

THE CITY OF PHILADELPHIA
MAYOR'S OFFICE OF
SUSTAINABILITY



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City of Philadelphia

Implementing Energy Improvements at Your Organization
October 20th, 2013

Philadelphia

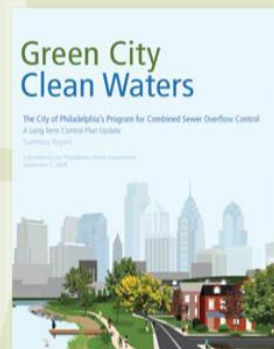


- Origins and Overview of *Greenworks Philadelphia*
- What did we do with the plan in hand?
- Implementing Energy Projects

The Beginning

- Next Great City Coalition
- Mayoral Race in 2007
- Mayor's Office of Sustainability established in 2008
- Greenworks Philadelphia released in 2009
- Related Sustainability Planning and Policies
 - Phila2035, Green 2015, Green City Clean Waters, Drafting of Zoning Code

STRATEGIC SUSTAINABILITY PLANNING



2012

2015



2015

2030



2035

GREENWORKS

PHILADELPHIA

Energy

PHILADELPHIA REDUCES ITS VULNERABILITY
TO RISING ENERGY PRICES



Environment

PHILADELPHIA REDUCES ITS ENVIRONMENTAL
FOOTPRINT



Equity

PHILADELPHIA DELIVERS MORE EQUITABLE
ACCESS TO HEALTHY NEIGHBORHOODS



Economy

PHILADELPHIA CREATES A COMPETITIVE
ADVANTAGE FROM SUSTAINABILITY



Engagement

PHILADELPHIANS UNITE TO BUILD A
SUSTAINABLE FUTURE



5 goals, 15 targets, over 150 initiatives

How were the Greenworks goals established?

- Sustainability Advisory Board
 - External Stakeholder group
 - Philadelphia's Leaders in Sustainability
- Sustainability Working Group
 - Internal Stakeholder group
 - City departments and Quasi City agencies
- Collaboration and Partnerships
 - Local Non-Profits, Development Agencies, Utilities and State Authorities

GREENWORKS

GOALS, TARGETS, INITIATIVES



PHILADELPHIA REDUCES ITS VULNERABILITY TO RISING ENERGY PRICES

- Lower City Government Energy Consumption by 30%
- Reduce Citywide Building Energy Consumption by 10%
- Retrofit 15% of Housing Stock with Insulation, Air Sealing and Cool Roofs
- Purchase and Generate 20% of Electricity Used in Philadelphia from Alternative Sources



What is in *Greenworks Philadelphia*?



- Broad Strokes!



- Project ideas and methods
 - Guaranteed Energy Savings Act
 - Target energy budgets
 - Framework for EnergyWorks
 - Policy and legislation ideas



- We have a plan...now what

Understanding our needs

- Technology
 - Metrics tracking
 - Utility database for City buildings
- Funding
 - EnergyWorks (Competitive grant)
 - Capital investments
 - Alternative methodologies (Guaranteed Energy Savings Projects, Power Purchase Agreements)
- Resources
 - Personnel hires and shifts in responsibility
 - Training and education
- Define Roles

City of Philadelphia

Energy Management Database





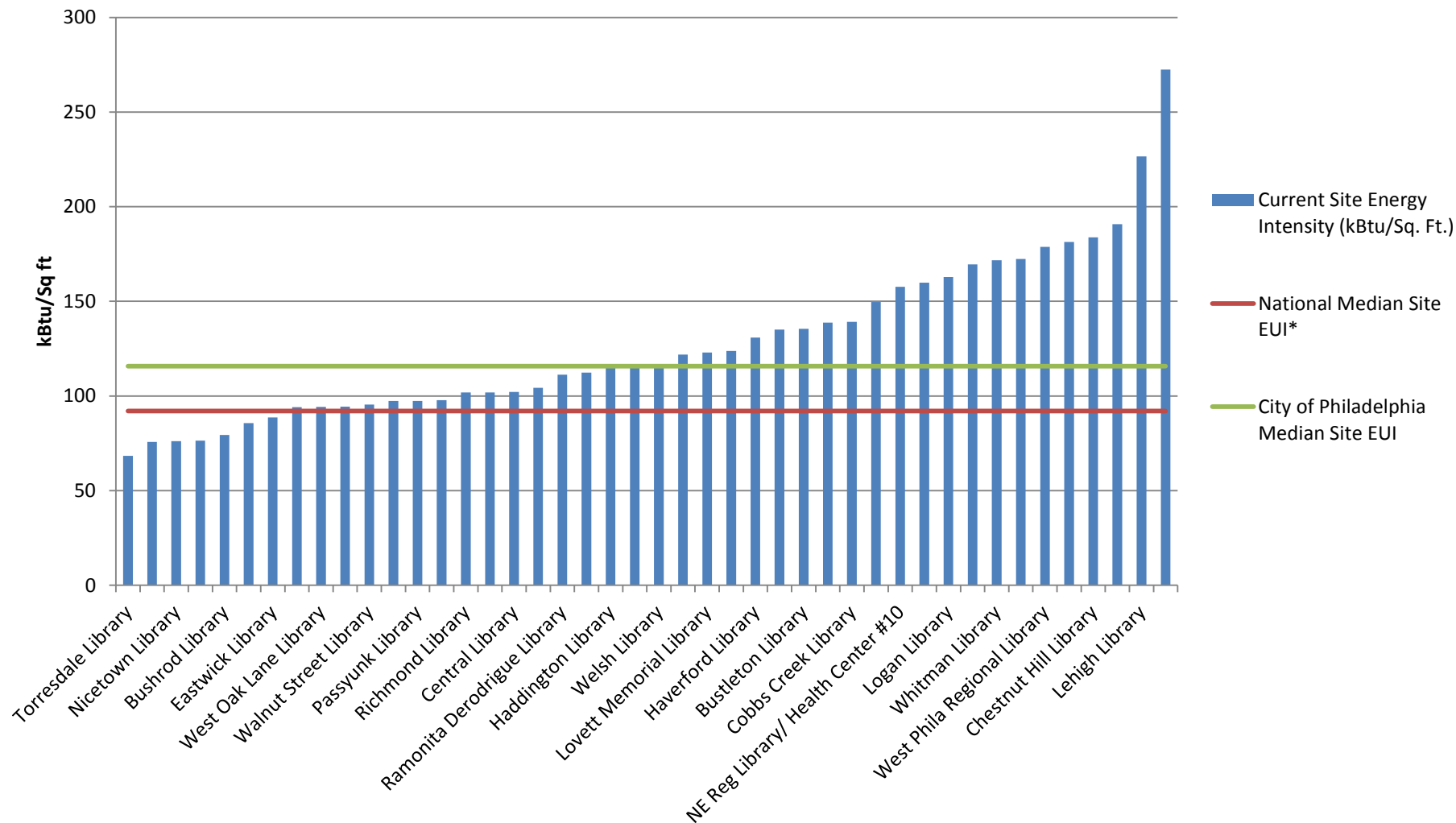
Over 600 facilities! – Where are our opportunities?

- Top 10 energy users make up 44% of General Fund's energy cost.
- Top 50 energy users make up 77% of General Fund's energy cost.



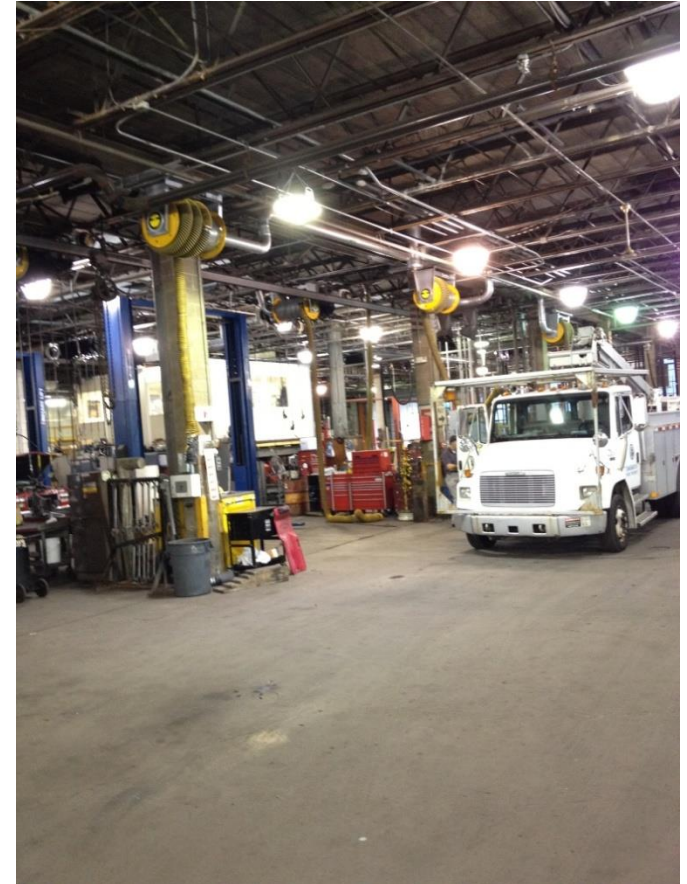
Over 600 facilities!

Where are our opportunities?



Energy Efficiency Fund

- A competitive application program made available for all City departments. Capital and Recovery Act monies made available to invest in energy efficiency projects
- Projects typically have multiple benefits
 - Improved Lighting
 - Better Comfort
- **Fleet Shop 134- LED Lighting Renovation**
 - Amount of Award: \$245,000
 - Anticipated Annual Savings: \$40,000+
 - Scope of Work: Replace existing Metal Halide and T12 lighting with new High bay LED lighting in a 24 hour fleet repair shop

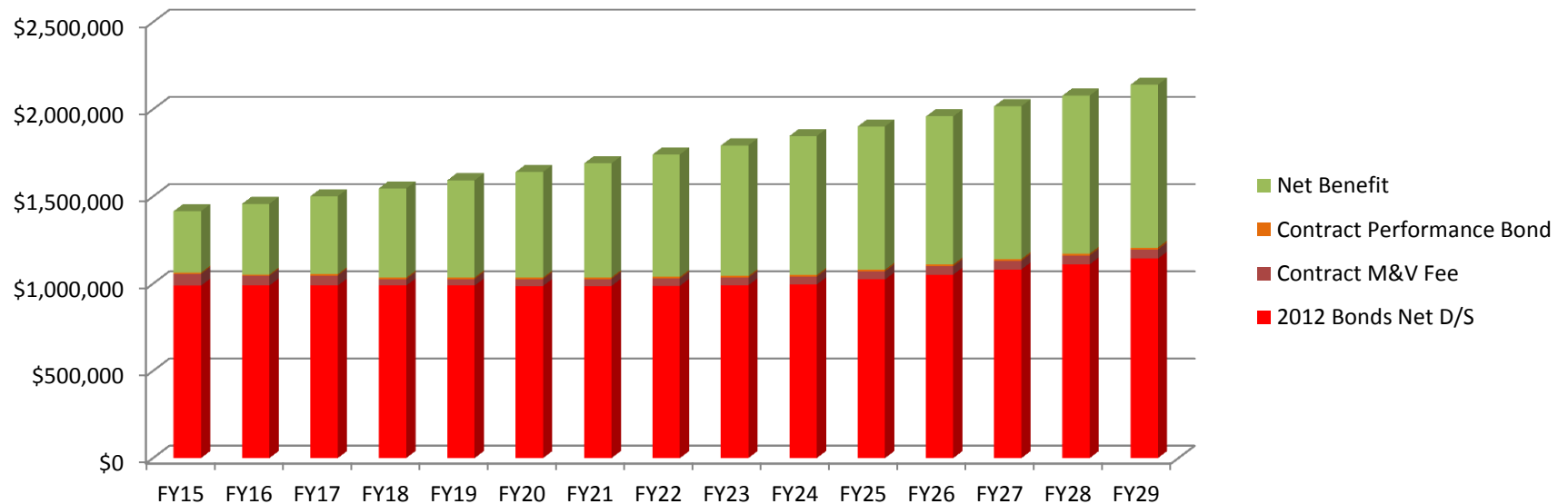


Guaranteed Energy Savings Project

- **Buildings being retrofitted:**
 - City Hall
 - Municipal Services Building
 - One Parkway Building
 - Justice Juanita Kidd Stout Center for Criminal Justice
- **Project Benefits:**
 - Partnership with Noresco to design and build energy efficient systems
 - Bypasses the traditional 4-part bidding
 - Noresco provided a guarantee of the project savings.
 - Allowable in PA through the Guaranteed Energy Savings Act.



Guaranteed Energy Savings Project Snapshot



Total Cost	\$12,285,000
Current Energy Costs in the Four Buildings (Annual, 4-year Average)	\$5,221,000
First Year Energy Cost Savings	\$1,340,000
First Year Payments	(\$988,000)
Net Cash Flow* (First Year)	\$352,000
*Increases with increases in energy prices.	

Quadplex- Energy Conservation Measures

Quick Payback

- Improvements to Building Control Systems
 - End Device Repair
- Lighting Retrofit
- Water Conservation
- High Efficiency Air Filters

Less than Quick Payback

- Hot Water Boiler Replacement
- Conversion of Concourse HVAC
- Steam Insulation
- Building Envelope and Vestibule Improvements



Other Projects

- LED traffic light conversion
- Technical support for departments
- Demand response program
- Web-enable energy management database
- Department accountability and incentive program
- LEED requirement for new construction
- Biogas Cogeneration at wastewater treatment plant
- Occupant education program
- Remote building operations



Lessons Learned

- Big plans motivate big actions and details aren't necessary to get started
- Partnerships are crucial
- Having an adopted plan can help you fundraise and gain support from critical stakeholders
- There are lots of resources who will help you for free

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