PHILADELPHIA WATER DEPARTMENT STATEMENT NO. 1

BEFORE THE PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

Direct Testimony

of

Randy E. Hayman

on behalf of

The Philadelphia Water Department

Dated: February 2020

TABLE OF CONTENTS

I.	INTRODUCTION AND PURPOSE OF TESTIMONY	. 3
II.	OVERVIEW OF THE REASONS FOR RATE RELIEF	. 4
III.	SUMMARY OF RATE FILING	. 6
IV.	DEPARTMENT OPERATIONS, FACILITIES AND REGULATORY REQUIREMENTS	. 7
V.	CONCLUSION	22

		PHILADELPHIA WATER DEPARTMENT Direct Testimony of Randy E. Hayman
1		I. INTRODUCTION AND PURPOSE OF TESTIMONY
2		
3	Q1.	PLEASE STATE YOUR NAME AND POSITION WITH THE PHILADELHIA
4		WATER DEPARTMENT.
5	A1.	My name is Randy E. Hayman. I am the Commissioner of the Philadelphia Water
6		Department, also referred to as "PWD" or "the Department."
7		
8	Q2.	HOW LONG HAVE YOU HELD THIS POSITION?
9	A2.	I was appointed as Water Commissioner in June 2019.
10		
11	Q3.	WHAT ARE YOUR JOB RESPONSIBILITIES?
12	A3.	I am responsible for management and oversight of all units and staff of the Department.
13		
14	Q4.	PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND
15		RELEVANT WORK EXPERIENCE.
16	A4.	I earned my undergraduate degree from the University of Michigan and my law degree
17		from Georgetown University. Before being appointed Commissioner, I served as an
18		Assistant Attorney General for the State of Missouri. In addition, I worked in private law
19		firms, most recently as a partner at the environmental law firm of Beveridge & Diamond
20		in Washington, D.C. Previously, I served for fifteen years as General Counsel of the
21		District of Columbia Water and Sewer Authority and the Metropolitan St. Louis Sewer
22		District. My resume provides a more detailed description of my education and work
23		experience and is attached as Schedule REH-1.
24		
25		

23

24

25

Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A5. The purpose of my testimony is to: (i) provide an overview of the reasons for the rate filing and requested increase in base rates necessary to result in \$118 million of cumulative additional revenue over two years; (ii) summarize the rate filing; and (iii) describe the Department's operations and facilities, as well as the applicable regulatory requirements, as background information for the Rate Board's consideration in connection with this rate filing.

Q.6 PLEASE IDENTIFY THE SCHEDULES THAT ACCOMPANY YOUR DIRECT TESTIMONY.

- A6. The following schedules accompany my direct testimony:
 - Schedule REH-1: Resume of Randy E. Hayman
 - Schedule REH-2: Miscellaneous Changes in Terms of Rates and Charges
 - Schedule REH-3: Summary of Drinking Water Regulations
 - Schedule REH-4: Green Stormwater Infrastructure Tools
 - II. OVERVIEW OF THE REASONS FOR RATE RELIEF

Q7. PLEASE DESCRIBE THE PROPOSED RATE INCREASE.

A7. PWD is requesting that rates and charges be adjusted effective September 1, 2020 and September 1, 2021. The requested rates will provide cumulative additional revenues of approximately \$118 million over Fiscal Year 2021 and Fiscal Year 2022 ("Rate Period"). These increases correspond to overall annual increases in revenues of about 6.11% in Fiscal Year 2021 and 6.12% in Fiscal Year 2022.

Q8. WHY IS THE DEPARTMENT MAKING THIS REQUEST?

A8. PWD has made, and must continue to make, substantial investments in new and replacement water pipes, sewers and various components of its facilities in order to replace aging infrastructure, and continues to experience increased costs to operate and maintain the water and wastewater systems, comply with the regulatory mandates and meet the expectations of customers for water and wastewater services.

Q9. WHAT ARE THE MAIN REASONS FOR REQUESTING RATE RELIEF NOW?

A9. As described in more detail in subsequent portions of my testimony and in PWD Statements 2, 3 and 4, the key factors causing the need for additional revenue now are: (1) the need for major maintenance of PWD infrastructure; (2) reduced water consumption; and (3) increased workforce costs.

Q10. WHAT ARE THE MAJOR OBJECTIVES TO BE ACCOMPLISHED WITH THE **IMPLEMENTATION OF PROPOSED CHANGES IN RATES AND CHARGES?**

A10. The major objective to be accomplished with the Department's request for rate relief is to continue to provide safe, high quality drinking water and wastewater services without any major service interruptions or system failures. To accomplish this, PWD must have additional revenues to meet operating and maintenance requirements, pay workforce costs, and maintain critical financial metrics. As explained by PWD witness Melissa LaBuda in PWD Statement No. 2, an improved financial outlook will help PWD constrain borrowing costs and keep the costs of long-term debt to a minimum.

III. SUMMARY OF RATE FILING

Q11. PLEASE SUMMARIZE THE PROPOSED REVISIONS TO RATES AND CHARGES.

A11. PWD is requesting an increase in: (i) the service and usage charges for water, sanitary sewer and fire connection services, (ii) stormwater management service charges, and (iii) certain miscellaneous water, sewer and stormwater charges. In addition, PWD is proposing to modify the terms and conditions of various rates and charges, as summarized in Schedule REH-2 or as discussed in PWD Statements 2, 7A and 7B. All the changes proposed by PWD as part of this proceeding are contained in PWD Exhibits 3A and 3B (Rates and Charges Effective September 1, 2020, Clean and Redlined) and PWD Exhibits 3C and 3D (Rates and Charges Effective September 1, 2021, Clean and Redlined).

Q12. PLEASE DISCUSS THE IMPACTS OF THE REQUESTED RATE RELIEF ON TYPICAL CUSTOMER GROUPS.

A12. The impacts of the proposed changes in rates and charges are shown in PWD Exhibit 2 for: (i) a typical residential customer using 500 cubic feet of water per month and with a 5/8 inch meter, (ii) a senior citizen customer receiving senior citizen discount, using 300 cubic feet of water per month and with a 5/8 inch meter; and (iii) a typical small user commercial customer. The monthly bill for a typical residential customer using 500 cubic feet of water per month and with a 5/8-inch meter would increase from \$66.99 currently to \$72.65 beginning September 1, 2020 (a 8.4% increase) and \$77.19 beginning September 1, 2021 (an additional 6.2% increase). The monthly bill for a typical senior citizen receiving the senior citizen discount, using 300 cubic feet per month and with a

5/8-inch meter would increase from \$38.54 currently to \$41.83 beginning September 1, 2020 (a 8.5% increase) and \$44.48 beginning September 1, 2021 (an additional 6.3% increase). The monthly bill for a typical small business customer using 600 cubic feet per month, with a 5/8-inch meter and a parcel gross area of 5,500 square feet and impervious area of 4,000 square feet would increase from \$112.45 currently to \$117.34 beginning September 1, 2020 (a 4.4% increase) and \$125.14 beginning September 1, 2021 (an additional 6.6% increase).

IV. DEPARTMENT OPERATIONS, FACILITIES AND REGULATORY REQUIREMENTS

Q13. PLEASE PROVIDE AN OVERVIEW OF THE DEPARTMENT AND ITS SERVICES AND OPERATIONS.

A13. PWD is one of the City's ten operating departments. PWD provides integrated water and wastewater services, including services for sanitary wastewater and stormwater, for accounts and properties in Philadelphia. PWD also provides water and wastewater services to some suburban municipalities and municipal authorities pursuant to wholesale services contracts. Under the Philadelphia Home Rule Charter, the Department is responsible for operating, maintaining, repairing and improving the City's water supply facilities, sewage system and wastewater treatment plants. The Department operates under a dedicated Water Fund established to ensure that the revenues received from our customers are used only for Department purposes.

The Department's primary mission is to plan for, operate and maintain both the infrastructure and organization necessary to purvey high quality drinking water, to

provide an adequate and reliable water supply to meet 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.

Q14. WHAT ARE YOUR TOP PRIORITIES AS COMMISSIONER?

A14. My top priorities for PWD include: (i) improving conditions of the water and wastewater systems; (ii) providing responsive customer service, which includes reaching out to every area of the City and maintaining a rate structure that meets PWD's needs while remaining fair, equitable and affordable; (iii) conducting business in a transparent, reliable and fiscally responsible manner; and (iv) operating with a commitment to employee development and diversity.

A. Drinking Water

Q15. PLEASE DESCRIBE PWD'S WATER SYSTEM.

A15. The water system provides water service to approximately 480,000 active retail customer accounts. In addition, the system provides water service to Aqua Pennsylvania pursuant to a wholesale contract. The water system obtains approximately 58% of its water from the Delaware River and the balance from the Schuylkill River. The water system's infrastructure includes three water treatment plants, approximately 3,100 miles of water mains, approximately 25,000 fire hydrants, and multiple finished water storage facilities and water pumping stations. The three water treatment plants utilize similar conventional water treatment processes which in general consist of raw water settling, flocculation and coagulation, sedimentation, filtration, disinfection, corrosion control, fluoridation and taste and odor control. PWD also operates a sophisticated testing laboratory and a range of technical and administrative support services which support both the water and

wastewater systems. We consistently test our treated water for about 100 regulated contaminants, ranging from organisms like bacteria to chemicals like nitrate, and use online water quality monitors to provide continuous testing during all stages of the water treatment process.

A16. PLEASE DESCRIBE THE REGULATORY REQUIREMENTS APPLICABLE TO THE DELIVERY OF SAFE DRINKING WATER.

A16. Under the federal and state Safe Drinking Water Acts, the U.S. Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania have promulgated regulations which limit the amounts of contaminants in drinking water provided by public water systems and establish treatment, monitoring, reporting, planning and operating requirements to ensure that tap water is safe to drink. The Pennsylvania Department of Environmental Protection (PaDEP) manages and enforces both the state and federally delegated safe drinking water programs and associated regulations. A summary of the applicable safe drinking water regulations, the key requirements of each regulation, and PWD's associated activities to comply with each of the regulation is attached to my testimony as Schedule REH-3. PWD complies with all federal and state drinking water standards, as well as more rigorous PWD internal water quality performance standards and operational goals.

Q17. ARE THERE NEW REQUIREMENTS IN FEDERAL AND STATE DRINKING WATER REGULATIONS THAT IMPACT FUTURE REVENUE REQUIREMENTS?

A17. Yes. Recent amendments to the safe drinking water regulations have resulted in increases in both the workload for PWD staff and the cost of remaining in compliance with the regulations.

Specifically, amendments to Pennsylvania's Disinfection Requirements Rule, published in the Pennsylvania Bulletin on April 28, 2018, imposed more stringent water system treatment requirements related to microbial protection and disinfection. The amended rule requires PWD to maintain higher levels of chlorine or chloramine in the distribution system and to perform additional monitoring and reporting to PaDEP. Amended regulations published in the Pennsylvania Bulletin on August 18, 2018, increased existing PaDEP permit fees and added new annual fees that PWD is required to pay to the Commonwealth. The amended regulations also imposed new continuous monitoring requirements for turbidity in source water beginning August 20, 2019, and require PWD to have standby generators at its critical pumping facilities by August 17, 2021. Compliance with the standby generator rule has required \$24 million of additional capital expenditure to install standby generators at two pumping facilities.

PWD will be required to take additional steps during the rate period to remain in compliance with the federal and state Long-Term 2 Enhanced Surface Water Treatment Rule, commonly referred to as LT2. This rule, initially promulgated by EPA in 2006, is designed to protect the public from waterborne illnesses by reducing *Cryptosporidium* and other microbial pathogens in the sources of drinking water. Under the rule, public

water systems are classified in one of four treatment categories or "bins" based on the results of a two-year long source water monitoring program. The higher the Cryptosporidium concentration in the source water, the higher the bin classification and the more treatment or other management options are required to comply with the rule. Initial monitoring showed low *Cryptosporidium* counts in the river water at the Baxter and Belmont Water Treatment Plant intakes, resulting in a Bin 1 classification for those plants, but a slightly higher count in river water at the Queen Lane Treatment Plant intake, resulting in a Bin 2 classification for that plant. PWD complied with the rule by treating water using conventional filtration treatment systems at all three water treatment plants and completing a Watershed Control Program Plan for the Queen Lane Water Treatment Plant. The plan identified potential and actual sources of Cryptosporidium in portions of the Schuylkill River watershed and established a set of control measures to reduce Cryptosporidium loading from targeted sources. Recent monitoring has shown an increase in *Cryptosporidium* in the Delaware River. To remain in compliance with the rule, PWD will be expanding the watershed control plan to include portions of the Delaware River watershed area contributing to the intake for the Baxter Water Treatment Plant.

EPA recently proposed revisions to the Lead and Copper Rule, which were published in the Federal Register on November 13, 2019. If finalized by EPA in their present form, these revisions will increase the responsibilities of community water systems such as PWD. Thus far, PWD has complied with the federal and Pennsylvania Lead and Copper Rules by implementing a corrosion control treatment program and conducting monitoring to make sure that the Department's corrosion control treatment is working. The Department's corrosion control program has been optimized over the past two decades, which has minimized the release of lead from service lines, pipes, fixtures and solder by created a coating that keeps lead from leaching into water. The Department also has taken proactive steps to accelerate the removal and replacement of privately-owned lead service lines that remain in service. For example, when the Department replaces water mains it also offers to replace customer-owned lead water service lines at no cost to the customer. The Department also offers interest free loans to customers who are interested in replacing their lead water service lines before the next water main replacement project.

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1

2

3

4

5

6

7

8

Q18. WHAT STEPS DOES THE DEPARTMENT TAKE TO REMAIN IN

COMPLIANCE WITH THE REGULATORY REQUIREMENTS AND PROVIDE A HIGH QUALITY WATER SERVICE?

A18. The Department is able to provide reliable levels of service and meet regulatory requirements by taking a proactive approach to operations and maintenance and by regularly reviewing its capital improvement needs to remain in compliance and keep its water facilities in good condition.

Q19. HAS PWD RECEIVED ANY AWARDS IN RECOGNITION OF THE HIGH QUALITY OF ITS DRINKING WATER?

A19. Yes. In 2019 the Partnership for Safe Water awarded PWD's three water treatment plants the Phase III 20-Year Director's Award for Water Treatment in recognition of twenty years of consistent, high quality performance in providing safe drinking water. The Partnership for Safe Water is a national volunteer initiative developed by EPA and other water organizations that strive to provide drinking water that surpasses federal regulations.

B. <u>Wastewater System – Sanitary Sewage and Stormwater</u>

Q20. PLEASE DESCRIBE THE WASTEWATER SYSTEM.

A20. The wastewater system provides wastewater service to approximately 545,000 active retail customer accounts, including approximately 50,000 stormwater-only accounts. In addition, wastewater service is provided to ten municipalities or municipal authorities pursuant to wholesale service contracts.

Q21. WHAT ARE THE MAJOR ASSETS AND FACILITIES THAT PWD UTILIZES TO PROVIDE WASTEWATER SERVICES?

A21. The Department's wastewater system includes three wastewater treatment plants, approximately 3,700 miles of sewers, 19 pumping stations, over 94,000 manholes, 72,000 stormwater inlets, 175 combined sewer overflow structures, 56 flow-monitoring stations, and a privately managed centralized biosolids recycling center. The sewer system includes approximately 1,850 miles of combined sewers, 770 miles of sanitary sewers, and 750 miles of separate storm sewers, 13 miles of force mains (sanitary and storm) and 350 miles of appurtenant piping.

The Department's stormwater-related assets also include numerous green stormwater infrastructure systems located throughout the City. Examples of the various types of green stormwater infrastructure include stormwater tree trenches, stormwater bump-outs, stormwater planters, pervious pavement, green roofs, and rain gardens, as depicted in Schedule REH-4. I will discuss green stormwater infrastructure in greater detail in the *Green City, Clean Waters* portion of my testimony. The biosolids recycling center, which is adjacent to the Southwest Wastewater Treatment Plant, treats and distributes up to 6,570 dry tons of biosolids captured during the wastewater treatment process. Wastewater sludge is delivered from the wastewater treatment plants to the biosolids recycling facility by pipelines or by two City-owned tank barges, "The Recycler" and "The Resource."

Q22. PLEASE DESCRIBE PWD'S SEPARATE STORMWATER AND COMBINED SANITARY/STORMWATER SEWERAGE FACILITIES.

A22. The Department's wastewater system encompasses both a separate storm drainage system in certain areas of the City and a combined sanitary and stormwater sewer system in other areas. In approximately 40% of the City, there are separate sanitary and storm sewers. In these areas, stormwater flows into, through and is discharged from separate storm sewers to receiving waters. In the remaining 60% of the City, combined sewers carry both sanitary wastewater and, during and following storm events, stormwater runoff. Stormwater entering the combined sewer system impacts both the conveyance and wastewater treatment plant functions and capacity. A significant portion of the flow capacity provided by the combined sewers and operations at the wastewater treatment plants are based on the demands of stormwater runoff entering the wastewater system.

A23. WHAT STEPS HAS THE DEPARTMENT HISTORICALLY TAKEN TO

PROVIDE HIGH QUALITY WASTEWATER TREATMENT SERVICES?

A23. The Department has historically conducted (and continues to conduct) planning, design, construction, operation and maintenance activities at its wastewater treatment plants and collector systems to ensure compliance with federal, state and local regulations and provide high quality wastewater treatment services. This includes strategic and

emergency planning so that the Department can provide service in the face of economic, environmental and other risks. As with the Water System, the Department provides reliable levels of wastewater services and meets regulatory requirements by taking a proactive approach to operations and maintenance and by regularly reviewing its capital improvement needs to remain in compliance and keep its wastewater facilities in good condition.

Q24. HAS THE DEPARTMENT RECEIVED ANY AWARDS OR RECOGNITIONS REGARDING THE OPERATION OF ITS WASTEWATER SYSTEM?

A24. Yes. The National Association of Clean Water Agencies (NACWA) gives awards to facilities that achieve 100% compliance with permits over a consecutive five-year period. In 2018, the Southeast and Southwest Wastewater Treatment Plants received Platinum Awards for perfect compliance records over the past nineteen and eight years, respectively, and the Northeast Wastewater Treatment Plant received a Silver Award which is awarded to facilities with no more than five violations per calendar year. *Green City, Clean Waters* and the COA also have received national recognition because they represent a shift from typical CSO programs.

Q25. PLEASE DESCRIBE REGULATORY AND PERMIT REQUIREMENTS CURRENTLY APPLICABLE TO THE DEPARTMENT'S SANITARY AND COMBINED SEWER SYSTEMS UNDER THE CLEAN WATER ACT.

A25. PWD has National Pollutant Discharge Elimination System ("NPDES") permits for each of its three wastewater treatment plants and their associated combined sewer overflow outfalls to rivers and creeks in the City. The NPDES permit program is a national program for regulating discharges into the waters of the United States under the Clean

Water Act. EPA has delegated the NPDES permitting program for facilities in Pennsylvania to the PaDEP, which issues NPDES permits for facilities in Pennsylvania under the Pennsylvania Clean Streams Law.

PaDEP issued the current NPDES permits for the Northeast, Southeast and Southwest Wastewater Treatment Plants in 2007. These permits expired in 2012. The facilities are operating under automatic extensions of the expired permits, as dictated by the policies of the PaDEP. The expired NPDES permits will remain in place until new permits are issued.

The Department's NPDES permits contain discharge limits, monitoring schedules, sampling, analysis and reporting requirements, and numerous other operating and management requirements. Many of the requirements in the NPDES permits address Combined Sewer Overflows, commonly referred to as CSOs. A CSO is an intermittent discharge from a municipal CSO outfall to waters of the United States or the Commonwealth which occurs because of stormwater entering the combined sewer system and exceeding the hydraulic capacity of the sewers or treatment plants. The City owns and operates numerous CSO outfalls which are authorized by the NPDES permits for its three wastewater treatment plants.

The Department's CSO program is associated in part with complying with the CSO requirements of its NPDES permits and EPA's National CSO Control Policy. The NPDES permits issued in 2007 required the Department to update its long-term control plan for controlling CSO discharges and to implement capital improvement projects to provide for additional projects that reduce CSO frequency and volume. In accordance

with EPA's National CSO Control Policy, the permits also require the Department to take
numerous actions or measures designed to satisfy the Nine Minimum Controls, which are
described in that policy as technology-based actions designed to reduce CSO pollutant
discharges and address their effects on receiving waters. The following are some
examples of the specific actions or measures required by the permits and implemented by
the Department to comply with the Nine Minimum Controls in EPA's National CSO
Control Policy, as set forth in the NPDES permits:
• A comprehensive Geographic Information System (GIS) of the sewer system;
• A sewer assessment program with inspections using closed circuit television;
• A comprehensive monitoring and modeling program for the sewer system;
• An Industrial Pretreatment Program to regulate industrial waste discharges into the
sewer system;
• Minimum inlet cleaning requirements;
• Funding and operation of a program to remove large debris from streams and perform
in-stream cleanup work;
• Operation of a vessel to remove floatable debris from tidal portions of CSO receiving
waters;
• Public education and outreach programs, including continued support for the
Fairmount Water Works Interpretive Center and watershed partnership programs; and
• An internet-based notification system that provides real-time information on water
quality of the Schuylkill River.

Q26. PLEASE DESCRIBE REGULATORY AND PERMIT REQUIREMENTSCURRENTLY APPLICABLE TO THE DEPARTMENT'S MUNICIPALSEPARATE STORM SEWER SYSTEM.

A26. The Clean Water Act requires municipalities with municipal separate storm sewer systems serving populations of 100,000 or more to obtain NPDES permits for their stormwater discharges. EPA defines a municipal separate storm sewer system (commonly referred to as an "MS4") as a conveyance or system of conveyances that is: (i) owned by state, city, town, village or other public entity that discharges to waters of the United States; (ii) designed or used to collect or convey stormwater; (iii) not a combined sewer; and (iv) not part of a sewage treatment plant or publicly owned treatment work. In Pennsylvania, this requirement of the Clean Water Act is administered by PaDEP under its MS4 Program. PaDEP issues NPDES MS4 permits under the Pennsylvania Clean Streams Law and its delegated authority from EPA.

PaDEP issued the current NPDES MS4 permit for the City's separate storm sewer system in 2005 and amended the permit in 2006. The permit expired in 2010. As required under PaDEP regulations, the Department applied for renewal of this permit to PaDEP on March 29, 2010. PaDEP has made a tentative determination to issue the new permit and provided PWD with a pre-draft permit for review and comment in November 2019.

The Department's current NPDES MS4 permit establishes numerous permit conditions and requires stormwater management practices to ensure water quality standards and designated uses are attained in our rivers and creeks. The following are some specific programs administered by the Department as required by the conditions and requirements of its current NPDES MS4 permit:

- Illicit discharge detection and elimination program. The Department administers • this program to detect, investigate and abate illicit connections and improper discharges to the MS4. **Industrial facility program.** The Department administers a permit program to control stormwater from industrial activities discharged to the MS4. **Construction site runoff controls.** The Department implements and enforces this • program to reduce stormwater runoff from construction activities and development and redevelopment projects. Post-Construction Stormwater Management Program. The Department ٠ implements and enforces this program which requires post-construction stormwater management from new development and redevelopment projects. Public Education and Outreach. The Department administers a public education and outreach program that targets a diverse audience and includes outreach activities and educational materials about the impacts of stormwater discharges and steps the public can take to reduce or eliminate contaminated stormwater runoff. Q27. PLEASE DESCRIBE THE DEPARTMENT'S GREEN CITY, CLEAN WATERS PROGRAM AND ITS CONSENT ORDER AND AGREEMENT WITH PADEP. The PaDEP and the Department signed the Consent Order and Agreement (COA) on A27. June 1, 2011. A copy of the COA is included with the filing as PWD Exhibit 7. The COA requires the Department to implement its updated long-term control plan to control CSO discharges, which the Department submitted to PaDEP in 2009. PWD refers to its updated long-term control plan as the "Green City, Clean Waters" program. The Green
- 24

25

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

City, Clean Waters program relies on a combination of lining interceptor sewers,

upgrading wastewater treatment plants, and implementing 9,564 Greened Acres over a 25-year period.

As required under the COA, by the year 2036 (year 25 of the COA), the *Green City*, *Clean Waters* program seeks to eliminate and remove 85% of the combined sanitary sewage and stormwater collected in the combined sewer system during precipitation events. The COA requires interim milestones at the end of the fifth, tenth, fifteenth and twentieth years in four categories: (1) Overflow Reduction Volume; (2) Miles of Interceptor Lined; (3) Wastewater Treatment Plant Upgrades; and (4) Total Greened Acres from green stormwater infrastructure projects.

"Greened Acres" are used in the COA as a metric which accounts for the conversion of highly impervious urban landscape through the implementation of projects that reduce stormwater runoff. A Greened Acre is a quantitative expression of the volume of stormwater that can be managed by a green stormwater infrastructure project. One Greened Acre is equivalent to one inch of managed stormwater runoff from one acre of impervious drainage area.

The COA steadily increases the number of Greened Acres required by each of the fiveyear milestones, which increases the number and/or size of green infrastructure projects necessary to meet each of the five-year milestones. In 2016 the Department has completed its fifth year of the 25-year COA and met applicable fifth year milestones of 744 total Greene Acres and 600 million gallons of CSO reduction by June of 2016. The ten-year milestone will occur on June 1, 2021. By that date, PWD must have developed and implemented projects necessary to meet the ten-year milestone of 2,148 total Greened Acres and 2,044 million gallons of CSO reduction.

Under the COA, PWD is subject to significant penalties for non-compliance with the 5year milestones. The penalties range from \$25,000 per month for each violation during the first six months, then are set at \$50,000 per month per violation for months seven through twelve, and then increase to \$100,000 per month per violation for the thirteenth month and beyond. There also are penalties for failing to submit timely reports that range from \$1,500 per day per violation to \$2,500 per day per violation.

The Department anticipates that compliance with the COA will significantly increase capital and operating expenditures related to *Green City, Clean Waters* during the Rate Period and beyond. Since July 1, 2011, through and including June 30, 2019, PWD has spent about \$165 million from its capital budget and \$255 million from its operating budget related to the COA. As of the most recent projections, the total cost of the 25-year program is approximately \$4.5 billion, of which approximately \$3.5 billion are capital related costs and \$1 billion are operation and maintenance costs. PWD continues to review program cost and delivery to optimize the program while satisfying the necessary regulatory requirements.

Q28. WILL THE DEPARTMENT EXPERIENCE HIGHER OPERATING COSTS BECAUSE OF REGULATORY REQUIREMENTS RELATED TO ITS WASTEWATER SYSTEM DURING THE RATE PERIOD?

A28. Yes. The requirements of the NPDES permits for the three wastewater treatment plants and the separate storm sewer system will continue a trend of higher annual operating costs for the Department. These expenditures, along with the ongoing operating and maintenance costs for the *Green City, Clean Waters* program, are among those projected for the Rate Period and together with other operating and financial costs contribute to the need for the requested rate relief.

V. CONCLUSION

Q29. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A29. Yes.

EXPERIENCE

PHILADELPHIA WATER DEPARTMENT

Commissioner

Serve as Commissioner for the Philadelphia Water Department. The Philadelphia Water Department plans for, operates, and maintains the infrastructure and the organization necessary to: 1) deliver high-quality drinking water while providing an adequate and reliable water supply for all household, commercial, and community needs and 2) sustain and enhance the region's watersheds and quality of life by managing wastewater and stormwater effectively and efficiently through a green stormwater infrastructure approach.

BEVERIDGE & DIAMOND, P.C.

Partner

Handled legal matters in the environmental arena with a focus on water and wastewater issues as controlled by federal and state laws including, but not limited to, the Clean Water Act and Safe Drinking Water Act. Other matters included civil litigation matters before state and federal courts, corporate transactional matters, environmental and land use permitting, litigation, regulatory compliance and enforcement defense, and internal investigations.

DC WATER

General Counsel

Served as lead attorney for the District of Columbia Water and Sewer Authority (DC Water). DC Water provides drinking water, wastewater collection and treatment and stormwater management to the nation's capital and the surrounding metropolitan area. Responsibilities as General Counsel included leading a legal team of fifteen, including six attorneys, and providing representation and opinions in all legal matters affecting DC Water.

METROPOLITAN ST. LOUIS SEWER DISTRICT

General Counsel

Served as lead attorney for Metropolitan St. Louis, MO Sewer District which provides wastewater collection, treatment and stormwater management to 1.4 million people in the St. Louis area. Led legal team of eight including six attorneys and two support staff.

RIEZMAN BERGER, P.C.

Attorney

Responsible for handling civil litigation matters before state and federal courts. Conducted legal research and prepared memoranda. Drafted pleadings and motions.

STINSON, MAG, & FIZZELL, P.C. (STINSON LEONARD STREET, LLP)

Attorney

Participated in all levels of trial advocacy before state and federal courts. Responsible for drafting and answering interrogatories and document production requests. Reviewed selected trial exhibits and designated witness deposition testimony for trial.

STATE OF MISSOURI, ATTORNEY GENERAL'S OFFICE

Assistant Attorney General (Litigation Division)

Responsible for providing representation in all levels of trial advocacy before state and federal courts, including civil rights actions under federal law.

2010-2016

Washington, DC

St. Louis, MO 2000-2010

St. Louis, MO 2000

Kansas City, MO 1996-2000

Jefferson City, MO 1994-1996

Philadelphia, PA 2019-Present

Washington, DC 2016-2019

NAACP LEGAL DEFENSE AND EDUCATIONAL FUND, INC.

Staff Attorney

Assisted in handling general civil litigation matters including preparation of interrogatories, conducting depositions and drafting of briefs.

WILKES, ARTIS, HEDRICK & LANE Attorney

Law Clerk

Responsible for handling civil litigation matters before state and federal courts, including drafting interrogatories and pleadings. Responsibilities included matters involving real estate tax, zoning and municipal law.

EDUCATION

GEORGETOWN UNIVERSITY LAW CENTER

Washington, D.C. J.D., 1989 Semi-finalist Moot Court Competition, 1988

UNIVERSITY OF MICHIGAN

Ann Arbor, MI B.A., 1985 Political Science Major President's Scholarship - 1982-1985

AWARDS

WASHINGTON BUSINESS JOURNAL, Legal Champions Award, 2014 WASHINGTON BUSINESS JOURNAL, Minority Business Leader Award, 2014 ST. LOUIS BUSINESS JOURNAL, Most Influential Minority Business Leader Award, 2007 ST. LOUIS BUSINESS JOURNAL "40 Under 40" Awardee, 2002

Washington, D.C. 1992-1993

Washington, D.C. 1989-1992 1988-1989

SCHEDULE REH-2

Miscellaneous Changes in Terms of Rates and Charges

Section and Title in Rates and Charges	Proposed Change	
1.0 Definitions	Revise definition of "Condominium" based on the definition in the Uniform Condominium Act at 68 P.A.C.S. § 3103	
	Add definitions of "Dwelling Unit" and "Rate Board" with "Dwelling Unit" defined based on the definition in the Zoning Code at Section 14-203 of the Philadelphia Code.	
3.5 Sewer Credits	Revise the first sentence of Section 3.5 to reference the correct section of the Philadelphia Code. Former Section 13-201(4) is now Section 13-101(6).	
5.2 Special Customers	Revise Section 5.2(b) to increase the senior citizen income threshold and to clarify that the income threshold will be adjusted at each general rate proceeding as per Section 19-1902 of the Philadelphia Code. See PWD Statement 7A for additional discussion of the senior citizen threshold adjustment.	
	Revise Section 5.2(n) to add a reference to Chapter 16-400 of the Philadelphia Code as per Section 16-403 of the Philadelphia Code regarding abatement of water and sewer charges for property held by the Redevelopment Authority.	
5.3 Eligibility for Charity Rates and Charges	Revise Section 5.3(c) to reflect revisions to the Section 13-101(4)(e) of the Philadelphia Code regarding termination of charity rates for institutions that violate prevailing wage requirements. See Bill No. 190911, approved by the Mayor on December 30, 2019.	

SCHEDULE REH-3

Summary of Drinking Water Regulations

Regulation	Key Requirements	PWD Activities
Lead and Copper Rule (LCR)	90% of samples collected in a	PWD performed the most recent
	monitoring round must be	round of LCR compliance sampling
	below the action levels of	in 2019.
	0.015 mg/L for lead and 1.3	
	mg/L for copper	PWD performs active CCT at all
		three plants by adding zinc
	Systems serving more than	orthophosphate and maintaining
	50,000 people were required	finished water pH in the range of
	to install corrosion control	6.8 to 7.8 and performs the
	treatment (CCT) and must	required water quality monitoring
	perform routine monitoring for	at each entry point to the
	a defined list of water quality	distribution system and within the
25 Pa Code 109.1101-1108	parameters	distribution system.
Revised Total Coliform Rule	Routine sampling for total	PWD collects and analyzes
(RTCR)	coliform from representative	samples for total coliforms and E.
	sites throughout the	coli from over 70 representative
46 Pa Bulletin 6005-6019	distribution system	locations throughout the
(September 24, 2016)		distribution system.
Stage 1 and Stage 2	Established maximum	PWD collects and analyzes
Disinfection Byproducts	contaminant levels (MCLs) and	samples in accordance with the
(DBP) Rule	operational evaluation levels	Stage 1 and Stage 2 DDBP Rule.
	(CELs) for total	
	trihalomethanes (TTHMs) and	
	the sum of five haloacetic acids	
	(HAA5) and maximum residual	
	disinfectant levels (MRDLs) for	
25 Pa Code 109.301(12) and	chlorine, chloramines, chlorine	
109.701(g)	dioxide, chlorite, and bromate	
PaDEP Disinfectant	Requires reporting of	PWD monitors and reports
Requirements Rule (DRR)	individual disinfectant	chlorine residual data in
	residuals from Revised Total	accordance with a Sampling Siting
	Coliform Rule monitoring	Plan prepared by PWD and on file
	locations and establishes a	with PaDEP.
	minimum disinfectant residual	
	of 0.20 mg/L in 95% of water	PWD developed a Nitrification
	distribution samples collected	Control Plan which it submitted to
	each month starting 4/29/2019	PADEP in 2019.
	Requires a Sampling Siting Plan	
	and Nitrification Control Plan	
48 Pa Bulletin 2509-2544	to be developed and submitted	
(April 28, 2018)	to PaDEP	

General Update and Fees	Requires continuous	PWD monitors turbidity and pays
Rule	monitoring for turbidity	the increased and additional fees
	starting 8/20/2019	in accordance with the rule
48 Pa Bulletin 4974-5027	Increases permit fees and adds	
(August 18, 2019)	annual fees	
Long Term 2 Enhanced	Requires additional treatment	Queen Lane and Baxter Plants are
Surface Water Treatment	based on the concentration of	designated as Bin 2 under the
Rule (LT2)	Cryptosporidium or <i>E. Coli</i> in	rule, requiring a 1.0-log
	source water	removal/inactivation of
		Cryptosporidium. PWD meets this
		requirement through very low
		turbidity levels in the combined
		filter effluent (CFE) and individual
		filter effluent (IFE) at both plants.
		The Queen Lane Plant also
		achieves a back-up 0.5-log
		a Watershed Centrel Program
		Rian for the Queen Lane Plant
		In October 2018, PWD provided
		PaDEP with a letter indicating
		PWD's intent to expand the
		Watershed Control Program Plan
		into the Delaware River
		Watershed to achieve a 0.5 log
		back-up credit to Baxter's IFE and
		CFE requirement. The updated
		Watershed Control Program Plan
		will be submitted to PaDEP in
25 Pa Code 109.1201-1206		
Consumer Confidence	Requires a CCR to be provided	PWD electronically delivers the
Report (CCR) Rule		CCR in the spring of each year.
25 Pa Code 100 416		
Liprogulated Contaminant	Requires sample analysis for a	RWD is monitors for the required
Monitoring Rule (UCMP)	specific list of upregulated	list of compounds
	compounds between 1/1/2019	
25 Pa Code 109 412	and 12/31/2020	
40 CFR 141 40		



SCHEDULE REH-4

Overview

Green City, Clean Waters promotes the use of green stormwater infrastructure throughout the city. These green tools use plants, trees and stone to filter store and manage stormwater in a smart and cost-effective way.



How do These Green Tools Work?

When it rains, stormwater runs off streets and sidewalks into a green stormwater infrastructure (GSI) tool. Water soaks into a stone bed below ground where it is absorbed by plant roots and released through transpiration. Some of the water evaporates from the surface and excess water is slowly released back into the sewer system. Storing water in these GSI systems significantly reduce pollutants entering our creeks and rivers.

What are the Benefits?

- Improves water quality by reducing combined sewer overflows*
- Improves the health of our stream banks and aquatic life
- Enhances the beauty of our streets and neighborhoods
- Promotes a safer and healthier community
- Reduce the urban heat island effect (city's temperature)
- Improves air quality

*Combined sewer overflows occur during heavy rainstorms when treatment plants can't clean all the water running through the system so polluted stormwater and sanitary waste overflow into local rivers.



Stormwater Tree Trenches

A stormwater tree trench is a system of trees connected by an underground infiltration structure. On the surface, a stormwater tree trench looks similar to a series of street tree pits. However, under the sidewalk a perforated pipe distributes water throughout the trench.



Stormwater Trees

Stormwater trees look like typical street trees, but they have a deep stone pit to help manage stormwater. While a tree trench has multiple trees in one trench, stormwater trees are planted individually.





Stormwater Bump-outs

A stormwater bump-out is a landscaped extension of the curb that protrudes into the street at an intersection. A bump-out has a layer of stone that is topped with soil and plants to capture stormwater runoff. In addition to managing stormwater, bump-outs can calm traffic and make intersections safer for pedestrians.



Stormwater Planters

Stormwater planters mange stormwater runoff from the street and sidewalk. They sit below the sidewalk and are filled with vegetation, soil and stone. A stormwater inlet collects water from the street and directs it into the planter where plant roots soak can it up. The planter also has small openings to catch stormwater following from the sidewalk.





Rain Gardens

A rain garden is a planted shallow depression designed to catch and filter stormwater runoff from a downspout or nearby paved surface. The plant species are selected for their ability to thrive in extremely wet and dry weather. Rain gardens filter pollutants, replenish groundwater and provide habitat for animals. They are one of the simplest and effective ways to manage stormwater.



Permeable Materials

Special materials, such as porous asphalt or concrete, and permeable pavers or rubber playgrounds, allow water to pass through their surfaces into the stone and ground below. These materials slow, redirect and filter water through the soil instead of overwhelming sewers. They can be used in streets, around homes or in schoolyards.

