PHILADELPHIA WATER DEPARTMENT STATEMENT 4

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 2024 - 2025

Direct Testimony

of

Benjamin Jewell, Brendan Reilly,

Linda Kramer and Stephen Junod

on behalf of

The Philadelphia Water Department

Dated: January 2023

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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 Benjamin Jewell. I am the Deputy Commissioner of Operations for the Philadelphia Water Department ("PWD" or "Department").

Testifying with me are Brendan Reilly, who is the Director of Water Operations for the Department; Linda Kramer, who is the Manager of Water Treatment for the Department; and, Stephen Junod, who is the Department's Water Operations Administration Manager.

Q2. WOULD EACH OF YOU PLEASE DESCRIBE YOUR RESPECTIVE EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE?

A2. Our respective backgrounds and experience are summarized below:

Mr. Jewell

I hold a Bachelor of Science degree in Environmental Engineering from Northwestern University. As noted in the attached resume of experience, I have held several positions with increasing responsibility since joining the Department in 2007. My resume of experience is attached and marked as Schedule BCJ-1.

Mr. Reilly

I hold a degree in Civil Engineering from Widener University and also hold a Class A/E

Operators certification with the Pennsylvania's Department of Environmental Protection.

I am the Department's Director of Water Operations. Prior to that position, I was the

Department's Water Conveyance Chief. I have held several positions with increasing responsibility since joining the Department in June 2002, all within the Water Conveyance Division. My resume of experience is attached and marked as Schedule BR-1.

Ms. Kramer

I hold a Bachelors' Degree in Environmental Engineering Technology and a Master of Science in Engineering from Temple University. I am a Professional Engineer and a licensed Water System Operator. I am a Manager of Water Treatment for the Department. As noted in the attached resume of experience, I have held several positions with increasing responsibility since joining the Department in 1990. My resume of experience is attached and marked as Schedule LK-1.

Mr. Junod

I hold a degree in Business Administration from Temple University. I am the Department's Water Operations Administration Manager. I have been in this position since 2012. I have held several positions with increasing responsibility since joining the Department in May 1999, all within the Operations Administration Group. My resume of experience is attached and marked as Schedule SJ-1.

Q3. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A3. The purpose of our testimony is to (i) discuss the reasons why rate relief is needed to support operations and system improvements during FY 2024 and FY 2025 (the "Rate Period"); and (ii) discuss the current and future challenges facing water and wastewater

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operations, including those related to increasing costs, inflationary pressures, necessary upgrades, improvements and maintenance activities planned for the Rate Period.

Q4. PLEASE IDENTIFY THE SCHEDULES THAT ACCOMPANY THIS TESTIMONY.

A4. The following schedules accompany our testimony:

Schedule BCJ-1: Resume of Benjamin Jewell

Schedule BR-1: Resume of Brendan Reilly

Schedule LK-1: Resume of Linda Kramer

Schedule SJ-1: Resume of Stephen Junod

Schedule OP-1: Material Costs

II. RATE RELIEF NEEDED TO SUPPORT OPERATIONS

Q5. IS RATE RELIEF NEEDED TO SUPPORT OPERATIONS AND SYSTEM IMPROVEMENTS DURING THE RATE PERIOD, FY 2024 AND FY 2025?

A5. Yes. Rate relief is needed to meet increasing costs related to the operation of the water and wastewater systems. Inflation is widespread throughout the economy, and is significantly increasing costs for operations, for upgrades, repairs, improvements and for maintenance activities.

While price increases were limited initially to just a few items (such as chemicals), the Department is experiencing rapid rises in prices on most everything – including operation and maintenance "staples," like electricity, materials and supplies (pipes, valves, manhole covers, etc.) as well as gasoline. The speed and severity of price increases in FY 2023 is

much higher than anticipated in the 2021 General Rate Proceeding. In fact, the Department is experiencing price increases in FY 2023 that are higher than generally reported inflation rates. See, Schedule BV-5, WP:1 (Inflation and Cost Escalation Pressures).

PWD recent experience with chemicals illustrates how price increases borne by the Department are higher than the general rate of inflation. That is, costs per ton for a wide variety of chemicals used by PWD operations are rising dramatically. This includes costs for ammonium hydroxide, calcium oxide, ferric chloride, fluorosilicic acid, phosphoric acid, sodium hydroxide, blended sodium phosphate, zinc orthophosphate, sodium hypochlorite and activated carbon. Please note that the cost per ton for these chemicals in FY 2023 is rising between 26.7% to 141.8% above FY 2022 levels. The aggregate cost of chemicals is increasing from \$36.926 million in FY 2023 to \$52.679 million in FY 2024; and is projected to increase to \$65.227 million in FY2025. *See* Schedule BV-1, Table C-6 in PWD Statement 7.

Increasing chemical prices will have a pronounced impact on the Department's operations because a significant amount of chemicals are needed to run water and wastewater treatment facilities. With treatment facilities operating 24 hours a day, seven days a week, chemicals are constantly needed so that the Department can provide safe and reliable service. Water purification primarily utilizes chemical disinfectants, such as chloramines, to kill any parasites, bacteria, or viruses present in source water at PWD points of intake on the Delaware and Schuylkill Rivers.

Wastewater treatment is a complex process that requires phosphoric acid to maintain the

health of the microbial community in the biological portion of the treatment process. The biological treatment process relies on naturally occurring microbes that break down organic waste under carefully controlled conditions that require diligent monitoring. Sodium hypochlorite is required to disinfect the final effluent prior to its discharge to the Delaware River.

Without the chemicals that are needed to operate our three water treatment plants and three water pollution control plants, the Department cannot provide safe and reliable service.

Energy costs provide another example of price increases being experienced by PWD in FY 2023 (and anticipated to continue at high levels thereafter) that exceed reported inflation rates. More specifically, costs related to purchasing electricity for operations is projected to increase from \$17.993 million in FY 2023 to \$19.927 million in FY 2024. Cost projections for FY 2025 are projected to hold steady. *See* Schedule BV-1, Table C-6 in PWD Statement 7.

Increasing electricity prices will have a significant impact on the Department's operations because a significant amount of electricity is needed to run water and wastewater pumping and treatment facilities. With pumps, motors, and other equipment operating 24 hours a day, seven days a week, water and wastewater pumping and treatment facilities require a significant amount of electricity. Simply put, without electricity the Department cannot provide safe and reliable service.

In addition, costs for materials and supplies are significantly increasing. The average

percentage change for contract items in this area is 43%. The cost increases experienced by Operations are shown in Schedule OP-1 and are expected to continue during the Rate Period.

Q6. WITHOUT RATE RELIEF, WILL THE DEPARTMENT BE ABLE TO PROVIDE PLANNED AND NECESSARY SERVICES DURING THE RATE PERIOD?

A6. No. The Department is incurring unavoidable increases in operating costs in several areas, including production costs (chemicals and energy), upgrades (repairs and renewal) and improvements (replacement and addition) of infrastructure, maintenance costs, and regulatory compliance. PWD must have sufficient additional revenues to support its operations in order to provide safe and reliable service.

Stated differently, the costs of serving our customers have gone up. Proposed rates will allow the Department to recover the increased costs for operations, for upgrades, repairs, improvements and for maintenance activities. This is important, since revenues from water, wastewater and stormwater charges need to be sufficient to pay for (among other things) annual operation and maintenance expenses. The anticipated rate increases are discussed in greater detail in PWD Statements 2A and 7.

III. CURRENT AND FUTURE CHALLENGES

Q7. PLEASE DESCRIBE THE CATEGORIES OF OPERATIONAL CHALLENGES FACING THE DEPARTMENT.

A7. Broadly speaking the challenges facing the Department fall into three related categories: reliability, resilience, and regulatory compliance.

Reliability

Reliability, as a widely used term, points to the attribute of consistently meeting water and wastewater system operational goals. For the water system, we use the term reliability to describe the ability of the water system to provide water that consistently meets drinking water standards. For the wastewater system, the term is used to describe the ability to collect and treat wastewater in compliance with the requirements of our discharge permits.

To achieve operational reliability the Department must continuously renew and replace its aging infrastructure. The City's water and wastewater infrastructure was built and financed by previous generations. Many parts of that infrastructure are approaching or have exceeded their service lives and need renewal and replacement.

The Department must also maintain operational redundancies to achieve operational reliability. Redundancy is about the use of measures beyond minimum requirements to ensure that treatment goals are more reliably met or that performance can be more reliably demonstrated. A common kind of redundancy is having standby equipment (such as a pump or filter) to provide operational reliability and flexibility to ensure that the system can properly function during routine maintenance or if a problem is encountered.

Resilience

When we speak of resilience, or robustness, we are referring to the ability of the system to avoid disruptions due to emergencies such as severe weather events or accidents.

With the passage of America's Water Infrastructure Act of 2018 ("AWIA"), water systems are increasingly focused on utility risk and resilience. This law addresses utility risk, resilience, and emergency response plans.

Regulatory Compliance

Standards for water and wastewater systems have undergone major and dramatic changes during the past decades, and trends indicate that they will continue to become more stringent and complicated. Major regulatory requirements applicable to the water or wastewater systems relate to Safe Drinking Water Act regulatory matters, Lead and Copper Rule monitoring, PFAS (polyfluoroalkyl substances) monitoring and sampling and Consent Order and Agreement ("COA") milestone requirements. It is noteworthy that the PFAS monitoring and sampling methods and requirements are under active development at this time. In only just a couple years, PFAS has emerged as something that the Department and the water industry in general will have to deal with.

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 treatment plants, facilities and piping networks in good condition.

Q8. PLEASE DESCRIBE THE MAJOR OPERATIONAL CHALLENGES FACING THE DEPARTMENT IN PROVIDING SAFE AND RELIABLE SERVICE.

A8. The major operational challenges facing PWD, during the Rate Period, relate to managing (a) unavoidable and non-discretionary operating costs, including but not limited to inflationary cost increases; (b) upgrades and improvements to aging plant as

well as major projects and maintenance activities; and (c) operational requirements with reduced staffing. Each of the aforementioned operational challenges is addressed in detail in Section III (A)-(C) below.

A. OPERATING COSTS; INFLATIONARY COST PRESSURES

Q9. PLEASE EXPLAIN THE CHALLENGES PRESENTED BY INCREASED NON-DISCRETIONARY OPERATING COSTS.

A9. One major challenge facing the Department is in connection with managing unavoidable and non-discretionary operating costs. Such costs include those related to chemical purchases, energy costs (electricity and natural gas), personnel (labor) and materials.

These costs are, in many instances, increasing even as even as our customer demands shift. In the aggregate, the above costs represent roughly 80% of the Department's budgeted operating costs for the Department's water and wastewater treatment facilities.

The following are a few highlighted cost increases anticipated for Fiscal Years 2024 through 2025:

• Chemicals. As previously noted, the cost of chemicals is about \$36.926 million in FY 2023. This cost is expected to increase to \$52.679 million in FY 2024 and to \$65.227 in FY 2025. *See* Schedule BV-1, Table C-6 in PWD Statement 7. These increases are well above projections for this period made in the 2021 rate case.

Chemicals are critical for water and wastewater treatment processes, and the increases in this area are a major budgetary driver for drinking water treatment.

Water treatment chemicals are critical and significant cost components required

for providing a safe drinking water supply to about 1.6 million residents. The increase in chemical costs will also impact the wastewater system, although not as acutely — because the wastewater treatment processes do not depend on as many chemicals, and those that are used have lower dosages as compared to the water treatment processes.

- **Electricity.** PWD's overall electricity costs are anticipated to increase from \$17.993 million in FY 2023 to \$19.927 million in FY 2024. Costs for FY 2025 are projected to hold steady, as discussed in PWD Statements 2A and 7. These increases are also above projections made for this period in the last rate case.
- Natural Gas. Gas costs are expected to increase from \$6.934 million in FY 2023 to \$8.250 million in FY 2024 and expected to hold steady in FY 2025, as discussed in PWD Statements 2A and 7. These increases are likewise above projections made in the 2021 rate case.

Energy usage (both electrical and natural gas) are major cost components for wastewater treatment processes. All wastewater facilities (collection and treatment) consume approximately 50% of the electricity and almost 90% of the natural gas consumed by the Operations Division.

• Staff and Contract Services. Costs are anticipated to increase by \$8.456 million in FY 2024 and by \$12.421 million in FY 2025. *See* Schedule BV-1, Table C-6 in PWD Statement 7. Part of that aggregate increase is for wage increases scheduled

to take effect during the Rate Period. District Council 33 and District Council 47 wage increases agreed upon in collective bargaining agreements ("CBAs") call for increases of 3.25% in FY 2024. The aforesaid CBAs are three year contracts effective July 1, 2021 through June 30, 2024. *See* PWD Exhibit 5 at Appendix III-52, 53.

At present, PWD is under-staffed and this is expected to continue during FY 2024-2025. The challenges associated with the hiring of new staff has resulted in the transfer of some project tasks from PWD personnel to service contracts with outside vendors and increased the use of over-time of the Department's employees.

- Materials. The Department is experiencing price increases in many staple
 materials. These price increases will impact ongoing maintenance and repair
 needs for field operations. Some of the more significant price increases listed in
 Schedule OP-1 include:
 - (i) the cost of valves, which vary in size, are up between 62% and 103%;
 - (ii) the cost of sleeves, which vary by size, are up between 197% and 258%;
 - (iii) the cost of ductile iron pipe, which vary be size, is up at least 49%;
 - (iv) the cost of dressers or couplings, which vary by size, are up between 68% and 108%;
 - (v) the cost of bands, which vary be size, are all up by 46%; and
 - (vi) the cost of curb stops which have increased by 69%.

Cost escalation for materials will impact field operations associated with the conveyance of water and the collection of wastewater and stormwater for treatment.

• Materials Used on HELP Program. The Department has experienced price increases for materials used by the plumbers on PWD's HELP program. Purchase orders used in the HELP program show that costs have increased, in some instances, by 100% from FY 2020 to FY 2022. See Schedule OP-1. Please note that this trend is continuing in FY 2023 and is anticipated to continue in FY 2024 and FY 2025.

Q10. WILL THE DEPARTMENT EXPERIENCE HIGHER OPERATING COSTS BECAUSE OF SIGNIFICANT INFLATIONARY INCREASES DURING THE RATE PERIOD?

A10. Yes — for all of the reasons explained above. In anticipation of higher operating costs, Black & Veatch has included an inflation allowance for many projections in FY 2024 and FY 2025. This is addressed in greater detail in PWD Statement 7 and Schedule BV-4, WP-1 (Inflation and Cost Escalation Pressures). Please note that inflation adjustments are not made for chemicals and power/natural gas in FY 2024, as planned budget adjustments are needed to cover additional expenses in these areas.

In addition to the examples of inflationary operating cost increases that we have already discussed, please note that the Department also anticipates increases tied to procurement and regulatory requirements.

Procurement Issues — The procurement experience related to operating costs contributes to the need for rate relief. For example, PWD experience in procuring laboratory equipment/services (including precision instruments, online instrumentation and related onsite services) illustrates how price increases are trending higher than the reported inflation rates. The Department's contract for laboratory supplies is a case-in-point. Upon renewal of this contract, laboratory costs are anticipated to increase by approximately twenty percent (20%) above current levels. Budgeted expenditures for laboratory equipment/services in FY 2023 are about \$1.3 million.

Contractual Adjustments — Another area of increasing costs relates to contractual adjustments. Certain procurement contracts were written with escalation clauses that are tied to the Consumer Price Index ("CPI") or similar indices of inflation. Such clauses are contributing to unavoidable and non-discretionary increases in operating costs in FY 2023. An example of this type of contract is the Biosolids Recycling Center Operation Service Agreement with Philadelphia Biosolids Services (PBS), a joint venture led by Synagro. The Fixed Capacity Charge in this contract is adjusted annually based on changes in the CPI for All Urban Consumers — Northeast United States or other specified indices. See also, PWD Statement 7, Schedule BV-4, WP-1 (Inflation and Cost Escalation Pressures).

Regulatory Requirements — Changing regulatory requirements are also increasing PWD operating costs. The cost of regulatory compliance, including (but not limited to) the cost of the requirements of the Lead and Copper Rule changes will contribute to the need for the requested rate relief. In addition, the requirements of the National Pollutant Discharge Elimination System ("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.

I. WILL THE ABOVE INCREASING COSTS ALSO BE EXPERIENCED IN THE STORMWATER SYSTEM GIVEN ESCALATING COA REQUIREMENTS AMONG OTHER FACTORS?

A11. Yes. There are maintenance costs associated with each Greened Acre. As the number of Greened Acres increase, the total amount maintenance costs for Green Stormwater Infrastructure ("GSI") increases. These increased maintenance costs together with other operating costs (e.g., price pressures on material costs and contract services) and financial costs — all contribute to the need for the requested rate relief.

Please note that maintenance costs associated with GSI projects are projected to increase to keep pace with Consent Order and Agreement requirements. COA requirements drive a steadily increasing number of constructed Greened Acres associated with GSI stormwater management systems each year. PWD continues to design and construct a large portion of the GSI projects required to comply with the COA. This obligation will increase each year as the Department continues to work towards complying with the number of Greened Acres required by the COA. The fifteen-year milestone under the COA is due in calendar year 2026. With GSI almost every capital dollar is spent to build a new asset. The COA requires maintenance of constructed stormwater management practices in accordance with the City's GSI Maintenance Plan. This regulatory

requirement along with the construction of new assets means that operating costs will necessarily increase as capital investments in GSI continue. This is another area to be carefully managed in view of limited resources. Without proper maintenance of Greened Acres, the Department runs the risk of non-compliance under the COA.

B. UPGRADES AND IMPROVEMENTS; MAJOR PROJECTS AND MAINTENANCE ACTIVITIES

Q12. PLEASE EXPLAIN THE CHALLENGES PRESENTED BY UPGRADING THE DEPARTMENT'S AGING PLANT AND IMPROVING ITS WATER AND WASTEWATER SYSTEMS.

A12. Additional challenges facing PWD relate to managing (i) plant upgrades; (ii) water conveyance and distribution system improvements; and (iii) repair and replacement of collector systems.

Plant Upgrades

A significant part of this challenge is to complete the major plant upgrades currently underway or those that will be initiated during the Rate Period. Please note that planned upgrades, improvements or expansions to plants must be undertaken and completed while such facilities remain in service. This will require a significant balancing act to ensure reliable service while meeting applicable regulatory requirements.

The Department's water treatment plants are over 100 years old and need to be constantly upgraded to address structural issues and incorporate the most recent advancements in

technology.

The Water Pollution Control Plants ("WPCP"), although significantly upgraded in the 1980s, are still over 70 years old and plant expansions may be required to respond to additional flows and discharge requirements. Additional flows are created by wet weather.

Water Conveyance and Distribution System Improvements

Another challenge relates to the repair and replacement of the Department's water conveyance and distribution system. This system is aging with water mains having an average age of 80 years. Given the historic rate of water main breaks, the Department is engaged in an accelerated program of main replacement. By FY 2024, the targeted level of main replacement will be 42 miles annually — with the goal of significantly reducing the frequency of water main breaks. Even at the above rate, however, it will take roughly 75 years to replace the entire system.

Transmission mains, SCADA (supervisory control and data acquisition) equipment, pump stations and storage facilities are also important components of the water system. They work to deliver water to and within the distribution system at the appropriate pressure. They will need rehabilitation, upgrades, or even expansion. By way of illustration, mechanical equipment (such as pumps) should be considered for replacement before the end of their anticipated service life or when they are repeatedly performing below expected performance levels. In assessing the equipment, it could be determined that an upgrade or expansion is more appropriate than continued repair or replacement-in-kind.

Improvements to the water transmission system will add system redundancy, reduce water age and ensure compliance with Pennsylvania Department of Environmental Protection ("PaDEP") minimum chloramine disinfectant residual regulatory requirements.

Repair and Replacement of Collector Systems

An additional challenge relates to the repair and replacement of the wastewater and stormwater collector systems. The average age of the sewers serving this system is about 100 years.

Notably, the Department is increasing the miles of sewer inspection to provide actionable information to prioritize the miles of sewers reconstructed/rehabilitated. However, as the system grows older, the frequency of repairs and service interruptions is expected to increase. This phenomenon will create more demands on limited PWD staff.

As with the water system, the wastewater system contains a number of pumping stations that are critical to continued service. Currently, the Department is engaged in rehabilitation of the largest of these pumping stations (Central Schuylkill) and the Rennard Street pumping station with similar projects planned for the future. Such rehabilitation projects are designed to ease maintenance burdens for the longer term and the need for same underscores the fact that many PWD facilities are of advanced age and nearing the end of their service life. Please also note that there are new pumping stations being planned for addition to the system. At such time as these facilities come online, they will increase our asset inventory and operation and maintenance ("O&M")

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responsibilities. Other capital projects that increase operational burdens within the collection system are related to real time control of flows (new mechanical, electrical and instrumentation systems) for the purpose of better management of wet weather flows.

Q13. PLEASE IDENTIFY A FEW MAJOR PROJECTS AND MAINTENANCE ACTIVITIES THAT ARE CURRENTLY PLANNED FOR THE RATE PERIOD.

Major capital projects that are currently planned for FY 2024 and FY 2025 include two major_Water Pollution Control Plant projects. First of all, the Preliminary Treatment Facility (PTF) is planned for the Northeast WPCP. This new facility is necessary to increase wet weather flows at the treatment plant and required for COA compliance. It will also require additional staffing and increase maintenance burdens. Second, the Sidestream Treatment facility is planned for the Southwest WPCP. This new facility is designed to facilitate nutrient removal levels in advance of any Delaware River Basin Commission ("DRBC") or U.S. Environmental Protection Agency ("EPA") discharge limitations. This new facility will also require additional staffing and increase maintenance burdens.

In addition to the above, cleaning the digesters and the related sludge storage tanks and transfer tanks are major, recurring maintenance activities. Digestion of the sludge solids present in the wastewater is an integral part of the overall wastewater treatment process. PWD has been proceeding with cleaning the sludge digesters and the related sludge transfer tanks and storage tanks. The Department recently made two major improvements in the manner in which digesters are cleaned. The first improvement is that the contents of the digester being cleaned are dewatered on site and taken off site to a landfill rather than directing the material removed from the digesters to the headworks of the plant for

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removal by the plant process equipment. The second improvement is that PWD is using public works contracts which allow operating funds to be allocated more efficiently (over fiscal periods of expenditure) thereby making budgeting more predictable.

PWD anticipates that four digester, transfer or storage tanks will be cleaned in each of the Fiscal Years 2023, 2024 and 2025, with the estimated expenditure in each of the three fiscal years being \$6 million per year. PWD expects that by the end of FY 2025 the cleaning cycle for all of the digesters, sludge transfer and sludge storage tanks will be completed. Thereafter, the tanks will be cleaned on a rotating cycle such that each tank is cleaned on a three-four year interval. Digester and tank cleaning is a recurring expense.

Q14. PLEASE BRIEFLY DESCRIBE HOW THE DEPARTMENT PLANS FOR THE REPAIR, REPLACEMENT, IMPROVEMENT AND MAINTENANCE OF ITS FACILITIES. WHY IS THIS IMPORTANT TO THE DEPARTMENT'S OPERATIONS?

A14. The Department evaluates facility needs and develops the capital improvement plan for funding the design and construction of improvements. The plans are flexible, realizing that priorities change, and the Department reprioritizes to meet the needs of facilities and to maintain compliance.

Most capital investment is made for replacement or rehabilitation of an existing asset.

Replacement and rehabilitation do not increase O&M costs and burdens. When an asset is repaired or rehabilitated, it should require either the same or less maintenance. However, with GSI investment almost every dollar is spent to build a new asset. This means that, as already noted, each new greened acre creates new maintenance costs, since the greened

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acre must be maintained in the future. Without proper maintenance of greened acres, the Department runs the risk of non-compliance under the COA.

Q15. PLEASE EXPLAIN THE IMPORTANCE OF OPERATIONAL CHANGES PLANNED FOR THE RATE PERIOD (FY 2024 AND FY 2025) TO ENHANCE EFFICIENCY.

Operational changes are necessary because PWD cannot continuously engage in chronic maintenance of aging infrastructure. We need to replace plant and equipment during its service life. Delays in renewal and replacement have created certain scenarios where our equipment is so old that replacement parts are unavailable. When confronted with this situation, temporary solutions and/or custom fabricated parts are sometimes used, but such approach is considerably more expensive and time consuming compared to routine maintenance. PWD submits that these circumstances have to change to achieve optimal performance levels. The projects identified for FY 2024 and FY 2025 and the Capital Improvement Program ("CIP") projects for the Rate Period must be supported through new rates to break the cycle of redundant maintenance for plant/equipment which is beyond its service life.

Capitalizing on the successful implementation of a sludge screening process at the Southwest WPCP, PWD is continuing to pilot similar technologies at the Northeast WPCP. Sludge screening systems remove inorganic materials from the treatment process before sludge is transferred to the anaerobic digestion tanks. These systems are expected to yield improved sludge quality and reduce solids loadings in the digestion systems. Long term, the benefits of solids removal by screening are expected to reduce digester cleaning costs and solids processing costs at the biosolids recycling center.

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In addition, please note that the Department is continuously evaluating and adapting GSI maintenance to reduce costs and improve efficiency of contract services and PWD personnel tasked with GSI maintenance activities.

Q16. WILL THE DEPARTMENT BE IMPLEMENTING ADVANCED METERING INFRASTRUCTURE DURING THE RATE PERIOD?

Yes. The advanced metering infrastructure ("AMI") system is needed to upgrade/replace/repair aging equipment in service on the water system. The installation of the AMI communications network was completed on February 12, 2020. The Department is currently in the deployment phase of this project, during which Automatic Meter Reading ("AMR") equipment is being replaced with AMI units. The deployment of AMI units has been delayed by the pandemic, labor shortages, increasing labor costs and continuing shortages in computer chips. The current phase of the AMI project is expected to continue during the Rate Period. The costs for installation and deployment are included in the PWD Capital Improvement Program.

The AMI system will provide enhanced customer benefits such as the ability to view detailed water usage and receive possible leak alerts. The system will improve operations by allowing the Department to monitor the meters in (near) real time with advanced diagnostics. These improvements are designed to reduce billing disputes, improve customer service, increase revenue collection and increase operational efficiency.

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C. MEETING OPERATIONAL REQUIREMENTS WITH REDUCED STAFFING

Q17. PLEASE EXPLAIN THE CHALLENGES PRESENTED BY THE DIFFICULTY IN HIRING EMPLOYEES.

Another challenge facing the Department relates to difficulties and delays in adding new staff (human resources). The Operations Division has faced serious challenges in hiring employees. These difficulties started during the pandemic and are continuing. The pool of available candidates for employment in skilled positions has shrunk in recent years along with the decline in manufacturing in Philadelphia. This trend was aggravated by the pandemic. PWD therefore has to compete with the private sector to hire from a limited pool of qualified candidates. Unfortunately, City wages and benefits are not competitive, in this context, which compounds our difficulties in hiring.

Therefore, the Operations Division has to meet the challenge of managing its activities with limited staffing (including for those activities related to providing safe and reliable service in a timely manner). Improving personnel levels was made nearly impossible by high employee turnover rates due to transfers, retirements and resignations during the pandemic. At present, filling existing vacancies at PWD is complicated by the current economy, City hiring practices, low wage scale compared to other utilities, and collective bargaining agreement work requirements.

Taken together, the above factors have contributed to the current staffing shortage and the resulting increased workload on current PWD employees — all of which must be carefully managed. The aforesaid staffing shortage has generally resulted in either overtime for staff or the transfer of some tasks from staff to contract employees (service

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3		IV. CONCLUSION
4	Q18.	DOES THIS CONCLUDE THE DIRECT TESTIMONY OF THIS PANEL?
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BENJAMIN CRAIG JEWELL

PROFESSIONAL EXPERIENCE PHILADELPHIA WATER DEPARTMENT, PHILADELPHIA, PA, 2007 - PRESENT

Deputy Commissioner of Operations (2022-Present)

- Oversee operation and maintenance of the City's water, wastewater and stormwater treatment and conveyance systems with approximately 1600 employees and annual operating budget over \$285M.
- Provide content and assist in message development for utility rate filings supporting rate change requests necessary to fund operating budgets.
- Represent operations division as a member of steering committees guiding departmental priorities on regulatory issues including capital improvement plans, consent orders and agreements, and permit negotiations.
- Interagency coordination between city departments, regional utilities, elected officials, and state and federal environmental regulators.
- Support development of operations-wide policies and procedures implementing City standards and labor agreement terms.

Director of Wastewater Operations (2021-2022)

- Oversaw operation and maintenance of the City's wastewater and stormwater collection and treatment systems with over 800 employees and annual operating budget over \$120M.
- Participated in development of unit budgets through coordination with unit and maintenance managers.
- Advised contract development, vendor interaction and dispute resolution for contract services totaling over \$30M.
- Advised operating, planning and design groups on capital program priorities for distributed and facility infrastructure.
- Guided organizational planning, growth, and budget development to support operational needs of rapidly expanding green stormwater infrastructure asset inventory.

Manager of Collection System Operations (2016-2021)

- Oversaw operation and maintenance of the City's 3000+ miles of wastewater and stormwater collection systems with organization of 400 employees and an annual operating budget over \$32M.
- Engaged with executive-level departmental staff on issues impacting public health and safety.
- Managed and supported multiple superintendents with operating and maintenance decisions, budget development, contract management, labor relations, and workplace policy.
- Reviewed and supported labor relations between management and union represented personnel, including evaluation of union grievances and disciplinary issues.
- Managed a team of engineers providing technical support and analysis of information systems to support field personnel actions and decisions.
- Provided feedback on capital design proposals to support maintenance by operations personnel.
- Identified and recommended actions to execute repairs within the collection system in coordination with subordinate staff.

Engineering Supervisor and Unit Manager, Collector Systems Engineering (2013-2016)

- Managed multidisciplinary team of engineers supporting citywide operation and maintenance of wastewater and stormwater collection systems, including management of subordinate supervisors.
- Worked across Collector Systems units with direct coordination on work requests from assistant superintendent and supervisor level employees.
- Assisted group supervisors with work management, including development of tools and skills for
 effective and efficient completion of work assignments.
- Led expansion of group duties through creation of various initiatives to increase communication and information transfer between Collector Systems units.
- Supported efforts to enhance work order management systems and data collection systems to maximize accuracy and value of information.

Environmental Engineer, Industrial Waste Unit (2007-2013)

- Inspected industrial facilities and drafted permits regulating wastewater discharged to City sewers.
- Prepared annual reports to state and federal regulatory agencies requiring verification of compliance and sampling information collected during the previous year.
- Developed written policies for unit operations, and instructional public documents.
- Oversaw surcharge program, including facility inspections, allocation of inspector resources, customer contact and dispute resolution, and billing accuracy verification.
- Developed public webpage content and directed website's organization and launch.

EDUCATION

Northwestern University, Evanston, IL (1999-2004)

B.S., Environmental Engineering with a Certificate in Cooperative Education



Philadelphia Water Dept. 1101 Market Street, 6th Fl Philadelphia, PA 19107

Brendan F. Reilly

Experience

February 2022 - Present

Director of Water Operations • Philadelphia Water Department

- Oversight for water operations now include everything from the "river to the tap"
- Responsible for the management and operation of all three water treatment plants (Water Treatment)
- Responsible for the management and operation of the field operations units (Water Conveyance)
- Provide guidance and technical oversight to lower level managers
- Much of the items indicated for the Water Conveyance Chief position continue as the Director at a higher level

December 2015 - February 2022

Water Conveyance Chief • Operations • Philadelphia Water Department

- Responsible for the operation and maintenance of the City's water system
- Supervise approx. 350 employees with an annual operating budget of \$28M
- Management and support of several Unit managers with operational and maintenance decisions, development of budgets, contract management, disciplinary decision, and workplace policy
- Provide insight and input to the Planning Unit on the future of the water system
- Provide feedback to the Design Unit on water main replacements
- Annual reporting to the DEP confirming PWD's adherence to approved water withdrawal permit
- Provide guidance and feedback on the Department's Annual Water Audit

November 2010 - December 2015

Load Control Chief • Load Control Unit • Philadelphia Water Department

- Responsible for the operation of the City's water system
- Managed multidisciplinary team of engineers and technicians responsible for the effective operation of the water system, including management of subordinate supervisors.
- This position required the development and proposal of annual operating budget for electrical use at pump stations



- Development of goals and objectives for subordinate supervisors
- Chair of the Reservoir Operations Management Group tasked with the maintenance, security and cleaning of the Department's potable water storage reservoirs
- Review of design, construction and operation of large-scale capital contract work suck as the new East Park Tanks
- Responsible for the procurement of professional services contracts and materials needed by the Unit

July 2008 – November 2010

Hydraulic Investigations Supervisor • Load Control Unit • Philadelphia Water Department

- First level supervisory position overseeing the work of full performance engineers and technicians
- Review of and approval of fire hydrant flow tests completed by subordinate engineers and technicians which required thorough understanding of system hydraulics
- Planning and execution of transmission pipeline disinfections requiring a multidisciplinary group with participates from several other units within the Department
- Provide guidance and direction on water quality and lowpressure investigations
- Oversight and management of a professional service contract used to annually test all the Departments master meters, including wholesale export meters
- Investigate the feasibility and cost of implementing updated engineering methods, techniques, and processes regarding pump operation

December 2005 – July 2008

Operations Engineering Specialist • Load Control Unit • Philadelphia Water Department

- Full performance engineering position in the Operations Squad of the Load Control Unit.
- Review of electrical data from PECO bills to compare to system input to identify any operating or billing anomalies based on spreadsheets developed to mimic PECO's billing structure
- Review and edit of daily hydraulic data to correctly report the total system input
- Review of Supervisory Control and Data Acquisition (SCADA) system data for errors or malfunctioning data points
- Communication and coordination with the Electronic and Instrumentation Squad on suspected instrument failures



June 2002 – December 2005

Graduate Civil Engineer / CE1 / CE2 \bullet Load Control Unit \bullet Philadelphia Water Department

- Engineering work which was mostly focused on field investigations
- Completion of hydrant flow tests, low pressure and water quality investigations

Education

Widener University, Chester, PA

- Graduated in June 2002 with a Bachelor of Science in Civil Engineering
- Class A and E Operators Certification from the PADEP
- EIT Certification





CONTACT

PHONE: 215-919-7030

EMAIL: Linda.Kramer@phila.gov

LinkedIn: https://www.linkedin.com/in/lindakramer-b6933912

References Available Upon Request

Skills:

Mentoring
Drinking Water
Effective Communication
Regulatory Compliance
Research
Capital Planning
Crisis Management

LINDA KRAMER, PE

Water Utility Director

EDUCATION

Temple University

September 1994 – May 1996 MSE, Computer Integrated Civil Engineering Systems GPA: 3.83: Concentration Water/Wastewater/Air Monitoring

Temple University

September 1991 – May 1994 Bachelor's Environmental Engineering Technology GPA 3.91, Summa Cum Laude Golden Key National Honor Society, President's Scholar

Philadelphia High School for Girls

September 1974- June 1978 Summa Cum Laude

WORK EXPERIENCE

Philadelphia Water Department Water Utility Director

February 2021 - Current

Responsible for the Operation of three water treatment plants that provide drinking water to 1.6 million customers. Provide administrative and technical support to the treatment plants, Director of Water Operations and Deputy Commissioner of Operations. Oversee compliance for new and existing regulations, serving as the official Pa DEP Certified Operator In-Responsible-Charge.

Philadelphia Water Department Planning & Research Manager October 2016–February 2021

Manager of the Integrated Capital Planning, Energy and Applied Research Groups. Oversaw capital projects in excess of 2 million dollars to ensure that due diligence is done in selecting the right methodology, equipment and design utilizing a core review committee comprised of PWD experts. The Energy group developed PWD's strategic energy plan aimed at decreasing the department's carbon footprint. The applied research group operates a pilot plant in support of water treatment's Water Revitalization Plan, was instrumental in studying ammonia reduction strategies in our wastewater plants and supports PWD's Dissolved Oxygen Partnership.

Philadelphia Water Department Baxter Plant Manager

May 2010–October 2016

Plant Manager at Philadelphia's largest drinking water treatment plant which provides water for 58% of Philadelphia. The Baxter Plant operates 24 hours per day and is a recipient of the Director's award from the Partnership for Safe Water. Ensure customer satisfaction by providing a superior quality, safe, and sufficient drinking water supply to the water distribution system-serving citizens of Philadelphia. Provide a cost-effective management of the available resources to operate a drinking water plant with best management practices. Plan, direct, and manage the activities of a Water Treatment Plant. Develop and implement long and short-range plans, goals, and coordinate capital improvements, construction projects, and contracted services. Serve as the licensed Water Treatment Plant Operator of Record for PaDEP.

Philadelphia Water Department Environmental Engineer 3

October 2004 - May 2010

Managed Departments Chemical Contracts

Produced Service Level Goals

Managed research projects for water treatment plants

Produced reports to ensure compliance with regulatory goals for water quality

Assisted Water Plants Manager

Philadelphia Water Department Water Technology Asst / Sanitary (Environmental) Engineer Positions

July 1991 - October

Performed annual filter inspections on Baxter WTP's 94 filters, conducted jar tests to manage process control, studied alternative chemicals for water treatment improvements. Managed study for conversion to KMnO4 for taste and odor control. Managed process control lab overseeing the conversion to Sodium Hypochlorite from Chlorine. Worked on safety issues and safety documents such as the Risk Management Plan (RMP) and laboratory standard operating procedures (SOP). Member of PWD's first disinfection team which established guidelines for water main disinfections and participated in disinfection on team to select and install online turbidimeters for filter effluent turbidity monitoring.

Licenses

Professional Engineer PE055750E Water System Operator Water Class A,E Subclass 1-14 Client ID 19576

Stephen Junod Philadelphia Water Department 1101 Market Street, 6th Floor Jefferson Center Philadelphia, Pennsylvania 19107 stephen.junod@phila.gov (215) 685-4993

Education

Community College of Philadelphia, Philadelphia, PA

Completed course requirements for Construction Technology Program for City of Philadelphia Employees jointly presented by the Philadelphia Department of Streets and Community College of Philadelphia. May 1997

Temple University, Philadelphia, PA

Bachelor of Business Administration, Finance, May 1991.

Experience

10/12 – present City of Philadelphia, Water Department, Philadelphia, PA Water Operations Administration Manager

The manager of the Operations Administration unit that provides general administrative support to all units or responsibility centers in the Operations Division and performs administrative analyses as required to improve operating efficiencies in the division. The Operations Administration Section of the Philadelphia Water Department consists of five units: Customer Service, Metering, Materials Management, Delinquency & Restoration Services, Plumbing Repairs and Operations Administration.

8/08 – 10/12 City of Philadelphia, Water Department, Philadelphia, PA **Executive Assistant**

Responsible for the administration of the department's Automatic Meter Reading Program. During 2011 to 2013 was responsible for overseeing the department's battery change program. The batters for the AMR meters required a change to extend the battery life to the end of the 20-year contract. This battery change program utilized an outsourcing strategy designed to build on core PWD strengths.

1/99 – 8/08 City of Philadelphia, Water Department, Philadelphia, PA Administrative Support Specialist

Responsible for the daily administrative activities related to department's Automatic Meter Reading Program, a program to install automatic meter reading devices for all of our more than 472,000 customer accounts. This program is a public-private partnership utilizing an outsourcing strategy designed to build on core PWD strengths.

9/97 - 1/99 City of Philadelphia, Department of Streets, Philadelphia, PA Construction Project Technician II

Technical work, at the full performance level, performing inspections of public works projects and testing of construction material to ensure that work performed by contractors complies with contract specifications and plans. Attended partnering meetings with contractors and engineers at specified times during the projects to arrive at solutions to problems which have occurred. Prepared daily, weekly, and monthly reports regarding inspection activities.

5/95 - 9/97 City of Philadelphia, Department of Streets, Philadelphia, PA **Highway Construction Inspector**

Performed testing and inspection of construction materials to assure that all work performed complies with contract specifications and work quality standards.

5/94 - 5/95 City of Philadelphia, Department of Streets, Philadelphia, PA **Engineering Aide I**

Assisted Core Leader in the performance of construction, property, and topographical surveys. Operated a transit to determine grade and slope of construction sites, location of points and size of area relative to maps and ownership rights.

6/93 – 5/94 Roadway Package System, Trenton, NJ

Supervisor, Outbound coordinator

Responsible for the hiring, training, and supervision of 25 employees to process all outbound packages with a daily volume of 15,000 packages.

10/85 - 6/93 United Parcel Service, Horsham, PA Sort Supervisor

Responsible for the hiring, training, and supervision of IO employees to process all outbound packages with a daily volume of 7,000 packages.

3/85 - 6/93 United States Army Reserve, Philadelphia, PA Staff Sergeant, A Battery 3/42nd Field Artillery

Supervised and trained 8 Fire Direction Specialists in team building, gunnery, and basic military skills. Received the "Saint Barbara" award for best overall section during Army Training and Evaluation Program 1988.

1/83 -1/85 United States Army, Fort Polk, LA

Specialist 4th Class, B Battery 3/21 Field Artillery

Worked as a Fire Direction Specialists responsible for the manual computation of firing data for 155-millimeter howitzers. Awarded the Army Achievement Medal for outstanding performance during Army Training and Evaluation Program, 1984. Awarded the Army Good Conduct Medal upon Honorable discharge, January 1985.

ATTACHMENT 1: MATERIAL COSTS

No.	MATERIAL DESCRIPTION	UNIT	COST (2020)	COST (2022)	PWD REMARKS
1	Meter costs by meter size	Fort.	6447.00	0455.51	ĆE OO
	5/8" 3/4" RFSS	Each	\$147.82	\$152.91	\$5.09
	3/4" RFSS 1"	Each	\$326.00	\$326.00	\$0.00
		Each	\$240.05	\$245.24 \$334.00	\$5.19 \$0.00
	1" RFSS	Each	\$334.00	•	
	1 1/2"	Each	\$618.55	\$681.74	\$63.19
	1 1/2" RFSS	Each	\$563.94	\$635.01	\$71.07
	L	Each	\$718.91	\$846.34	\$127.43
	2" RFSS	Each	\$782.00	\$858.27	\$76.27
	3" Compound	Each	\$1,855.00	\$2,873.55	\$1,018.55
	3" Turbine	Each	\$968.72	\$1,442.93	\$474.21
	3" Fire Series	Each	\$2,856.18	\$3,175.49	\$319.31
	4" Compound	Each	\$2,269.07	\$4,089.34	\$1,820.27
	4" Turbine	Each	\$2,010.00	\$2,214.60	\$204.60
	4" Fire Series	Each	\$3,144.24	\$3,996.02	\$851.78
	4" Fire Assembly	Each	\$5,500.00	\$5,500.00	\$0.00
	6" Compound	Each	\$4,300.00	\$5,841.26	\$1,541.26
	6" Turbine	Each	\$3,550.00	\$4,424.96	\$874.96
	6" Fire Series	Each	\$4,795.03	\$5,385.73	\$590.70
	6" Fire Assembly	Each	\$7,400.00	\$7,984.02	\$584.02
	8" Turbine	Each	\$4,931.06	\$5,311.21	\$380.15
	8" Fire Series	Each	\$5,567.43	\$6,896.63	\$1,329.20
	8" Fire Assembly	Each	\$10,620.70	\$11,,404.30	\$783.60
	10" Turbine	Each	\$7,272.17	\$7,839.30	\$567.13
	10" Fire Series	Each	\$8,000.00	\$8,561.92	\$561.92
	10" Fire Assembly	Each	\$14,784.42	\$16,607.36	\$1,822.94
	12" Turbine	Each	\$7,385.66	\$8,319.00	\$933.34
	12" Fire Series	Each	\$8,189.57	\$9,664.16	\$1,474.59
	12" Fire Assembly	Each	\$15,655.08	\$17,709.60	\$2,054.52
2	Ferrule Costs				
					contract extention up 10/30/22
24005	3/4"	Each	\$20.05	\$23.88	big price jump coming (labov)
					contract extention up 10/30/22
24006	1"	Each	\$29.73	\$35.40	big price jump coming (labov)
					contract extention up 10/30/22
4008	1 1/2"	Each	\$85.36	\$101.64	big price jump coming (labov)
	2"				contract extention up 10/30/22
4010	_	Each	\$138.11	\$164.45	big price jump coming (labov)
3	Adapter for Ferrule				40/20/22
01301	3/4"	Each	¢12.05	¢15.42	contract extention up 10/30/22
01301	3/4	Each	\$12.95	\$15.43	big price jump coming (labov)
01303	1"	Each	\$24.29	\$28.93	contract extention up 10/30/22 big price jump coming (Labov)
4	Valve costs by size	Lacii	324.23	\$28.53	big price jump coming (Eabov)
25379	3"	Each	\$375.00	\$618.66	\$243.66
25381	4"	Each	\$418.00	\$679.05	\$243.00
5383	6"	Each	\$509.00	\$948.79	\$439.79
385	8"	Each	\$800.00	\$1,387.63	\$587.63
387	10"	Each	\$1,230.00	\$2,069.36	\$839.36
5389	12"	Each	\$1,575.00	\$3,199.33	\$1,624.33
5	Sleeve costs by size		4		44.44
	3"	Each	\$160.00	\$503.25	\$343.25
	4"	Each	\$200.00	\$560.96	\$360.96
	6"	Each	\$230.00	\$683.08	\$453.08
	8"	Each	\$300.00	\$1,073.60	\$773.60
	10"	Each	\$570.00	\$1,650.66	\$1,080.66
	12"	Each	\$710.00	\$2,113.65	\$1,403.65
6	3" or 4 " Sleeve costs by Main				
	12" X 3" or 4"	Each	\$1,850.00	\$2,475.99	\$625.99
	16" X 3" or 4"	Each	\$5,200.00	\$6,978.40	\$1,778.40
	20" X 3" or 4"	Each	\$6,700.00	\$8,991.40	\$2,291.40
	24" X 3" or 4"	Each	\$8,300.00	\$11,138.60	\$2,838.60
		Each	\$17,978.00	\$22,526.43	\$4,548.43
	30" X 3" or 4"		\$23,140.00	\$28,994.42	\$5,854.42
	30" X 3" or 4" 36" X 3" or 4"	Each	\$23,140.00		
7		Each	\$23,140.00		
7	36" X 3" or 4"	Each	\$1,960.00	\$2,475.99 or \$2,630.32	\$515.99
7	36" X 3" or 4" 6" or 8 " Sleeve costs by Main	Each n size	\$1,960.00		\$515.99 \$1,712.60
7	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8"	Each n size Each Each	\$1,960.00 \$5,400.00	\$7,112.60 or \$7,246.80	\$1,712.60
7	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8"	Each Size Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20	\$1,712.60 \$1,988.80
7	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8"	Each 1 size Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60	\$1,712.60 \$1,988.80 \$2,838.60
7	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8"	Each Size Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89
	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 36" X 6" or 8"	Each Size Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60	\$1,712.60 \$1,988.80 \$2,838.60
7	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 10" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 36" X 6" or 8" 10" or 12 " Sleeve costs by M	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68
	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 36" X 6" or 8" 10" or 12" Sleeve costs by M 12" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68
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	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 16" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12 " Sleeve costs by M 12" X 10" or 12" 16" X 10" or 12" 20" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$2,370.00 \$5,400.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$1,3857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$3,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80 \$8,857.20 or \$9,259.80	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80 \$1,957.20
	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 12" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12 " Sleeve costs by M 12" X 10" or 12" 16" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$2,370.00 \$5,400.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$3,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80
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	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12" Sleeve costs by M 12" X 10" or 12" 20" X 10" or 12" 24" X 10" or 12" 30" X 10" or 12" 30" X 10" or 12" 30" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$2,370.00 \$5,400.00 \$6,900.00 \$8,400.00 \$19,937.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$33,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80 \$8,857.20 or \$9,259.80 \$11,004.40 or \$11,272.80 \$24,981.06	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80 \$1,957.20 \$2,604.40 \$5,044.06
8	36" X 3" or 4" 6" or 8 " Sleeve costs by Main 12" X 6" or 8" 10" X 6" or 8" 20" X 6" or 8" 20" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12" Sleeve costs by M 12" X 10" or 12" 16" X 10" or 12" 24" X 10" or 12" 24" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$2,370.00 \$5,400.00 \$8,400.00 \$19,937.00 \$28,582.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$1,211,318.60 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$33,279.68 \$3,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80 \$8,857.20 or \$9,259.80 \$11,004.40 or \$11,272.80 \$24,981.06 \$35,813.25	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80 \$1,957.20 \$2,604.40 \$5,044.06 \$7,231.25
8 9 20489	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 12" X 6" or 8" 20" X 6" or 8" 24" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12 " Sleeve costs by M 12" X 10" or 12" 20" X 10" or 12" 24" X 10" or 12" 24" X 10" or 12" 36" X 10" or 12" 36" X 10" or 12" 36" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$5,400.00 \$6,900.00 \$8,400.00 \$19,937.00 \$28,582.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$8,857.20 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$3,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80 \$8,857.20 or \$9,259.80 \$11,004.40 or \$11,272.80 \$24,981.06 \$35,813.25	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80 \$1,957.20 \$2,604.40 \$5,044.06 \$7,231.25
8	36" X 3" or 4" 6" or 8 "Sleeve costs by Main 12" X 6" or 8" 12" X 6" or 8" 20" X 6" or 8" 20" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 30" X 6" or 8" 10" or 12 " Sleeve costs by M 12" X 10" or 12" 20" X 10" or 12" 24" X 10" or 12" 24" X 10" or 12" 36" X 10" or 12"	Each size Each Each Each Each Each Each Each Each	\$1,960.00 \$5,400.00 \$6,600.00 \$8,300.00 \$19,462.00 \$26,560.00 \$2,370.00 \$5,400.00 \$8,400.00 \$19,937.00 \$28,582.00	\$7,112.60 or \$7,246.80 \$8,588.80 or \$1,211,318.60 \$11,138.60 or \$11,138.60 \$24,385.89 \$33,279.68 \$33,279.68 \$3,059.76 or \$3,180.54 \$7,246.80 or \$7,246.80 \$8,857.20 or \$9,259.80 \$11,004.40 or \$11,272.80 \$24,981.06 \$35,813.25	\$1,712.60 \$1,988.80 \$2,838.60 \$4,923.89 \$6,719.68 \$689.76 \$1,846.80 \$1,957.20 \$2,604.40 \$5,044.06 \$7,231.25

720495	10"	Per foot	\$65.70	\$98.22	\$32.52	49%
720496	12"	Per foot	\$81.60	\$121.99	\$40.39	49%
10	Dressing or Couplings by size					
130540	6"	Each	\$63.08	\$120.34	\$57.26	91%
130542	8"	Each	\$85.96	\$178.75	\$92.79	108%
130546	10"	Each	\$101.70	\$209.94	\$108.24	106%
130548	12"	Each	\$136.25	\$275.02	\$138.77	1029
130569	20"	Each	\$332.39	\$557.64	\$225.25	689
	24"	Each	\$392.01	\$683.35	\$291.34	749
11	Cap costs by size					
113234	3"	Each	\$57.00	\$68.40	\$11.40	20%
113235	4"	Each	\$88.00	\$105.60	\$17.60	20%
	6"	Each	\$134.00	\$160.80	\$26.80	20%
113238	8"	Each	\$186.00	\$223.20	\$37.20	209
113240	10"	Each	\$232.00	\$278.40	\$46.40	209
113242	12"	Each	\$318.00	\$381.60	\$63.60	209
12	Band costs by size					
	3"	Each	\$126.00	\$183.96	\$57.96	469
028054	4"	Each	\$103.00	\$150.00	\$47.00	469
028056	6"	Each	\$136.00	\$198.56	\$62.56	469
028058	8"	Each	\$144.00	\$210.24	\$66.24	469
	10 "	Each	\$192.00	\$280.32	\$88.32	469
028062	12"	Each	\$222.00	\$324.12	\$102.12	469
	Other Materials					
13	Curb Stop	Each	\$47.34	\$79.79	\$32.45	69%
14	Curb Box (051019)	Each	\$46.00	\$47.82	\$1.82	49
15	Concrete Block (066265)	Each	\$2.98	\$2.98	\$0.00	09
16	Blacktop (128125)	Per Bag	\$9.43	\$9.43	\$0.00	09
17	Hydrant Permit Materials					
549100	CCL Kit	1.0	\$351.00	\$462.48	\$111.48	329
	CCL Bonnet	1.0	\$20.75	\$20.75	\$0.00	09
728100	Operating Nut	1.0	\$39.00	\$51.39	\$12.39	329

Source:

Email from Steve Junod and Leslie Ford (PWD Operations) dated 19th October 2020 Attachment 1_Miscellaneous Charges Materials Cost_2020.10.19_v4

There was no change to meter costs between November 2019 and October 2020 per PWD.

Only Fasteners is escalated at 10% from 2012 price (\$17.63). Not currently used by PWD.

All other prices are from 2020 PWD Material Cost Data

Notes:

	CONTRACTOR TASK DESCRIPT	UNIT	COST (2020)	COST
16	CCTV Inspection		\$275.00	

Schedule OP-1

Bid S1515003 PO# JUNE 14TH 2020 PRICE

LE LABOV

PLUMBING & HEATING SUPPLY INC. 5000 UMBRIA ST. PHILADELPHIA PA 19128 215 - 482 - 3047 FAX 215 - 482 - 3922

Bid To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

Ship To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

** Bid	**		DATE 06/14/20	ORDER NUM S1515003	BER	PG# 1
	SHIP V	IA	TERMS 2% 10th Net Due 25th	SHIP DATE 06/14/20		CUST CODE
JUNE		JMBER 2020 PR		SA VICTOR	LES	REP
1	1	0	4" X 10' PVC PIPE PVC-DWV SCH 40	Unit Price 16.567		Ext Amt 16.57
2	1	0	3/4x60' K SOFT COP TUBE	175.392	ea	175.39
3	1	0	3/4 FLARE X FLARE CURB COCK 74723 NO LEAD	49.067	ea	49.07
4	1	0	4' PLASTIC EXT. WATER BOX WITH PLASTIC LID (110163-14) MARKED WATER	28.667	ea	28.67
5	1	0	3/4 XPRESS BALL VALVE CIMBERIO 1220 101-004NL	10.344	ea	10.34
6	1	0	EACH 5/8 METER COUPLING 74620Z WITH WASHERS (LEGEND 313-133) (T4215)NO LEAD	4.489	ea	4.49
7	1	0	5 X 4 SVC CURB TRAP (T64-540)	57.778	ea	57.78
8	1	0	6 X 4 SVC CURB TRAP (T63-106)	133.333	ea	133.33
9	1	0	5 X 5' SVC SH SOIL PIPE (33 PER BUNDLE)	113.836	ea	113.84
10	1	0	5 SVC 1/8 BEND	31.756	ea	31.76

*** Continued on Next Page *** .. Reprint .. Reprint .. Reprint ..

HE LABOV

PLUMBING & HEATING SUPPLY INC. 5000 LIMBRIA ST. PHILADELPHIA PA 19128 215 - 482 - 3047 FAX 215 - 482 - 3922

Bid To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

Ship To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

** Bid	**			ATE 14/20	ORDER NUM S1515003	BER	PG# 2
	SHIP ICK-U		TERMS 2% 10th Net Due 25th	1	SHIP DATE 06/14/20		CUST CODE 708
PO NUMBER JUNE 14TH 2020 PR			JOB NAME		SA VICTOR	LES.	REP
					Unit Price		Ext Amt
11	1	0	4 X 10' SVC SH SOIL PIPE (27 PER BUNDLE)		103.983	ea	103.98
12	1	0	5 X 4 SVC REDUCER		22.661	ea	22.66
13	1	0	MR02-55ARCWR 5" CLAY TO 5 W/S-STL BANDS (1002-55RC)		18.456	ea	18.46
14	1	0	MR56-44ARCWD 4" CI/PL TO (1056-44RC)	4" CI/PL	13.578	ea	13.58
				D TOTAL Sales tax	_		779.92 62.40
				.d Amount	-		842.32

THE LABOV

Bid S1510553 PO# JUNE 14TH 2022 PRICE

PLUMBING & HEATING SUPPLY INC. 5000 UMBRIA ST. PHILADELPHIA PA 19128 215 - 482 - 3047 FAX 215 - 482 - 3922

Bid To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

Ship To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

** Bi	d **		DATE 06/14/22	ORDER NUM S1510553	BER	PG# 1
PK	SHIP VI PICK-UP	IA	TERMS 2% 10th Net Due 25th	SHIP DATE 06/14/22		CUST CODE
JUN	PO NU E 14TH 2	JMBER 2022 PR	JOB NAME	SAI VICTOR	LES	REP
1	1	0	4" X 10' PVC PIPE PVC-DWV SCH 40	Unit Price 62.250		Ext Amt 62.25
2	1	0	3/4x60' K SOFT COP TUBE	393.528	ea	393.53
3	1	0	3/4 FLARE X FLARE CURB COCK 74723 NO LEAD	81.851	ea	81.85
4	1	0	4' PLASTIC EXT. WATER BOX WITH PLASTIC LID (110163-14) MARKED WATER	56.214	ea	56.21
5	1	0	3/4 XPRESS BALL VALVE CIMBERIO 1220 101-004NL	17.440	ea	17.44
6	1	0	EACH 5/8 METER COUPLING 74620Z WITH WASHERS (LEGEND 313-133) (T4215)NO LEAD	8.262	ea	8.26
7	1	0	5 X 4 SVC CURB TRAP (T64-540)	129.283	ea	129.28
8	1	0	6 X 4 SVC CURB TRAP (T63-106)	246.517	ea	246.52
9	1	0	5 X 5' SVC SH SOIL PIPE (33 PER BUNDLE)	219.687	ea	219.69
10	1	0	5 SVC 1/8 BEND	59.294	ea	59.29

THE LABOV

PLUMBING & HEATING SUPPLY INC. 5000 UMBRIA ST. PHILADELPHIA, PA 19128 215 - 482 - 3047 FAX 215 - 482 - 3922

Bid To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006 Ship To: IN A FLASH P@H INC. 3864 SOMERS DR HUNTINGDON VALLEY, PA 19006

** Bi	.d **		DATE 06/14/22	ORDER NUM S1510553	BER	PG# 2
PK	SHIP VI PICK-UP	IΑ	TERMS 2% 10th Net Due 25th	SHIP DATE 06/14/22		ST CODE
JUN	PO NU NE 14TH 2	JMBER 2022 PR	JOB NAME	SA VICTOR	LES RE	P
11	1	0	4 X 10' SVC SH SOIL PIPE (27 PER BUNDLE)	Unit Price 194.226		t Amt 194.23
12	1	0	5 X 4 SVC REDUCER	42.304	ea	42.30
13	1	0	MR02-55ARCWR 5" CLAY TO 5" CI/PL W/S-STL BANDS (1002-55RC)	59.123	ea	59.12
14	1	0	MR56-44ARCWD 4" CI/PL TO 4" CI/PL (1056-44RC)	23.188	ea	23.19
				-		
			BID TOTAL Sales tax		:	1593.16 127.45
			Bid Amount	_	:	1720.61