PWDs Combined Sewer Overflow Program: A Brief Overview

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PHILADELPHIA WATER DEPARTMENT

April 14, 2026

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PENNENVIRONMENT
RESEARCH & POLICY CENTER

Our Work

RELEASE: Study Shows Over 12.5 Billion Gallons of Untreated Sewage Released into Philadelphia Rivers Each Year

Chestnut Hill Local
Sunday, April 12, 2026

NEWS ENTERTAINMENT COMMUNITY OPINION NEIGHBORHOODS WISSAHICKON OBITUARIES MARKETPLACE A LOCAL LENS

Is 'Green City, Clean Waters' succeeding, or is $2.4 billion going down the drain?

A special investigation by The Chestnut Hill Local, Grid Magazine and the online magazine Delaware Currents

Forests

PENNENVIRONMENT
RESEARCH & POLICY CENTER

CLEAN WATER
JULY 20, 2023

Sewage Pollution in Philadelphia

Bolder action needed to make local waterways consistently clean for recreation

John Rumpler
Clean Water Director and Senior Attorney, Environment America

While Philadelphia has made some progress towards cleaner water, on far too many days the city's wastewater system still pours huge volumes of raw sewage and runoff pollution into local rivers and creeks. The city, in concert with all levels of government, should ramp up efforts to ensure that these waterways are consistently clean for recreation – as envisioned by the Clean Water Act.

This document sets forth information to explain the complicated provisions of the Philadelphia Long Term Combined Sewer Overflow Control Plan, otherwise referred to as the Green Cities Clean Water (GCCW) plan. The GCCW was drafted over ten years ago to address water quality in the tidal sections of the Delaware and Schuylkill Rivers, and both the tidal and non-tidal sections of the Tacony-Frankford, Pennypack, and Cobbs Creeks[1].

This document is intended for an audience familiar with basic provisions of the Clean Water Act and the history of the Green Cities Clean Water Long Term plan. A short "Good Intentions" Fact Sheet developed for public understanding is linked here.

Understanding these facts and taking action now is critical to the health and economic well-being of the residents of Philadelphia. Delaying these critical equity and environmental actions for another 10-15 years, until the 2036 end date of the GCCW plan, will not only delay

grid
Housing justice through free repairs in Grays Ferry p. 16
Scholar explains the roots of environmental racism p. 18
What you can do to improve air quality p. 26
JUNE 2024 / ISSUE 181 / GRIDPHILLY.COM
TOWARD A SUSTAINABLE PHILADELPHIA

BILLIONS over BUDGET

Despite rising costs and implementation setbacks, Philadelphia's gamble on green stormwater infrastructure continues. Is it time for the Water Department to change course?

The Philadelphia Inquirer

SCIENCE

The Schuylkill has gotten much cleaner, but sewer overflows still plague it

Some see a potential for recreation on the river. Chemical discharges might be gone, but it's still not safe for paddling and swimming.

Kianna Bingham (front) of Councilmember Jamie Gauthier's office, along with Nathan Boon, of the William Penn Foundation (left); Dave Corddry at the helm; Philadelphia Councilmember ... Read more
Frank Kummer

Chestnut Hill Local
Sunday, April 12, 2026

explore digital — Over 100 fun things to do this spring

Are tunnels the answer to Philadelphia's sewer overflows?

Washington, D.C.'s Northwest Boundary Tunnel before its opening in September 2023.The five-mile-long, 23-foot diameter tunnel reduces about 98% of sewage overflows into the Anacostia River each year, according to DC Water, and can also reduce flooding by 7 to 50% in a given year.

Posted Thursday, June 6, 2024 12:00 am

"The Anacostia is definitely improving. In general, we have a lot more swimmable days than we used to."

by Kyle Bagenstose

As the Riverkeeper for the Lower Potomac River, Dean Naujoks is one of the leading advocates for cleaning up that 405-mile waterway, which originates in West Virginia before snaking through Washington, D.C., and emptying into the Chesapeake Bay.

The Philadelphia Inquirer

NEWS > PHILADELPHIA

Billions of gallons of sewage-tainted water from Philly are released into the Delaware annually

A new report suggests local waterways could be unsafe for recreation for more than half the year due to the sewage overflows.

A combined sewer overflow in Camden City.
Frank Kummer

by Frank Kummer

Media coverage has not told a full story

PHILADELPHIA WATER DEPARTMENT

Who We Are

Integrated, One Water Utility for 1.7M customers

Drinking Water

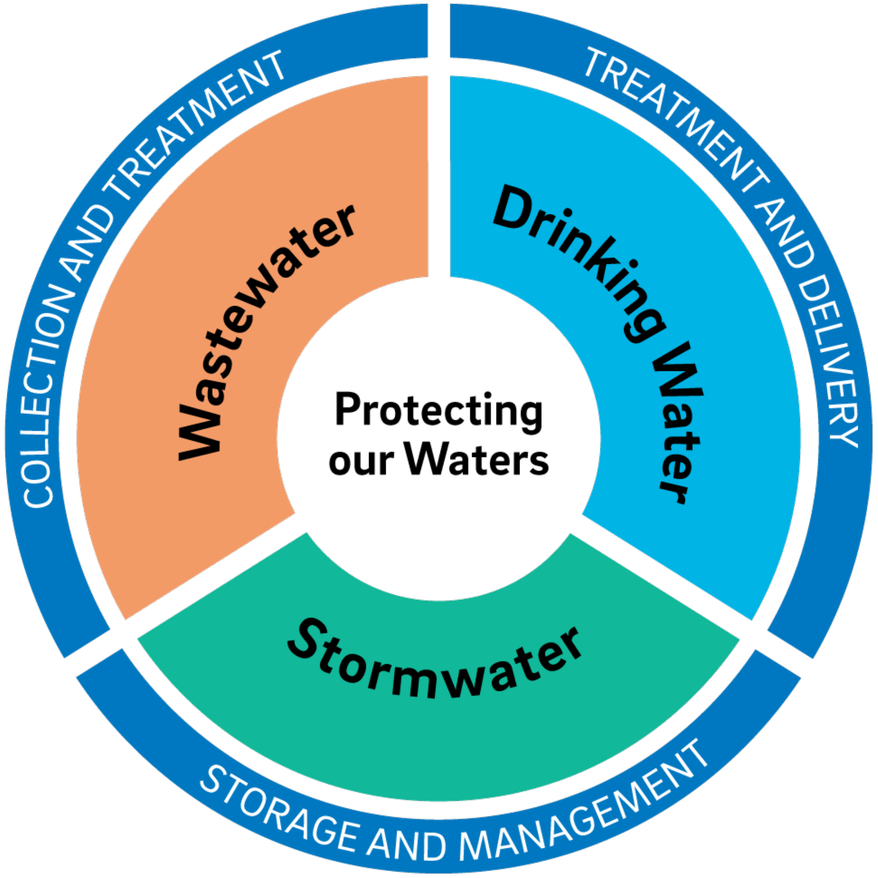
- Source: Delaware and Schuylkill Rivers
- Three Water Treatment Facilities
- Over 300 million gallons treated per day
- 3,000 miles of water mains, 25+ pumping stations

Wastewater

- 3 Water Pollution Control Plants
- Over 522 million gallons treated per day
- 3,716 miles of sewers, 19 pumping stations
- Biosolids handling facility

Stormwater

- Roughly 60% Combined Sewer, 40% Separate Sewer
- Green City, Clean Waters - Large-scale green stormwater infrastructure program
- To date, the program has reduced CSO volume by over 3 billion gallons annually utilizing over hundreds of GSI and traditional infrastructure projects



Philadelphia Water Department |

A ‘One Water’ Utility

The primary mission of the Philadelphia Water Department is to plan for, operate, and maintain both the infrastructure and the organization necessary to **purvey high quality drinking water**, to provide an adequate and reliable water supply for all household, commercial, and community needs, and to sustain and enhance the region’s watersheds and quality of life by **managing wastewater and stormwater** effectively.

In fulfilling its mission, the utility seeks to be **customer-focused**, delivering services in a fair, **equitable**, and **cost-effective** manner, with a commitment to **public involvement**. Having already served the City and region for nearly two centuries, the utility’s vision for the future includes an active role in the **economic development** of Greater Philadelphia and a legacy of **environmental stewardship.**

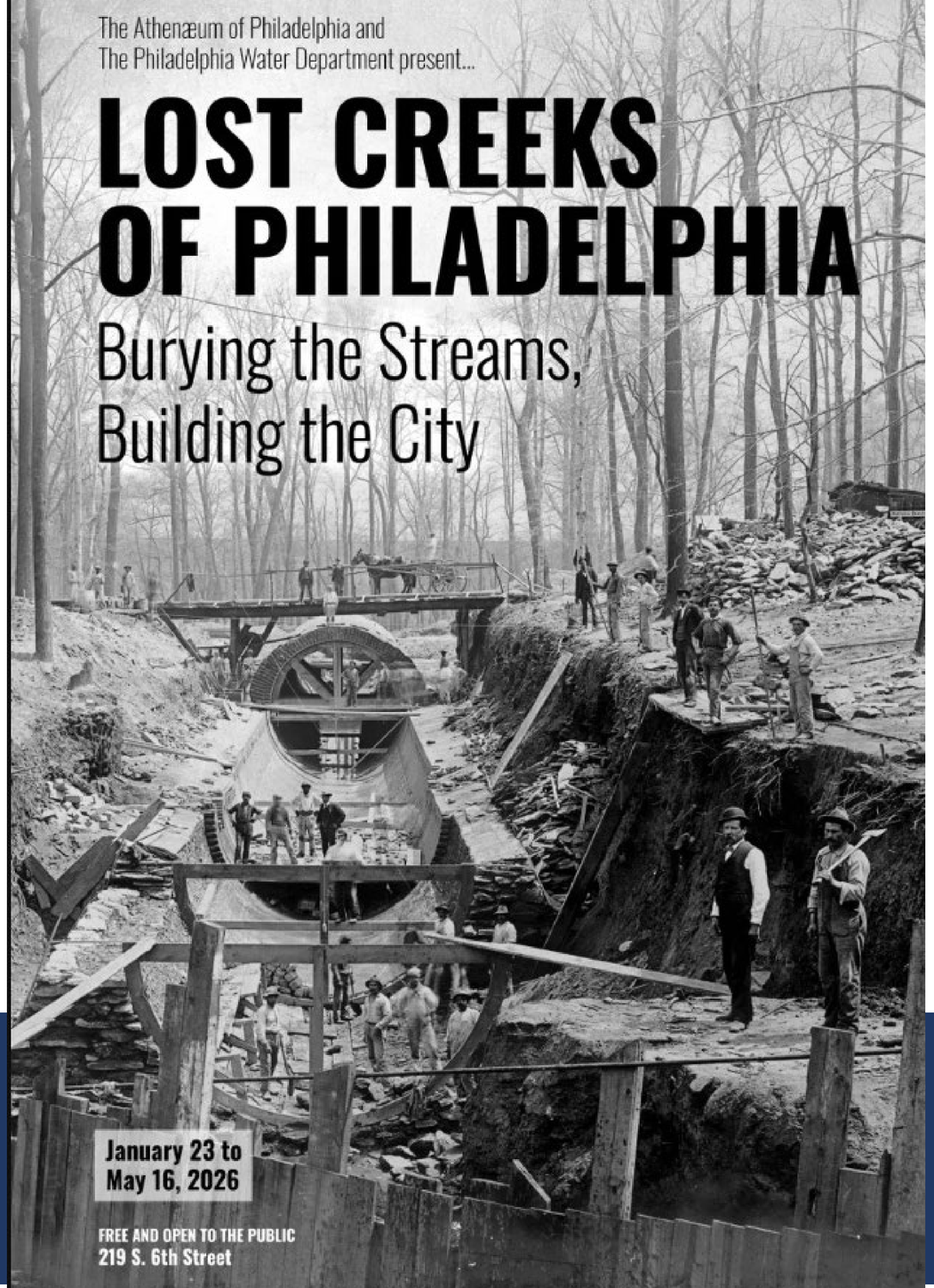
Philadelphia Water Department |

Who we are

- We are one of the City's ten operating departments.
- We serve under a dedicated Water Fund established pursuant to City Charter
- Almost 2,000 employees
  - Operations & Trades: This includes Water Treatment Plant Operators, heavy equipment operators, electricians, HVAC mechanics, and welders who maintain the physical infrastructure.
  - STEM & Laboratory: Scientists, chemists, and technicians sample water at central laboratories and treatment plants to ensure safety and quality.
  - Engineering: Civil and environmental engineers design and review infrastructure projects
  - Customer Service: Staff at the Water Customer Contact Center and field representatives handle billing inquiries, meter repairs, and delinquency issues.
  - Community Outreach: Specialists like those in the Public Affairs Unit manage neighborhood relations and education regarding programs.
- We operate, maintain, repair and improve the Water and Wastewater Systems
- We are fully funded by our customers; not taxes
- Because it is a municipal agency, all permanent employees are required to maintain a primary residence in Philadelphia – and are therefore PWD rate payers

Between the 1760s and the 1960s, hundreds of miles of the Philadelphia's surface streams were channeled into underground sewers — some more than 20 feet across — that became integral to the drainage of the expanding urban grid.

Burying streams was one of many drastic alterations to the city's original landscape that provided a more level surface for its buildings and streets.



On exhibit until May 16:
Lost Creeks of Philadelphia:
Burying the Streams, Building the City

An exhibit co-curated by Adam E. Levine and Joseph E. B. Elliott

The Athenaeum of Philadelphia
219 S. 6th Street, Philadelphia
(215) 925-2688
https://philaathenaeum.org/
The Athenaeum is closed Sundays.
Check the website for open hours.
Exhibit co-sponsored by the Philadelphia Water Department.

To arrange a group tour of the exhibit led by me, contact the Athenaeum's events staff.

https://waterhistoryphl.org/2026/03/upcoming-events-with-adam-levine-whphl-webmaster/

History

PHILADELPHIA WATER DEPARTMENT

History |

Philadelphia – Creek to Sewer

Philadelphia streams before European settlement

Map created by Jonathan Cruz and Philadelphia Water Department, using 1843 Ellet Map as basis for streams.

Philadelphia's remaining streams

Map created by Jonathan Cruz and Philadelphia Water Department, using 1843 Ellet Map as basis for streams.

History |
Why do we have CSOs?

Combined sewers were created in the mid-to-late 19th century as a cost-effective way to improve public health by moving both human waste and rainwater away from city streets in a single pipe.

At the time, they were considered a major advancement over the open-air ditches and cesspools that previously collected waste, which were often flushed into the streets by rain.

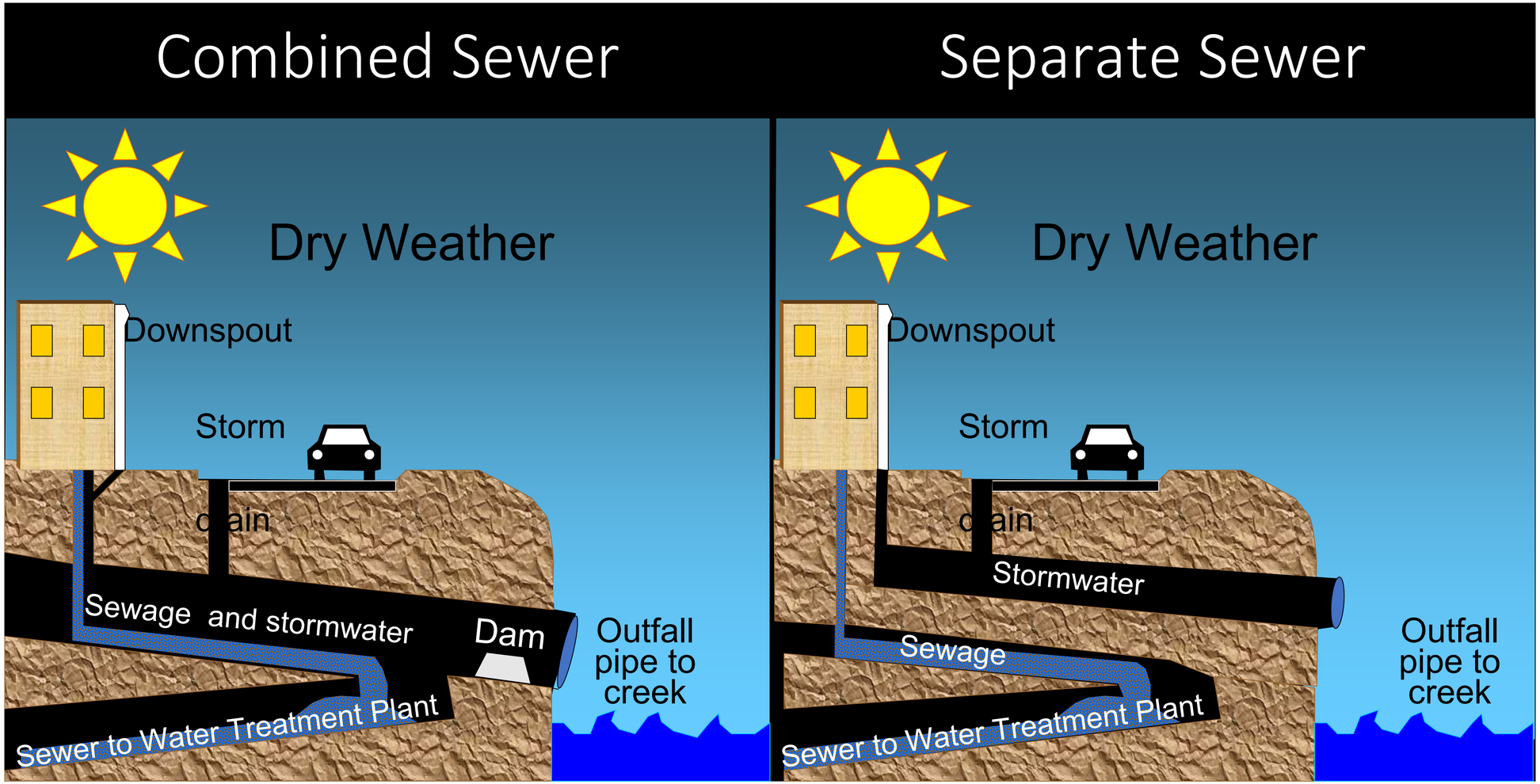
Bringing sewage underground removed human and industrial waste from living areas, drastically improving sanitation and reducing the spread of diseases like cholera.

Outfall T14, located along the confluence of Frankford and Tacony Creek, is the city's largest outfall. Nearly 2 billion gallons of raw sewage and polluted stormwater flowed out of T14 between July 2023 and June 2024.

CBS Philadelphia

History |

What is a Combined Sewer System?

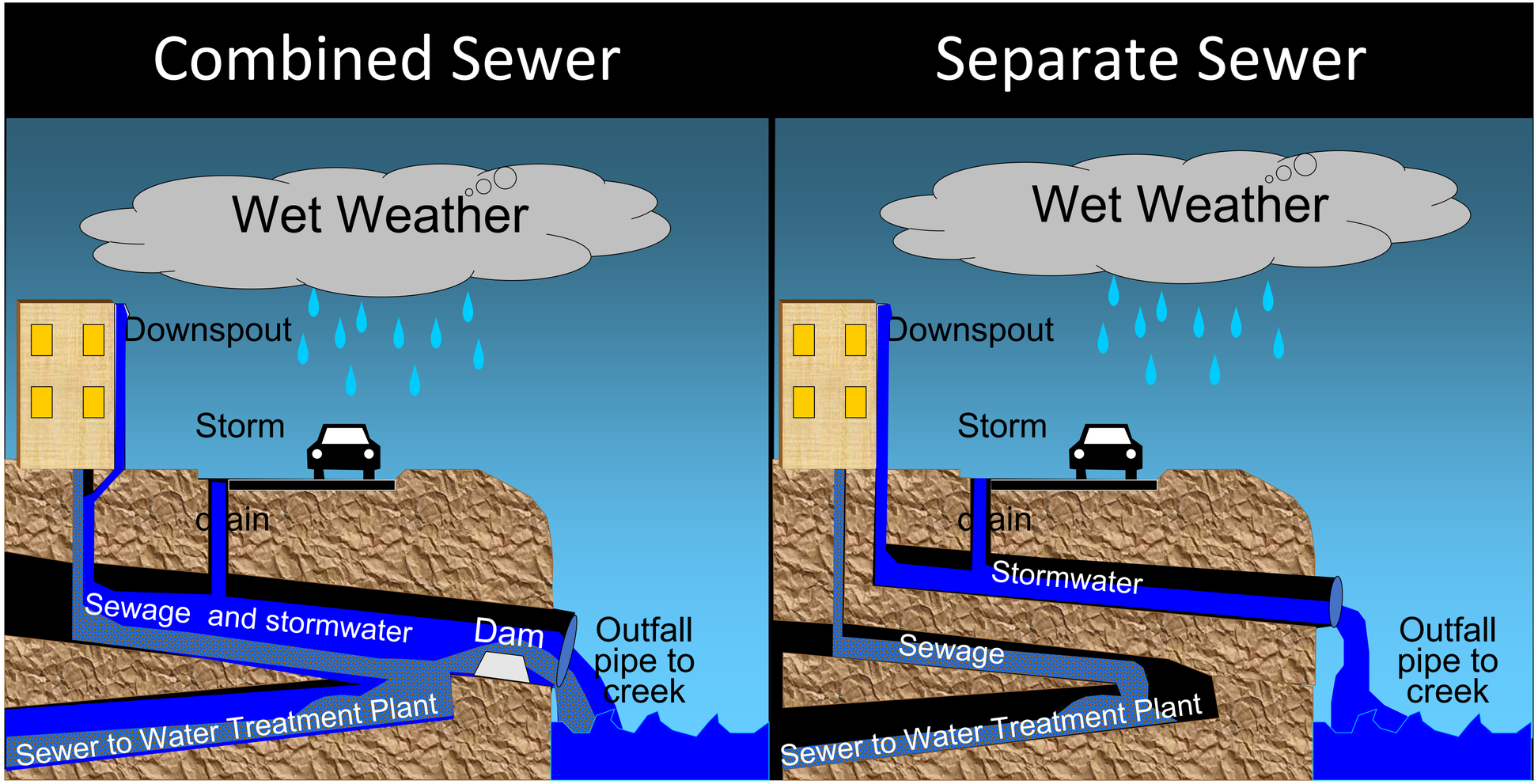


60% of Philadelphia

40% of Philadelphia

History |

What is a Combined Sewer System?



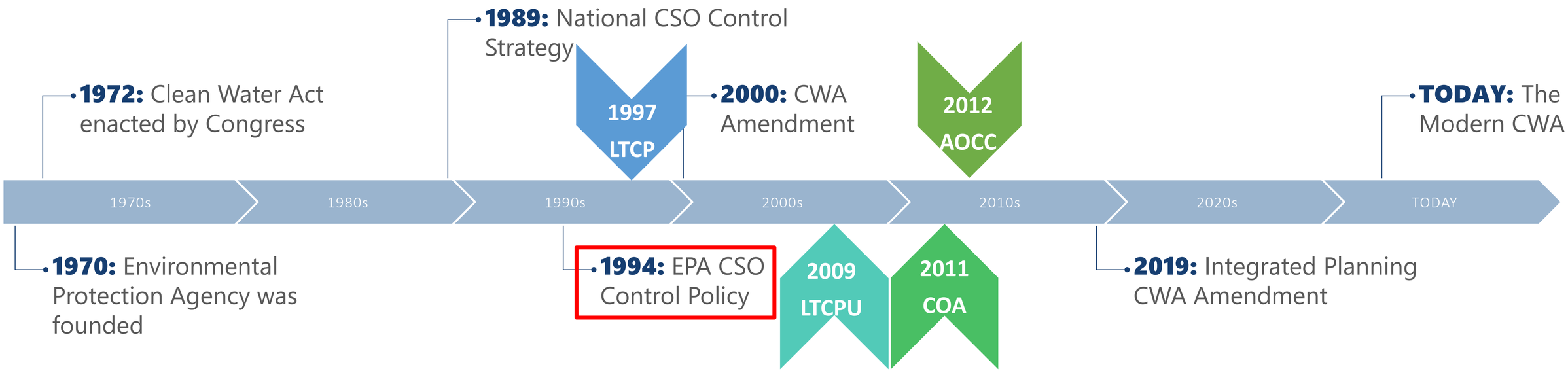
60% of Philadelphia

40% of Philadelphia

History |
Outfall Distribution

- The City of Philadelphia has both Combined and Separate sewered systems with outfalls discharging to the City's receiving waters
  - **165** Combined Sewer Overflow (CSO) Outfalls
  - Approximately **440** Municipal Separate Storm Sewer System (MS4) permitted outfalls

History |
Regulatory Timeline



History |
CSO Regulatory Commitments

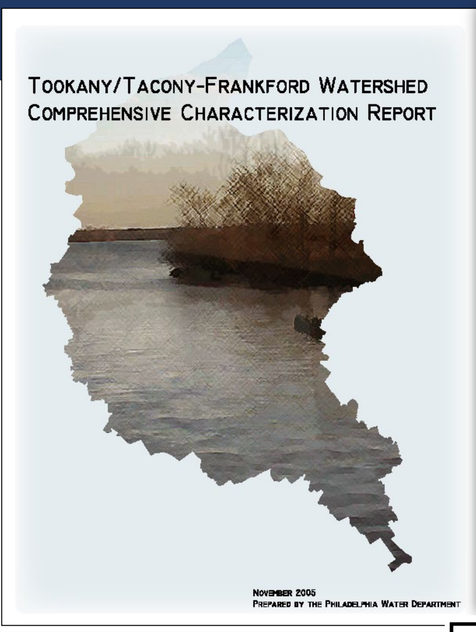
1997 Long Term Control Plan

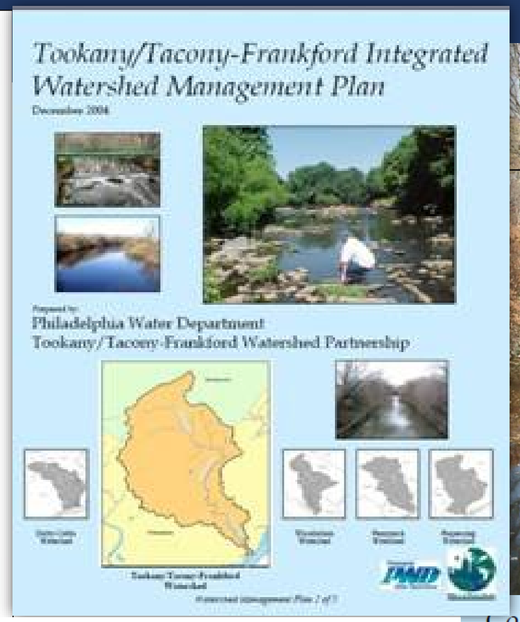
- Original Philadelphia CSO Long-term Control Plan submission
- Included commitment to a series of capital projects
- **Included commitment to watershed-based data collection, evaluation and planning process**

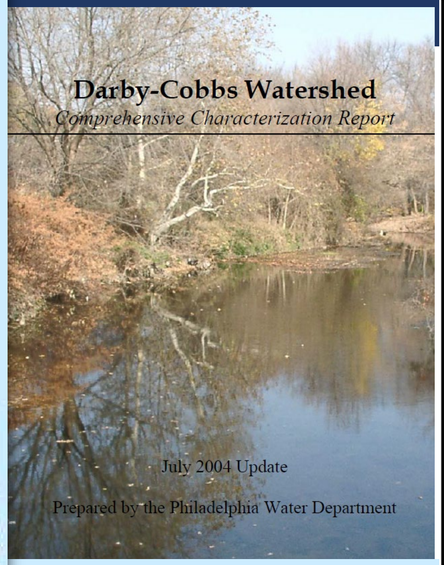
History - Birth of Watershed planning in Philadelphia

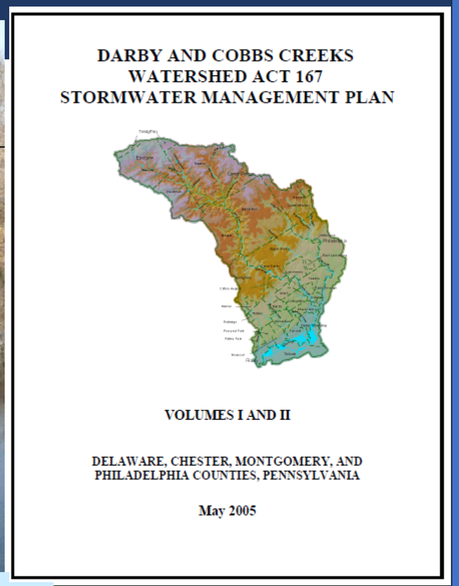
All available for download: https://water.phila.gov/reporting/watershed-plans-reports/

PHILADELPHIA WATER DEPARTMENT



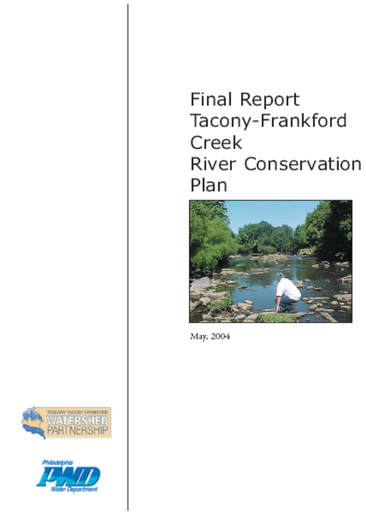


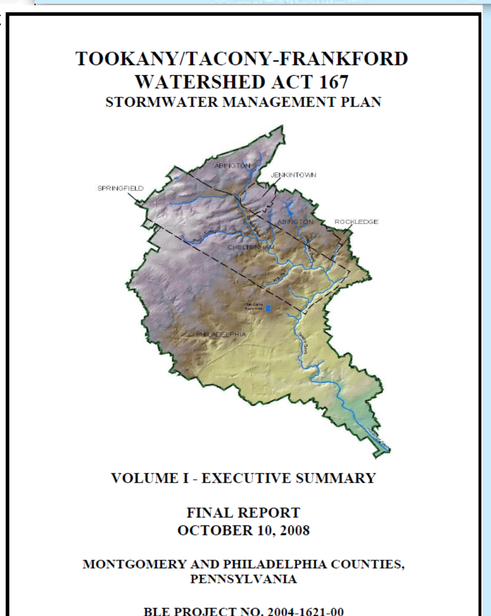


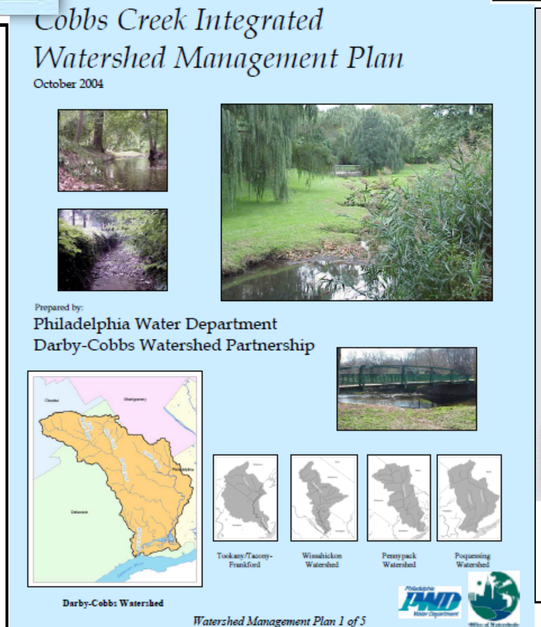


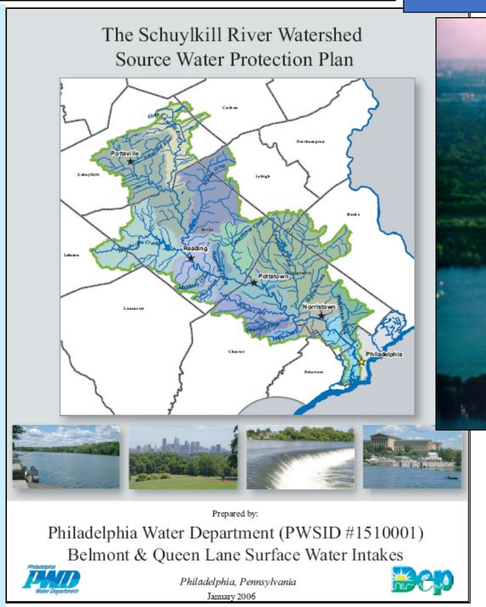
Schuylkill Watershed Conservation Plan

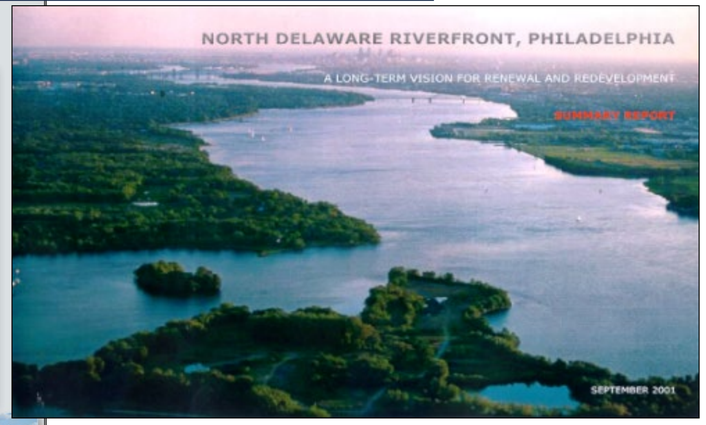
2001











Understanding the Region|

PWD Core Services & Model Scales

Basin Scale

- Drinking water

River Reach Scale

- Drinking water, stormwater, wastewater

Tributary Scale

- Stormwater, wastewater

Sewershed Scale

- Stormwater, wastewater

Project Scale

- Performance

History |
Watershed-wide issues

- Water Quality issues
- Odors
- Low Dissolved Oxygen
- Bank Erosion
- Lack of Channel Habitat and Biological Diversity
- Wetland Degradation
- Poor Public Access to Streams
- Dumping and Trash
- Vandalism

The regions watershed problems do not begin or end at the end of pipe/outfall.

History |

CSO Regulatory Commitments →Green City, Clean Waters

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Together these form the Green City, Clean Waters commitment

1997 LTCP

2009 LTCPU

- CSO Long-term Control Plan Update Submitted in 2009 – publicly known as *Green City, Clean Waters*
- 20-year program proposal
- Watershed characterization and stakeholder goals established by Watershed Partnerships
- Limited rate payer affordability and limited funding available for new large capital investments
- Proposed a mix of green and traditional infrastructure for CSS system-wide implementation

2011 COA

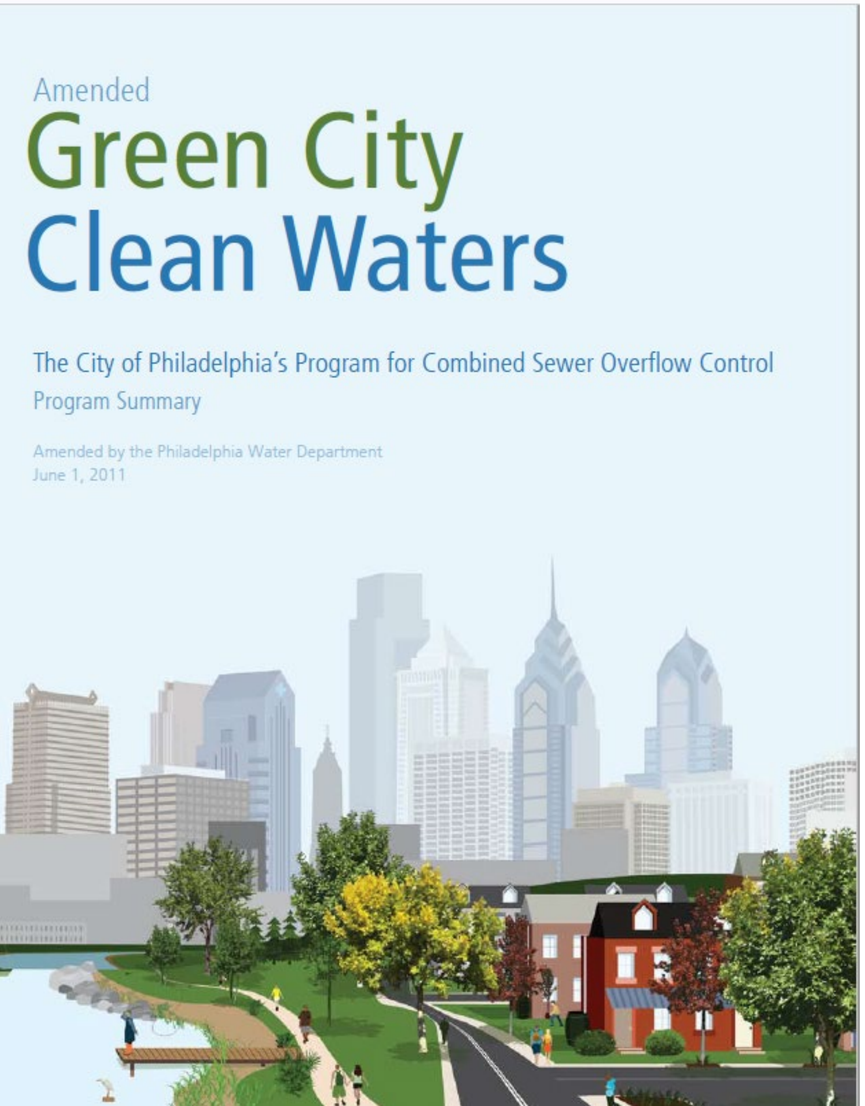
- PADEP <>PWD Consent Order & Agreement
- Product of 2 years of negotiation, added 5 years to implementation duration and additional capital commitment with performance metrics
- 25-year Presumption-based program with WQBEL Performance Standards

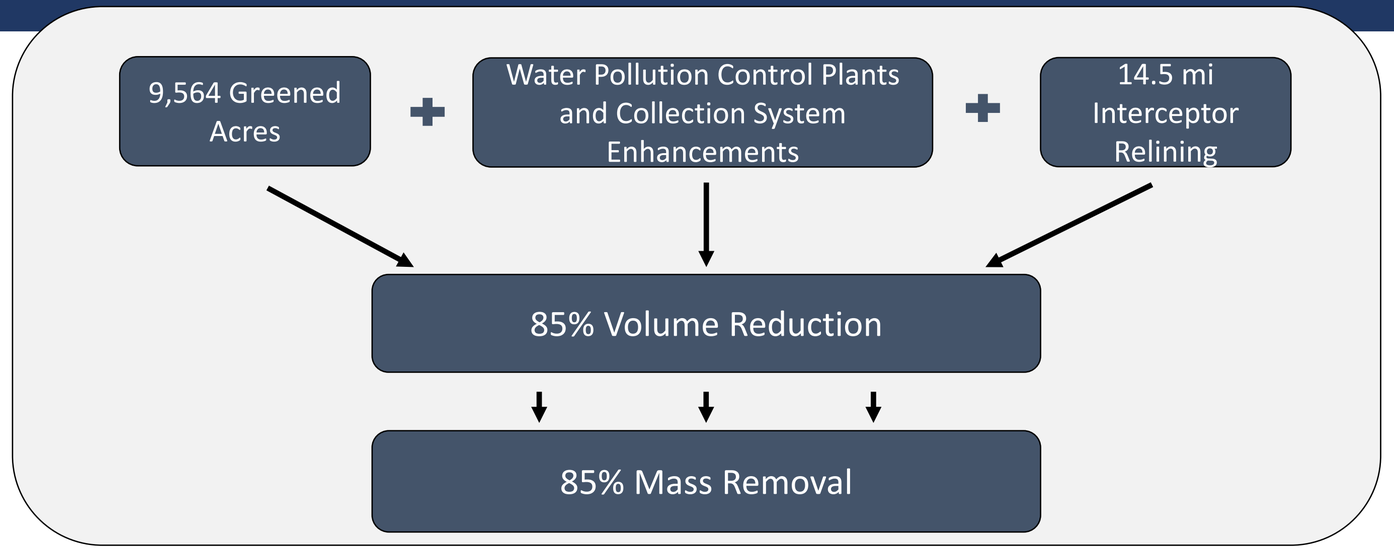
2012 AOCC

- USEPA <> PWD Administrative Order for Compliance on Consent
- Represented USEPA approval of the amended LTCPU commitment
- Affirmed USEPA interest in reviewing and approving all submissions and deliverables

History |

Establishment of the Green City, Clean Waters Program



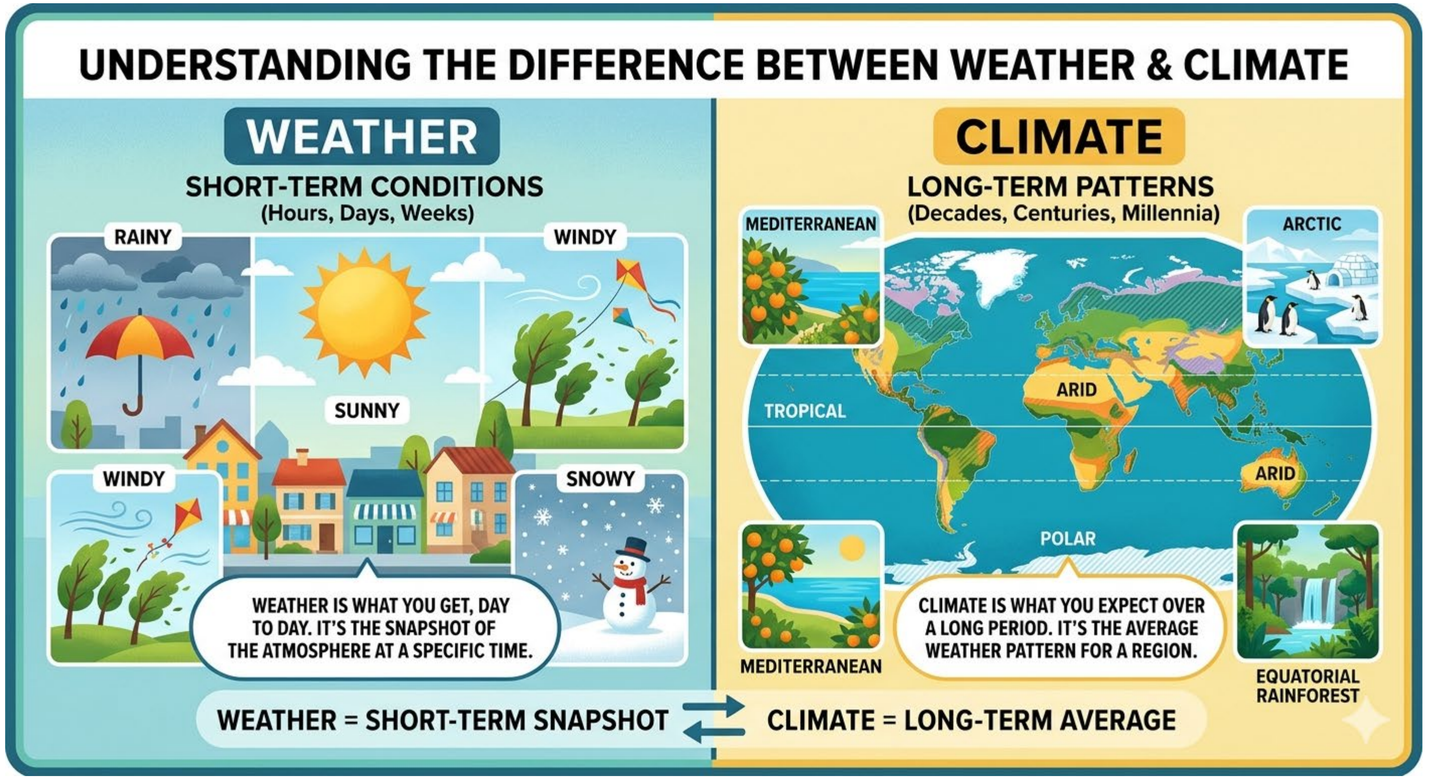


Metric	Units	Base line value	Cumulative amount as of Year 5 (2016)	Cumulative amount as of Year 10 (2021)	Cumulative amount as of Year 15 (2026)	Cumulative amount as of Year 20 (2031)	Cumulative amount as of Year 25 (2036)
NE / SW / SE WPCP upgrade: Design	percent complete	0	TBD	TBD	TBD	100%	100%
NE / SW / SE WPCP upgrade: Construction	percent complete	0	TBD	TBD	TBD	100%	100%
Miles of interceptor lined	Miles	0	2	6	14.5	14.5	14.5
Overflow Reduction Volume	million gallons per year	0	600	2,044	3,619	5,985	7,960
Equivalent Mass Capture (TSS)	Percent	62%	Report value	Report value	Report value	Report value	85%
Equivalent Mass Capture (BOD)	Percent	62%	Report value	Report value	Report value	Report value	85%
Equivalent Mass Capture (*Fecal Coliform*)	Percent	62%	Report value	Report value	Report value	Report value	85%
Total Greened Acres	Greened Acres	0	744	2,148	3,812	6,424	9,564

History |

Average Annual Conditions – “Typical Hydrological Year”

- EPA guidance suggests a long-term rainfall data to establish understanding of average annual precipitation.
- Understanding of the average annual condition used to support development of CSO long term control plans, ensuring that solutions are effective under average annual rainfall conditions.
- The average annual condition (or “typical year”) provides a static benchmark for establishing regulatory targets and evaluating progress.
- Baseline (pre-implementation) conditions are established so progress can be evaluated and compared to this pre-program condition throughout program duration.
- For PWD, the typical year was established during development of the 2009 LTCPU based on 30+ years of precipitation data



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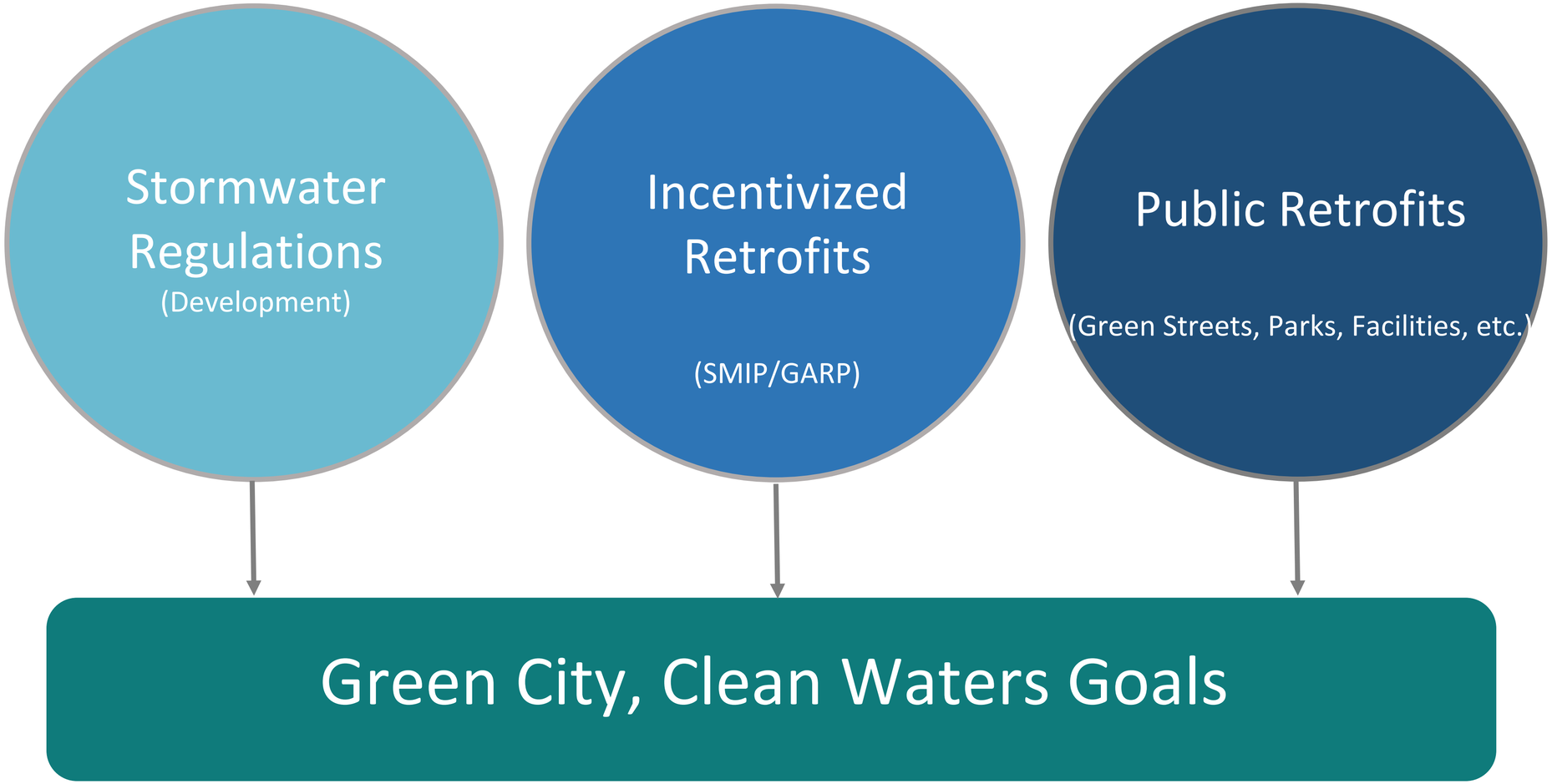
History |

Establishment of the Green City, Clean Waters Program



Green Stormwater Infrastructure |

Nature-Based Design

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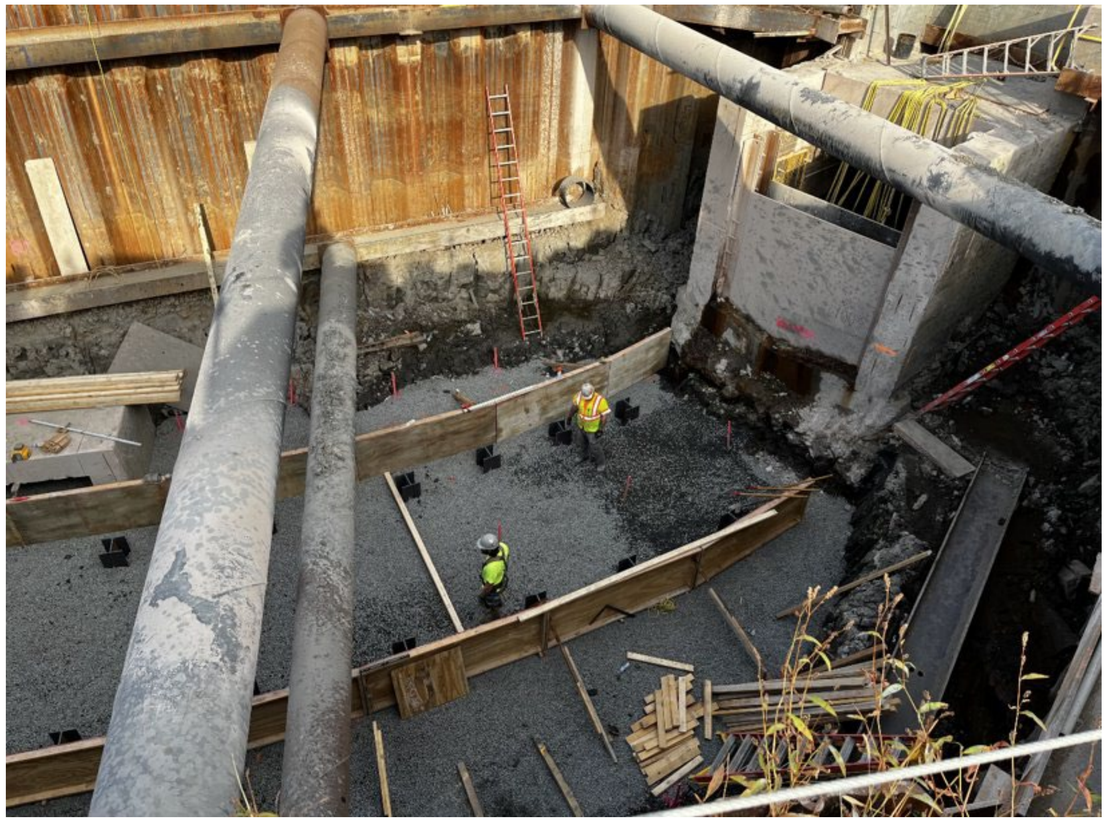
A range of soil-water-plant systems that ***intercept* stormwater**, ***infiltrate*** a portion of it into the ground, ***evaporate and transpire*** a portion of it into the air, ***harvest and reuse*** as a resource, and in some cases ***slowly release*** a portion of it back into the sewer system



Progress

Wet Weather Enhancements & Upgrades

Wastewater Treatment Plants and Collection System

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NE WPCP — Increase preliminary treatment capacity

NE WPCP — Increase wet weather capacity using high flow management system

SW WPCP — Increase effluent pumping capacity via additional effluent pump

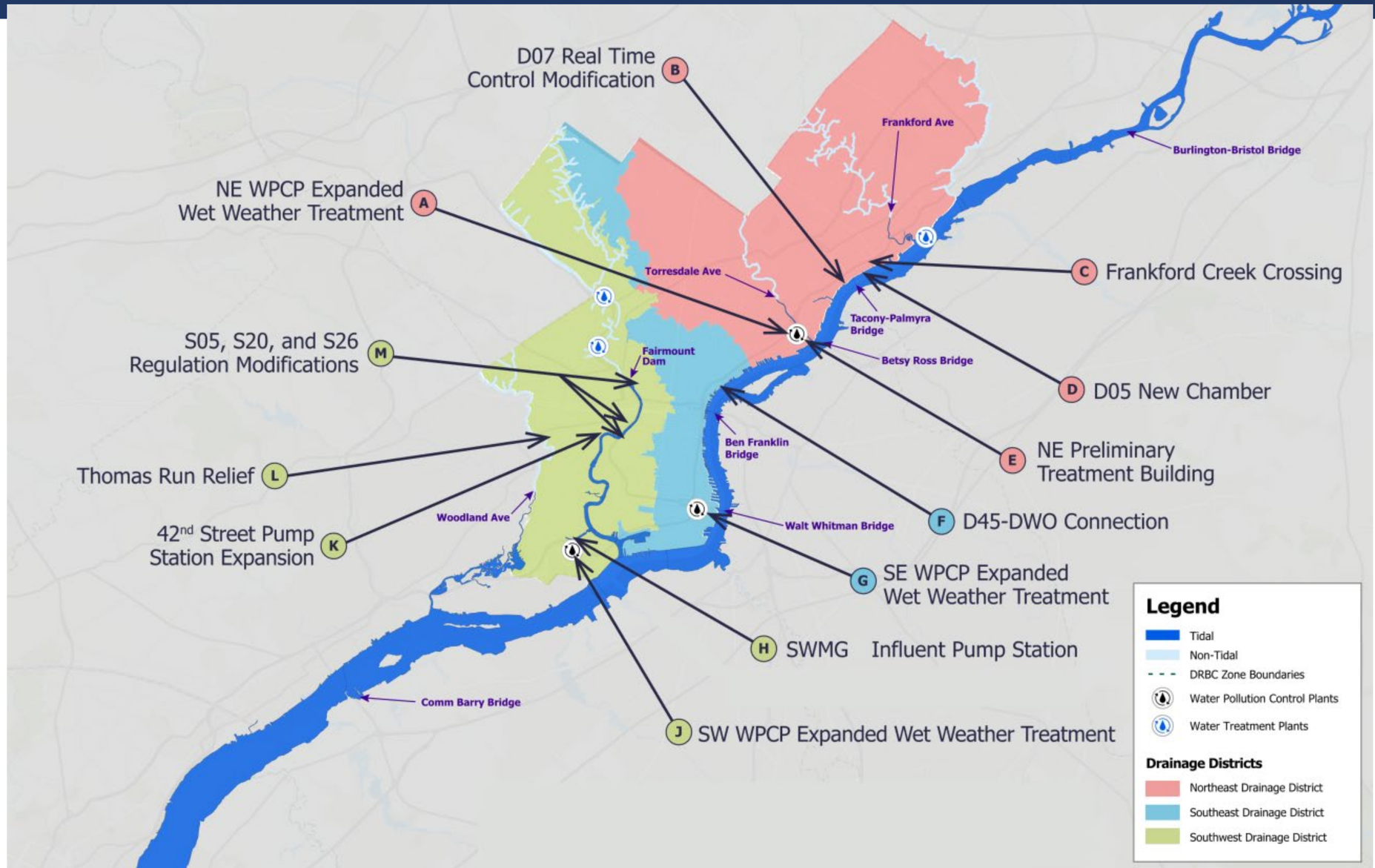
SW WPCP — Increase primary and secondary treatment capacities via additional infrastructure

Intended to Increase total wet-weather treatment capacity from 1.1 Billion Gallons per Day (BGD) to over 1.4 BGD

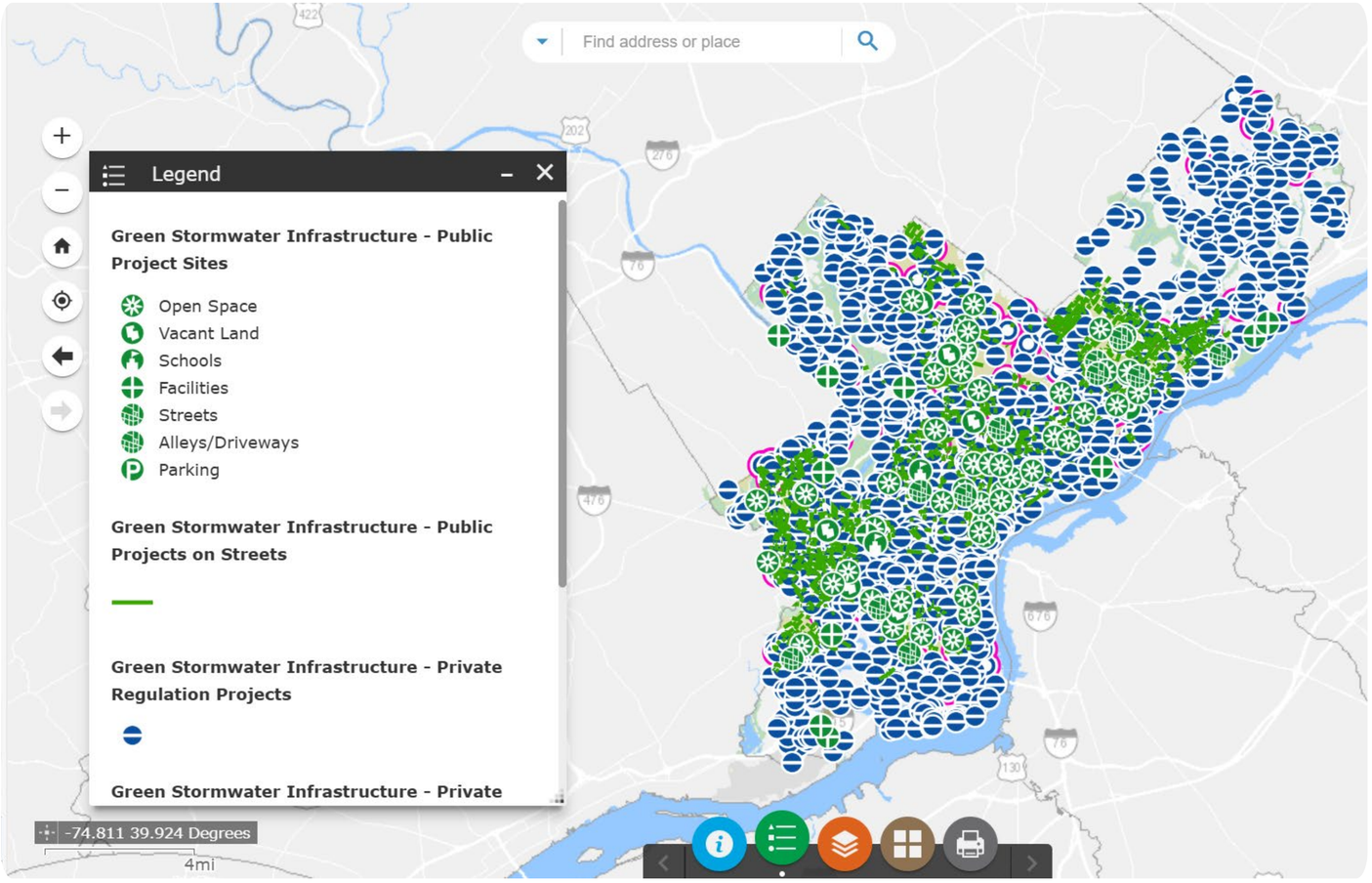
System Capacity and Flow Delivery - Optimization & Upgrades

- **Implemented**
  - Interceptor rehabilitation and upgrades
  - CSO regulating chamber modifications
- **Design Complete**
  - Hydraulic restriction elimination
  - CSO regulating chamber modifications
- **In-Design**
  - Pumping station and CSO chamber modifications
  - Transmission capacity upgrades
  - CSO Regulator Modifications
  - In-system storage and treatment

Progress |
Traditional Infrastructure



Progress |
Programmatic



Green City, Clean Waters has produced real results.
The Philadelphia Water Department staff have spent the past [near] 15 years implementing an innovative approach to water resources management and investments in our communities.

- Our team has taken a vision called Green City, Clean Waters and ushered it from idea to reality, by creating the programs, policies, and tools necessary to facilitate this award-winning program.
- This vision has been widely copied around the nation. We have faced challenges and obstacles head on, while continuing to make adjustments when needed, and will continue to do so in the coming years.
- This effort has culminated in thousands of GSI tools being realized throughout and across the City

Progress can be viewed online at Green Stormwater Infrastructure Projects and Green Stormwater – Project Types –Projects & Construction

Workforce Development |

Green Stormwater Operations Grounds Maintenance Units

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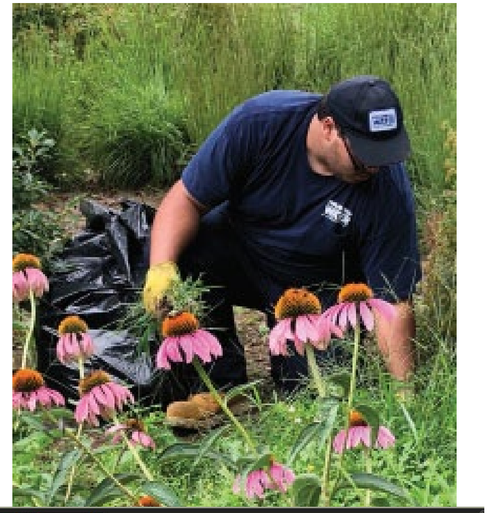

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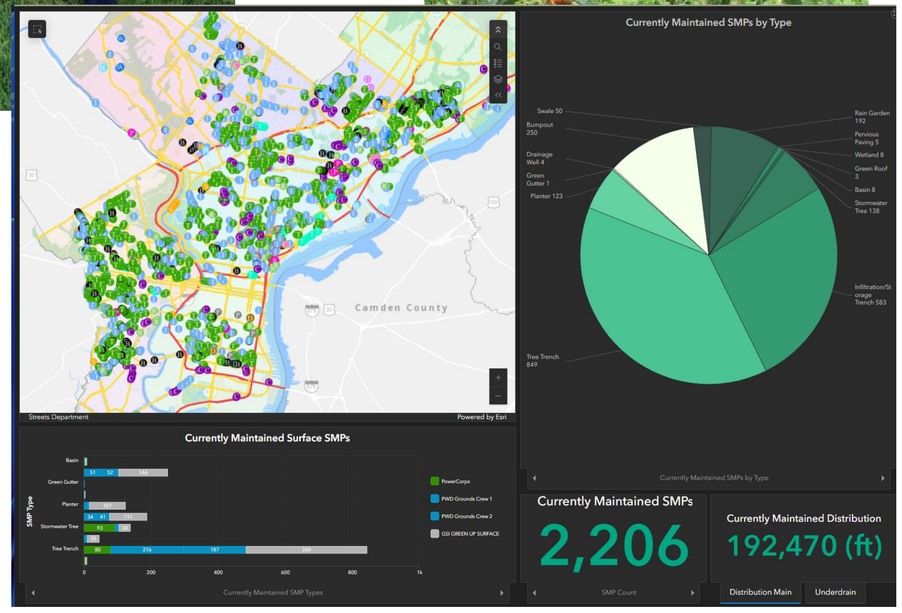
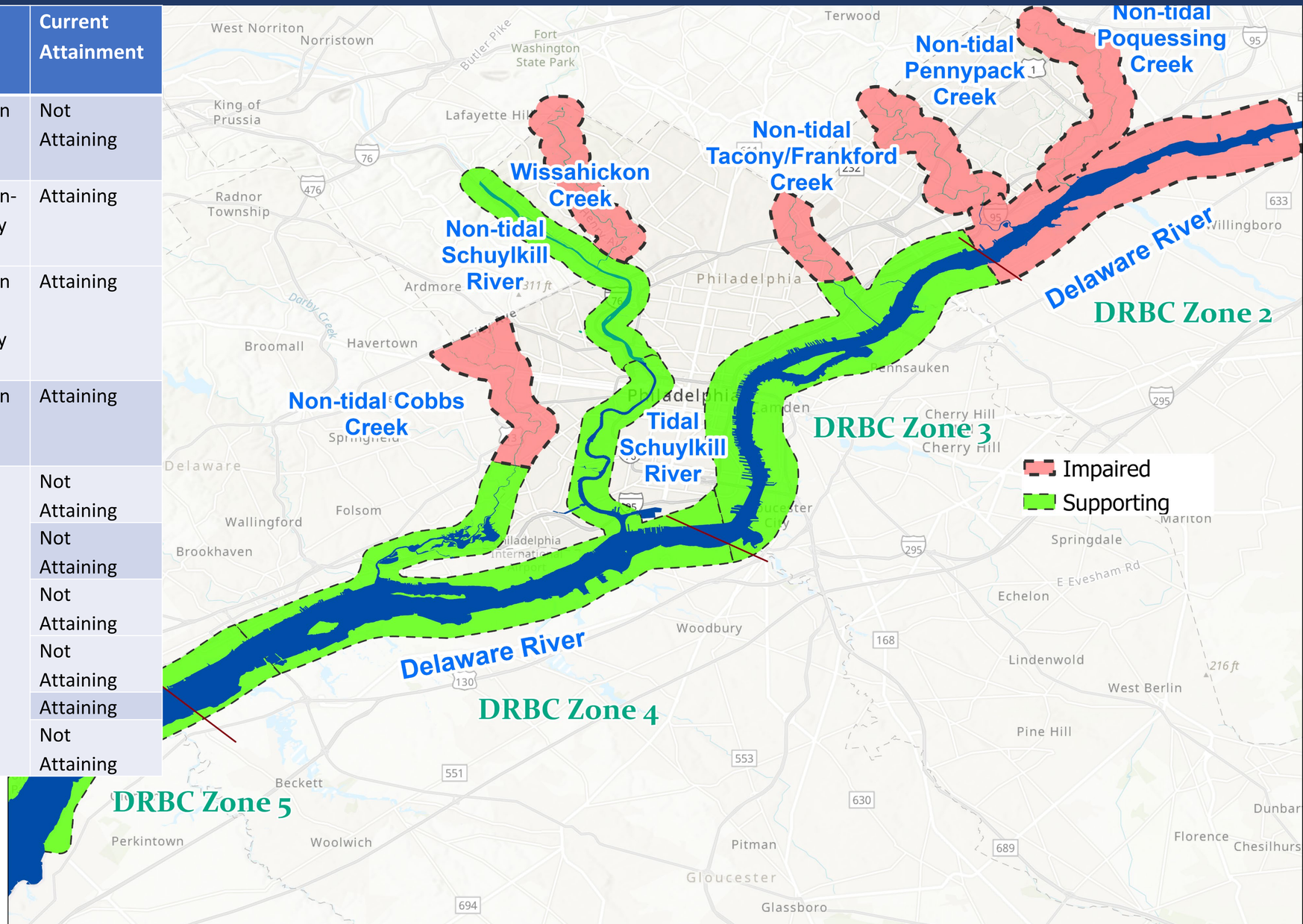


Progress |
Receiving Waters

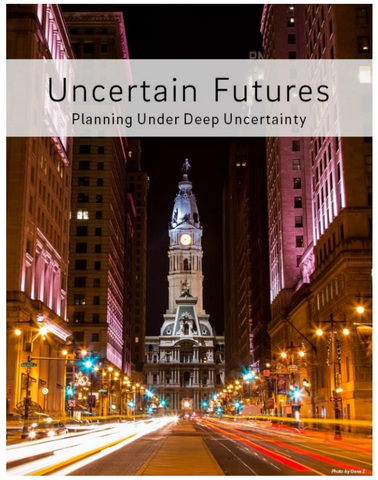
Zone/ Agency	Waterbody	Use	Current Attainment
DRBC Zone 2	Tidal Delaware River	Recreation (Primary Contact)	Not Attaining
	Tidal Pennypack Creek		
	Tidal Poquessing Creek		
DRBC Zone 3	Tidal Delaware River	Recreation- Secondary Contact	Attaining
	Tidal Frankford Creek		
DRBC Zone 4 (Above RM 81.8)	Tidal Schuylkill River	Recreation – Secondary Contact	Attaining
	Tidal Cobbs/Darby Creek		
	Tidal Delaware River above Commodore Barry Bridge		
DRBC Zone 4 (Below RM 81.8)	Tidal Delaware River below Commodore Barry Bridge	Recreation (Primary Contact)	Attaining
DEP (Non Tidal)	Poquessing Creek (No CSO)	Water Contact Sports	Not Attaining
	Pennypack Creek (No CSO)		Not Attaining
	Tacony Creek		Not Attaining
	Frankford Creek		Not Attaining
	Wissahickon Creek (No CSO)		Not Attaining
	Schuylkill River (No CSO)		Attaining
	Cobbs Creek (No CSO)		Not Attaining

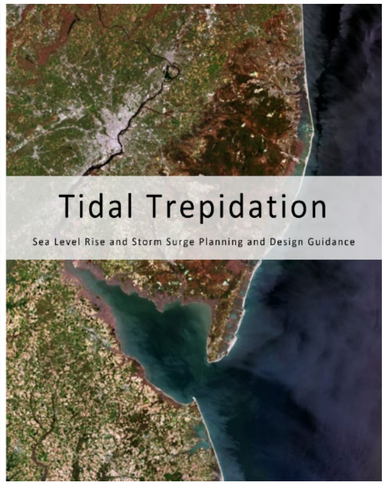


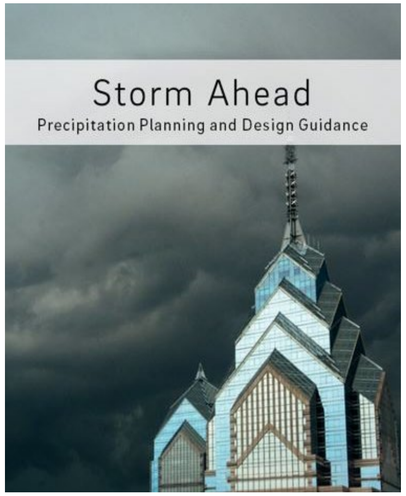
Progress |
Climate Adaptation Program

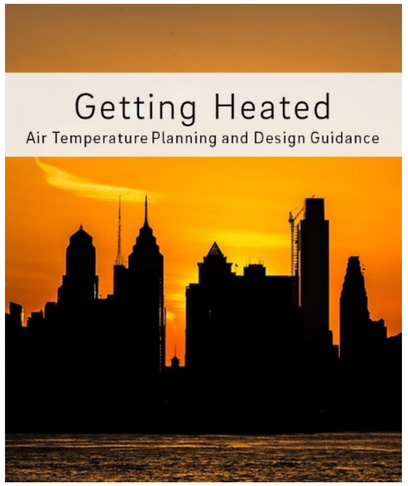
PHILADELPHIA WATER DEPARTMENT

- The Philadelphia Water Department (PWD) mandates a department-wide policy requiring climate change adaptation evaluations for all projects, utilizing specific Climate-Resilient Planning & Design Guidance.
- This policy ensures infrastructure planning, design, and construction address risks from sea-level rise, storm surge, increased precipitation, and higher temperatures, aimed at long-term infrastructure sustainability.









EXTERNAL VERSION – PLEASE SEE DISCLAIMER BELOW

PHILADELPHIA WATER DEPARTMENT

Climate-Resilient Planning and Design Guidance

Building Our Future Today

Version 1.1

March 2024

The information, tools and data being shared in this Guidance document were created solely for Philadelphia Water Department (PWD) infrastructure planning and design applications. PWD reserves the right to utilize or refrain from utilizing this Guidance at any given time without notice. Those choosing to use this Guidance or other PWD Climate Change Adaptation Program (CCAP) products for external (i.e. non-PWD) purposes should understand the methodologies utilized, including assumptions and known uncertainties and errors therein. This Guidance document should not be distributed without permission from PWD, and PWD does not assume any risk or liability with its use.

Progress |
Programmatic

- Nearly 15 years into implementing this groundbreaking program, PWD has made real progress:
  - Treatment Plant and Collection System Enhancements:
    - Last reported in the Year 10 EAP, PWD met or exceeded all requirements related to WPCP and collection system enhancements and is working diligently to ensure the same at year 15
      - Frankford Creek Crossing construction
  - Interceptor Lining:
    - Last reported at Year 10, PWD was significantly ahead of schedule in lining projects
  - Overflow Volume Reduction:
    - At Year 10, PWD has exceeded the target of 2,044MG with a 3,080MG reduction from the baseline based on the COA documented typical year precipitation pattern.
    - To meet the Year 15 target, PWD will need to reduce another 600MG and has projects in construction that will meet or exceed this target
  - PWD exceeded its Year 10 Greened Acre WQBEL Performance Standard of 2,148 GAs with 2,196 GAs; at Year 15 the implementation target is 3,812 GAs and PWD has projects in construction to meet this target

NE Prelim Treatment Building Conduits

Tacony Creek Interceptor Rehab/Lining

Challenges

PHILADELPHIA WATER DEPARTMENT

Challenges |
Aging Infrastructure / Environmental / Financial / Global

Conditions after 48” transmission main break – Philadelphia, PA (Photo from NBC10

Inflation has impacted costs across all facets of infrastructure delivery and operations and maintenance: labor, materials, equipment/supplies, chemicals, etc.

Flooding in Eastwick, Philadelphia from Tropical Storm Isaias

Drone Photo of Baxter Intake – Winter 2026
(photo source: unknown)

WHYY News Radio & Podcasts TV Arts Events Education Support

COMMUNITY INCOME INEQUALITY INFRASTRUCTURE PHILADELPHIA

WATERSHED

Philly water rate hike plans draw scrutiny from City Council

The proposed rate hike will cost the average resident $15 more a month over the next three years.

By Tom MacDonald - May 8, 2023

(Danya Henninger/Billy Penn)

The Philadelphia Water Department presented its need for a major rate hike to pay for expenses. City Council members listened to their plea Monday morning with a dry eye.

Water Commissioner Randy Hayman told Council’s Committee on Transportation and Public Utilities that rate hikes are necessary to cover rising costs.

“For instance, the cost per ton for chemicals used in water treatment has risen in fiscal year 2023, as much as 142% above fiscal year 2022 levels,” Hayman said. “Chemical costs are beyond our control.”

“Additional revenues are needed to ensure that clean water is delivered as safely and reliably as possible, and that wastewater treatment and stormwater management services meet our community’s needs.”

Challenges |
Climate Change Adaptation Program (CCAP)

Program Goal

Reduce the risks and associated expenses PWD will face from the impacts of climate change by identifying and implementing effective and feasible adaptation strategies

Precipitation ↑

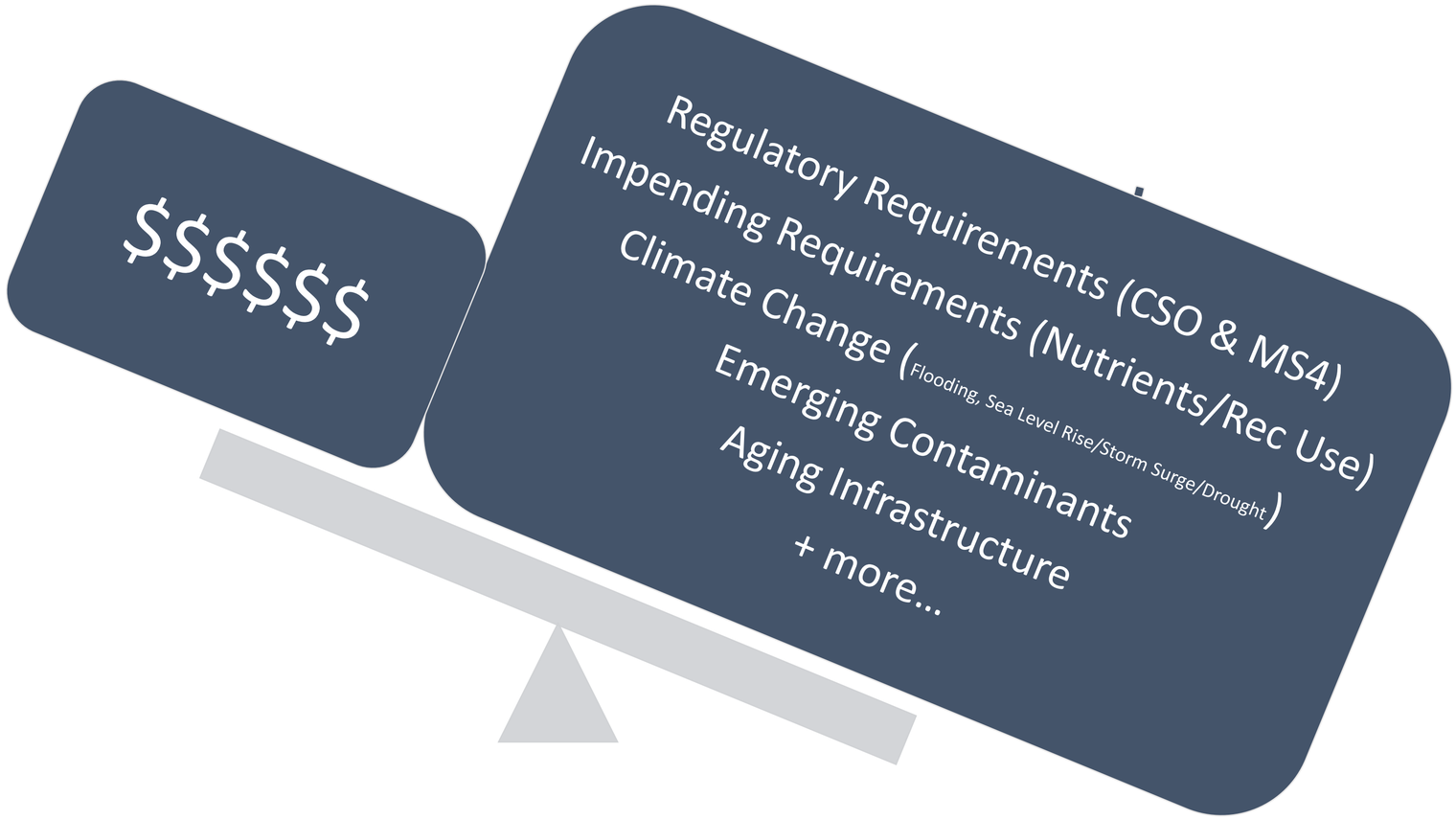
Sea level ↑

Air temperature ↑

Extreme storm events ↑

Droughts ↑ ↓ —

Challenges |
Balancing Priorities

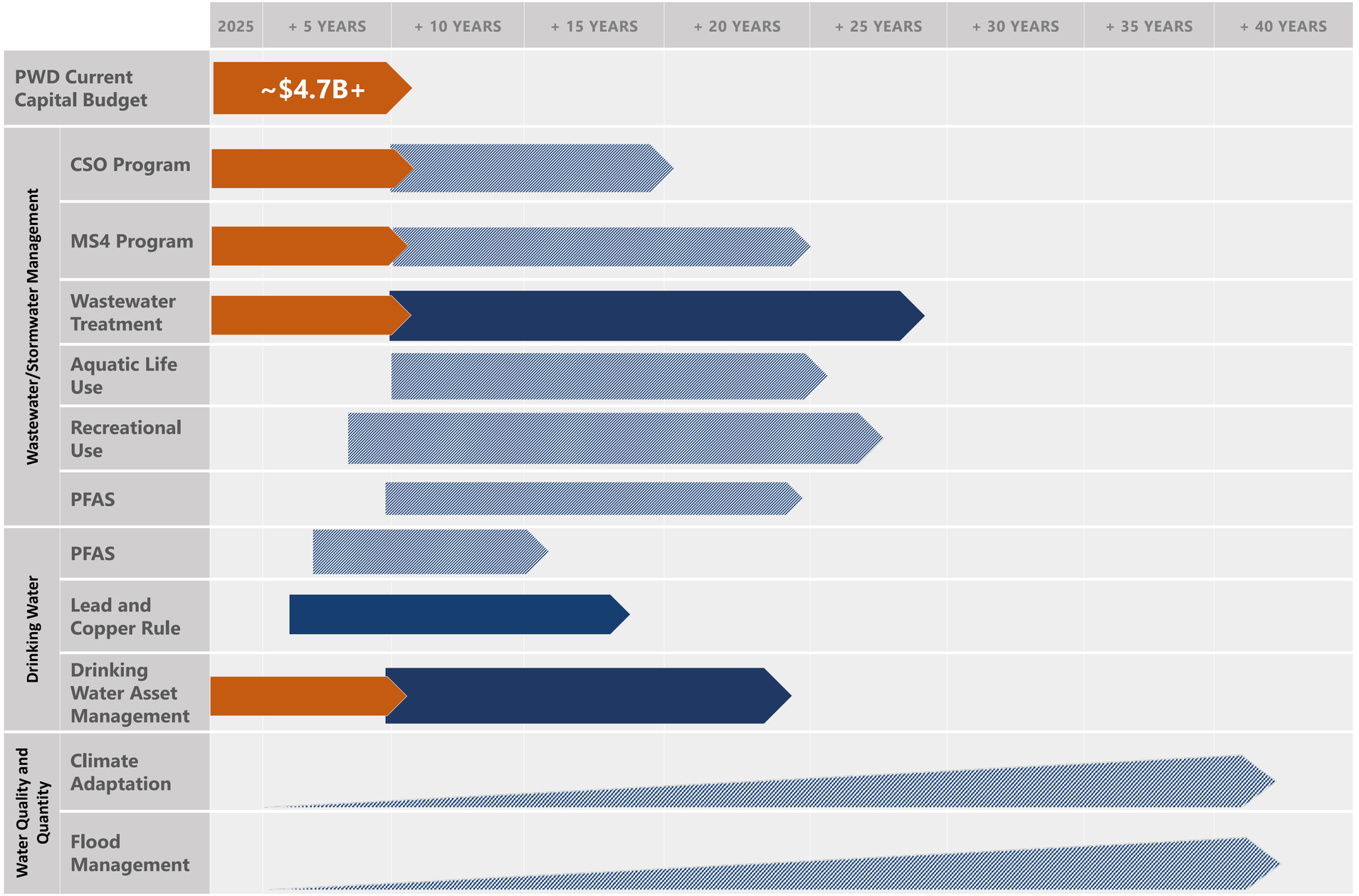


Fishable – Swimmable – Drinkable – Safe – Attractive – Accessible – Just - Affordable

POTENTIAL [PLANNING LEVEL] CAPITAL COSTS AND SCHEDULE IMPLICATIONS OF COMPOUNDING OBLIGATIONS

The estimates detailed in this document are for general discussions and deliberations of future City / PWD policy. The estimates are not official financial projections prepared by the Department and should not be viewed as such.

Legend: Orange fill means covered within existing capital projection for FY26-FY31, Blue fill is for cost implications beyond 6-year projection.



Challenges |
Balancing Funding Priorities

- Across the country, utilities are being asked to do more with less. Federal funding that once covered up to 75% of treatment plant costs now accounts for **less than 5%** of total project support. Meanwhile, expectations—and enforcement—are expanding dramatically.
- Federal Funding Falls Far Short of Local Needs
- PWD is constantly pursuing opportunities to obtain federal and state funding to offset budgetary needs for clean water obligations. However, many federal grant resources have dried up in the last 50 years and the amount of funding available is dwarfed by the needs across the nation.

grid → WATER

Under Water

Philly's water bills are rising fast, and the 10-year forecast calls for more rate hikes

by KYLE BAGENSTOSE

In September 2024, Philadelphians saw their monthly water bills jump by about 12%, the second-largest rate hike that year of any large water system in the country. This year, rates went up by nearly another 10%, now pushing a typical monthly bill close to $100, according to the Philadelphia Water Department.

But if these recent increases seem eye-popping to the city's residents, they may not have seen anything yet, says Robert Ballenger, an attorney with Community Legal Services, who also serves as public advocate before the City's independent Water, Sewer and Storm Water Rate Board. Perhaps nobody outside PWD's own staff pays closer attention to the finances of the utility than Ballenger, and he uses two words to describe how he sees its financial future: "pretty terrifying."

> "We're talking going from a $1 billion-per-year utility to a $2 billion-per-year utility."
>
> ROBERT BALLENGER

That's because, Ballenger says, the city's water system is coming to terms with historic disinvestment — having to replace pipes and treatment plants well past their lifespan — at the same time that new regulatory requirements for both drinking water and sewage pollution are bearing down. PWD's own projections, he adds, predict that it may have to double its revenues between now and 2036 to keep up.

"We're talking going from a $1 billion-per-year utility to a $2 billion-per-year utility," Ballenger says. "I attribute 50% of that concern to the absence of [outside] funding," he adds, especially for capital projects needed to meet federal mandates.

The other half, he says, is a complex mixture of rising operational and maintenance costs — aging infrastructure, wages, inflation — and decision-making on how to pay for it.

Andrew Kricun, former executive director of the Camden County Municipal Utilities Authority and current managing director of the nonprofit clean-water consulting firm Moonshot Missions, says utilities like PWD could be more self-sufficient. In the 24 years he worked for that neighboring utility across the Delaware River, a tenure that ended in 2020, Kricun says he and colleagues dramatically improved water quality and implemented large capital projects while raising rates only once. (The utility's rates later jumped 22% in 2023 and are scheduled to increase 3% annually through 2027, according to Tap into Camden, but still average less than $70 a month).

He credits that primarily to the historical consolidation of more than 50 water systems into a single regional entity — and the cost efficiencies that came with it — as well as heavy reliance on the New Jersey Infrastructure Bank, which doles out low-interest loans for water infrastructure. So, in Kricun's view, while a historic decline in federal funding for water utilities has made a "substantive" difference in their finances, the challenge is "not insurmountable."

PWD says a similar strategy is not in play here in Philadelphia. Over the next six years the department estimates it will need to spend $4.7 billion on capital costs alone, or about $800 million annually, spokesperson Brian Rademaekers wrote in an email to *Grid*. But state officials have told PWD they can only set a goal of providing up to $100 million a year in low-interest loans, if the state budget allows it, according to PWD. That amounts to only a fraction of the department's capital costs, let alone operations and maintenance. The department will likely need to pay for much of the rest through financing or rate hikes.

"Capital investments and related infrastructure financing will remain a driver for rate increases in the future," the department says.

The end of federal funding

Riding the wave of the 1960s environmental movement, Congress created the Clean Water Act in 1972 and the Safe Drinking Water Act in 1974, introducing a robust regulatory framework to clean up industrial pollution and sewage. Cities like Philadelphia were required to build modern, expensive wastewater treatment plants.

Congress also created the Construction Grants program, which provided tens of billions of dollars to help directly pay for the upgrades.

"It was one of the largest civilian federal expenditures in the 20th century," says Rebecca Hammer, senior attorney and deputy director of federal water policy at the Natural Resources Defense Council. "It was really quite a large investment that had huge benefits for public health and the environment."

But that changed in 1987, when President Ronald Reagan and a Democratic-controlled Congress agreed to scrap the grants program and replace it with a pair of revolving loan funds. These programs, administered by the U.S. Environmental Protection Agency, now award a few billion dollars a year to state governments, which then use it to provide mostly low-interest loans to utilities. When the money is repaid, it can be loaned out again.

Hammer says the changes go a long way in explaining the financial pressures faced by big-city utilities across the country. Congressional Budget Office data show a fourfold decrease in the amount of federal funding for water infrastructure since the sunsetting of the Construction Grants program. Hammer says that means Uncle Sam now effectively pays cents on the dollar of what it used to for major capital projects, even as federal regulations have continued to tighten.

Public legal advocate Robert Ballenger sees significant rate hikes in the water department's future.

PHOTO BY CHRIS BAKER EVENS

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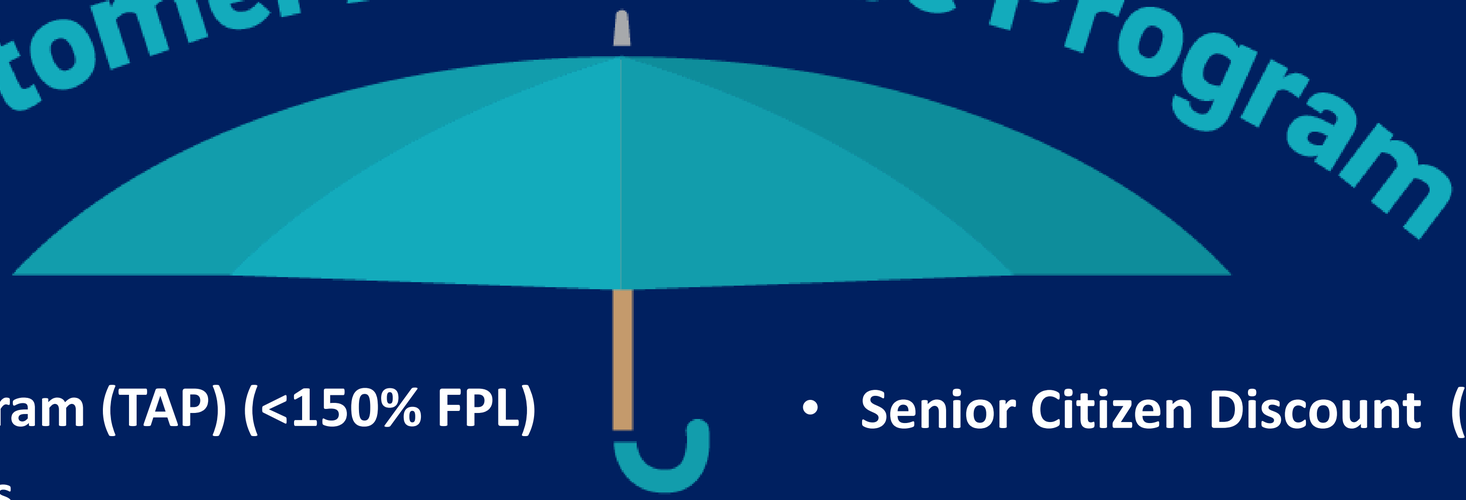
NOVEMBER 2025 GRIDPHILLY.COM 13

Customer Assistance Program

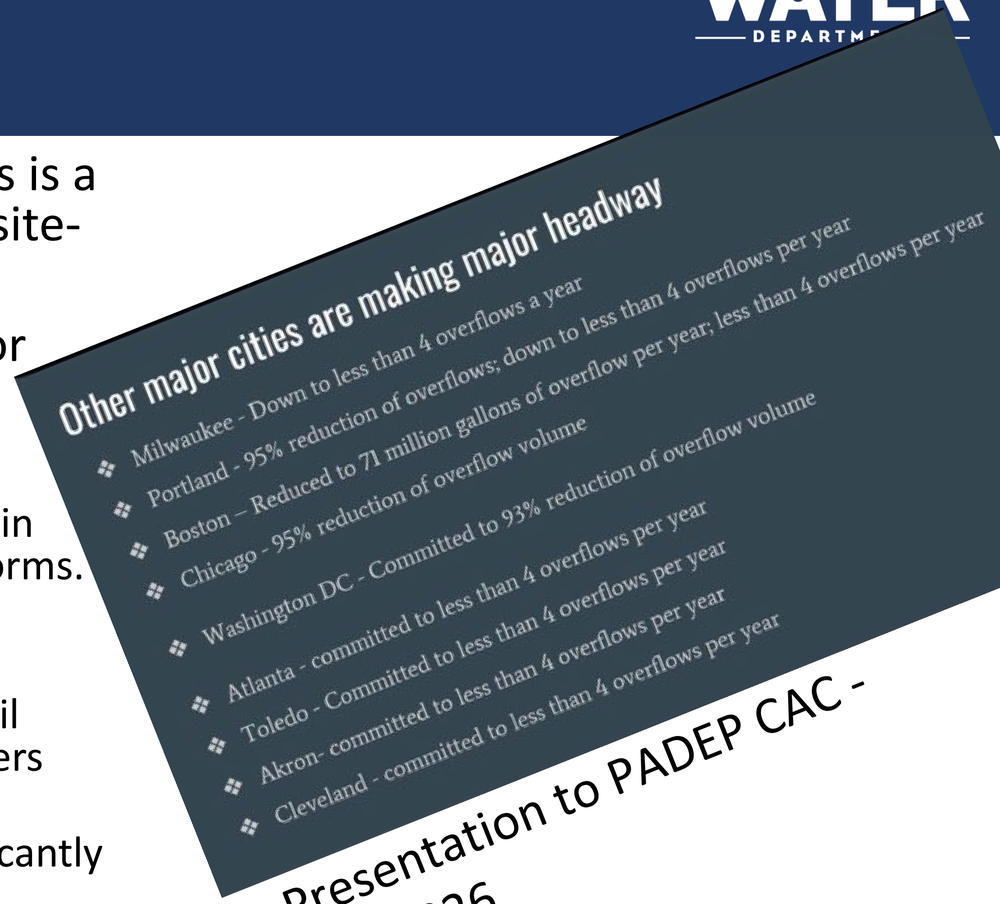


- Tiered Assistance Program (TAP) (<150% FPL)
  - Special Hardships
  - Long standard payment agreements (150 – 250% FPL)
- Senior Citizen Discount (<$42,100)
- Payment Agreements

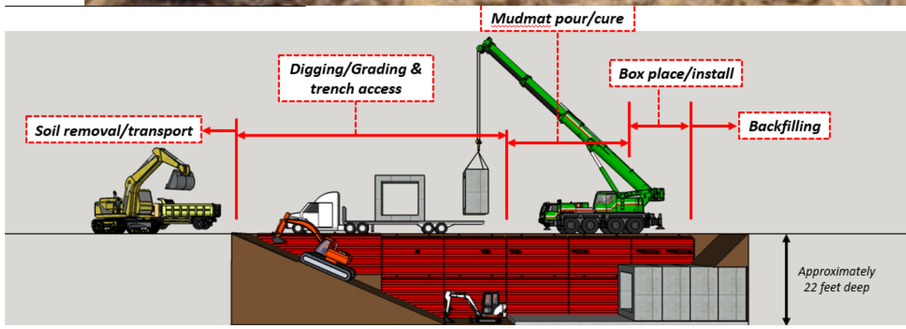
- Charitable Organization Discount
- Utility Emergency Services Fund
- Homeowner Emergency Loan Program
- Water Conservation Assistance
- Basement Backup Protection Program
- Cross Connection Abatement Program
- Lead Line Replacement

Challenges | Peer city comparisons

- Comparing Combined Sewer Overflow (CSO) programs between cities is a "bad idea" or at least misleading because these programs are highly site-specific.
- What works for one city may be physically or financially impossible for another due to unique local factors.
- Key Factors Preventing Fair Comparison
  - **Variable Precipitation Patterns**: One city might experience frequent "light" rain that triggers overflows, while another only overflows during rare, extreme storms.
  - **Infrastructure Age and Complexity**: Older cities are often more difficult and expensive to modify than those in younger cities.
  - **Topography and Geography**: A city's physical layout—such as its elevation, soil type, and the amount of impervious cover determines how quickly water enters the sewer system.
  - **Financial Capability**: The cost per household for sewer upgrades varies significantly based on a city's population and economic status.
  - **Different Regulatory Metrics**: Some cities focus on reducing the number of overflow events, while others prioritize reducing the total volume of untreated sewage or improving specific water quality markers. Both are viable approaches under the Clean Water Act.
- Because of these differences, cities should be evaluated against their own baseline conditions and local water quality goals rather than against other programs



Presentation to PADEP CAC - Feb 2026



Where do we go from here |

Advancing Progress

PHILADELPHIA WATER DEPARTMENT

Where do we go from here |
Advancing Progress and Enhancing Approach

- **City of Philadelphia and EPA Administrative Order for Compliance on Consent**:

> *Section18. The City's **innovations in coordinating wastewater and stormwater planning** embody many of the principles embraced by EPA in its **encouragement of integrated planning for municipal wastewater and storm water management** under the CW A. For instance, the City has uniquely synthesized its wastewater NPDES and stormwater NPDES planning, compliance and reporting efforts through the development of integrated watershed management plans. The City's financial strategy and capability assessment integrates the sewer and stormwater efforts across the City with Green City, Clean Waters, an important element of the EPA integrated planning framework. In seeking efficient sustainable integrated solutions to wastewater and stormwater issues, **the City has fully embraced the application of green stormwater infrastructure, asset management, comprehensive integrated engineering analyses, triple bottom line goal setting, and a number of other approaches suggested in the EPA's integrated planning framework**.*

Link: EPA Administrative Order for Compliance on Consent

Where do we go from here |
Advancing Progress and Enhancing Approach

- PWD has made major progress reducing combined sewer overflows and improving water quality through the Green City, Clean Waters program and adaptation is a core principle of the program and always has been.

- **Adaptive Management** is one of the core principals of successful watershed improvement programs; dynamic conditions such as land development, changing/new regulations, and the implications of climate change, among others, necessitate an agile approach that incorporates adaptive management tools.

- PWD formalized incorporation of adaptive management principles in the Green City, Clean Waters program and has been adapting and enhancing the implementation approach since the program started.

Challenges |
Balancing Funding Priorities

- The City [and PWD] is facing an unprecedented convergence of new, costly, and overlapping mandates—many without significant funding support.
  - If all are realized, the financial and rate impacts on Philadelphia residents and businesses will be significant.
  - The coming years will require prioritization and integrated planning to protect both public health and affordability.
- PWD is committed to continued improvements to water quality, quantity and public health and is not anti-regulation
  - PWD supports science/data driven regulations, and need time to adjust course and implement
  - PWD is not shying away from increased expectations, we are seeking to set realistic targets to make progress on as we have been doing for decades.

Where do we go from here |
Advancing Progress and Enhancing Approach

- PWD has been and will continue to work tirelessly to determine the most effective, cost-efficient implementation pathways to achieve waterway improvements, using both green and traditional infrastructure.

- We believe that responsible leadership ensures that the Department continues to make progress on existing obligations while considering changes.

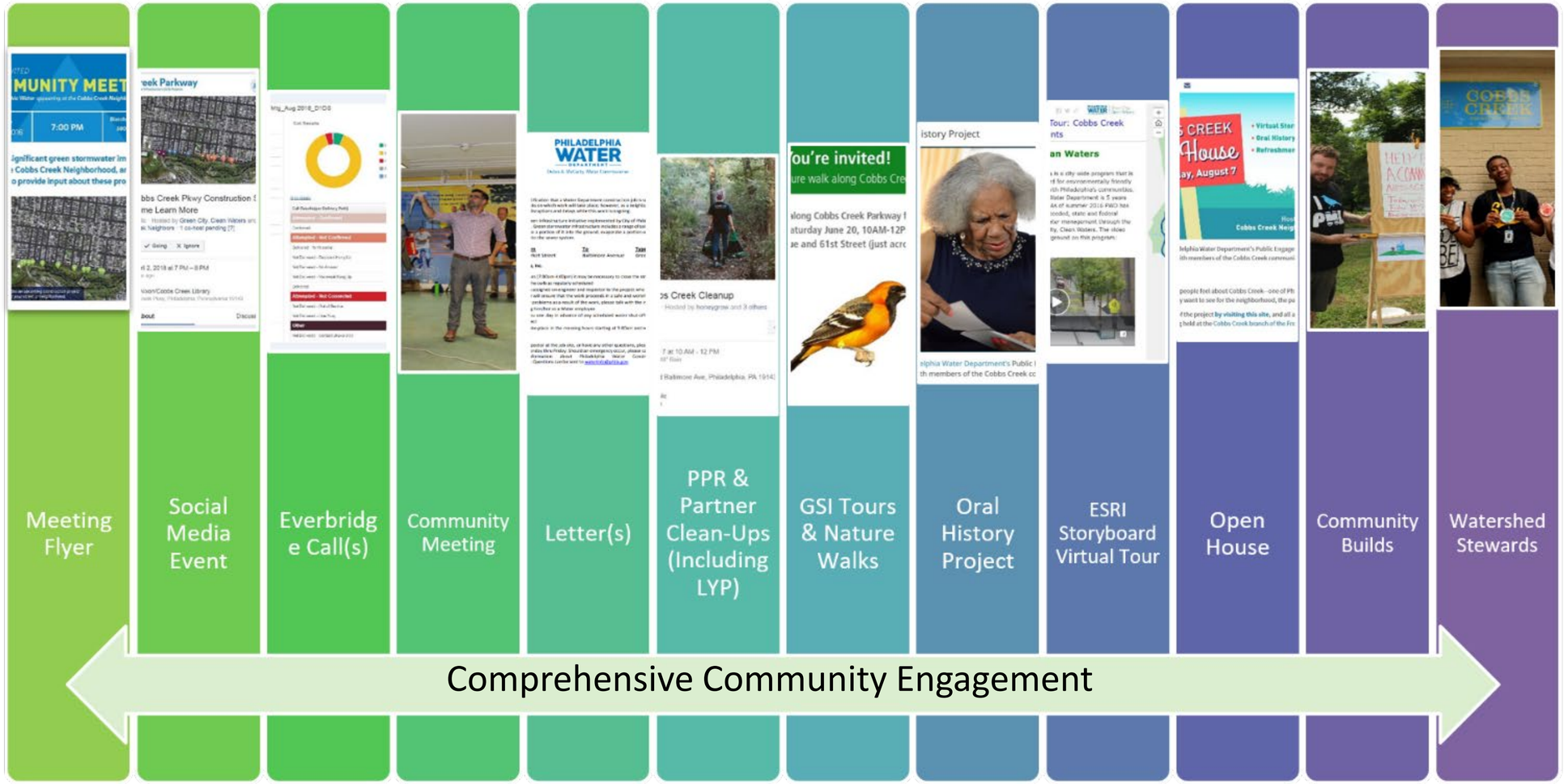
- Our team continually uses data collection, analysis and planning processes to evaluate progress, make program enhancements, identify risks and opportunities, and ensure we are making progress as needed to meet our current obligations.

- We are also keeping abreast of the opportunities to integrate new tools and remaining conscious of costs and program affordability.

Where do we go from here|

Community-centered planning

PHILADELPHIA WATER DEPARTMENT



Where do we go from here | Programmatic

- PWD developed GSI Strategic Framework summarizing product of detailed analyses to determine the available "greenable" space within the City.

Progress to Date & Potential Acres

The table below shows the existing conditions in the combined sewer system (CSS), the progress to date acres** by program and pipeline as of July 1, 2020, and the estimated potential acres by program and pipeline. Program optimization and refinement where PWD can currently implement GSI will ensure that the low end of potential acres remains achievable. Green text denotes acres that are only attainable with a policy or implementation change. The regulatory compliance target for the PWD's Consent Order and Agreement is 9,564 greened acres.

Potential Acres by Program	Existing Conditions in the CSS: Total Area (acres)	Existing Conditions in the CSS: Impervious Area (acres)	Existing Conditions in the CSS: Number of Parcels	Progress to Date Acres by Pipeline**: Redevelopment*	Progress to Date Acres by Pipeline**: Public Retrofits	Progress to Date Acres by Pipeline**: Incentivized Retrofits	Progress to Date Acres: On-Site & Off-Site	Potential Acres by Pipeline: Redevelopment	Potential Acres by Pipeline: Public Retrofits	Potential Acres by Pipeline: Incentivized Retrofits	Potential Acres: On-Site & Off-Site	Potential Acres: Total	% Progress Toward Potential Acres
Streets	13,005	11,742*	none	18	968		986	39	2,243 - 2,651		2,282 - 2,690	2,350 - 2,758	42% | 36%
Off-Site DA						4	4		68***		68		
Parks	1,679	322	806	27	37	7	71	63	44 - 91	7	114 - 160	736 - 1,136	32% | 21%
Off-Site DA					161	7	169		592 - 945	31	623 - 975		
Commercial	7,330	6,059	34,550	219		396	613	480		1,809 - 2,429	2,289 - 2,909	2,448 - 3,258	26% | 19%
Off-Site DA						18	18			159 - 349	159 - 349		
Facilities	1,933	1,381	5,896	81	3	86	170	180	0 - 146	39 - 280	219 - 606	223 - 909	78% | 19%
Off-Site DA					3		4		0 - 282	4 - 21	4 - 303		
Schools	1,223	863	777	64		35	98	142	0 - 281	31 - 226	173 - 453	173 - 817	60% | 13%
Off-Site DA						4	5		0 - 364	0 - 86	0 - 364		
Vacant	2,011	712	37,568	26	2	33	60	54	0 - 11		54 - 65	54 - 404	-****
Off-Site DA					18	2	20		0 - 339		0 - 339		
Campuses	891	619	720	121		16	137	269	0 - 7	0 - 143	269 - 420	269 - 495	51% | 28%
Off-Site DA									0 - 9	0 - 67	0 - 76		
Residential	12,208	8,736	362,360	31			31	66			66	66	47%
Total	40,281	30,434		588	1,193	607	2,387	1,292	2,947 - 5,193	2,080 - 3,639		6,318 - 9,843	38% | 24%
				Progress to Date Acres by Pipeline				Potential Acres by Pipeline					
Share of IA (30,434 acres)				1.9%	3.9%	1.9%	7.7%	4.2%	9.7% -17%	6.8% - 11.9%		20.8%-32.3%	

Note: Potential acres by pipeline column totals do not sum to the total range of potential acres, as some acres can be accessed through multiple pipelines.
* Streets IA existing conditions include natural areas less than 5,000 square feet reclassified from pervious to impervious.
**Progress to Date Acres for all pipelines include complete and in-progress projects, except for the Redevelopment pipeline which only includes completed projects. The Streets Public Retrofits acres includes GSI aligned with water/sewer renew and replace projects.
***Residential DA that is managed in right-of-way GSI and Centralized GSI Facilities is counted as off-site DA within the streets program. All other off-site DA is right-of-way DA that could be managed in GSI systems on parcels.
**** Vacant land progress to date acres can be recategorized into another program based on site improvements or development, thus measuring progress against potential acres is not recommended.

Green Stormwater Infrastructure **Strategic Framework**

April 2022

PHILADELPHIA WATER DEPARTMENT Green City, Clean Waters

Where do we go from here |
Wingohocking Tunnel Study

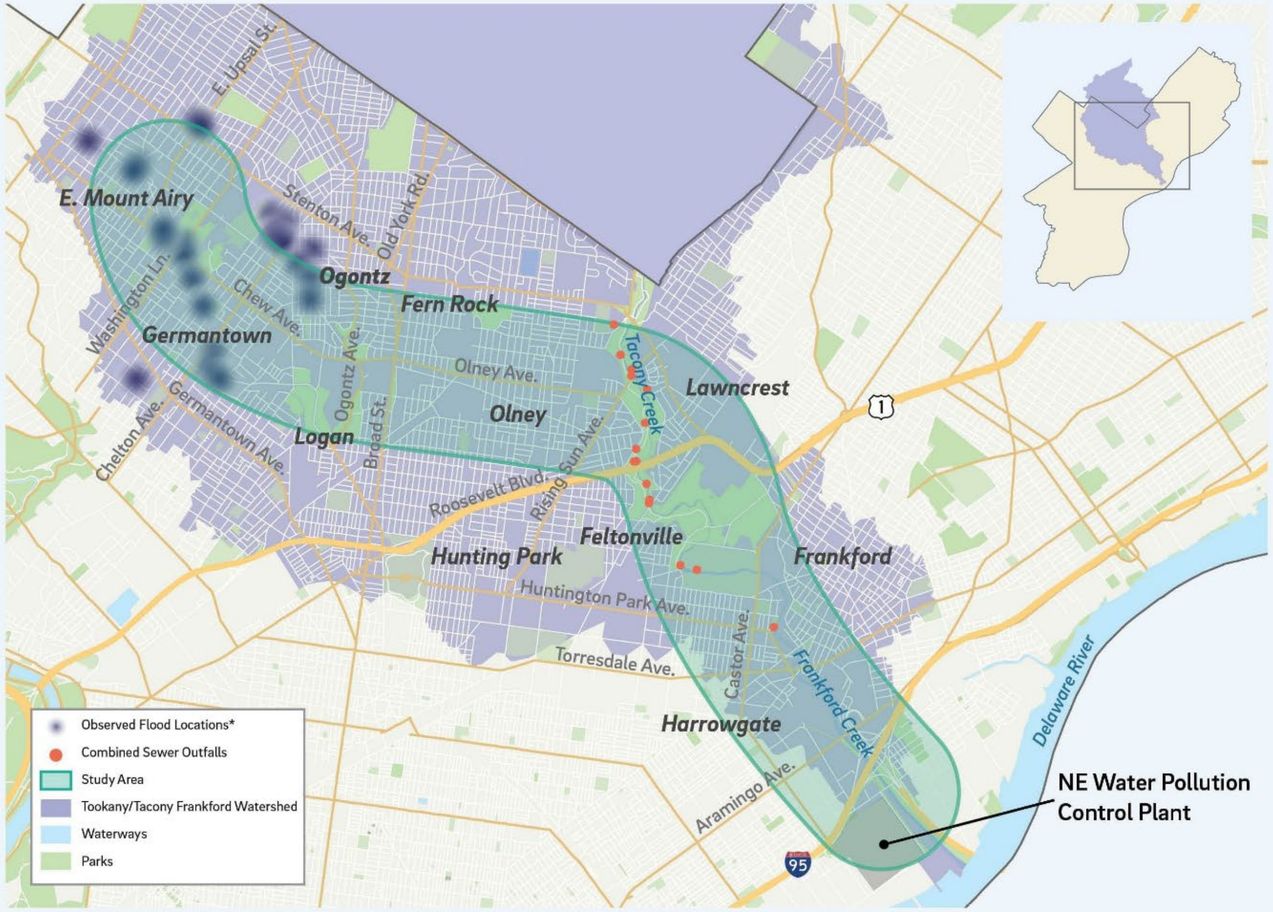
- PWD has undertaken a planning study to evaluate solutions for mitigating flood risk in Germantown and surrounding neighborhoods and reducing combined sewer overflows to the Tacony-Frankford Creek, including a **deep conveyance and storage tunnel**
- Presently performing geotechnical and planning evaluations to assess viability.
- This is an early step in a multi-phase evaluation; if concept continues to show viability – will progress to Design and then Construction
- The planning study is intended to propose tunnel length, diameter, and path.
  - The tunnel will be at least 150 feet deep underground; however, surface locations and space need to be identified for shafts to aid in both the construction and operation of the tunnel.
- Construction for this project is estimated to be between $750M and $1.2B depending on design and stakeholder considerations.

Where do we go from here|

Wingohocking Tunnel Study

PHILADELPHIA WATER DEPARTMENT

Wingohocking Tunnel Planning: Alignment Study Area



* Flooding locations observed during Tropical Storm Lee and Hurricane Irene (2011)

What's Next…

Timing/Scheduling	Progress vs Perfection	Prioritization??
Seek State and Federal Assistance	Communication and Engagement	Celebrate Successes

- ✓ Safe, reliable drinking water supply
- ✓ Public Health Improvement
- ✓ Aquatic Health Improvement – Shad and Sturgeon
- ✓ Infrastructure Investments – Water/Sewer/Facilities
- ✓ Watershed-wide, Integrated, Long-term Planning Approach
- ✓ Local Economic Benefits & Job Creation
- ✓ Regional Partnerships
- ✓ Meaningful, Inclusive, Stakeholder Engagement
- ✓ Affordable rates and assistance programs for those in need
- ✓ Support Economic Development for the City of Phila

Thank You!!

Any Questions or Comments?

PHILADELPHIA WATER DEPARTMENT

Thank you