

Using Water Policy, Science, Dialogue & Partnerships to Create a Sustainable City



***How do we adapt modern
Water Policies and Actions
to encourage innovation
and sustainable growth
in a Great Water City?***

Transcending Boundaries

- The Water Utility
- The Mayor
- The USEPA
- The Environmental NGOs
- Other City Agencies
- Landowners

The Water Utility

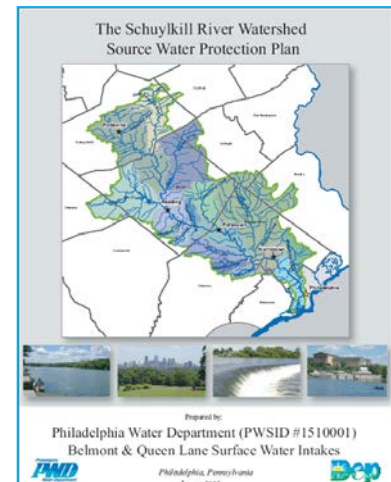
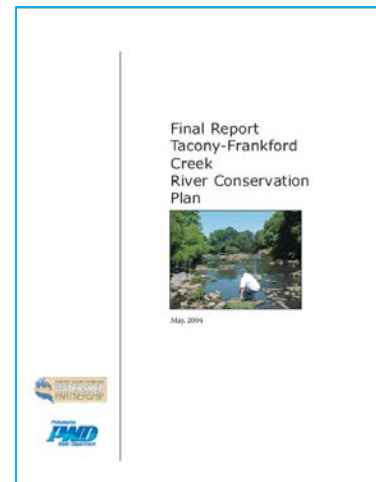
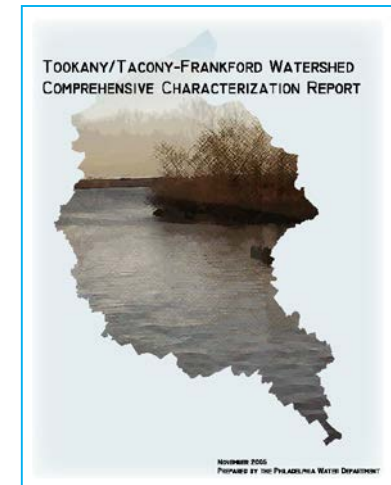
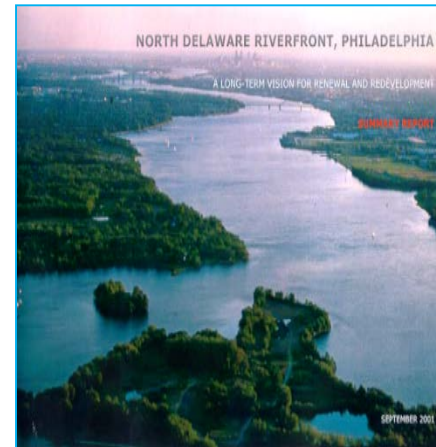
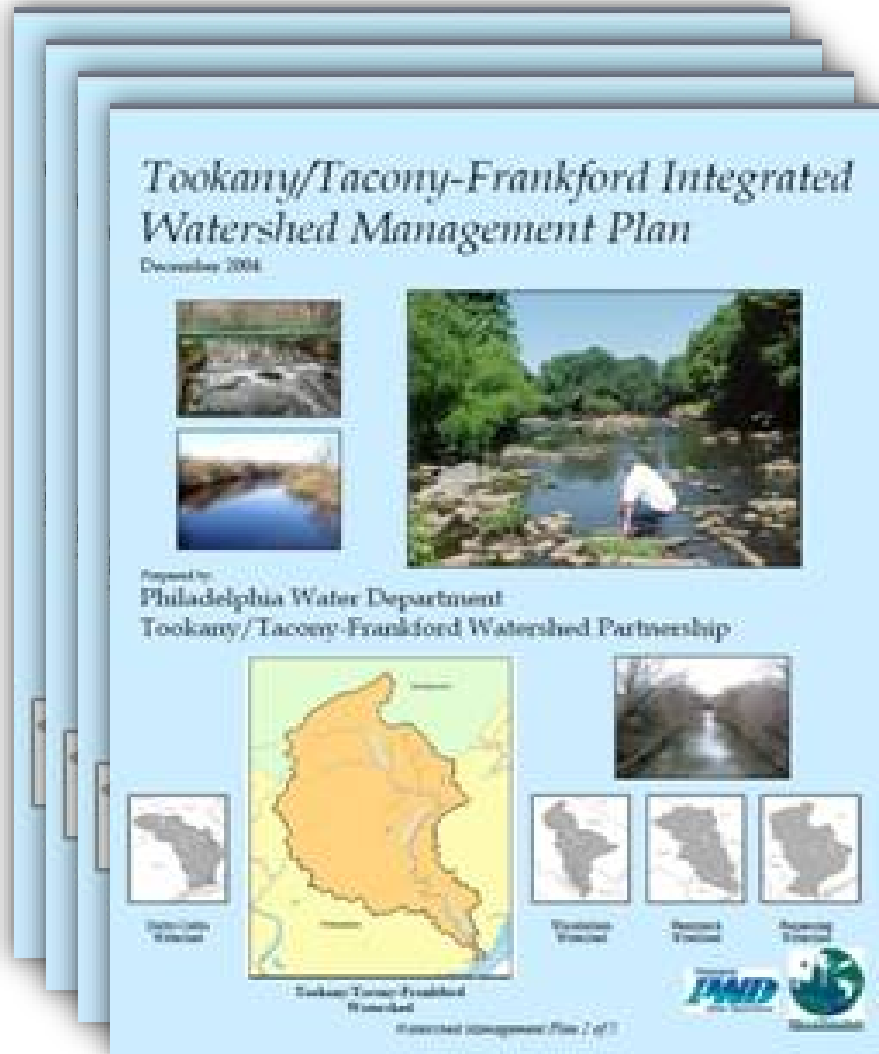
- Philadelphia Managers' TWM Workshop (1997)
 - What is the Watershed Approach?
 - What are you doing for Watershed Management?
 - How does Source Water Protection relate to this?
 - Is Philadelphia a major stakeholder?
 - Are we perceived as a major stakeholder?
 - Is there an opportunity here?
- There is no one doing more for the environment...
- “It’s still a little vague and fuzzy”

The Office of Watersheds - 1999



Fishable, Swimmable, Drinkable,
Safe, Attractive, Accessible

Integrated Watershed Management Plans





*Next Great
City
Philadelphia*

Coalition Partners: Civic and Neighborhood Groups



- Bella Vista United Civic Association
- Carroll Park Neighbors Advisory Council
- Cedar Park Neighbors
- Central Roxborough Civic Association
- Concerned Block Captains of West and Southwest Phila.
- East Kensington Neighbors Association
- East Park Revitalization Alliance
- East Falls Tree Tenders
- East Passyunk Crossing
- Francisville Neighborhood Development Corporation
- Friends of Pennypack Park
- Friends of Wadsworth Ave.
- Greater Bustleton Civic League
- Logan Square Neighborhood Association
- Lower Moyamensing Civic Association
- Mount Airy Revitalization Corporation
- New Kensington Community Development Corporation
- Newbold Neighbors Association
- Northern Liberties Neighbors Association
- Passyunk Square Civic Association
- Point Breeze Pioneers
- Queen Village Neighbors Association
- Residents of Shawmont Valley Association
- Society Hill Civic Association
- Spruce Hill Civic Association

Coalition Partners: Health and Environment

- 10,000 Friends of PA
- American Lung Assoc of PA Audubon Pennsylvania
- Audubon Pennsylvania
- City Parks Association
- Clean Air Council
- Clean Water Action
- Delaware River City Corp.
- Delaware Valley Green Building Council
- ERTHNXT
- Fairmount Park Conservancy
- Greater Philadelphia Clean Cities Program
- GreenSpace Alliance
- Institution Recycling Network
- Mill Creek Farm
- Neighbors Allied for the Best Riverfront
- PennEnvironment
- PennFuture
- PA Environmental Council
- PA Horticultural Society
- Philadelphia Parks Alliance
- Physicians for Social Responsibility
- Project NEAT (American Cities Foundation)
- Recycling Alliance of Philadelphia
- Right to Know Committee
- Roxborough Greenspace Project
- Schuylkill Center for Environ Education
- Schuylkill River Park Alliance
- Sierra Club SE PA
- Society for Ecological Restoration
- SustainUs Philadelphia
- Tookany/Tacony-Frankford Watershed Partnership Inc.
- University City Green Inc
- Urban Tree Connection
- Women's Health & Environmental Network

Coalition Partners: Labor and Business, Faith

• *Labor and Business*

- AFL-CIO, Philadelphia Council
- AFSCME District Council 47
- AFSCME District Council Local 2187
- Ameresco Inc.
- General Building Contractors Association
- Home (scale) Inc.
- LillyRoc, LLC
- PhilaPOSH
- PhillyCarShare
- REPSG, Inc.
- Sustainable Business Network of Greater Phila.
- The Green Perspective
- The Philadelphia Wax Museum
- Urban Industry Initiative
- U S Spaces, Inc.
- Wallace Roberts & Todd

• *Faith*

- American Jewish Committee
- Cecilian Center of Earth, Arts and Spirit
- Chestnut Hill United Methodist Church
- Mishkan Shalom
- Moishe House Philadelphia
- Neighborhood Interfaith Movement
- PA Interfaith Climate Change Campaign

Coalition Partners: Professional and Service Organizations

- Action Alliance of Senior Citizens
- American Institute of Architects
- Asociacion Puertorriguenos en Marcha
- Bicycle Coalition of Greater Philadelphia
- Bike Share Philadelphia
- Building Industry Association
- Campus Philly
- Committee of Seventy
- Congreso de Latinos Unidos
- Delaware Valley Assoc of Railroad Passengers
- Design Advocacy Group
- Generation Appreciation
- Greater Philadelphia Cares
- Greater Phila Congress of Black Women
- Greater Phila Urban Affairs Coalition
- Habitat for Humanity Philadelphia
- Institute for the Study of Civic Values
- Inter- Community Development Corporation
- It Takes a Village Philly
- Major Artery Revitalization Committee
- NAACP Philadelphia
- Neighborhood Networks
- Neighborhoods Now
- The Partnership CDC
- PA Parent Teacher Association
- PennPraxis
- PenTrans
- Philadelphia Assoc of CDC's
- Philadelphia Children's Commission
- Phila Convention and Visitors Bureau
- Philadelphia Corporation for Aging
- Philadelphia Young Women's Network
- Philly For Change
- SCRUB
- School of the Future
- SETS
- The Buzzing For Change Foundation
- The Food Trust
- The Reinvestment Fund, Sustainable Development Fund
- SolarStrategies Development Corporation
- Welcoming Center for New Pennsylvanians
- Women's Community Revitalization Project
- Young Involved Philadelphia

Terry Madonna Poll



Environment = Neighborhood

- 1 in 3 businesses and 1 in 5 residents had flooding in 2006
- 1 in 4 had vacant property catch fire or become source of crime in past year
- 1 in 3 households have asthma

Must Improve neighborhood environment and City infrastructure to grow economy

Criteria for Actions



- Within city's authority
- Achievable in 1 term
- Highly relevant to Philadelphia residents and businesses
- Successfully applied in peer city
- Cost neutral or funding identified

Green City, Clean Waters



- Managing runoff
- Protecting our rivers and communities
- Greening our neighborhoods
- Restoring our waterfronts
- Improving our outdoor recreation spaces
- Enhancing our quality of life, and
- Creating a sustainable, resilient city.



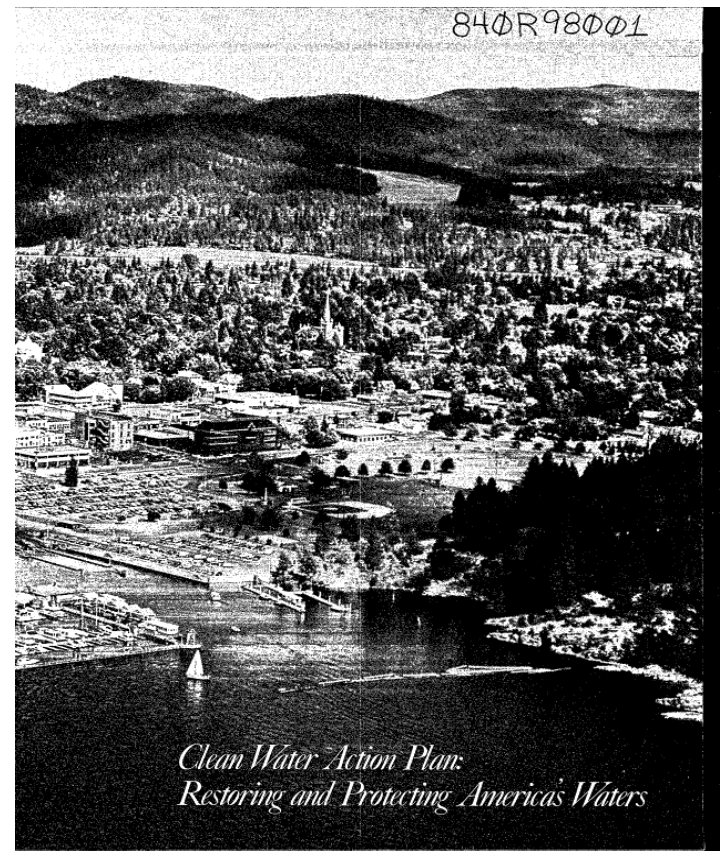
Gaining Mayoral Support

- The Open Space Plan
- PennFuture – Next Great City
- The Greenest City in America
- Mayor's Office of Sustainability
- GreenPlan; Green2015; GreenCity, CleanWater
- Jobs, Crime, Transportation, Money, Green, Education, Housing

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Restoring and Protecting America's Waters: The Clean Water Action Plan (1998)



Al Gore and Carol Browner adopt
a watershed-based approach

EPA Administrators

[Gina McCarthy](#)

07/19/13 present

Bob Perciasepe (Acting)

[Lisa P. Jackson](#)

01/26/09 02/14/13

[Stephen L. Johnson](#)

01/26/05 01/25/09

[Michael O. Leavitt](#)

11/06/03 01/25/05

Marianne Horinko (Acting)

Linda Fisher (Acting)

[Christine Todd Whitman](#)

01/31/01 06/27/03

W. Michael McCabe (Acting)

[Carol M. Browner](#)

01/22/93 01/19/01

Taking a lesson or two from Nancy Stoner and NRDC - 2002



Out of the Gutter: Reducing Polluted Runoff in the District of Columbia

Jul 1, 2002

Author(s): Clarke, George Aponte; Huang, William; Stoner, Nancy; Woodworth, James W. Jr.

Publisher(s): Natural Resources Defense Council

Issue Area(s): Energy and Environment

Geographic Focus: North America-United States (Southern)-District of Columbia-Washington

Funder(s): Davis Family Trust for Clean Water; Mary Jean Smeal Clean Water Fund; Morris and Gwendolyn Cafritz Foundation; Naomi and Nehemiah Cohen Foundation; Summit Fund of Washington; Washington, D.C., Department of Health

 [Download now](#)

Assesses how Low-Impact Development strategies can mitigate runoff problems in the District of Columbia, and looks at development regulations that pose potential impediments to the voluntary application of LID strategies, policies, and programs.

Out of the Gutter

Action steps are integrated into our strategic planning:

1. Review code and ordinances for obstacles/opportunities
2. Lead by example – use LID on City properties
3. Educate development review agencies on LID techniques
4. Prepare state of the art technical guidance document
5. Promote high visibility LID projects
6. Develop a large-scale “sewer shed” LID application
7. Create commercial incentives for LID designs
8. Foster coordination among City agencies
9. Create an incentive program to encourage LID
10. Protect existing open space
11. Focus on redevelopment not greenfield development
12. Restore the urban forest and street tree canopy
13. Develop tree protection and steep slope overlays
14. Implement day lighting and tributary restoration projects
15. Construct fish passages
16. Expand wetlands restoration and mitigation efforts
17. Use pocket parks, squares, traffic circles, triangles, islands

Lessons in Collaboration with EPA

- Lisa Jackson, Mayor Nutter and Rio
- Economic endpoint, environmental endpoint
- Triple Bottom Line
- Integrated Planning
- Environmental support (NRDC, CWA, PennFuture, Sierra Club)
- State Consent Order
- Partnership Agreement

Implementation Plan

Adaptive Management

Capital Projects

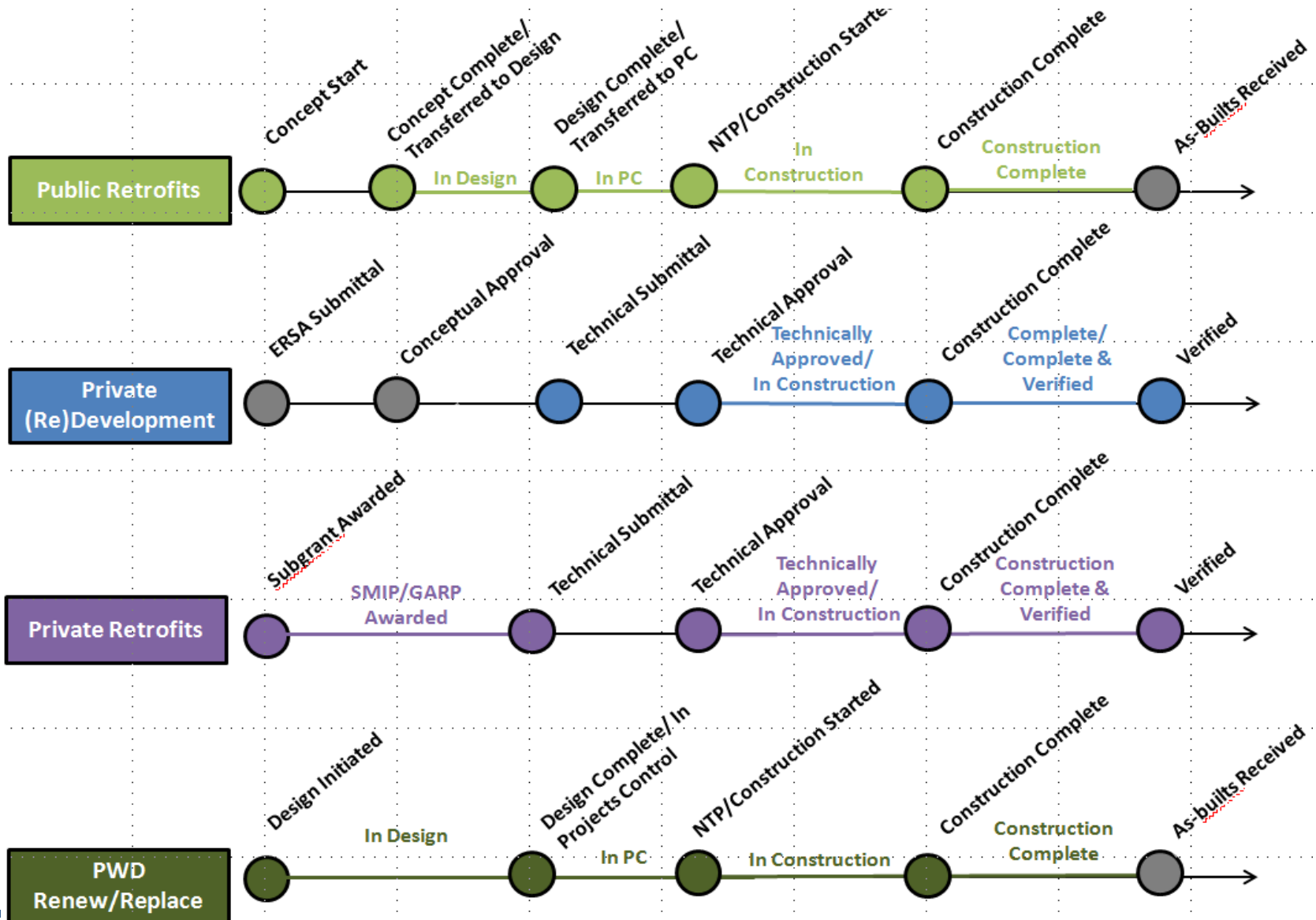
Policies, Incentives and Fees

Operations and Maintenance

Monitoring and Metrics

Public Outreach

Monthly Metrics Reporting



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Partnering with Environmental Advocacy Groups

Challenging Clean Water Action:

What would it take to put you out of business?

Enlisting NRDC:

How would we do a full GI Plan and meet CSO goals and metrics?

Support from Local NGOs through PennFUTURE

Partnering with NRDC

“Philadelphia is setting a national model for smarter, greener ways to clean up troubled rivers, lakes and beaches. Green infrastructure is often the best and most cost-effective way to tackle water pollution. The City is pioneering a broad investment in measures that not only deliver cleaner water, but dramatically improve the overall health and quality of life for its residents at the same time. The rest of the country would be wise to take notice.”

-Larry Levine, National Resources Defense Council

Rooftops to Rivers:

Green strategies for controlling stormwater
and combined sewer overflows



Nancy Stoner

*Natural Resources
Defense Council*

Report available at:

[http://www.nrdc.org/
water/pollution/rooftops/
contents.asp](http://www.nrdc.org/water/pollution/rooftops/contents.asp)

March 6, 2008
Syracuse, NY

How many problems can your community solve for \$3 billion?

- CSO Tunnel:
 - Reduce sewage overflows to rivers and lakes
- Green Infrastructure Strategies:
 - Reduce sewage overflows to rivers and lakes
 - Create green space, urban land restoration and real estate value, mitigate global climate change, reduce heat deaths, improve quality of life, water and energy conservation, education, recreation, riparian buffers, flood control, access, unimpaired streams...



Floating trash on the Anacostia River.
Photo courtesy of the Anacostia Watershed Society.

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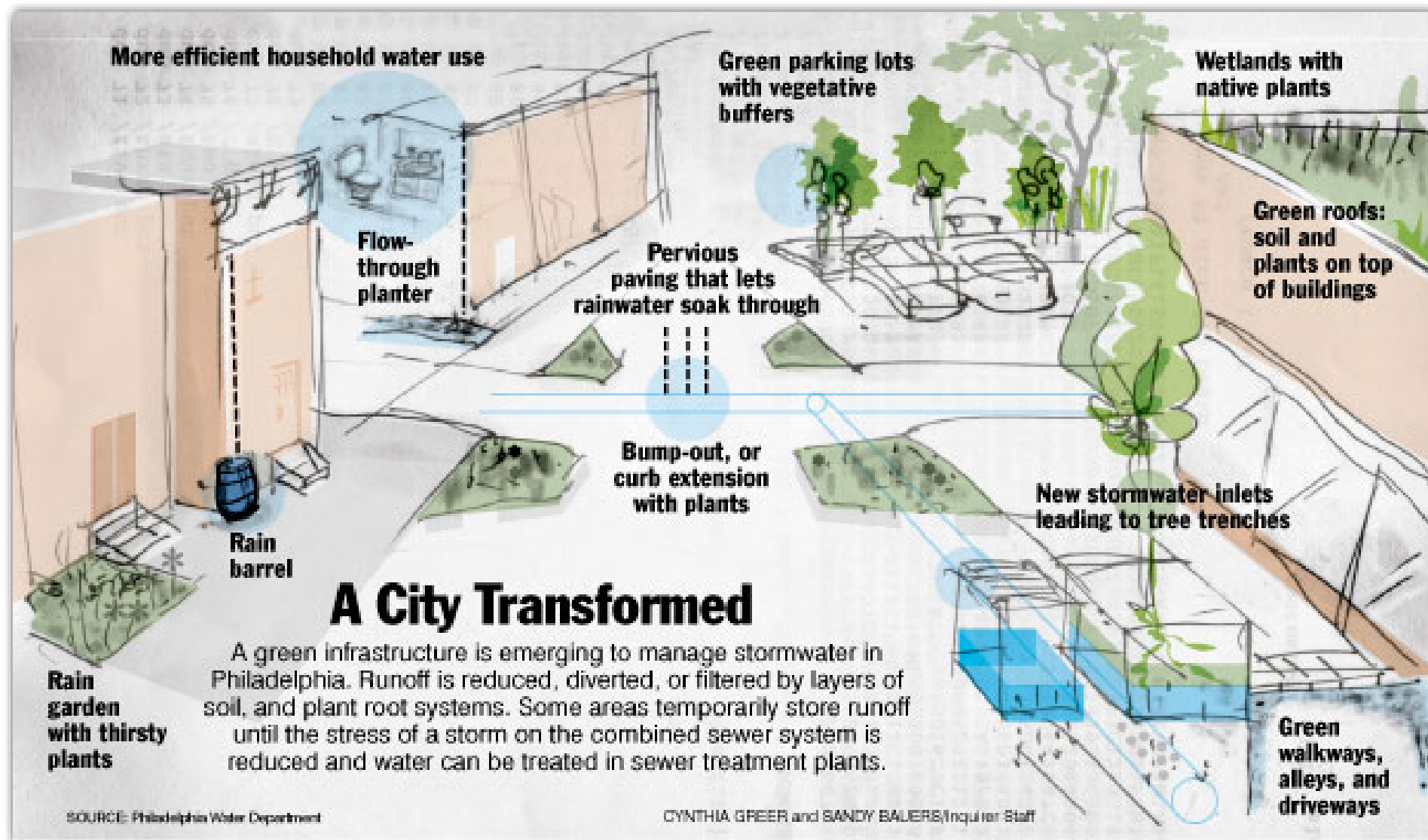
One Water, One City, Many Places: Multi-Agency Collaboration

- Communities
- Transit
- Rivers & Streams
- Parks
- Schools
- Streets
- Businesses
- Parking lots
- Universities



Green City, Clean Waters

Combined Sewer Overflow (CSO) Long Term Control Plan



Green City, Clean Waters

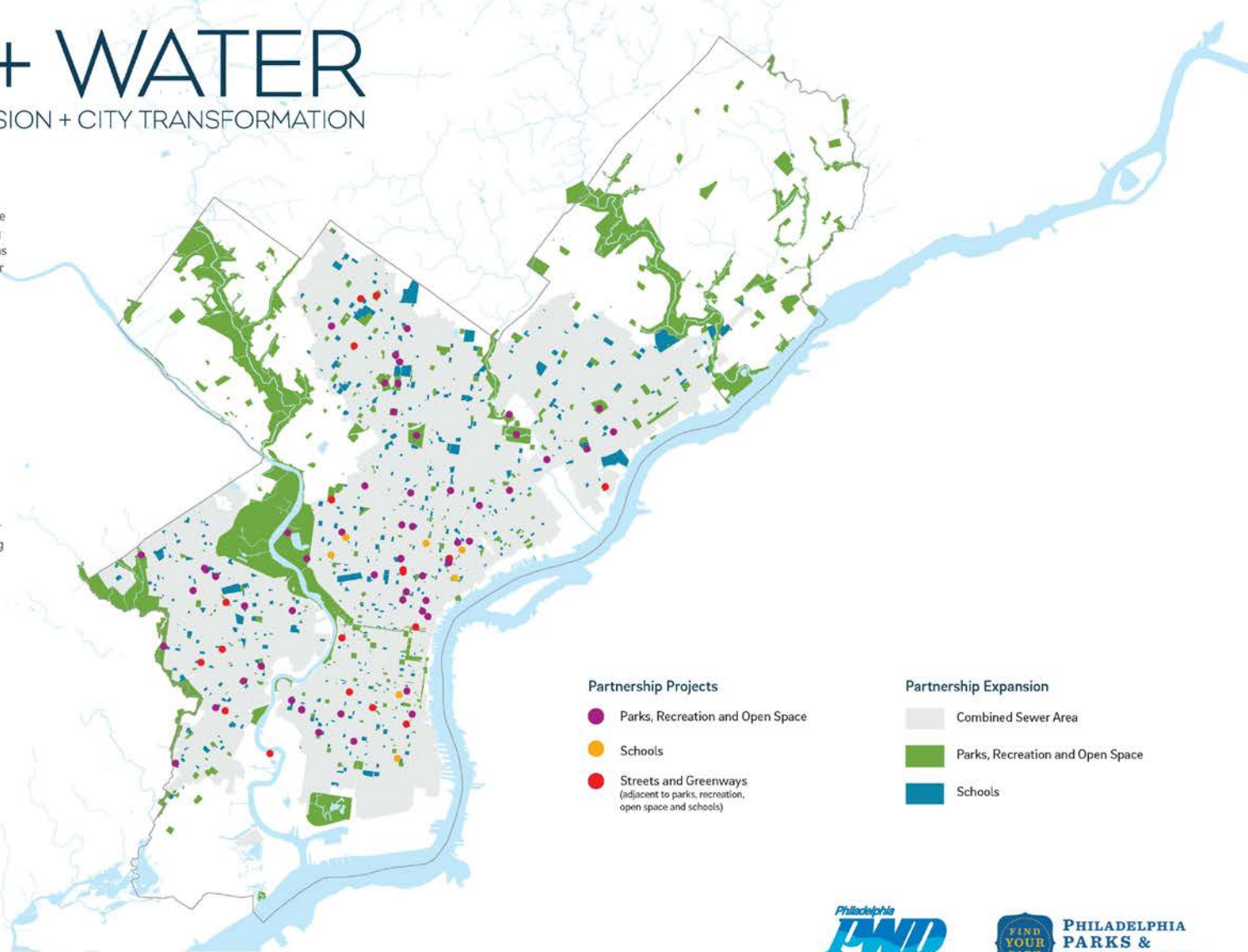
*There is nothing more difficult
to plan, more doubtful of
success, nor more dangerous to
manage than the creation of a
new order of things.*

LAND + WATER

PARTNERSHIP EXPANSION + CITY TRANSFORMATION

The grey area represents the Combined Sewer Area, which covers 60% of the sewered area of the City of Philadelphia. PWD is focused on managing stormwater with innovative green infrastructure as part of the City's Green City, Clean Waters 25-year plan to protect and enhance our watersheds. PWD, PPR, and other partners have been collaborating to leverage green stormwater infrastructure investments with amenity improvements to enhance park, recreation, open space, and school projects, as well as streets and greenways. PWD and PPR collaboration has been through various partnership efforts, including Neighborhood Parks, Green 2015, and alignment with council funding improvements. This map shows the 85 partnership projects that are in planning, design, construction or have been completed.

In addition, PWD and PPR have partnered for over a decade through initiatives aimed at reconnecting residents with their local waterways and natural land parks. As this map illustrates, many opportunities exist to expand partnership efforts leading to a citywide transformation.



PHILADELPHIA
PARKS &
RECREATION

LAND + WATER DRAFT 2/9/2015



GREEN STREETS



City of Philadelphia Green Streets Design Manual



CHAPTER 1: INTRODUCTION

CHAPTER 2: FACT SHEETS

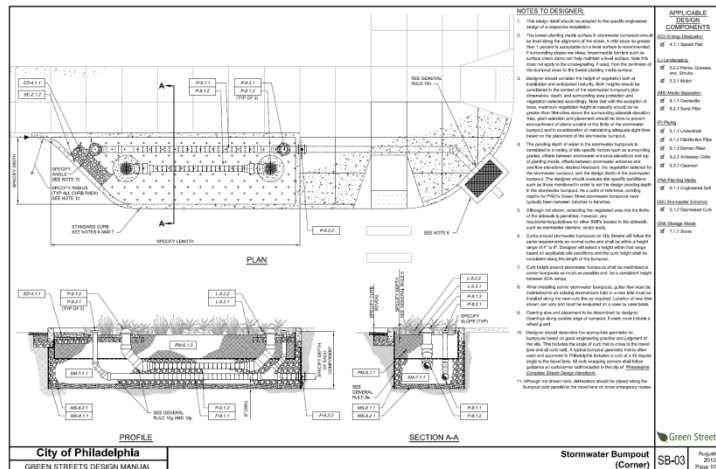
CHAPTER 3: STREET TYPES

CHAPTER 4: SITING

CHAPTER 5: DESIGN GUIDELINES

CHAPTER 6: DETAILS AND SPECS

CHAPTER 7: IMPLEMENTATION

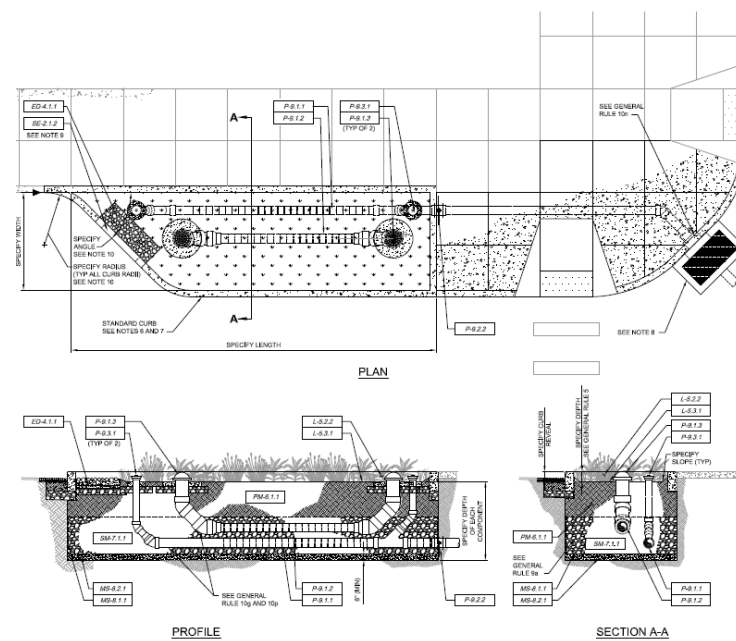




Mid-block Stormwater Bump-out



Corner Stormwater Bump-out



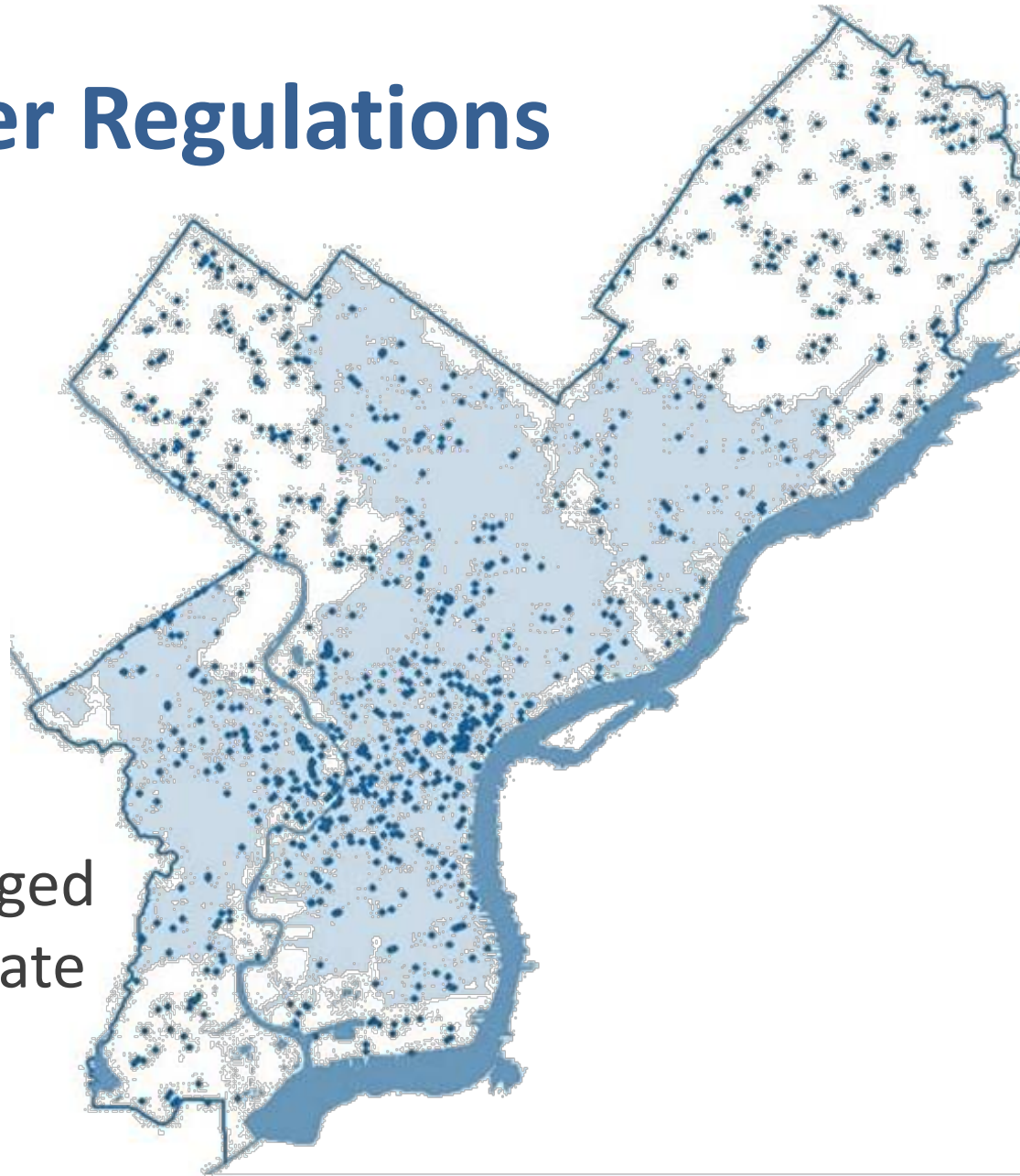
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STORMWATER DEVELOPMENT REGULATIONS 2006

2006 Stormwater Regulations

- 500 projects approved
- 1.5 BG/yr Rainfall Managed
- 0.4 % re-development rate



PARCEL BASED STORMWATER FEES AND CREDITS 2011

Pre-2011 Stormwater Fee Calculations

Monthly Stormwater Charges based on Meter Size

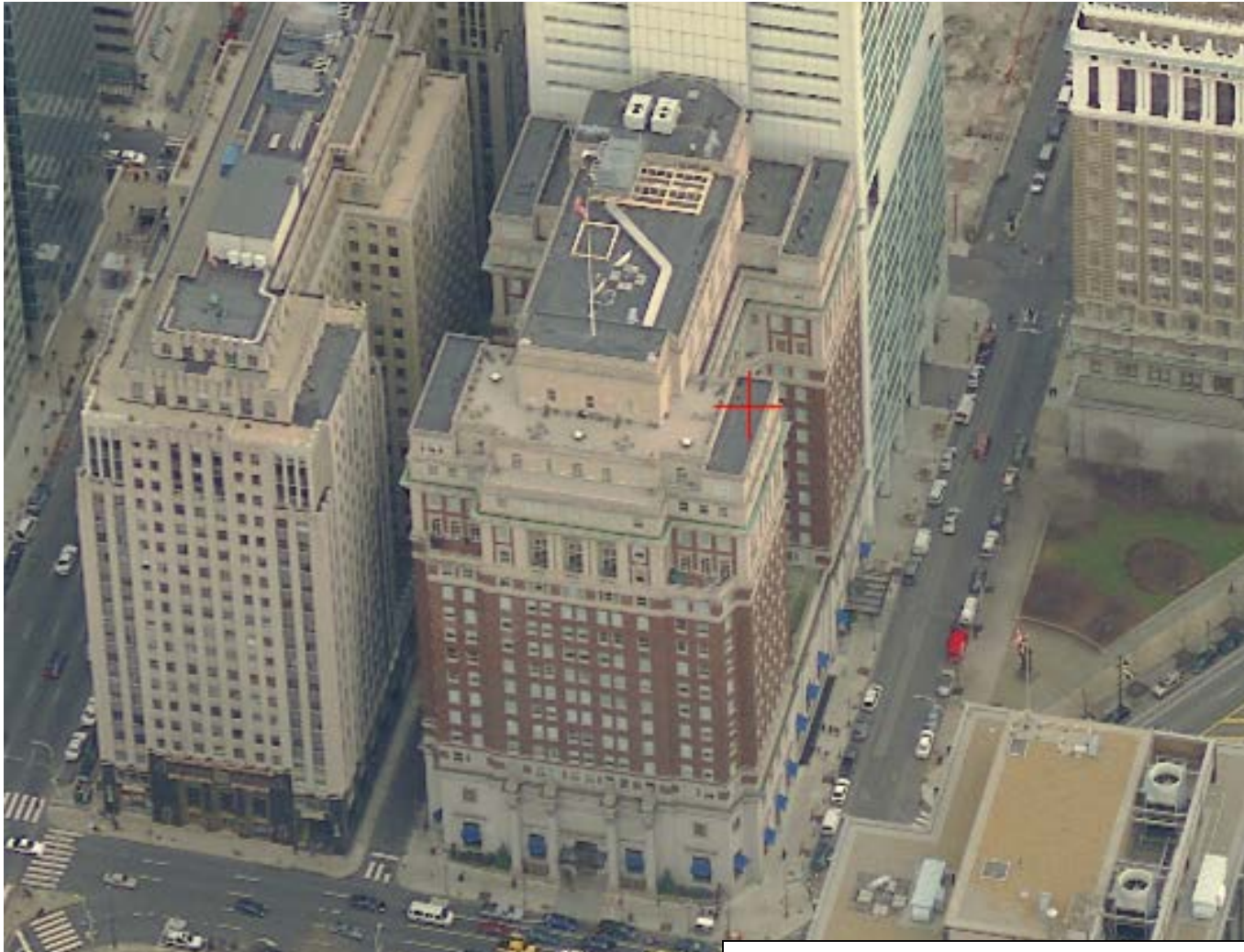
- 5/8 inch meter \$9.12
- ¾ inch meter \$74.47
- 1 inch meter \$ 124.12
- 1-1/2 inch meter \$248.24
- 2 inch meter \$397.19
- 3 inch meter \$744.71
- 4 inch meter \$1,241.20
- 6 inch meter \$2,482.40
- 8 inch meter \$3,971.84
- 10 inch meter \$5,709.52
- 12 inch meter \$10,674.33

New Charges

(FY'11 Rates)

- Gross Area (GA) is \$0.526/mo per 500 square feet
- Impervious Area (IA) is \$4.145/mo per 500 square feet
- For a property of 10,000 sq ft - All impervious, About \$100 per month
- All residentials - \$13 / month

Arch St



Gross Area = 24,338

Imperv Area = 24,338

Existing Charge = \$ 4,702.82

New Charge = \$ 120.24

Essington Ave



Gross Area = 599,744

Imperv Area = 491,035

Existing Charge = \$ 377.23

New Charge = \$ 2,496.42

Have a stormwater
HEADACHE?

Try
this!



Compliments of
unified business owners
of Philadelphia

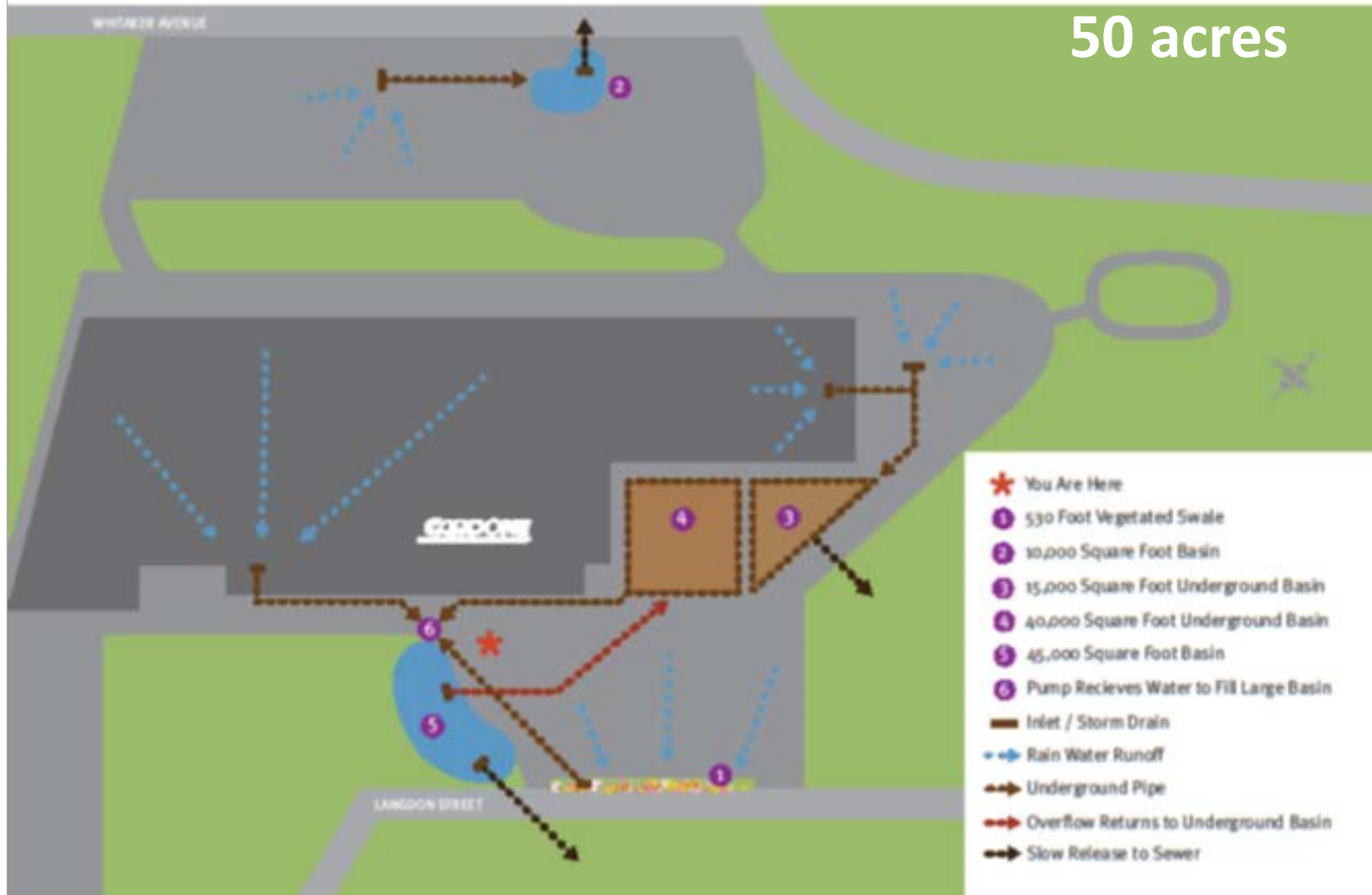
2012 to 2014

Total Award Amount	\$25 million
Projects Awarded	49
Greened Acres	298
Cost Per Acre	\$83,000

Stormwater Management at Cardone

New Features

50 acres



\$3.4 million grant and annual SW fees from \$250k to \$50k

ENVIRONMENTAL COMMITMENT

■ CARDONE's Stormwater Runoff Project

ABOUT US

CORE PHILOSOPHY

ENVIRONMENTAL

"While significant in its own right, this project is just a part of CARDONE's broader and ongoing commitment to clean water issues and environmental sustainability."



impervious surfaces, CARDONE made a commitment to implement a comprehensive stormwater management system for the facility. Following months of planning and cooperation with the City of Philadelphia and the Philadelphia Water Department CARDONE began to implement the system in March, 2013.

Now complete, CARDONE's stormwater management project is the largest stormwater project undertaken in the City of Philadelphia to date. Through the project, over 2.6 million square feet of impervious areas are being treated for stormwater mitigation throughout the facility. The new system will be able to manage up to 1.38 inches of stormwater per storm, which exceeds the existing standards in the City of Philadelphia of 1 inch per storm by nearly 40 percent. Through this new stormwater management system, CARDONE will be able to hold approximately 5 million gallons of stormwater in on-site cisterns that will be released incrementally into the city's stormwater system.

The project was no small undertaking, requiring the movement of over 17,000 cubic yards of earth, installation of over 5,200 feet of pipe and laying over 12,000 tons of stone. Because CARDONE is committed to local and sustainable business practices, we estimate that 83 percent of materials purchased for the project were sourced from Philadelphia suppliers or Philadelphia-based companies. In addition, 75 percent of the disturbed earth and material from parking lots have been recycled for other uses at the facility.

While significant in its own right, this project is just a part of CARDONE's broader and ongoing commitment to clean water issues and environmental sustainability.

LOCATIONS & DIRECTIONS

ON-CAR TEST PROGRAM

ADVERTISING

PRESS RELEASES

AUTO PARTS BLOG

CAREERS



½ acre
depaved



Greene
Street
Friends
School

\$91k grant

½ acre
managed
by rain
garden



Stormwater Incentive Grants Awarded!



BUSINESS/OWNER ADDRESS	AWARD AMOUNT ESTIMATED	ANNUAL STORMWATER SAVINGS
Globe Dye Works 4528-40 Worth St	\$53,000	\$2,369
Norris Square Civic Association 174 W. Diamond St	\$116,000	\$5,762
Mink 1143, LLC 3142 S. 20th St	\$74,000	\$3,557
Cardone Industries 5660-5670 Rising Sun Ave	\$1,424,417	\$68,946
Williams Staffieri 3800R-60 N. 2nd St, 215-51 W. Erie Ave & 3770 N. 2nd St	\$1,559,110	\$75,907
U.S. Four/Quaker City Flea Market 6001 Tacony St	\$154,066	\$7,421
Pacifico Ford 6701 & 6751 Norwich Dr & 6701-07 & 6709 Essington Ave	\$1,551,729	\$75,084
Lasdon Real Estate 700 E. Erie Ave	\$1,036,946	\$44,563
Lasdon Real Estate 4980 Rhawn St	\$763,871	\$36,969
Warfield Philadelphia LP/Pennsy Flea Market 1600 Warfield St 3433 Moore	\$1,025,876	\$43,446
Pierce Phelps, Inc 2000-44 N. 59th St	\$665,159	\$32,114

***How do we adapt modern
Water Policies and Actions
to encourage innovation
and sustainable growth
in a Great Water City?***

Today's Water Advocacy: Integrated Planning and Prioritized Spending

- CSO and MS4
- CWA and SDWA
- Infrastructure Renewal
- Urban Resilience and Sustainability