

PHILADELPHIA WATER DEPARTMENT
STATEMENT 4B

BEFORE THE
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

In the Matter of the Philadelphia Water Department's Proposed Change in Water, Wastewater and Stormwater Rates and Related Charges	Fiscal Years 2026 - 2027
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Testimony

of

Marc Cammarata

on behalf of

The Philadelphia Water Department

Dated: February 2025

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE PHILADELPHIA WATER DEPARTMENT.

A1. My name is Marc Cammarata. I am the Deputy Water Commissioner for Planning and Environmental Services for the Philadelphia Water Department, also referred to as “PWD” or the “Department.”

Q2. HOW LONG HAVE YOU SERVED AS A DEPUTY WATER COMMISSIONER?

A2. I was appointed to my current position in November of 2016.

Q3. WHAT ARE YOUR JOB RESPONSIBILITIES?

A3. My responsibilities include the integration, direction and management of numerous aspects of the Department’s planning initiatives, including strategic environmental and sustainability programming, water quality and quantity modeling, wet weather compliance, flood mitigation, both green and traditional infrastructure planning, stream and wetland restoration, watershed and source water protection, laboratory services, and climate mitigation and adaptation efforts.

Q4. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE.

A4. I have over 26 years of experience in water resources engineering and environmental planning. I am a Professional Environmental Engineer with a B.S. in Civil and Environmental Engineering from Villanova University and a M.S. in Environmental Engineering, Water Resources from Drexel University. My resume provides a more

1 detailed description of my education and work experience and is attached as Schedule
2 MC-1.

3
4 **Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A5. My testimony addresses challenges facing PWD during FY 2026 and FY 2027 (the “Rate
6 Period”) related to (i) requirements in the Consent Order and Agreement (“COA”),¹
7 which can be found at Exhibit 7; (ii) the Lead and Copper Rule (“LCR”) requirements;
8 and (iii) other environmental compliance requirements.

9
10 **Q6. PLEASE IDENTIFY THE SCHEDULES THAT ACCOMPANY YOUR**
11 **TESTIMONY.**

12 A6. The following schedule accompanies my testimony:

13 Schedule MC-1: Resume of Marc Cammarata
14

15 **II. CONSENT ORDER REQUIREMENTS**

16 **Q7. PLEASE PROVIDE AN OVERVIEW OF THE CONSENT ORDER AND**
17 **AGREEMENT.**

18 A7. The Pennsylvania Department of Environmental Protection (“PADEP”) and the Water
19 Department entered into the Consent Order and Agreement (“COA”) on June 1, 2011. A
20 copy of the COA is included in the rate filing as Exhibit 7. The COA requires PWD to
21 implement its updated long term control plan to manage Combined Sewer Overflow
22 (“CSO”) discharges. The COA is sometimes referred to as the *Green City, Clean Waters*
23 (“GCCW”) program.

24
25 ¹ As explained below, the Department and the Pennsylvania Department of Environmental Protection entered into the Consent Order and Agreement on June 1, 2011, which requires PWD to implement its long term control plan to manage combined sewer overflows.

1
2 Under the GCCW program, the City of Philadelphia (“City”) has invested in green and
3 traditional infrastructure, including wastewater treatment facility enhancements,
4 interceptor pipe lining and collection system improvements, to manage stormwater,
5 mitigate CSOs and enhance the quality of local waterways, thereby improving water
6 quality in the City’s CSO receiving streams and rivers.

7
8 As required under the COA, by calendar year 2036 (year 25 of the COA), the City’s
9 GCCW program seeks to eliminate and remove the mass of pollutants that otherwise
10 would be removed by the capture of 85% of CSOs by volume from the combined sewer
11 system. The COA further requires that the City continue to operate the combined sewer
12 system to maintain this standard of water quality for at least an additional twenty years.
13 Post-construction monitoring will be required at the conclusion of the 25-year program in
14 order to evaluate the program’s effectiveness.

15
16 The COA established an implementation schedule with performance standards at every 5-
17 year mark for assessing progress along the way (milestones), in the form of a Water
18 Quality Based Effluent Limit (“WQBEL”) table. The COA requires interim performance
19 standards at the end of the fifth, tenth, fifteenth and twentieth years in four categories:
20 (1) Total Greened Acres; (2) Overflow Reduction Volume; (3) Miles of Interceptor
21 Lined; and (4) Wastewater Treatment Plant Upgrades in design and construction. The
22 COA also includes significant penalties for non-compliance with the above milestones.

23
24 **Q8. IS PWD CURRENTLY MEETING COA MILESTONE REQUIREMENTS (DUE**
25 **FISCAL YEAR 2026)?**

1 A8. Yes. The City completed the requirements of the fifth-year performance standards
2 comprised of 744 greened acres and a reduction of annual CSO volume by 660 million
3 gallons in 2016. The City completed the tenth-year performance standards comprised of
4 2,148 greened acres and a reduction of annual CSO volume by 2,044 million gallons on
5 May 26, 2022, after an extension granted by the PADEP for project delivery disruptions
6 resulting from COVID-19 restrictions. The fifteenth-year performance standards require
7 the City to complete 3,812 greened acres and reduce annual CSO volume by 3,619
8 million gallons by June 2026. At present, the City estimates that the current infrastructure
9 projects underway will be sufficient to meet the fifteenth-year milestone in a timely
10 manner.

11
12 **Q9. WILL IT BE INCREASINGLY DIFFICULT OVER TIME FOR PWD TO MEET**
13 **THE ABOVE-MENTIONED COA MILESTONE REQUIREMENTS?**

14 A9. Yes. The COA requires the submittal of an Evaluation and Adaption Plan (“EAP”) at
15 five-year intervals. In the Year 15 EAP, PWD will outline a strategy for meeting the next
16 5-year WQBEL Performance Standard. The WQBEL Performance Standards are more
17 onerous as the program progresses, with more significant project delivery requirements at
18 Years 20 and 25, which will make it more difficult to achieve COA requirements and
19 may require changes to the current implementation.

20
21 **Q10. IS PWD REVIEWING ALTERNATIVE WAYS TO MEET COA**
22 **REQUIREMENTS WITH THE EPA AND PADEP?**

23 A10. PWD continues to operate within the parameters of the COA (also referred to as GCCW).
24 Please note that PWD utilizes adaptive management principles included within the
25 implementation structure of the GCCW program.

1
2 PWD has been adapting and enhancing the GCCW implementation approach since the
3 program started. Tweaks and enhancements to the implementation approach throughout
4 the first decade of the program have been documented in both the Years 5 and 10 EAP.
5 plans. While the EAPs have featured adaptations to date that have been focused on
6 optimizing the current toolbox (e.g., design enhancements for GSI projects, collection
7 system modifications to optimize flow to the plants, etc.) this is not reflective of all the
8 potential adaptations to the program that PWD has evaluated. PWD will continue to work
9 to achieve the most effective, cost-efficient implementation pathways to achieve CSO
10 reductions, using both green and traditional infrastructure (which in the initial
11 implementation of GCCW was a less publicized element as GSI was so new and visible
12 to our residents).

13
14 We believe that consistent data collection and analysis is paramount within this multi-
15 decade program as conditions continue to evolve. We recognize the importance of
16 continuously assessing and adjusting inputs as we gather an understanding of
17 performance, costs and implications of other related and unrelated investments.

18
19 **Q11. ARE THERE ANY CONSTRAINTS ON PWD CHANGING ITS POLICY**
20 **APPROACH TO IMPLEMENTING THE GREEN CITY, CLEAN WATERS**
21 **PROGRAM?**

22 A11. Yes, as explained above, the Department must act within the parameters of the COA and
23 any major modifications to the COA will require negotiations with our regulators,
24 PADEP and the United States Environmental Protection Agency (“EPA”).
25

III. LEAD AND COPPER RULE REQUIREMENTS

**Q12. PLEASE DESCRIBE PWD'S CONTINUING EFFORTS TO REMOVE
RESIDENTIAL LEAD SERVICE LINES.**

A12. The Department does not have any lead pipes in its service lines or water mains. However, PWD continues to detect and replace customer-owned lead service lines on an ongoing basis.

Currently, PWD replaces lead service lines through capital projects where water mains are being replaced and through our Homeowner Emergency Loan Program (HELP). During any capital projects where water mains are replaced, the Department always replaces the portion of the service line from the water main to the curb stop and any lead found is removed at no direct cost to the customer. Additionally, whenever lead service lines are found during this work from the curb stop through to the meter, PWD offers to replace this portion of the service line free of charge with owner permission. Customers with lead service lines are also eligible to apply for the Department's HELP loan where PWD facilitates the replacement of their lead service line and then will allow the customer to pay the loan back over multiple years with no interest.

Lead service line replacements through water main construction, HELP loan sign-ups, and abatements have resulted in an average of approximately 300 to 350 residential lead service line replacements per year.

**Q13. PLEASE DESCRIBE CHANGES IN COMPLIANCE REQUIREMENTS
ASSOCIATED WITH THE LEAD AND COPPER RULE (LCR).**

1 A13. The EPA released proposed revisions to the LCR (the “LCRR”) on October 13, 2019, and
2 the final LCRR was published in the Federal Register on January 15, 2021. The original
3 compliance date set by the EPA was January 16, 2024, but was revised to October 16,
4 2024.

5
6 The LCRR will have a significant effect on the Department’s operations by requiring
7 substantial new efforts in public education regarding lead; customer notification;
8 sampling and testing; and development and maintenance of an inventory of residential
9 lead service lines. Additionally, the EPA finalized the Lead and Copper Rule
10 Improvements (“LCRI”) regulations in October 2024. Compliance with the LCRI begins
11 on November 1, 2027. The LCRI regulations include additional requirements to the
12 LCRR, including requirements to finalize the service line inventory by December 31,
13 2034, and ensure the replacement of all lead and galvanized service lines in the City
14 (within PWD control) by December 31, 2037.

15
16 **Q14. WILL LCR CHANGES REQUIRE GREATER EFFORTS BY PWD REGARDING**
17 **LEAD SERVICE LINE REPLACEMENT?**

18 A14. Yes. Under the previous LCR and the LCRR, systems were only mandated to replace
19 lead service lines if the designated threshold (action level) was exceeded during
20 regulatory sampling. Under the new LCRI, all water systems are required to ensure that
21 all lead service lines and galvanized service lines are replaced by December 31, 2037.
22 Furthermore, starting in 2028, water systems must have an average lead service line
23 replacement rate of 10% of all known lead, galvanized, or unknown service lines to
24 remain in compliance.

1 Based on the foregoing, at a minimum, PWD estimates that between 2,000 and 2,500
2 service lines will need to be replaced each year to meet the replacement rate. This is a
3 significant increase from the current replacement rate noted above (response to Question
4 12). As such, PWD is working on processes to increase the rate of replacement of lead
5 service lines in the years prior to the LCRI compliance date to ensure we can meet this
6 new requirement.

7
8 In addition to the new requirements to achieve 100% lead service line replacement by
9 2037 and the associated replacement rate, the LCRI also includes several auxiliary
10 administrative requirements for lead service line replacements. These include the
11 requirement to engage in public outreach (i.e., to provide educational materials, pitcher
12 filters, and sampling to any home that has a lead or galvanized service line replaced).

13
14 Such public outreach includes the requirement that PWD make a minimum of four
15 outreach attempts per property before it can be listed as non-responsive or refusing to
16 participate. Given that the Department does not own any of the lead service lines, PWD
17 will have to develop and engage in extensive public and community outreach efforts to
18 increase participation in this program to reach the required replacement rates and overall
19 goal.

20
21 Finally, all these auxiliary requirements are accompanied by a mandate to thoroughly
22 document and verify that every requirement was met for every property. These
23 documentation requirements require significant increased efforts to develop new systems
24 to implement lead service line replacements and auxiliary requirements, and
25

1 comprehensively track and record that all required activities are occurring.
2

3 **Q15. WILL LCR CHANGES REQUIRE GREATER EFFORTS BY PWD REGARDING**
4 **SAMPLING AND CUSTOMER NOTIFICATION?**

5 A15. Yes. The LCRR and LCRI require both changes to existing sampling programs and the
6 development of new sampling programs. PWD is currently preparing for such changes
7 which come into effect in January 2028.

8
9 For regulatory monitoring, the LCRR/LCRI require that PWD collect two samples from
10 each property instead of one, doubling the workload for our environmental laboratory and
11 engineering staff engaged in program management and outreach. The regulation also
12 increases the monitoring frequency for PWD from one monitoring round (minimum of 50
13 samples per round) every three years to two monitoring rounds (minimum of 100 samples
14 per round) per year. Regulatory monitoring rounds require significant administrative,
15 outreach and engineering effort for recruitment, home inspections, sampling, analysis,
16 and results communication.

17
18 The LCRR/LCRI also now require a significant new level of customer notification and a
19 short turnaround of communications and outreach. Considerable new effort is required to
20 test additional sites following action level exceedance and increased level effort by
21 engineering and laboratory staffing conducting distribution system assessment.

22
23 In addition to the foregoing changes, PWD is also required to establish sampling
24 programs for schools and childcare facilities and for homes following a lead service line
25 replacement, where none existed under previous requirements. PWD is further required

1 to modify our free residential lead testing program to meet new sampling requirements.
2 Recent lead communications are generating a significant increase in free residential
3 testing for lead which requires significant new engineering and laboratory resources to be
4 dedicated to this part of the new requirements.

5
6 **Q16. WILL LCR CHANGES REQUIRE GREATER EFFORTS BY PWD REGARDING**
7 **CREATING AN INVENTORY OF RESIDENTIAL LEAD SERVICE LINES?**

8 A16. Yes. The LCRR established requirements for the development of a complete inventory of
9 service line materials for every service connection within PWD's system. In addition,
10 PADEP has established some of the most stringent requirements in the country related to
11 documenting the material of service lines by requiring three to four records per service
12 line in order to classify the material.

13
14 The LCRI further increased the requirements for the service line inventory by requiring
15 that water utilities classify the material composition of all service lines in their systems
16 by December 31, 2034 (i.e., each service line must have a "known" classification). Please
17 recall that LCRR requirements allowed for an "unknown" classification. In PWD's initial
18 Service Line Map publication (prepared consistent with LCRR), over 400,000 homes had
19 an overall classification of "unknown."

20
21 In order to meet new LCRI requirements and eliminate all unknowns, PWD is
22 aggregating all material records available from numerous existing programs, modifying
23 additional operational activities to include service line material tracking, and exploring
24 new technologies for identifying service line materials. PWD is working to identify the
25

1 material of all service lines in the City in the most cost-effective and minimally disruptive
2 manner.

3
4 **Q17. PLEASE DESCRIBE THE DEPARTMENT’S ACTIVITIES RELATED TO LCR**
5 **COMPLIANCE IN FISCAL YEAR 2025.**

6 A17. Significant resources are being devoted to LCR compliance in FY 2025. Highlights of the
7 Department’s completed and planned activities for FY 2025 include:

- 8
- 9 • Development of initial inventory of service line materials at all active water
10 accounts throughout the City. This includes the aggregation of data from over a
11 dozen unique sources with hundreds of thousands of property plumbing records.
- 12 • Development and publication of an online interactive map showing the service
13 line material for every property in the City.
- 14 • Development of outreach materials in the form of letters and fact sheets for
15 delivery to every property in the City detailing each property’s service line
16 material information and next steps for customers.
- 17 • Updating the Department’s Lead Plumbing and Water Quality website with new
18 information.
- 19 • Launching new program for testing lead levels in Schools and childcare facilities
20 in the City building on a successful pilot program being undertaken in FY 2025.
- 21 • Finalizing planning and design of first stand-alone Lead Service Line
22 Replacement pilot that is utilizing state grant and loan money to replace between
23 1000-1200 lead service lines in North Philadelphia (“First Pilot Project”).
- 24 • Submitting grant applications to both EPA and PennVest for additional lead
25 service line replacement projects in additional areas across the City.

- 1 • Developing community outreach program for lead service line replacement
2 project to maximize participation in both the pilot replacement project and future
3 lead service line replacement projects.
- 4 • Performing property inspections and testing at residential properties for the
5 Department’s regulatory lead monitoring program.

6
7 **Q18. WHAT DOES PWD SPECIFICALLY PLAN TO DO IN CONNECTION WITH**
8 **LEAD SERVICE LINE REPLACEMENT DURING FISCAL YEAR 2026 AND**
9 **FISCAL YEAR 2027?**

10 A18. During the Rate Period (FY 2026 and FY 2027), the Department will be evaluating ways
11 to increase the number of lead service line replacements from the current rate of
12 approximately 300-350 per year to the expected required replacement rate under the
13 LCRI of approximately 2,000-2,500 per year.

14
15 Also, during the Rate Period, the Department will undertake extensive public and
16 community outreach to accompany these replacement programs to ensure that PWD is
17 able to drive participation as close to 100% as possible. As mentioned above, PWD will
18 also work to determine the material composition of all service lines classified as
19 “unknown” throughout the City to ensure that all lead and galvanized service lines that
20 we locate can be targeted for replacement.

21
22 **Q19. DOES PWD NEED ADDITIONAL RESOURCES TO SUPPORT PLANNED**
23 **ACTIVITIES DURING THE RATE PERIOD?**

24 A19. Yes. To the extent grants and loans are available, PWD will utilize the same to support
25 LCR related activities. It is anticipated that such grants/loans will be insufficient to

1 support the full scope of increased work that will be required. The vast majority of
2 additional resources will come from customer rates.

3
4 **IV. OTHER ENVIRONMENTAL COMPLIANCE CHALLENGES**

5 **Q20. PLEASE DESCRIBE THE COMPLIANCE CHALLENGES PRESENTED BY**
6 **RECENT CHANGES TO PFAS REGULATIONS AND THEIR IMPACT DURING**
7 **RATE PERIOD.**

8 A20. In January 2023, the PADEP published a rule to set maximum contaminant levels
9 (MCLs) in drinking water for Perfluorooctanoic acid (“PFOA”) and
10 Perfluorooctanesulfonic acid (“PFOS”). PFOA and PFOS are a part of a large group of
11 human-made chemicals known as perflouroalkyl and polyflouroalkyl substances
12 (“PFAS”). The rule sets an MCL of 14 parts per trillion (“ppt”) for PFOA and an MCL of
13 18 ppt for PFOS. In March 2023, the EPA proposed new National Primary Drinking
14 Water Regulations (NPDWRs) for six PFAS compounds. The proposed federal MCL for
15 PFOA and PFOS are 4 ppt each. Four additional PFAS compounds are proposed to be
16 regulated as a mixture using a hazard index. The four compounds included in the hazard
17 index are perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-
18 DA, commonly known as GenX Chemicals), perfluorohexane sulfonic acid (PFHxS), and
19 perfluorobutane sulfonic acid (PFBS). The rule was finalized in April 2024 and will come
20 into effect in 2029.

21
22 The Department has been monitoring and continues to monitor and sample to detect PFAS
23 levels in drinking water. Given the more stringent MCLs recently adopted by the EPA,
24 PWD is evaluating the new standards and how to best address them. The Department
25 expects to incur increased capital expenditures and maintenance costs to comply with EPA

1 regulations. Projects associated with initial preparation to meet the new PFAS MCLs are
2 planned for FY 2026.

3
4 **V. CONCLUSION**

5 **Q21. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 A21. Yes.

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Marc J. Cammarata, P.E.

PROFILE

Mr. Cammarata is a regional leader in sustainable stormwater management practices and water resources planning. His interest in public health, environment ethic, and commitment to protect and enhance Philadelphia's rivers and streams combine with his ability to inspire and motivate an inter-disciplinary staff to implement innovative urban water, wastewater, and stormwater management strategies. As the water industry is confronted with a new set of complex environmental, social, and financial challenges, Mr. Cammarata seeks to lead his team and colleagues towards a more integrated approach to communicating, planning and design of water-related systems resulting in a more equitable, efficient, prepared, just, and resilient organization.

Specialties: *Public service, organizational planning, program management, public speaking, partner engagement, compliance assurance*

WORK EXPERIENCES

PHILADELPHIA WATER DEPARTMENT (25+ years) 1998 – present

Project Engineer, Operations - Collector Systems Support/Office of Watersheds - July 1998 – February 2005 (7 years)

Manager, Combined Sewer Overflow Program, Office of Watersheds - February 2005 – August 2007 (2 years)

Manager, Watersheds Planning & Engineering, Office of Watersheds - February 2007 – August 2010 (3 years)

Director, Office of Watersheds - August 2010 – November 2016 (6 years)

Deputy Water Commissioner, Planning & Environmental Services Division - Nov 2016 – Present (8+ yrs)

Responsibilities / Organizational Structure

Responsible for the Department's drinking water, wastewater, stormwater, and green infrastructure planning efforts, State-accredited, full-service environmental laboratory, and regulatory compliance assurance programs through the leadership, management, and integration of five responsible units:

- **Planning and Research (P&R)** focuses on strategic capital planning and research activities associated with water and wastewater facility planning, linear infrastructure planning, flood mitigation, and energy management planning.
- **Office of Watersheds (OOW)** supports the Combined Sewer Overflow, Municipal Separate Storm Sewer System (MS4), and Source Water Protection Programs. The objective of the unit is to attain comprehensive achievement of the goals and regulatory requirements for these programs. This includes developing a holistic and innovative planning approach for protecting and restoring the City's watersheds and water resources.
- **Green Stormwater and Stream Design (GSSD)** is responsible for continuing to implement initiatives leading towards attainment of Green City, Clean Water Program requirements through planning and design of green stormwater infrastructure and design and construction of ecological restoration projects by coordinating with numerous city agencies, private entities, non-profit advocacy organizations, and other partners to implement green stormwater infrastructure at scale.
- **Development Services Unit (DSU)** provides comprehensive services to the development community and private property owners through consistent customer service and transparent and predictable regulations to protect Department operations and infrastructure and guarantee project implementation in the best interest of the City and its customers.
- **Bureau of Laboratory Services (BLS)** is the Water Department's environmental laboratory responsible for providing analytical services to meet water and wastewater regulatory requirements and to support various Department research initiatives. BLS is positioned to support the Department through sampling and analytical support at the levels required for modeling and regulatory development. BLS continues to expand its analytical capabilities and participates in cutting edge research initiatives.

Budget

Division includes: 334 Full-time budgeted positions, 40 part-time positions, approx. \$57M annual operating budget, \$24M distributed over 25+ professional services contracts, \$15M capital budget for planning and design of capital projects and access to over \$75M of annual capital budget for construction of stormwater management practices.

Contribute and participate in numerous efforts and hearings related to Department requests for operating and capital budget and augmenting typical utility funding streams with Federal and State funding opportunities.

Workforce

Development of an inter-disciplinary and diverse staffing approach that provides the Department with highly motivated and experienced engineers, planners, landscape architects, environmental scientists, policy and management experts, communication specialists, administrative specialists, construction specialists, IT specialists, GIS specialists, maintenance professionals and numerous specialized technical content experts.

Encourage participation in conferences, webinars, peer-city information exchanges, submissions and publications within peer reviewed professional journals, collaborative national research efforts, leadership, management technical and trade related trainings, professional licensure and certifications and continuing education and advanced degrees.

Comprehensive, Adaptive and Resiliency Planning and Implementation

Continued commitment to long-term, innovative, integrated, and comprehensive strategic planning initiatives. Highlighted planning examples include: the creation and growth of the Climate Change Adaptation Program, completion, and implementation of a multi-billion dollar, 25-year Water Revitalization Plan, Wastewater Master Plan, and updates to the PWDs Utility Wide Strategic Energy Plan.

Continue to manage and direct numerous aspects of our nationally recognized Green City Cleans Water (GCCW) Plan to ensure obligations are met for Year 15 compliance in 2026.

Continue to grow the responsibilities of the Linear Asset Management planning group. Initiated detailed capacity studies to identify appropriate mitigation efforts for localized and large-scale flooding locations.

Regulatory/Policy Initiatives

Actively negotiating and/or participating in high-level dialogue for numerous water, wastewater and stormwater policy discussions relating to the Lead and Copper Rule Revisions & Improvements (lead line replacements), Flexible Flow Management Program, PFAS/PFOAs, LT2 ESWTR, Emerging Contaminants, Alternative Wissahickon TMDL, Designated Use Criteria, and Nutrient Criteria with members of the USEPA, PADEP and DRBC.

Communication/Collaboration

Engage frequently with City Leadership and their staff, particularly the with members of the Deputy Managing Director's Office - Office of Sustainability, Streets Department, Office of Complete Streets, and the Infrastructure Program Coordinator to ensure that staff direction aligns with Mayoral policies and Executive Orders – i.e., Office of Diversity, Equity, and Inclusion, Vision Zero, Rebuild, and GreenWorks.

Continue to nurture working relations with key city-affiliated partner organizations like the Philadelphia Industrial Development Corporation, the Philadelphia Housing Authority, the Philadelphia Energy Authority, and the Philadelphia School District.

Maintain an important relationship with the Philadelphia Department of Public Health to address issues affecting drinking water and various emerging public health issues, specifically, lead service line removals.

Continue to ensure that the PWD has a premier national presence by actively serving on the US Water Alliance's One Water Council and Water Equity Network, NACWA's Utility of the Future working group, the GSI

Leadership Exchange’s Planning Committee, the Partnership for the Delaware Estuary Steering Committee and Water Utility Climate Alliance (WUCA) General Manager representative.

Partnerships

Continue the Public-Private Partnership with the Philadelphia Industrial Development Corporation to enhance the stormwater incentives/grant program, having already invested in over \$100Million to date on stormwater retrofits on individual non-residential properties and large-scale retrofits across multiple properties.

Continue to collaborate with the Building Industry Association, Developer Services Committee, and Green Building United to advance ideas specific to stormwater banking and trading, management of public right-of-way runoff, fee-in-lieu, and off-site/near-site mitigation concepts.

Continue to seek opportunity to leverage and align Department capital projects with numerous City/State infrastructure investments – Streets Repaving Plan, I95 Corridor Investments, ReBuild Initiative.

Work with local and national non-profits such as Make the World Better Foundation, Trust for Public Lands, and The Nature Conservancy to leverage investments in capital projects at schools, parks, recreation centers and public housing and regional and national philanthropic organizations such as the William Penn Foundation, Spring Point Partners, Kresge and Surdna to identify opportunities for project, program, and policy funding.

Customer Service/Information

Highly committed to digital media-centered communication efforts to inform, engage, and empower the citizens of Philadelphia. This includes active participation in Philadelphia’s Open Data initiative, website development strategies and web content contribution, social media efforts, blog contributions and numerous media inquiries.

Increased initiation of drinking water main replacements to 42 miles per year using risk-consequence models and predictive failure tools to mitigate the impacts associated with main breaks.

Innovation/Research

Promote a strong culture of advanced research through direct research contracts and/or in-kind support match on grants with academic institutions (Temple, Drexel, Villanova, Stevens Institute of Technology, and Colorado State University)

Continue to partner with professional service providers, serving as utility representatives and practitioner experts for research efforts funded by the Water Research Foundation, Water Environment Foundation, and American Water Works Association.

EDUCATION

Villanova University, B.S. Civil and Environmental Engineering, 1998

Drexel University, M.S. Environmental Engineering – Water Resources, 2001

LICENSES

Professional Engineer, License Number PE061948

Initial License Date 01/06/2003, Commonwealth of Pennsylvania Department of State Bureau of Professional and Occupational Affairs

BOARD ROLES & RESPONSIBILITIES

- Tookany/Tacony-Frankford Watershed Partnership, Board of Directors, Vice President: Philadelphia 2018-present
- Schuylkill River Greenways Association, Board Assignment 2022-present

CERTIFICATIONS / TRAININGS

- Wildland Hydrology, Inc. Research and Education Center for River Studies, Rosgen Level I: Applied Fluvial Geomorphology for Engineers, June 5-9, 2006, Canaan Valley Institute, WV
- Wildland Hydrology, Inc. Research and Education Center for River Studies, Rosgen Level II: River Morphology and Applications, June 11-15, 2007, Canaan Valley Institute, Blackwater Falls State Park, Davis, WV
- Emergency Management Institute - US Dept of Homeland Security – FEMA - Introduction to Incident Command System (ICS-100) / Water Sector Basic Intermediate ICS for Initial Response – (ICS-200) / Water Sector Intermediate ICS for Expanding Incidents (ICS-300) / Advanced ICS (ICS-400) – 2023/2024

HIGHLIGHTED MEMBERSHIPS

- American Society of Civil Engineers, 2000, American Water Resources Association - Philadelphia Metropolitan Area Section, 2000, Keystone Stream Team, 2003-2008, American Water Works Association, since 2007, Water Environment Federation, 2007, Pennsylvania Water Environment Association, 2007, US Water Alliance, since 2009, Villanova Urban Stormwater Partnership, 2009, Water Resources Association of the Delaware River Basin, 2012, The National Association of Clean Water Agencies, 2014, American Metropolitan Water Agencies, 2016, Water Research Foundation, 2016, Water Utility Climate Alliance, 2019, Schuylkill River Greenways Association, 2022

MEMBERSHIP ASSOCIATION ROLES

- Green Infrastructure Leadership Exchange, Planning Committee, 2015, US Water Alliance - One Water Council, 2016, Urban Waters Innovation Network (UWIN), External Advisory Committee, 2016, NACWA, Industry of the Future Working Group, 2017, Partnership for the Delaware Estuary, Steering Committee, 2017, Schuylkill Action Network, Executive Steering Committee, 2017, Water Utility Climate Alliance (WUCA), General Manager representative, 2018, American Metropolitan Water Agencies, Executive Management representative, 2018, US Water Alliance, Water Equity Network, Delaware River Basin Cohort, 2021, WUCA Executive Vice-Chair, 2025, Schuylkill Action Network Executive Steering Committee Chair, 2025

CITY DEPARTMENT/CITY-ASSOCIATED COMMITTEES

- GCCW NGO Advisory Committee, City-wide Flood Risk Management Task Force, Construction Collaboration Working Group, Stormwater Grants Selection Committee, Developer Services Committee, Water Quality Committee, Cyber Security Workgroup, Capital Planning Review Team, Clean Water Act Task Force, GSI Committee Chair, PHS Vision2027 Advisory Committee, Office of Sustainability's Heat Team, Dissolved Oxygen Partnership, Delaware River Water Quality Improvement Partnership, I-95 Corridor Improvement Project Sustainable Action Committee, Bipartisan Infrastructure Law City Committee

RECENT AFFILIATED AWARDS

- Water Resources Association of the Delaware River Basin Government Award, Philadelphia Water Department Climate Change Adaptation Program, 2023

SELECTED PRESENTATIONS, LECTURES, AND INFORMATION EXCHANGES - 2024

- Water Center at Penn & Environmental Finance Center sponsored Philadelphia One Water Financing Workgroup | Presentation: *Compounding Obligations and Challenges Facing the Philadelphia Water Department* | Philadelphia, PA, November 2024
- 2024 Climate Week NYC Forum - Co-exploring urban climate resilience at the watershed scale | Panel Participation: *Understanding the complexities of a holistic watershed approach: city perspectives* | City University of New York, NY, September 2024
- The Water Center – University of Pennsylvania Spring Policy Forum: *The Nexus of Climate Change, Nature-Based Solutions, and CSO Remediation in the Northeast Mega Region* | Presentation: *A Brief Overview of*

Philadelphia Water Department's Present and Future Regulatory Responsibilities | Philadelphia, PA, April 2024

- Sustainable Business Network Achieving Climate Resilience Through Water Symposium | *Meeting Urban Stormwater Resiliency and Water Quality Challenges via Cross-Sectoral Collaborations* – Opening Plenary Panel | Philadelphia, PA, March 2024
- The Water Center – University of Pennsylvania | A Deep Dive into the Delaware River Bacteria Study Webinar | *PWDs Remarks and Commentary on the Bacteria Study* – Panel Participation, Philadelphia, PA January 2024

References available upon request
