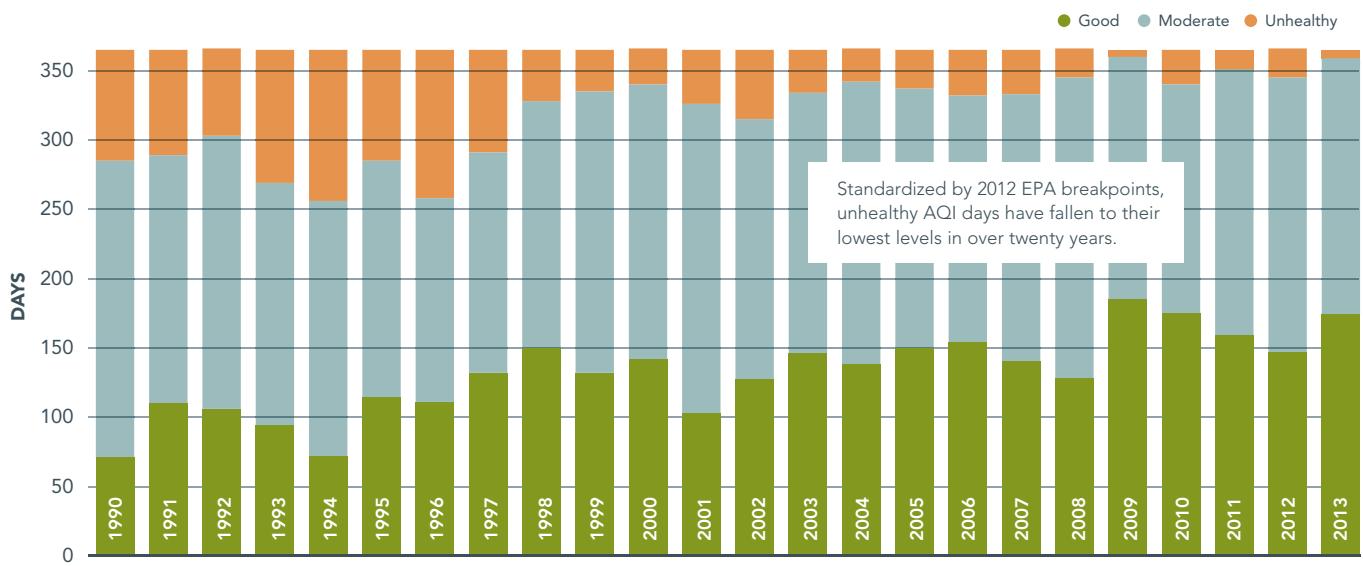
- 1,062 GHG Reduced (MT CO<sub>2</sub>e)

### Purchase Hybrid Buses

#### (SEPTA Purchased 472)

- 12,798 GHG Reduced (MT CO<sub>2</sub>e)
- 173,046 MMBTU Reduced (Not Including Electricity)

## Air Quality in Philadelphia



## TARGET 7

## Divert 70 Percent of Solid Waste From Landfill

## METRICS

## • Greenworks Baseline (2008)

53%

Waste Diverted from Landfill

## • Current (2012)

73%

Waste Diverted from Landfill

## • 2015 Target

70%

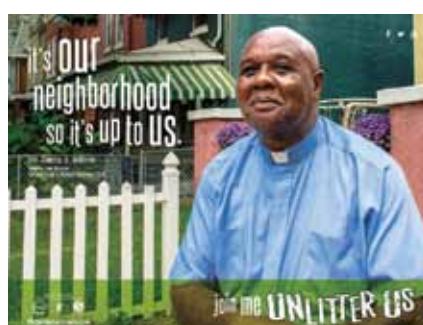
Waste Diverted from Landfill

Philadelphia exceeded the *Greenworks* goal of 70 percent waste diversion for the second consecutive year in 2012, the last year for which comprehensive waste data is available. Half of all waste was recycled, and another 23 percent was used for energy production. In 2013 the Philadelphia Streets Department began diverting all waste from landfill through a combination of recycling and waste-to-energy (WTE) practices.

To achieve a 73 percent diversion rate, the Philadelphia Streets Department improved recycling rates in all waste streams, capturing more than 1.3 million tons of recycling in 2012. Construction and demolition (C&D) waste diversion reached a record 80 percent in 2012, with a total of 243,365 tons of C&D material kept out of landfills for reuse and recycling. Residential recycling also reached an all-time high of 122,680 tons, which puts the curbside recycling rate at 21 percent. Each ton of recycling collected not only saves space in the landfill, it also avoids costly disposal fees and generates revenue for the City. The Philadelphia Streets Department supported a wide variety of citywide recycling and waste reduction efforts in the past year, distributing 60,000 recycling bins to residents and publishing the first *Business Recycling Toolkit*.



In April 2014 more than 14,000 volunteers took part in the Sixth Annual Philly Spring Cleanup, collecting over a million pounds of litter and 15 tons of recyclables. The City's Waste Watchers program, now in its fourth year, recruits volunteers to support recycling and composting efforts at major events. In November 2013 Waste Watchers volunteers helped the Philadelphia Marathon recycle or compost 86 percent of the waste generated during the race weekend. Waste Watchers was awarded a Cities of Service grant from Bloomberg Philanthropies to support expansion to five additional events in 2014 and 2015 including the Broad Street Run and the Philly Cycling Classic.



The Streets Department launched Recycle Full Cycle, a campaign that reminds Philadelphians to recycle no matter where they are. They continue to encourage residents to make Philadelphia litter free.

## BY THE NUMBERS

City Collected Curbside Recycling  
(122,680 TONS)

- 281,015 GHG Reduced (MT CO<sub>2</sub>e)
- 73,608 Waste Diverted from Landfills (tons)

Privately Collected Recycling  
(998,096 TONS)

- 2,286,272 GHG Reduced (MT CO<sub>2</sub>e)
- 598,858 Waste Diverted from Landfills (tons)

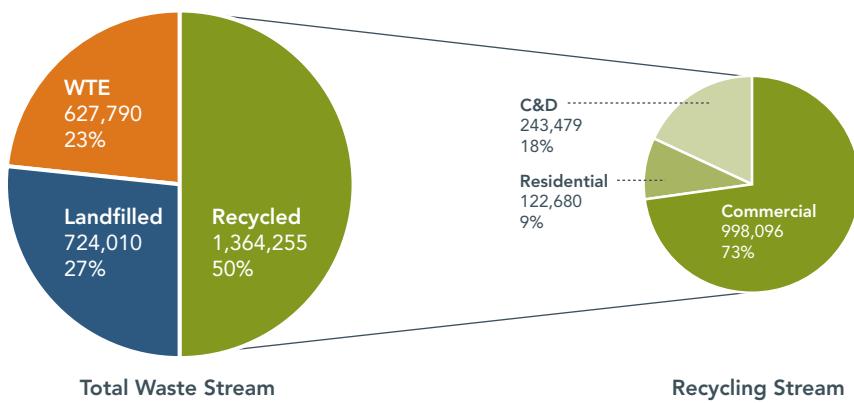
Electronic Waste Recycling  
(331 TONS)

- 762 GHG Reduced (MT CO<sub>2</sub>e)
- 331 Waste Diverted from Landfills (tons)

C&D Recycling  
(243,479 TONS)

- 172,870 GHG Reduced (MT CO<sub>2</sub>e)
- 243,479 Waste Diverted from Landfills (tons)

## Philadelphia's Waste and Recycling Streams



## INITIATIVE PROGRESS

### TARGET 5: Reduce Greenhouse Gas Emissions by 20 percent

	INITIATIVE	PROGRESS 2014
COMPLETED	Conduct Greenhouse Gas Inventory for Philadelphia International Airport	An updated greenhouse gas inventory is planned prior to the start of the Airport's Capacity Enhancement Program.
	Annually report GHG emissions and climate adaptation/mitigation strategies through Carbon Disclosure Project	In 2014 the Mayor's Office of Sustainability (MOS) participated in the Carbon Disclosure Project for the third consecutive year.
IN PROGRESS	Conduct Community Greenhouse Gas Inventory Every Two Years	MOS continues to work with the Philadelphia City Planning Commission, Air Management Services, and the Delaware Valley Regional Planning Commission to update the citywide greenhouse gas inventory.
	Advocate for Federal Climate Policy	The City of Philadelphia continues to engage in federal climate initiatives. In 2014 Mayor Nutter has served as an appointed member of the White House State, Local, and Tribal Leaders Task Force On Climate Preparedness and Resilience. The task force will release a report with recommendations in summer 2014.
	Maintain Greenhouse Gas Emissions Inventory for Municipal Government	MOS has completed municipal GHG inventories for the past three years.

### TARGET 6: Improve Air Quality toward Attainment of Federal Standards

	INITIATIVE	PROGRESS 2014
IN PROGRESS	Develop Green Ports Plan	In 2010 the Delaware River Port Authority completed the Green Ports Initiative report, which establishes energy efficiency, environmental management, procurement, waste, and water recommendations and metrics for the agency.
	Purchase Hybrid Diesel Buses	SEPTA's bus fleet features 472 hybrids, with plans to add an additional 205 by 2015, when approximately one-half of SEPTA's bus fleet will be powered by hybrid-electric technology. Among these 205 new hybrid vehicles will be SEPTA's first 60-foot articulated hybrid-electric buses.
	Retrofit Diesel Vehicles	Office of Fleet Management has replaced filters on all diesel fleet vehicles. As a result of Executive Order 1-07, all diesel non-road vehicles used in public works projects of over \$1,000,000 must install diesel retrofits to reduce particulate matter emissions by at least 20 percent.
	Airport Green Plan	Philadelphia International Airport (PHL) launched its Green Plan in 2010. In 2011 PHL completed an Organic Waste Pilot Program and is currently working to implement a material recovery facility on site.
	Congestion Reduction	The Mayor's Office of Transportation and Utilities continues to optimize traffic flow on key corridors by re-timing traffic signals.
	Consider Demand Pricing Schemes for Parking	The Philadelphia Parking Authority set different prices for parking on major commercial corridors depending on the day of the week and time of day. The selected prices and time limits aim to maintain approximately 80 percent parking occupancy, which reduces circling by vehicles searching for parking and in turn reduces congestion and emissions from automobiles.
	Develop a Compressed Natural Gas Facility	Clean Energy Fuels Corp. installed a CNG station near PHL on property owned by Wallypark. PHL is seeking FAA funding to acquire CNG buses for its parking shuttle fleet.
	Facilitate Use of Electric Vehicles	The Streets Department issued regulations allowing Philadelphia residents who own or lease an electric vehicle to apply for a reserved electric vehicle parking space on the street in front of their residence.
	Increase Parking Options for Bicycles and Motor Scooters	The City has installed 463 new bike racks since 2009. The Philadelphia Parking Authority established new parking zones to accommodate motorcycles and scooters in the area between Arch and Locust, and Broad and the Schuylkill River.
	Increase the City Fleet's Gas Mileage	The proposed FY15 budget for the Office of Fleet Management includes \$2 million for replacement of aged vehicles, which will increase the fuel efficiency of the fleet.
	Increase the Number of Hybrid or Compressed Natural Gas Taxis	Major medallion owners continue to add alternative fuel vehicles to their fleets.
	Increase the Use of Biodiesel Fuel in the City Fleet	All diesel vehicles in the City fleet currently run on biodiesel.

**TARGET 7: Divert 70 Percent of Solid Waste From Landfill**

COMPLETED

IN PROGRESS

INITIATIVE	PROGRESS 2014
Develop an Incentive-based Recycling Plan.	As part the Recycling Rewards program, the Streets Department and Recyclebank implemented Hunting Park Recycles in 2013, a targeted neighborhood initiative to improve recycling rates. Beginning in 2014, Recycling Rewards members can use points for additional discounts in the newly launched Recyclebank marketplace.
Expand Plastics Recycling	City expanded to plastics #1-7 in August 2010. In 2011, the City began accepting food and beverage cartons curbside and #6 polystyrene foam plastic at the Northeast Sanitation Convenience Center.
Anti-Littering and Recycling Campaign	The 2014 Philly Spring Cleanup event featured 569 projects and 14,225 volunteers. 1,123,000 pounds of litter along with 29,940 pounds of recyclables were removed. Segregated organics were also collected for recycling for the first time. The Philadelphia Streets Department updated the UnLitter Us campaign and launched the I'm Behind Recycling campaign in 2014.
Construction and Demolition (C&D) Waste Management Program	304,207 tons of C&D waste was generated in the City of Philadelphia in 2012, with approximately 80 percent of it being recycled.
Continue Event Recycling	The 2013 Philadelphia Marathon recycled or composted 86 percent of the 29.3 tons of waste generated. SCA event recycling bins continue to be utilized. Event recycling was supported by more than 200 Waste Watchers volunteers. The Waste Watchers program was awarded a Cities of Service grant from Bloomberg Philanthropies to expand to five additional events in 2014-15.
Continue/Expand Public Space Recycling	The Streets Department installed recycling receptacles in elevator banks at Municipal Services Building. In conjunction with Philadelphia Parks & Recreation, the Streets Department established a public recycling demonstration project at Cobbs Creek Park.
Enhance Electronics Recycling	2013 electronics recycling totaled 661,320 pounds, a 32 percent increase over the previous year. The City hosts eight electronic waste recycling events per year and operates three permanent drop-off centers. Many community partners also offer opportunities to recycle electronics, including events sponsored by civic organizations, and drop-off services at electronics retailers and office supply stores.
Include Sustainability Criteria in Solid Waste Contracts	During 2013 all City-collected waste was delivered to waste-to-energy plants. The Waste Management Spec Fuel Plant began processing 100 to 400 tons per day of City-collected trash in May 2014.
Increase Oversight of Recycling in Commercial Buildings	The Streets Department produced the first Business Recycling Toolkit to assist Philadelphia's businesses in establishing and maintaining strong recycling programs. The Streets Department also began a systematic inspection of all Center City retail locations to establish baselines for measuring compliance and educating business owners about recycling.
Increase Recycling at City Facilities	The Streets Department distributed more than 2,000 desk-side recycling bins to City government offices to capture more recyclable materials and assisted the Philadelphia Fire Department with its recycling program by providing 32-gallon bins for every firehouse. The Streets Department also produced a comprehensive government recycling guide for City office managers to guide implementation and maintenance of successful recycling programs.
<b>NEW   Increase Residential Recycling Tonnages</b>	A record 123,000 tons of recyclables were collected through the City's curbside program in calendar year 2013. The Philadelphia Streets Department distributed 60,000 curbside recycling bins in 2013, and the residential recycling diversion rate was recorded at 21 percent for the year.
Institute Sustainable Procurement Policy	The Procurement Department and MOS are partnering to examine contracts up for renewal or bid and to identify opportunities to add more sustainable requirements.
Place More Public Records, Plans, and Documents Online	In 2013 61 percent of the submissions received by the Records Department were recorded electronically, and 87 percent of employees filed financial disclosure statements electronically.
Promote Composting	The Waste Watchers program, now in its fourth year, promotes composting at large events. Private sector and institutional participation in composting programs continues to expand.
<b>NEW   Promote Stakeholder Engagement</b>	The Solid Waste and Recycling Advisory Committee (SWRAC) was officially reformed in November 2013. SWRAC meets monthly and is tasked with assisting the City in rewriting the Solid Waste Management Plan.



# EQUITY

**GOAL:** PHILADELPHIA DELIVERS MORE EQUITABLE ACCESS TO  
HEALTHY NEIGHBORHOODS

## TARGET 8

### Manage Stormwater to Meet Federal Standards

The number of greened acres in Philadelphia tripled in the last year, from 102 in 2012 to 323 in 2013. This marks significant progress towards the Philadelphia Water Department (PWD)'s goal, set out in its *Green City, Clean Waters* plan, to reach 450 new greened acres by 2015. Many types of green infrastructure projects installed on private property, public streets, and at schools and other institutions help to manage stormwater.

PWD distributed more than 1,000 free rain barrels to city residents in 2013, bringing the program total to 4,304. More than 90 green roofs have now been constructed in Philadelphia, with 65 new projects planned or underway. The cumulative total of green roof space has nearly doubled in the past three years, reaching more than 40 acres in 2013.

In February 2014 PWD published the *Green Streets Design Manual*, a compilation of green stormwater infrastructure design standards based on the City's experience installing more than 250 green streets projects. Because streets account for 38 percent of Philadelphia's impervious surfaces, they are an important part of the *Green City, Clean Waters* plan to manage stormwater. PWD collaborated with the Mayor's Office of Transportation and Utilities, Philadelphia Parks & Recreation, the Philadelphia City Planning Commission, the Streets Department, and others in developing the guide, which includes downloadable images and design files to support project planning and construction.

In May 2014 PWD and the U.S. Army Corps of Engineers completed the Indian Creek Daylighting project, which restored 1,300 feet of stream that had been buried in sewer for the past 86 years. PWD also advanced design and permitting for more than four miles of additional stream restoration and dam removal projects in the Cobbs, Tacony, Pennypack, and Wissahickon watersheds.

[RIGHT] The *Green Streets Design Manual* provides detailed guidance for the design and construction of green infrastructure projects, such as this stormwater tree trench. [BELOW] View of the green roof on the café at Sister Cities Park.



Planned and Constructed Green Roofs in Philadelphia



### METRICS

- **Greenworks Baseline (2011)**

0 New Greened Acres

- **Current (2013)**

323 New Greened Acres

- **2015 Target**

450 New Greened Acres



WRT

## TARGET 9

# Provide Walkable Access to Park and Recreation Resources for All Philadelphians

## METRICS

- Greenworks Baseline (2008)

**10,300**

Acres of Open Space

- Current (2012)

**10,442**

Acres of Open Space

- 2015 Target

**10,800**

Acres of Open Space

Since the launch of *Greenworks*, Philadelphia boasts 142 new acres of parks and open space and more than 16 new miles of trails.

2014 marked the opening of the William Dick Elementary Schoolyard, the first project completed by the Parks for People-Philadelphia initiative, a partnership among the Trust for Public Land, Philadelphia Parks & Recreation (PPR), the Philadelphia Water Department, and the School District of Philadelphia. Project partners collaborated with the school's students to redesign the schoolyard with new shade trees, a new play system, a turf field, a track, and a rain garden to manage stormwater. The site is the first of ten planned school yards and recreation centers, including the nearby Hank Gathers Recreation Center, where improvements will be completed later this year.

PPR is not only creating new open spaces, it is also working to improve existing assets. In fall 2013 PPR completed the Parkland Forest Management Framework, which identifies a number of pilot projects, including three large-scale restoration sites. PPR is engaging technical experts, land managers, and community partners in a participatory research process that will help them create forward-looking forest management practices, which acknowledge current ecosystem shifts and anticipate future climate changes.

The Philadelphia City Planning Commission, Mayor's Office of Transportation and Utilities, and PPR continue their work implementing the *Philadelphia Trail Master Plan* to increase connectivity between existing parks and other destinations, improve off-road safety for bicyclists and pedestrians, encourage Philadelphians to engage in physical activity, and create new open spaces. Since last year's *Greenworks* update, the City and external partners have completed 7.5 new miles of trails.

Skateboarders enjoy Paine's Park, a new mixed-use public space set along the banks of the Schuylkill River adjacent to the Philadelphia Museum of Art.



## Philadelphia Trail Progress Since 2011



## TARGET 10

## Provide Walkable Access to Affordable, Healthy Food for All Philadelphians

*Greenworks* aims to support the creation of new gardens, farms, and farmers markets that help increase access to affordable, healthy, and local food for Philadelphians. Since 2009, more than 100 new food access sites have sprung to life throughout the city, exceeding the *Greenworks* goal of 86 additional projects.

In early 2014 Mayor Nutter signed a law amending Section 9-213 of the Philadelphia Code to simplify creating and running farmers markets in Philadelphia. The update eliminates farmers market licenses and fees and requires that farmers markets register with the Philadelphia Department of Public Health (PDPH). The new law also removes restrictions on cooking demonstrations and sampling at farmers markets. PDPH created a Market Operator Guide to Farmers' Markets that outlines the changes and helps market operators through the new, simplified registration. The improved process will support the continued expansion of the number of farmers markets throughout Philadelphia.

Another important piece of legislation that passed during winter 2014 created the Philadelphia Land Bank. The Land Bank is a new City governing body that will manage vacant land, acquire underutilized properties, and oversee sales to responsible buyers. The Land Bank strategic planning process will include work to simplify and clarify policies that outline how to access City-owned land for growing food.



Children learn about urban agriculture at the Philadelphia Parks & Recreation's Happy Hollow Community Garden, part of Philadelphia's oldest playground, located in Germantown.

## METRICS

- Greenworks Baseline (2008)

230

Markets, Gardens, and Farms

- Current (2014)

340

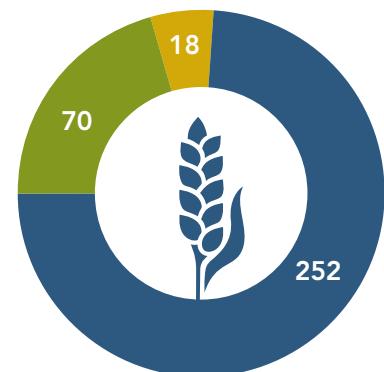
Markets, Gardens, and Farms

- 2015 Target

316

Markets, Gardens, and Farms

### Markets, Gardens, and Farms in Philadelphia



MARKETS  
GARDENS  
F FARMS

## TARGET 10



In 2011 Mayor Nutter convened the Food Policy Advisory Council (FPAC) to advise the City of Philadelphia on how to develop responsible policies that improve access for residents to culturally appropriate, nutritionally sound, and affordable food that is grown locally through environmentally sustainable practices. The FPAC is currently prioritizing work on hunger prevention, local food procurement, vacant land, and food waste reduction.

### + Anti-Hunger Subcommittee

The Anti-Hunger Subcommittee is developing a comprehensive, neighborhood-specific food resources toolkit that will make accessing fresh, affordable, and healthy food easier for Philadelphians. The toolkit will map a diverse range of resources, from soup kitchens to farmers markets. The subcommittee recommends that the City train employees on the toolkit and use 311 to encourage individuals, nonprofits, and other partners to use the toolkit.

### + Local Food Procurement Subcommittee

The Local Food Procurement Subcommittee is working with the City to identify a partner to pilot local and sustainable food purchasing by a City agency. The subcommittee recommends that while the pilot is in progress, the City integrate support for local and sustainable food purchases into new contract opportunities as they arise. To facilitate the success of local food contracts, the subcommittee recommends training local and sustainable food vendors on how to conduct business with the City.

### + Vacant Land Subcommittee

The Vacant Land Subcommittee recommends that the City continue to implement existing disposition policies, which create a pathway to permanence for gardens with a sustained track record of maintenance and broad community support. These and other urban agriculture policies, including considering discounted pricing for food-producing projects, should be used as a starting point for new Land Bank policies. In 2013 the subcommittee began work on a vacant land inventory and analysis. The City should work with the FPAC to utilize this information to expand opportunities for new gardens and market farms. The subcommittee also launched a Soil Safety Working Group this year, which will make policy recommendations for vacant lots this year.

### + Zero Waste Subcommittee

The Zero Waste Subcommittee is currently working on a white paper about Philadelphia's recycling and composting infrastructure and the City's current capacity for diverting waste. The subcommittee recommends that the City build on its current recycling and reuse programs to strive for zero waste, which the subcommittee defines as a 90% diversion rate. The City should also support the diversion of food from the waste stream by facilitating surplus food donation and composting activities in both the public and private sectors.

## TARGET 11

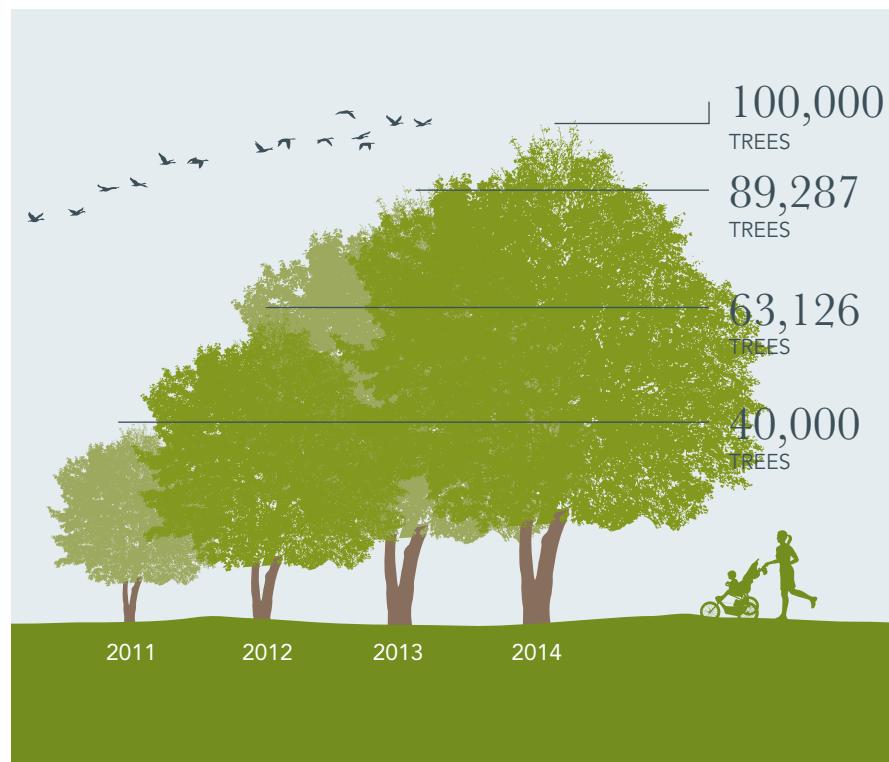
## Increase Tree Coverage toward 30 Percent in All Neighborhoods by 2025

In fall 2013 Philadelphia Parks & Recreation (PPR) celebrated planting their 100,000<sup>th</sup> tree since Mayor Nutter took office. The more than 10,000 trees planted in 2013 bring Philadelphia a third of the way to the *Greenworks* goal of planting 300,000 trees. PPR plants trees in public parks and street tree pits, and gives free trees to residents for planting in front, back, and side yards through its TreePhilly program. Since its launch in 2011, TreePhilly has given 8,000 trees to residents and taught a wide audience of Philadelphians about tree planting and maintenance.

In 2013 PPR tree planting and giveaway programs expanded to include food producing trees. TreePhilly gave away fruit trees including peach, plum, cherry, apricot, and pear varieties. In partnership with the Philadelphia Orchard Project (POP) and the Penn State Philadelphia Master Gardeners, PPR planted the Permaculture Food Forest Demonstration Garden at the Fairmount Park Horticulture Center, which teaches Philadelphians about a new way to grow food in the city. PPR also partnered with POP and the Pennsylvania Horticultural Society on the Philadelphia Prison Orchard Project, a two-acre parcel at the Philadelphia Industrial Correctional Center that will be home to an orchard of more than 180 fruit-bearing trees and berry bushes donated by PPR and TreePhilly.

City-based growing of trees at the Greenland nursery for use by PPR and the Philadelphia Water Department expanded with a new pot-in-pot growing system and upgraded watering infrastructure that is more effective and more efficient. The pot-in-pot system includes “socket” pots below grade into which standard nursery pots nest. This approach has many benefits over traditional above ground growing including moderating root temperatures and preventing plants from blowing over, while still allowing harvesting with no digging. The resulting container plants are also easy to handle and can be planted almost any time of year.

### Cumulative Trees Planted Since 2011



## METRICS

- Greenworks Baseline (2008)

0 New Trees

- Current (2013)

100,000 New Trees

- 2015 Target

300,000 New Trees



Philadelphia Parks & Recreation employees hung love notes in trees as part of their City of Arborly Love campaign to rally residents around the importance of planting trees in the city.

**TARGET 8: Manage Stormwater to Meet Federal Standards**

COMPLETED

IN PROGRESS

INITIATIVE	PROGRESS 2014
Develop Sustainable Stormwater Management Plan	The Green City, Clean Waters Implementation and Adaptive Management Plan, the first deliverable of the City's Consent Order and Agreement with the Commonwealth of Pennsylvania, was formally accepted by the Pennsylvania Department of Environmental Protection (PADEP) on November 15, 2012.
Expand the Rain Barrel Program	1,050 rain barrels were distributed by the Philadelphia Water Department (PWD) in FY14, bringing the total to 4,304 rain barrels distributed through the free rain barrel program. This year PWD will combine the Rain Barrel and Rain Check programs under the Residential Stormwater Program.
Create new tidal/non-tidal wetlands along Delaware and Schuylkill Rivers	In 2013 PWD completed a comprehensive study of its entire stormwater system to assess feasibility of stormwater treatment wetlands. The study screened each stormwater outfall's potential for a wetland retrofit. In total, 394 storm-sewersheds were assessed and rated for their wetland creation potential.
Control Pollution and Trash on the Rivers	In Fiscal Year 2014, PWD continued its aggressive strategy of debris and floatables removal on the Delaware River and tidal Schuylkill River. During this period, PWD removed 24 tons of trash from this area with an additional 2.7 tons removed from the non-tidal portion of the Schuylkill River between Fairmount Dam and Flatrock Dam.
Create Green Streets	With significant support from various City partners, including the Streets Department, Planning Commission, and Mayor's Office of Transportation and Utilities, PWD developed standard details and a permitting process for the design and installation of green streets by both public and private entities. This information is presented in the <i>Philadelphia Green Streets Design Manual</i> , published in early 2014.
Green Surface Parking Lots	As of spring 2014 PWD has approved 189 porous pavement projects, totaling 79 acres.
Implement New Stormwater Fees & Credits	As of July 1, 2013, all non-residential PWD customers are paying a stormwater fee fully based on parcel size and impervious area. Many customers continue to take advantage of PWD's credits program, and interest in the Stormwater Management Incentives Program (SMIP) continues to grow. To date, PWD has approved 36 SMIP grant projects.
Improve Stormwater Management at City Airport Facilities	The Philadelphia International Airport Perimeter Gate 8 project completed construction in 2013, with vegetated swales and porous pavement incorporated to mitigate stormwater drainage. Construction is ongoing for the Rental Car Facilities Expansion and Terminal F Baggage Claim projects, both of which include bioretention basins. Stormwater management is also included in plans for improvements to existing rental car facilities.
Increase the Number of Green Roofs	Fourteen additional green roofs have been constructed, bringing the current total to 94 (45 acres). An additional 21.8 acres are either under construction or planned at 65 sites around the city.
Maintain Recent Stormwater Regulatory Changes	Since 2006 PWD approved over 2,200 acres of development under the Stormwater Regulations, including 284 acres as part of 72 approvals to date in FY14. PWD has recently undertaken an effort to enhance the regulations for FY16.
Offer Incentives to Property Owners who Build Green Stormwater Infrastructure	Non-residential PWD customers, Business Improvement District (BID)s, Neighborhood Improvement Districts, and Special Services Districts are eligible for SMIP, which offers green stormwater infrastructure implementation grants. To date, 36 properties have been awarded SMIP grants, and three BIDs are engaged in stormwater planning studies through the SMIP BID grant program. Residents served by the combined sewer are eligible for PWD's Rain Check program, which shares costs of residential landscape improvements that help manage stormwater runoff and beautify homes.
Restore Waterways	PWD completed construction of the Indian Creek Daylighting project in partnership with the U.S. Army Corps of Engineers. The project resulted in 750 feet of daylighted stream channel and 1,300 feet of restored stream, which will reduce combined sewer overflow volume. PWD also continued designing and permitting stream restoration and dam removal projects in the Cobbs, Tacony, Pennypack, and Wissahickon watersheds. In total, these projects will result in more than four miles of stream restoration.

**TARGET 9: Provide Walkable Access to Park and Recreation Resources for All Philadelphians**

IN PROGRESS

INITIATIVE	PROGRESS 2014
Create a Corridor Network Connecting Parks, Neighborhoods, and Trails Citywide	The Philadelphia City Planning Commission and Philadelphia Parks & Recreation (PPR) released the Philadelphia Trails Master Plan in spring 2013. The plan defines priorities for future trail development in Philadelphia. Since 2011, 24.5 miles of trails have been constructed, are under construction, or have been designed.
Develop Parkland and Open Space Connections Along the City's Creeks and Rivers	PPR, the Schuylkill River Development Corporation (SRDC), and the John Bartram Association have completed a collaborative design process for Bartram's Mile along the western shore of the Schuylkill River between Grays Ferry Avenue and 58th Street. The Delaware River Waterfront Corporation continues projects to create a linear park along the Delaware River, and SRDC and the City continue construction of the Schuylkill River boardwalk from Locust Street to the South Street Bridge.
Explore the Use of Innovative Financing for Open Space Development	PPR is partnering with PWD and the Trust for Public Land (TPL) on the Parks for People program to create new green play spaces in underserved neighborhoods. The first site in the pilot, William Dick Elementary School, was completed in 2014, and seven additional sites are currently in design.
Increase Stability of Fairmount Park Ecosystem	PPR's Urban Forestry and Ecosystem Management Division is implementing the Parkland Forest Management Framework completed in fall 2013.
Prioritize New Green Space Creation Within Low-Served Neighborhoods	Parks for People focuses on areas of need identified by PPR's Green2015 open space plan.

**TARGET 10: Provide Walkable Access to Affordable, Healthy Food for All Philadelphians**

INITIATIVE	PROGRESS 2014
Establish Food Policy Advisory Council	Mayor Nutter appointed the Food Policy Advisory Council (FPAC) in 2011. In 2013 and 2014 FPAC held its first town hall, created an orientation process for newly appointed members, and helped update emergency food access information available through 311. FPAC also formed a new subcommittee on waste in the food system.
Expand the Number of Neighborhood Farmers Markets	In 2014 The Food Trust is expanding the number of markets it runs in Philadelphia from 25 to 29. The Philadelphia Department of Public Health (DPH)'s Get Healthy Philly program is expanding support and programming for its eight markets in underserved neighborhoods.

## INITIATIVE PROGRESS

IN PROGRESS

Include Fresh Food Market Incentives in Zoning Code	Zoning code adopted in August 2012 provides floor area, building height, and parking requirement reduction incentives for fresh food markets to locate in a variety of zoning districts.
Encourage Distribution of Healthy Food in Neighborhood Stores	Through a partnership between PDPH and the Food Trust, 650 corner stores were recruited to participate in the Healthy Corner Store Initiative.
Foster Commercial Farming	Zoning code adopted in August 2012 allows market or community-supported farms, horticulture nurseries, and greenhouses as principal or accessory uses in a variety of zoning districts.
Foster School-Based Efforts	PDPH conducted trainings for foodservice staff at the School District of Philadelphia on fresh produce preparation and presentation, including Farm to School promotion and the use of fruit slicing equipment.
Integrate Anti-Hunger Efforts into Food and Urban Agriculture Goals	PDPH created Philly Food Bucks to promote spending food stamp benefits at farmers markets. In 2013 PDPH markets reported \$51,000 in Food Bucks redemptions and \$60,000 in SNAP sales. FPAC plans to publish neighborhood-specific food resource guides in 2014.
Leverage Vacant Land	Landholding agencies created a comprehensive list of City-owned parcels available for sale at www.PhillyLandWorks.com. The Mayor's Office of Sustainability (MOS) and FPAC will participate in strategic planning for the Philadelphia Land Bank to represent the perspective of food growers.
Provide Technical Assistance to Community Gardeners and Urban Farmers	During the 2014 growing season, Philadelphia Parks & Recreation is partnering with the Penn State Extension to provide technical assistance to gardens at 21 recreation centers.
Publicize Local Food-Source Efforts	FPAC participated in Fair Food Philly and the Pennsylvania Association for Sustainable Agriculture's third Philly Farm & Food Fest, a day of eating and hands-on learning about the regional food system, in April 2014. Fair Food and GRID Magazine published the 10th Anniversary Philadelphia Local Food Guide.
Support Expansion of Food Co-ops	The City continues to support the South Philly Co-op's real estate search and the creation of the Kensington Community Food Co-op's first store. The Philadelphia Industrial Development Corporation (PIDC) provided 19 percent of the capital for the expansion of Mariposa Food Co-op, which opened its new location in March 2012.
Support Green Kitchen Development	PDPH, the Commerce Department, and PIDC supported the creation of the Enterprise Center CDC's Center for Culinary Enterprises, a shared-use culinary business center.
Update Food Business Guide	The Guide to Opening a Stationary Food Business in the City of Philadelphia was released in spring 2013, and the Department of Public Health published all necessary information for new food businesses at www.phila.gov/health/foodprotection/NewFoodBusinesses.html.

## TARGET 11: Increase Tree Coverage Toward 30 Percent in All Neighborhoods by 2025

COMPLETED

IN PROGRESS

INITIATIVE	PROGRESS 2014
Change Street Tree Rules Involving Property-Owner Permission	Philadelphia Parks & Recreation (PPR) established a notification and opt-out process for owners of property abutting planned street tree plantings. PPR is sending opt-out letters to both home and business owners.
Create Urban Tree Forest Management Program	PPR's Urban Forestry and Ecosystem Management Division completed the Parkland Forest Management Framework in 2013, and is focusing on three large-scale (20+ acre) experimental sites, using a variety of restoration techniques, and carefully monitoring the results.
Establish City-wide Public Tree Planting Campaign	PPR worked with Masterminds advertising agency on the City of Arborly Love communications platform, a tree twist on Philadelphia's "City of Brotherly Love" slogan and a lighthearted, fun way to catch Philadelphians' attention and make them want to learn more about trees.
Establish Seasonal Tree Maintenance Associate Program	In 2014 PPR's TreeKeepers expanded their work season from six to nine months and received raises. Seven of the original nine TreeKeepers returned for a second season. In 2013 TreeKeepers visited more than 60 unique sites, pruned more than 3,500 trees, removed more than 105 tons of debris, and performed maintenance, inspection, and inventory of 1,000 City-planted street trees.
Launch Local Carbon Offset Market	Through a partnership between the City, the U.S. Forest Service, and Fairmount Park Conservancy, the Erase Your Trace website launched in spring 2009. The tool allows for the purchase of carbon offsets that benefit local tree planting efforts.
Provide Incentives for Preserving Large Caliper Trees	The new zoning code adopted in August 2012 provides credits for preserving existing trees in §14-705(1).
Revise the Zoning Code Regarding Trees for Surface Parking Lots	The new zoning code adopted in August 2012 requires any surface parking area located within 20 feet of any public street to include trees.
Decrease the Cost of Tree Planting	Through fall 2013, the TreePhilly campaign purchased and distributed more than 8,000 container trees for planting by homeowners in yards and volunteers in public spaces.
Fully Stock Street Trees Adjacent to All City Facilities	PPR is partnering with other City departments and large landowners including SEPTA, the School District of Philadelphia, the Philadelphia Fire Department, and the Philadelphia Prisons System to plant street trees and interior trees in neighborhoods with low tree canopy coverage.
Green the Schools	The Trust for Public Land is leading Parks for People-Philadelphia, a partnership among PPR, Philadelphia Water Department, and the School District of Philadelphia to green schoolyards.
Initiate City-Based Growing	PPR's Greenland nursery expanded its production to 10,000 trees and woody shrubs this year for planting in natural areas and use in PWD green stormwater infrastructure.
Prioritize Tree Planting in Low-Canopy, High-Crime Districts	TreePhilly is working on giveaways with PhillyRising, a Managing Director's Office program that creates partnerships with neighborhoods plagued by chronic crime and quality of life concerns.
Strengthen and Increase Public-Private Maintenance Partnerships	TreeKeepers partners with local groups on beautification projects and proper tree maintenance.
Target Empty Tree Pits	PPR is attempting to replant in all pits as soon as a tree is removed. Citizen surveys of empty pits are helping PPR target areas for inspection and planting.



# ECONOMY

**GOAL:** PHILADELPHIA CREATES A COMPETITIVE ADVANTAGE FROM SUSTAINABILITY

TARGET 12

## Reduce Vehicle Miles Traveled by 10 Percent

### METRICS

- Greenworks Baseline (2005)

**5.96**

Billion Vehicle Miles Traveled

- Current (2012)

**5.45**

Billion Vehicle Miles Traveled

- 2015 Target

**5.36**

Billion Vehicle Miles Traveled

2013 was a year of growth in Philadelphia, as both the local economy and population expanded. According to the Bureau of Labor Statistics, total employment in Philadelphia in 2013 reached a ten-year high, and 2013 Census estimates showed a net increase of 4,500 new residents, the seventh consecutive year of growth. As a result, 2013 also saw the first uptick in vehicle miles traveled (VMT) since before the recession, with total mileage increasing 1.9 percent to 5.45 billion.

Despite the rise in VMT, the percentage of commuters traveling by means other than cars, particularly via public transit, continues to grow. SEPTA ridership has remained at a 24-year high, reflecting a broader trend: the American Public Transit Association reported that nationwide transit ridership is at its highest level since 1956.

Over the last year, Philadelphia also made major strides in bicycle and pedestrian infrastructure, highlighted by the Mayor's Office of Transportation and Utilities (MOTU)'s announcement that a bike share program will launch in Philadelphia in spring 2015. MOTU anticipates a system of between 150 and 200 stations in the initial deployment area with as many as 2,000 bicycles available to residents, commuters, students, and visitors.



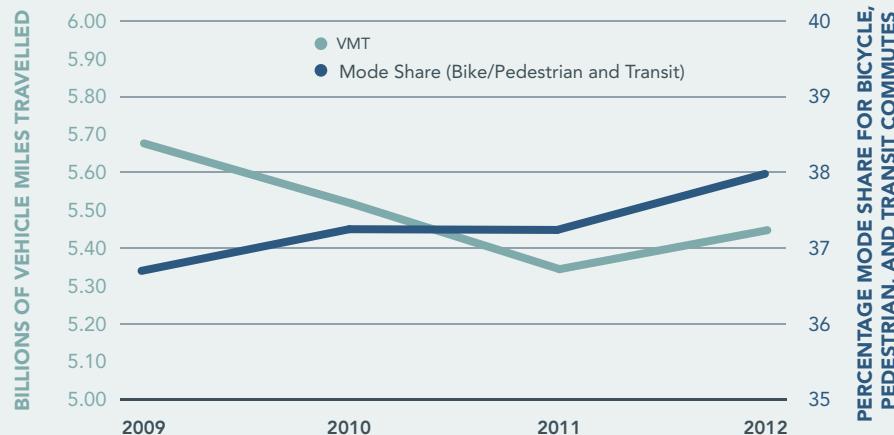
#### MOTU and the Streets

Department also worked to improve pedestrian safety in Center City Philadelphia by placing "stop bars" on resurfaced streets 12 feet back from crosswalks, giving pedestrians more space to cross busy intersections.

Deputy Mayor for Transportation and Utilities

Rina Cutler and her staff celebrate the announcement of Philadelphia's bike share system, which will launch in spring 2015.

### Philadelphia Population and Vehicle Miles Traveled

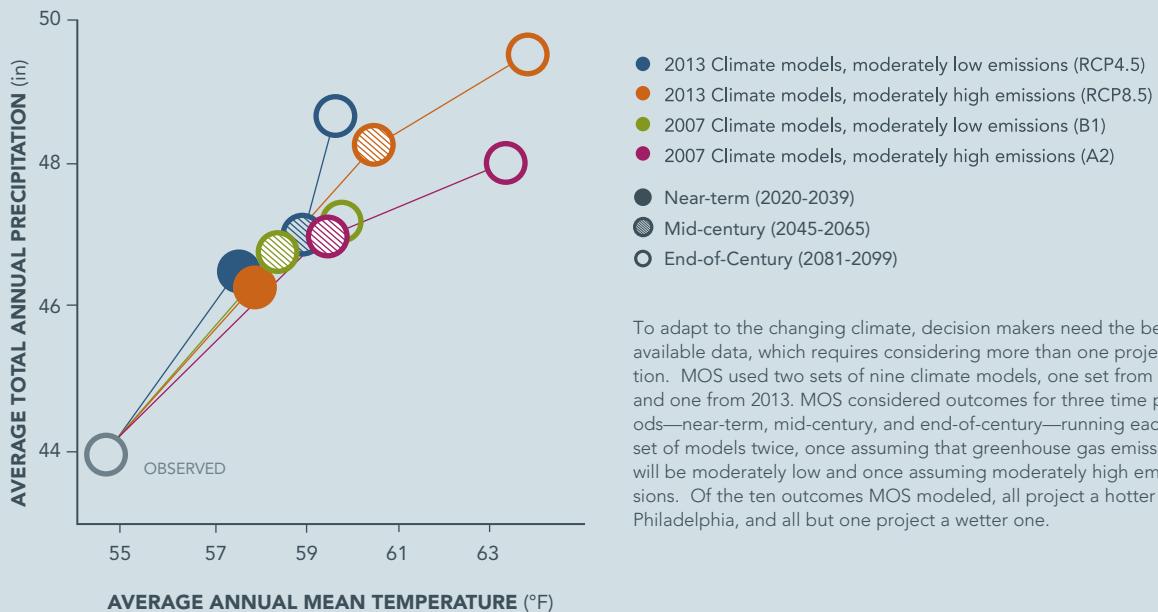


Philadelphia saw a slight uptick in vehicle miles traveled in 2012, but VMT remain well below the Greenworks baseline. At the same time, commuting by transit, bicycling, and walking is an increasingly popular option for Philadelphians.

# Climate Science and Adaptation Planning

**PHILADELPHIA'S CLIMATE IS CHANGING.** Since the last *Greenworks* progress report only a year ago, Philadelphia experienced the rainiest summer and the second snowiest winter on record. To help the City and external partners better prepare for projected changes in climate, MOS worked with climate scientists to publish “Useful Climate Information for Philadelphia: Past and Future,” a summary of local historical climate norms and projected changes. As outlined in the report, the best available climate information suggests that weather in Philadelphia will be warmer and wetter in all seasons and that sea level rise will not only continue, but also accelerate towards the end of the 21st century.

**Projected Changes in Average Annual Temperature and Total Annual Precipitation in Philadelphia**



To adapt to the changing climate, decision makers need the best available data, which requires considering more than one projection. MOS used two sets of nine climate models, one set from 2007 and one from 2013. MOS considered outcomes for three time periods—near-term, mid-century, and end-of-century—running each set of models twice, once assuming that greenhouse gas emissions will be moderately low and once assuming moderately high emissions. Of the ten outcomes MOS modeled, all project a hotter Philadelphia, and all but one project a wetter one.

Climate projections suggest that Philadelphia may experience between four to ten times as many days per year above 95°F, and as many as 17 days a year above 100°F by the end of the century, up from the current average of one. And more of these hot days may arrive together as heat waves, which increases the risk of residents experiencing heat related health problems including dehydration, heat exhaustion, and heat strokes. Philadelphia is also projected to experience more heavy and extremely heavy precipitation events per year, with the largest increase in precipitation that falls during winter months. These heavy precipitation events often exceed the capacity of our storm sewer infrastructure.

MOS is presenting these local climate projections to City agencies that manage programs and assets that will be influenced by the changing climate. After sharing climate projections, MOS is gathering information on the magnitude and importance of these changes' potential influences on City operations. MOS and partner agencies will use this information to prioritize more in depth analyses of the City of Philadelphia's climate vulnerabilities.

## TARGET 13

## Increase the State of Good Repair in Resilient Infrastructure

## METRICS

## • Greenworks Baseline (2008)

73%

of Assets in a State of Good Repair

## • Current (2013)

77%

of Assets in a State of Good Repair

## • 2015 Target

80%

of Assets in a State of Good Repair

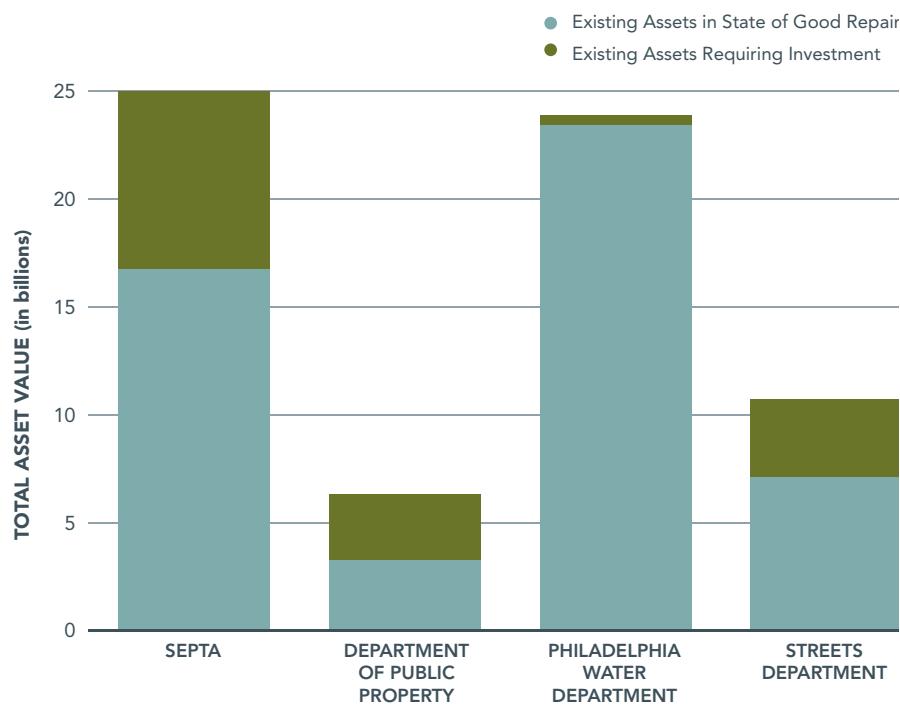
The first step toward bringing the City's infrastructure up to a state of good repair is knowing the current status of existing assets. In collaboration with the Office of Innovation and Technology, the Department of Public Property is conducting a feasibility study to develop a citywide Asset Management Program (AMP). As recommended by the Mayor's Task Force on City Facilities in 2013, the AMP would manage all data on City-owned facilities in a uniform and consistent manner.

In addition to maintaining its network of pipes and treatment plants, the Philadelphia Water Department (PWD) is ramping up investment in green infrastructure citywide. In 2013 PWD completed construction of the Indian Creek Daylighting Project, and is currently moving forward with design and permitting for additional stream restoration and dam removal projects. These investments will reduce annual combined sewer overflow volume and alleviate stress on existing infrastructure.

The recently passed Act 89, which provides statewide funding for streets, bridges, and public transit, will boost investment in Philadelphia's infrastructure by increasing funding for SEPTA and the Streets Department—money that is badly needed for repairs after the brutal winter of 2013-14. From January 1<sup>st</sup> through May 27<sup>th</sup>, the Streets Department repaired more than 35,000 potholes citywide, twice the usual average for an entire year.

While working to reduce its \$5 billion project backlog using Act 89 funding, SEPTA will also update its state of good repair (SGR) metrics in response to requirements under the new MAP-21 federal transportation funding program. The Federal Transit Administration is currently developing these new metrics, which SEPTA will use to measure performance and progress in reducing its SGR backlog in future years.

## State of Good Repair in Resilient Infrastructure



## TARGET 14

## Increase the Size of the Regional Clean Economy

Since the green jobs movement began in the early 2000's, sustainable economic development policies have evolved to include a more expansive clean economy sector. The Mayor's Office of Sustainability (MOS) partnered with PhiladelphiaWorks to take a new look at the clean economy through a survey focused on employment, industry, and workplace practices that support a sustainable environment, workforce, and economy. This new sector expands on previous narrow green job definitions that included only full-time workers who produce green goods and provide green services. The clean economy includes organizations that use green technologies and practices and employees who spend part of their time making green products, providing green services, and using green technologies.

To establish a 2012 baseline of the size of the clean economy, MOS and PhiladelphiaWorks worked with reed|group to administer a regional workforce survey that used a transparent, replicable methodology to document the number of workers and types of businesses participating in the clean economy. A more accurate gauge of the size and scale of clean economy activity in the region and identification of the most common clean economy occupations and industries will allow workforce organizations to make informed decisions in efforts to sustain clean economy growth.

Survey results show that in Philadelphia:

- 12,681 employees spend at least half of their time producing green goods and services,
- 12,079 employees spend at least half of their time using green technologies and practices, and
- Companies in sectors not traditionally considered green are participating in the clean economy at unexpectedly high rates.

Complete survey results are outlined in *The Clean Economy in the Philadelphia Region*, which will be available on the MOS website in summer 2014.

## METRICS

## Producing Green Goods and Services

27%

Workplaces

## Using Green Technologies and Practices

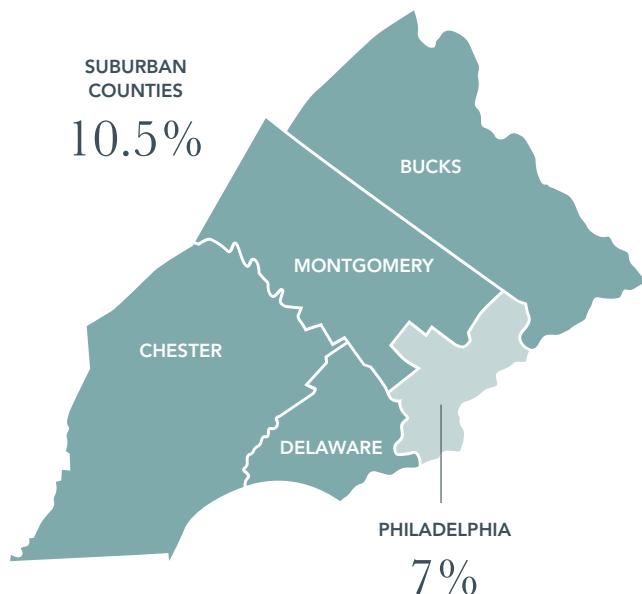
53%

Workplaces

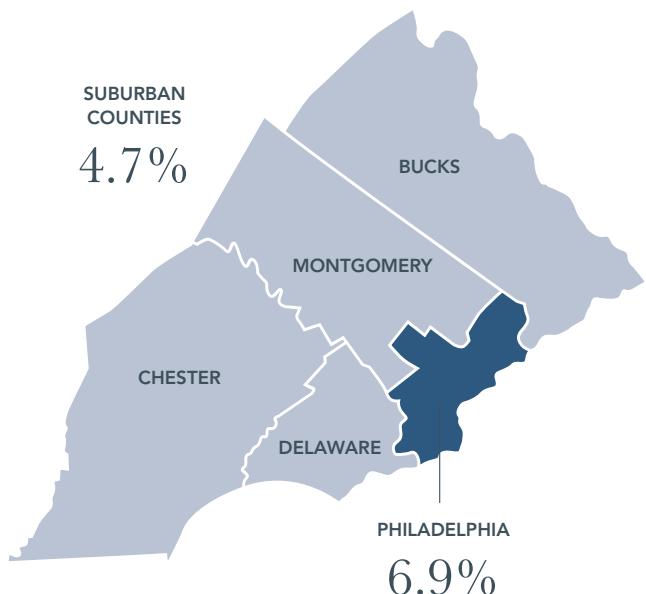


A member of PowerCorpsPHL works at the Philadelphia Water Department. PowerCorpsPHL is an innovative new AmeriCorps program for youth ages 18 to 26 who spend six months serving as full-time AmeriCorps members with City departments followed by three months receiving intensive job placement support.

## Employees Producing Green Goods and Services



## Employees Using Green Technologies and Practices



**TARGET 12: Reduce Vehicle Miles Traveled by 10 Percent**

INITIATIVE	PROGRESS 2014
Build an East-West Bicycle Corridor	Bicycle counts more than doubled on the Spruce and Pine Street East-West corridor, which connects to other Center City destinations via buffered bike lanes and the South Street Bridge.
Create Bike Parking Stations	Since June 2012, the Mayor's Office of Transportation and Utilities (MOTU) has installed ten bike parking corrals in high-demand areas.
Develop a Pedestrian and Bicycle Master Plan	The Philadelphia Pedestrian & Bicycle Plan was adopted by the City Planning Commission in June 2012. The Plan identifies strategies and specific recommendations to increase the number of people walking and bicycling in the city by improving the safety, connectivity, convenience, and attractiveness of pedestrian and bicycle networks.
Expand the Number of Bike Racks	The City has installed 463 new U-shaped bike racks since 2009.
Implement Airport Bicycle Access Plan	A Center City-to-Airport bicycle access plan was completed in 2009.
Design and Implement Complete Streets	Following the publication of the Complete Streets Handbook and passage of the City Council bill to implement a Complete Streets Policy in 2012, MOTU and its partners have begun implementation on several Complete Streets projects.
Develop More Off-Road Bike Trails	Delaware River Waterfront Corporation is working to complete 11 miles of trails along the North Delaware waterfront in the next two years. The nine-mile Cobbs Creek Connector trail, currently in design, will connect West Philadelphia, the Heinz Wildlife Refuge, and the Delaware River.
Develop New Fare Card Technologies	SEPTA continues to work with its vendor, Xerox, on testing and implementation of a system-wide fare payment modernization.
Ensure Sustained Transit Funding	The state transportation funding bill (Act 89) passed in November 2013 will provide new resources to address critical state of good repair needs. For SEPTA, the funding will bring annual capital investment closer to the level of its industry peers.
Explore the Creation of a Bike-Sharing Program	In April 2014 the City announced the selection of Bicycle Transit Systems and B-cycle as the operator and equipment vendor for Philadelphia's upcoming bike share system. Philadelphia will launch a system of 60 stations in spring 2015, and expects the system to grow to 185 stations in the coming years. The City will be working to secure state, federal and foundation funding to match its commitment of \$3 million in capital funding.
Further Improve Service and Safety	SEPTA's key performance indicator for safety & security improved by 3.3 percent in 2013 over the previous year, 15.5 percent above the 2009 baseline. Additionally, SEPTA has worked to improve safety conditions by adopting a more conservative approach to operating service during extreme weather events.
Invest in Current Transit Infrastructure	With an infusion of new capital funding through Act 89, SEPTA will continue to employ a fix-it-first strategy in prioritizing infrastructure repair projects and normal replacement of vehicles. SEPTA also continues to work towards full implementation of its transit asset management program.
Make Transit-Oriented Development (TOD) Investments	SEPTA is developing a comprehensive TOD database, which will provide a framework for promoting sustainable land use policies and developments at all SEPTA stations. A typology system will be used to evaluate stations on a line-by-line basis, recognizing that TOD projects should take into account differences among communities.
Plan for an Expanded System	A Draft Environmental Impact Study and Alternative Analysis is now underway for the Norristown High Speed Line Extension into King of Prussia. The study is expected to be complete in 2015.
Reduce Parking Ratios for Buildings with Designated Bike and Car Share Spots	Zoning code adopted in August 2012 establishes new parking maximums to prevent oversupply of parking and requires dedicated vanpool, carpool, and hybrid vehicle parking in large commercial parking lots.
Upgrade Commercial Corridors	The City's Commerce Department's ReStore Streetscape Enhancements and Storefront Improvement Program provides funding to revitalize commercial corridors.

**TARGET 13: Increase the State of Good Repair in Resilient Infrastructure**

INITIATIVE	PROGRESS 2014
Develop Climate Adaptation Plan	In the Greenworks Update and 2012 Progress Report, the City committed to developing a climate adaptation plan. In 2012 MOS convened an inter-departmental working group to begin the planning process. In 2013 MOS hired a consultant to provide downscaled climate projections for the Philadelphia region.
Acknowledge Climate Change in Infrastructure Planning	In March 2014 SEPTA submitted an application for grant funding from the Federal Transit Administration through the Hurricane Sandy Emergency Relief Program. The grant funding would allow SEPTA to advance an Infrastructure Resilience Program to harden assets based on key recommendations from SEPTA's 2013 climate change adaptation assessment. MOS is educating operating agencies about downscaled climate data.
Improve Road Maintenance and Upgrade Bridges	The Philadelphia Streets Department filled more than 35,000 potholes on over 2,500 miles of streets in 2014.
Invest in Public Property Management Systems	The Department of Public Property replaced a labor-intensive work order system with a web-enabled, accessible tool that reduces paperwork and improves service to buildings. Other City Departments are exploring similar systems.

## INITIATIVE PROGRESS

## TARGET 14: Increase the Size of the Regional Clean Economy

	INITIATIVE	PROGRESS
COMPLETED	Conduct a Market Analysis	The Mayor's Office of Sustainability (MOS), with Philadelphia Works and the Reed Group, conducted a regional clean economy and employment survey and published the Philadelphia Clean Economy Report in 2014.
	Create a Green Economy Stakeholder Task Force	MOS continues to work with the Sustainable Business Network of Greater Philadelphia which convenes the Green Economy Task Force, a coalition launched in 2008.
	Create a Regional Green Jobs Training Center	The Energy Coordinating Agency (ECA)'s John S. and James L. Knight Green Jobs Training Center, opened in 2010, serves the city by offering courses related to the clean economy. In May 2014, ECA received an Environmental Workforce Development and Job Training grant from the U.S. Environmental Protection Agency to help train local residents for environmental remediation jobs.
IN PROGRESS	Conduct Regional Clean Economy Survey Every Two Years	Pending availability of funding, MOS and its partners will continue to survey the state of the regional clean economy.
	Make Strategic Programmatic Investments to Increase Market Demand	EnergyWorks and Philadelphia Gas Works' EnergySense program increase demand in the energy efficiency sector by streamlining financing, technical assistance, and quality assurance to homeowners and commercial building owners.
	Raise Awareness About the Clean Economy	Mayor Nutter, City officials, and partners continue to highlight the economic and workforce development opportunities and the outcomes of initiatives and investments in the Philadelphia region.
	Re-brand Philadelphia for Business Development Efforts	In 2013 the Department of Commerce and PIDC launched StartUp PHL, a collaborative effort to strengthen the entrepreneurial environment in Philadelphia.
	Support and Connect Energy Research and Academia	The Consortium for Building Energy Innovation (CBEI) is made up of academic institutions, federal laboratories, global industry partners, regional economic development agencies, and others located at The Navy Yard in Philadelphia. With funding from the U.S. Department of Energy, CBEI works to improve energy efficiency in buildings and promote regional economic growth and job creation.



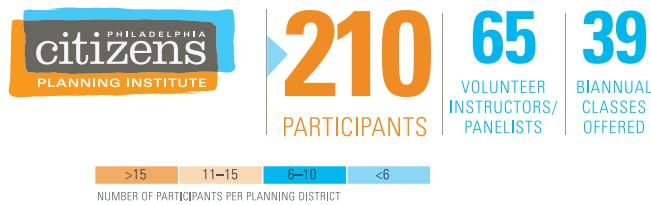
# ENGAGEMENT

**GOAL:** PHILADELPHIANS UNITE TO BUILD A SUSTAINABLE FUTURE

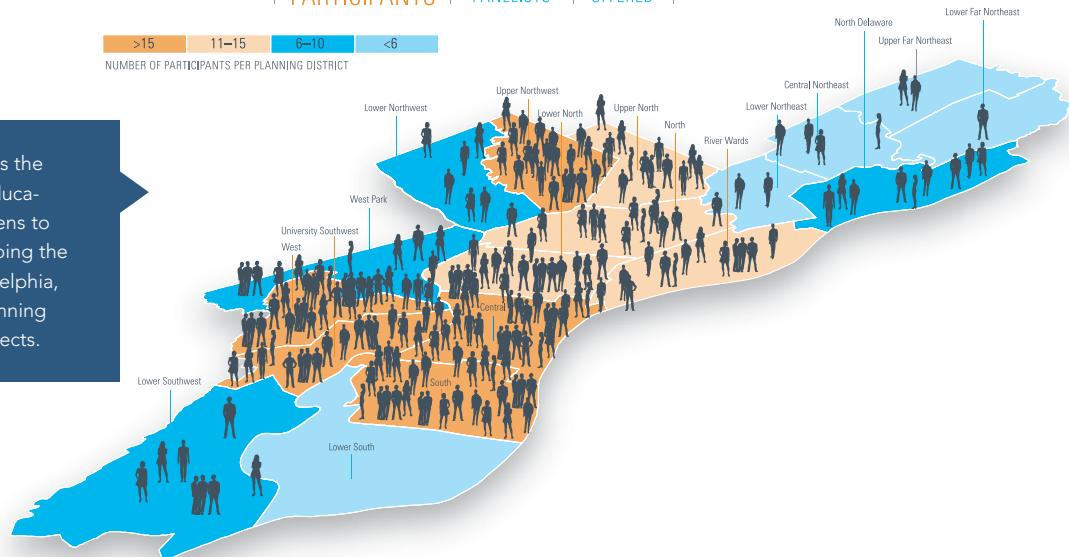
TARGET 15

## Philadelphiaans Unite to Build a Sustainable Future

We are deeply thankful for the amazing efforts our partners commit to advancing *Greenworks* goals. The following pages include highlights of sustainability work happening on the ground in Philadelphia, but there is always something new and exciting underway. Keep up with the latest by signing up for our monthly e-newsletter, following our Twitter feed, reading our blog, or liking our Facebook page. You can find them all at [www.phila.gov/green](http://www.phila.gov/green).



The **CITIZENS PLANNING INSTITUTE** (CPI) is the Philadelphia City Planning Commission's education and outreach arm. CPI empowers citizens to take a more effective and active role in shaping the future of their neighborhoods and of Philadelphia, through a greater understanding of city planning and the steps involved in development projects.



**GEARING UP** provides women in transition from abuse, addiction, and/or incarceration with the skills, equipment, and guidance to safely ride a bicycle for exercise, transportation, and personal growth.



30



The **COMMUNITY FARM AND FOOD RESOURCE CENTER** at Bartram's Garden is a 3.5 acre farm started in 2012. The farm increases access to local, organically grown food for Southwest Philadelphia residents, and promotes self-reliance and a deeper relationship with the land and food.

Community members at International Bethel Church in South Philadelphia partnered with the U.S. Environmental Protection Agency's Food Recovery Challenge to create **FEED THE BARREL**, a cooking oil collection and recycling program. The oil is recycled into bio-fuel and compost, and the participants receive payment they can invest back into their community.



In April local residents participated in **HIGH WATERLINE PHILADELPHIA**, a project in collaboration with artist Eve Mosher that marked a bold chalk line along areas in Kensington, Fishtown, and Port Richmond susceptible to increased flooding caused by climate change.



Community members participated in a depaving project to improve stormwater management at **GOLD STAR PARK** in South Philadelphia.

Philadelphia Water Department's **RAIN CHECK** program provides de-paving at a reduced cost to residences in the combined sewer area. Through Rain Check, PWD and homeowners share the costs of stormwater infrastructure that helps reduce the strain on the sewer system and also beautifies properties.



Louis Cook

The Mayor's Office of Sustainability has worked with a number of partners who have established their own sustainability plans, metrics, and reporting.



Mayor's Office of Transportation and Utilities, MOTU@5

### Center City District, State of Center City



In 2013, the residential recycling rate in Center City reached 25%, while the number of RecycleBank participants reached 12,533.

52

University City District,  
State of University City

City employees from the Sustainability Working Group joined Joan Blaustein, Director of Philadelphia Parks & Recreation (PPR)'s Urban Forestry and Ecosystem Management Division, for a tour of **HADDINGTON WOODS**, a site where PPR is running a set of experiments in collaboration with community stakeholders to understand forest restoration practices appropriate for the weather Philadelphia will experience in the 21<sup>st</sup> century.



32



In November 2013, Philadelphia hosted **GREENBUILD 2013**, which brought tens of thousands of green building enthusiasts to the city. Greenbuild left behind a legacy project by partners Public Workshop and Smith Memorial Playground. "Adventure Playground" is a youth-built series of play spaces with free-form materials to encourage creative and imaginative play.



New homeowners celebrate at one of **HABITAT FOR HUMANITY** Philadelphia's first LEED Platinum certified homes, which were completed in 2013. The LEED houses consume minimal energy and reduce bills, helping to make the homes both affordable to purchase and operate.



With the help of a grant from Cities of Service, the **WASTE WATCHERS** program, which helps divert event Philadelphia waste from the landfill, expanded to five additional events including the Franklin Institute's Science Festival.



In fall 2013 the Delaware River Urban Waters Federal Partnership hosted the **WILDERNESS INQUIRY CANOEMOBILE**, a traveling fleet of six 24-foot canoes. Over the course of four days, the Canoemobile engaged more than 440 students to learn about and reconnect with their nearby water resource.



The **PHILADELPHIA SOLAR SCHOOLS INITIATIVE OF SOLAR STATES** connects sustainable energy, education, and economic development in Philadelphia. PSSI plans to help finance solar arrays for 20 local schools, teach students about green energy, and provide hands-on solar technology training.

#### TARGET 15: Philadelphians Unite to Build a Sustainable Future

COMPLETED	INITIATIVE	PROGRESS 2014
	<b>Publish Annual Report</b>	The Mayor's Office of Sustainability (MOS) released the 2014 Greenworks Report, the fifth progress report to date.
	<b>Develop Social Marketing and Public Education Campaigns</b>	Each month, MOS sends an electronic newsletter to more than 9,000 subscribers. MOS continues to use Twitter, Facebook, YouTube, and <a href="http://www.phila.gov/green">www.phila.gov/green</a> as outreach tools.
	<b>Reach Out to Stakeholders</b>	MOS engages and receives input from stakeholders on a variety of topics including food policy, energy benchmarking, facility and asset management, and community engagement.
	<b>Regularly Update Website</b>	MOS continues to add new resources to <a href="http://www.phila.gov/green">www.phila.gov/green</a> and launched additional web sites for the Food Policy Advisory Council and Energy Benchmarking in 2013.
	<b>Use Data to Measure Results</b>	2014 Greenworks Report includes data for each target and begins to measure trends over time.

