PITTSBURGH'S WATER FUTURE

2030

AND BEYOND

PGH2O 2030

OCTOBER 2018

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DEAR PITTSBURGH:

Thank you for the opportunity to serve you. We at PWSA are grateful to Mayor William Peduto for asking us to report our 12-year plan for Pittsburgh's water systems (drinking water, stormwater, and sewer). This plan, which we are calling PGH2O 2030, spells out where we are as a water utility and how we see ourselves improving over the next year and beyond. Make no mistake: Pittsburgh's water systems are YOUR water systems. Generations of Pittsburghers before us built them for you. You own them. We work to make our systems meet your expectations.

PGH2O 2030 lays out our vision for rebuilding and upgrading the drinking water, stormwater, and sewer systems that will make future generations of Pittsburghers proud. It articulates our goals for PWSA, including transparency, accountability, reliability, affordability, and more.

We are not naïve – as a water utility, we have fallen short in the past. Our water systems were neglected for decades, starved of needed investment to keep them better maintained and modernized. Our customer service was not responding to customer needs and was not able to keep up with accurate billing. The PGH2O 2030 plan includes our Roadmap to Renewal; a new chapter in our story, with new leadership, a new commitment to our customers, and new plans to move us into the future.

PWSA Customer Service has improved response times, we are upgrading our phone system to improve our customer experience, are installing modern water meters capable of two-way communication, and are providing continuous training to improve the level of service customers are receiving. Within the past year we introduced a number of assistance programs like our bill discount program, winter shutoff moratorium, and cash assistance to help our most vulnerable customers pay their bills. We are working to expand our assistance to customers that need financial help.

We are primed to invest significantly in our water systems, so we can provide safe, reliable water and sewer service, resilience against flooding and natural disasters, improved water quality, and a healthier environment. PGH2O 2030 lays out our strong financial footing that will allow us to invest at the levels necessary for a major infrastructure overhaul. We offer a preview of some coming projects, and include some interesting photographs, both from our historical archives and behind the scenes photos of the work we do every day.

We want Pittsburgh to take pride in our water. You own these systems, and they have served us well for more than a century. With renewed vision and leadership, we will restore PWSA to serve the public for the next century too. We are your neighbors as well as public servants who work for you, so please let us know how we are doing when we see you around town. ***We want to get this right. This is our water, and our future.***

Sincerely,

Robert A. Weimar
Executive Director

Paul Leger
Board Chairman

OUR VISION:

PWSA WILL PROVIDE PITTSBURGH WITH THE SAFE, RELIABLE WATER SERVICES IT NEEDS *NOW AND FOR GENERATIONS TO COME.*

Pittsburgh's history is linked to our water. We are fortunate to live in one of the most water-rich regions in the country, and our rivers made this city what it is today and connected us to the world.

Our rivers, and the bridges that span them, make our skyline iconic.

Every day we rely on the infrastructure that brings water to us and takes it away when we're done. Water is essential to everything we do.

We need water to make a pot of coffee, brush our teeth, or make food. Penguins need water to go swimming at the Aviary, and our Pittsburgh Penguins need (frozen) water to play hockey on too.

Boaters want clean water in our rivers. Phipps needs it to water flowers, firefighters need it to put out fires, breweries need it to make beer.

Doctors and nurses need water to keep their hands clean, and everyone with a toilet wants water to be there when it is needed.

Our water systems are engineering marvels, built nearly a century ago.

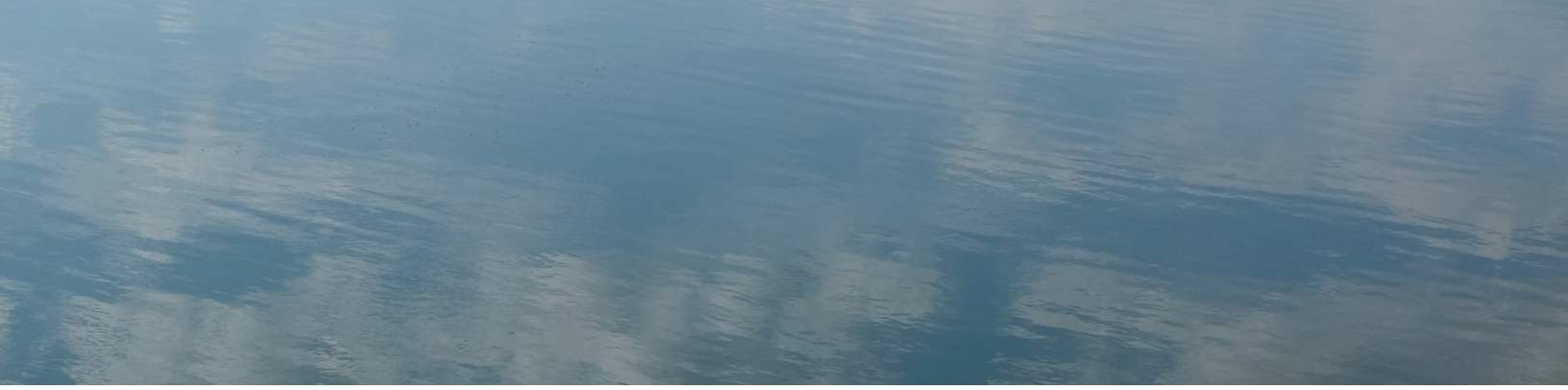
They use smart, energy efficient design that takes advantage of our natural topography to make sure gravity – along with the help of pump stations, reservoirs, and tanks – moves water through our hills and valleys.

This has served us well for generations, and with the necessary repairs and upgrades, it can serve us for generations to come.

We are excited to present our vision, goals, and plan to bring safe, reliable drinking water, stormwater, and sewer service to Pittsburgh and the region through 2030 and beyond, using new smart technology to meet the needs and expectations of the future.

At PWSA, we take water stewardship seriously. Countless improvements are already underway to our drinking water treatment and distribution systems. We are rebuilding our aging sewer lines, and designing innovative stormwater mitigation projects to reduce pollution and flooding.

Our vision is for everyone in every neighborhood in Pittsburgh to have access to safe, reliable drinking water and sewer service, 24 hours a day, 7 days a week.



By 2030, we will have removed all lead service lines, ensuring a safe, healthy future for Pittsburgh children and families.

We will complete investments in projects to improve water quality, to ensure we are meeting, and exceeding, regulatory, compliance, and public health standards.

We live in these neighborhoods too, and nothing is more important to us than the health and safety of our neighbors.

We envision an equitable water future, in which water rates are affordable while remaining in-line with the cost of repairing and maintaining our system, everyone's bill accurately reflects the amount of water they use, and bill assistance is available for customers who need it.

Water equity also means workforce development and hiring practices that ensure the money spent by PWSA is reinvested in our community.

PWSA is also investing millions of dollars into rebuilding our sewers. Out of sight and out of mind, most people don't think much about sewers that take wastewater away. But sewers are critical to our water infrastructure system.

Built a century ago for a city that had a different physical footprint and a different population, our sewers are due for maintenance and upgrades.

Our vision is for a modern sewer system that keeps sanitary sewage flowing where it belongs, flowing to wastewater treatment plants, not backup up into basements or overflowing into rivers.

And our environmental future relies on the success of our water infrastructure. To reduce pollution in our rivers, we will repair our sewers and invest in innovative stormwater infrastructure projects that will treat and mitigate stormwater runoff.

Our waterfront development and health of our waterways depends on our success. Our downstream neighbors rely on us to return safe clean water to our rivers before it flows down to them.

With an emphasis on green-first, environmentally friendly design principles and construction practices, we will upgrade already great water systems and renew them to take us through the next 12 years and be ready for the next 100 years.

And we'll do it with transparency and accountability to the public. We are public servants, we know we are all in this together.

Generations before us built incredible public water systems, and we owe it to generations to come to leave those systems better than we found them.

This is our water, our Pittsburgh, and our future.

OUR GOALS:

1 TO RESPONSIBLY, SUSTAINABLY MANAGE PITTSBURGH'S WATER FOR THE NEXT 12 YEARS, AND WELL BEYOND 2030

2 TO PROVIDE SAFE, RELIABLE WATER 24/7/365 TO OUR CUSTOMERS AND TO PROVIDE THEM WITH EXCELLENT CUSTOMER SERVICE

3 TO RENEW AND UPGRADE OUR DRINKING WATER, STORMWATER, AND SEWER INFRASTRUCTURE TO EXCEED ALL COMPLIANCE STANDARDS

4 TO PRIORITIZE PUBLIC HEALTH AND REPLACE ALL LEAD SERVICE LINES

5 TO MAKE WATER SERVICE ACCESSIBLE THROUGH CUSTOMER ASSISTANCE TO OUR LOWER-INCOME CUSTOMERS AND CONTINUE A MORATORIUM ON WINTER WATER SHUT-OFFS

6 TO BE ACCOUNTABLE, ACCESSIBLE, AND FULLY TRANSPARENT TO OUR CUSTOMERS

7 TO FAIRLY AND EQUITABLY CHARGE EACH CUSTOMER BASED ON THEIR USAGE OF OUR SYSTEM

8 TO BE A VALUED REGIONAL ENVIRONMENTAL STEWARD OF OUR MOST PRECIOUS RESOURCE

ROADMAP

We know PWSA has not always been perfect. After ingenious drinking water and sewer infrastructure was built for our city generations ago, those systems were neglected and fell into disrepair. Leaders failed to invest in our drinking water, stormwater, and sewer infrastructure, adopting a "fix it when it fails" mentality, and intervening only at a point of failure, which is the most expensive way to maintain a system.

PWSA experienced leadership turnover, making it difficult to finalize plans and see them through to completion. Some well-intentioned changes were poorly executed. As a result, we found ourselves out of compliance with regulatory standards. Lead levels in drinking water increased. Inaccuracies in billing went uncorrected, and PWSA failed to provide the customer service every resident deserves.

Thankfully, PWSA has turned the page. We are on the road to recovery. We have consistent, committed, proven leadership at the helm, and we have plans for 2030 and beyond. We're raising the revenue we need to properly maintain our systems and get ahead of the curve with repairs – including removing all lead service lines well before 2030. Our customer service and billing has improved, and we're implementing state-of-the-art systems to make sure PWSA not only complies with, but exceeds, regulatory standards.

STRONG FINANCIAL FOOTING

As a municipal authority, PWSA is able to obtain a very low interest rate on debt. As a public water system, we have access to municipal bond markets that investor-owned systems cannot access. And we have a strong track record of successfully competing for state and federal financing programs.

Much like the City of Pittsburgh and Allegheny County, lenders assess us favorably. Because of that strong finance position, we can continue to borrow at the lowest interest rates, securing investment in our Capital Improvement Plan.

ON THE PATH WITH THE PUC

Through a change in state law, the Pennsylvania Public Utility Commission (PUC) began overseeing PWSA on April 1, 2018. The PUC now oversees customer service, operations, performance, and ratemaking.

This transition offers PWSA customers new protections and opportunities. We believe PUC oversight only strengthens Pittsburgh's water future.

PUC supervision helps protect consumers, demands transparency and accountability, and keeps PWSA meeting the same expectations as other large utilities in the state. With PUC oversight, our customers can have peace of mind that we are monitored to use your rate money wisely.

At PWSA, we invest revenues generated from rates in critical infrastructure upgrades, no exorbitant management salaries, multi-million-dollar marketing campaigns, or making a profit for shareholders or investors. As a publicly-owned utility, Pittsburghers can rest assured that we take every dollar and invest it back into their drinking water, stormwater, and sewer systems.

THE ROAD AHEAD

PWSA is now looking toward the future. Our key investment areas include lead line replacement, infrastructure repairs and replacement, and coordination with other utilities and City departments and neighboring municipalities for cost savings and smart planning.

We are ahead of our schedule for lead line replacements and on track to have all lead service lines removed within the city within seven years.

TO

We are also beginning to use Orthophosphate, a common, food-grade additive, that will help protect residents from lead in pipes.

No one wants their road paved three times in a year, so we are committed to working closely with the City and other utilities to "dig once" for repairs and paving.

We are always looking for ways to be more efficient, including increased coordination with City agencies to ensure water is considered when planning for new transportation and development projects.

We're also exploring ways to prepare for the future, such as installing conduits for fiber optic and other cables alongside our water infrastructure when we open a street to make repairs.

Space in these conduits could be rented to third parties in the telecom industry and elsewhere, generating revenue for the public and enhancing connectivity.

We are committed to rebuilding our systems in a way that is not only functional, but environmentally sustainable.

This starts with restoring our existing gravity-based systems, rather than building energy intensive pump-based systems.

We're also pursuing renewable sources for the energy that our system does use, including renewable energy technologies like solar panels on our facilities and infrastructure.

Our green-first approach to stormwater treats runoff using natural, passive methods that improve water quality.

And we're installing networked meters that will allow customers to monitor water usage in real time, providing information they need for water conservation.
The new leadership at PWSA is committed to restoring the glory of Pittsburgh's water system. We will build and maintain a water infrastructure system that we can all count on, now and in the future.

PWSA will be accountable and transparent, making sure all Pittsburghers get a voice in their water future through 2030 and beyond.

We are environmental stewards, ensuring we put clean water back into our rivers for ourselves and our neighbors downstream. We are financial stewards, making sure we spend wisely.

We are your neighbors, we are accessible, we are your public servants -- here to deliver for you.

PAST PERFORMANCE ISSUES

- **DECADES OF MINIMAL INVESTMENT IN INFRASTRUCTURE**
- **LACK OF BUDGET FOR MAINTENANCE AND UPGRADES**
- **"FIX IT WHEN IT FAILS" MENTALITY**
- **FREQUENT LEADERSHIP CHANGES**
- **INCONSISTENT REGULATORY COMPLIANCE**

CURRENT PERFORMANCE ACHIEVEMENTS

- **5-YEAR, $1 BILLION CAPITAL PLAN**
- **STAFFING AND EQUIPMENT AT NEEDED LEVELS**
- **GETTING AHEAD OF THE CURVE ON REPLACEMENT**
- **NEW, COMMITTED EXECUTIVE LEADERSHIP TEAM**
- **NEW COMPLIANCE TEAM, USING STATE OF THE ART REPORTING**

RENEWAL

FINANCIAL STABILITY

PWSA IS COMMITTED TO I
AGING INFRASTRUCTURE
WATER QUALITY, ITS SAFE
RELIABILITY OF THE WATE

In 2018, PWSA began to build a Capital Improvement Plan ("CIP") that includes over $1 billion of capital improvements to be completed over the next five years. These improvements include upgrading the water treatment plant, drinking water, stormwater, and sewer systems, and building green infrastructure.

This comprehensive approach to rebuilding our infrastructure means we will be able to provide the water and wastewater service to meet or exceed customer expectations for current and future generations.

FINANCING

Unlike investor-owned utilities, PWSA does not have shareholders to generate a profit for. Instead, PWSA's primary focus is on delivering the best possible service, at the lowest possible cost, for our customers.

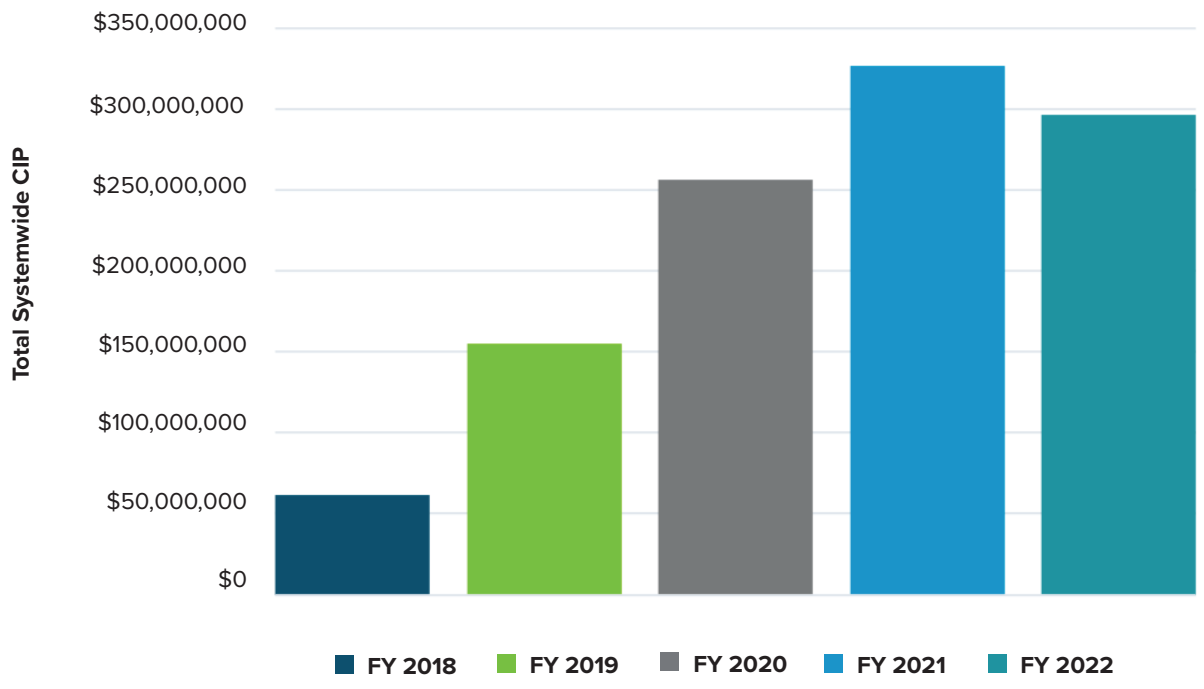
Therefore, PWSA's goal to fund the planned CIP is to use a mix of public financing sources to minimize the cost to our customers.

PWSA primarily funds our projects through revenue bonds. Revenue bonds are sold in the open financial marketplace and are secured by PWSA future revenue. Revenue bonds are considered a traditional funding method among public water and sewer utilities, allowing the cost of improvements to be spread across a larger portion of their useful life.

We will also explore state and federal programs, including grants and low-interest loans, to help fund the CIP. PWSA has a proven track record of successfully competing for these state and federal funding programs, and is in a strong position to continue to do so moving forward.

The last funding method that PWSA will utilize is called Pay-As-You-Go, which uses current

FIVE YEAR CAPITAL IMPROVEMENT PLAN (CIP), FISCAL YEAR 2018-2022



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year revenues to pay for current capital investments. This approach lowers the financing costs by eliminating the need to borrow money to fund capital projects.

These financing programs are only available to public water and sewer utilities, and their favorable financing terms allow public utilities to deliver capital improvements for ratepayers at a lower cost of capital than could be achieved through private financing.

Historically, PWSA has been able to obtain low municipal interest rates on debt. The ability to issue municipal bonds is only available to public agencies, and the lower interest rates allow us to deliver capital improvements for ratepayers at a lower cost of capital than could be achieved through private financing.

Thanks to our public ownership and strong financial position, for fiscal year 2019 we are estimating an annual interest rate of 3.93% on all our current combined outstanding debt.

PWSA's credit ratings as assigned by Moody's Investor Service and S&P Global Ratings are considered upper-medium grade and low risk credit. This reflects our low risk of default and strong capacity to meet our financial obligations.

In addition, S&P Global Ratings classifies PWSA as having a very strong enterprise risk portfolio and a strong financial profile. This can be attributed to the stable water and sewer revenue sources of PWSA from the areas it serves throughout Pittsburgh.

Strong credit ratings will give PWSA the ability to obtain favorable financing to fund needed system improvements.

LONG-TERM FINANCIAL PLANNING

PWSA adopted long-term financial planning initiatives that include implementing financial policies, monitoring financial metrics, and modernizing the capital and operating budget processes.

Together, these initiatives will stabilize and improve the financial position of PWSA for years to come.

PWSA has and will continue to adopt and follow best practices for financial policies and governing principles. This includes providing guidance on the capitalization of assets, issuance of debt, cash management, and financial management.

All adopted policies will ensure that the public's interests stay a top priority when we make any financial decision.

In addition, PWSA will also use the following financial metrics to evaluate and track financial success:

- **Maintaining** a debt service coverage ratio of 1.35x on senior debt service obligations.
- **Maintaining** a debt service coverage ratio of 1.15x on total debt service obligations.
- **Increasing** the percentage of Pay-As-You-Go funding to at least five percent over the next five years.
- **Achieving** cash reserves, including operating reserves, rate stabilization fund and revenue fund at a level of 65 days cash on hand as measured at the end of fiscal year 2019, with the ultimate goal of increasing to over 100 days over the next five years.

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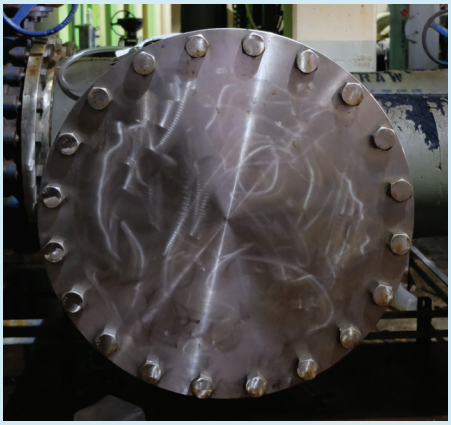
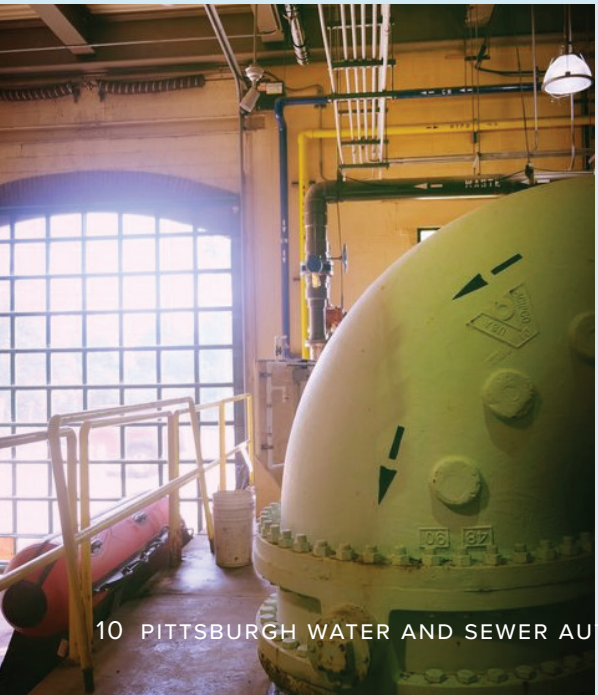
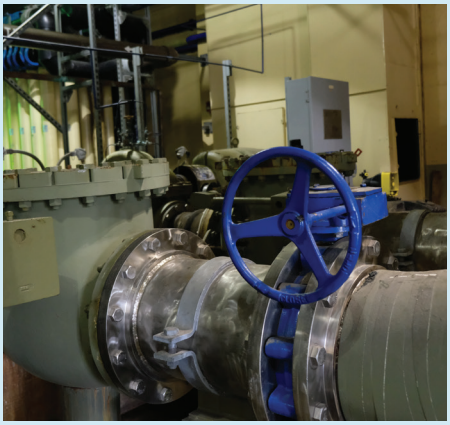




UCTURE



VESTMENT

DRINKING WATER

Our top priority is delivering safe, reliable drinking water to all of our customers. We are committed to making the upgrades to the drinking water system necessary to achieve that goal.

Some of our improvements are obvious, like removing all lead lines in our system before 2030.

But some are less obvious, such as building in intentional redundancy and resilience, so if a problem arises in one area, we can work around it and continue to deliver safe water to residents everywhere.

We also are committed to providing Pittsburgh with a water system that delivers reliable fire protection, which means we have to be able to deliver water at the pressure firefighters need to put out fires.

We will also meet water pressure regulatory requirements, and ensure accurate billing for all customers.

Read more about some of our drinking water projects that are scheduled for the coming years:

ASPINWALL PUMP STATION TO LANPHER RESERVOIR RISING MAIN

The existing 60-inch rising main that supplies the Lanpher Reservoir is a riveted steel pipe that is more than a century old. It carries water from the Aspinwall Pump Station to the Lanpher Reservoir and provides connections to critical customers such as St. Margaret Hospital and bulk customers – the townships and municipalities we serve that are outside of the city. In recent years, due to the age of this pipeline, this critical component of our water distribution system has experienced breaks and failures.

Providing a new redundant rising main is necessary to ensure the reliability of the northern portion of our water distribution system. It will add resiliency and serve as a primary supply source for the Lanpher Reservoir when we begin the Clearwell Improvement project.

This capital improvement project is estimated to cost $49 million.

LANPHER RESERVOIR IMPROVEMENTS

PWSA's reservoirs and tanks are the backbone of our drinking water distribution system. Located at high elevations, they use gravity to supply the pressure needed to move water throughout our service area.

By working with nature instead of against it, our gravity-based system keeps the system simple and energy efficient, reduces the need for pumps, and ensures that we can maintain water pressure even when parts of the city are without power.

Our reservoirs also ensure that we have redundancy and resiliency in our system. They allow us to store large quantities of treated water, so if part of the system is temporarily out of service for maintenance, water from the reservoirs can be re-routed to maintain full service.

In summer of 2018, PWSA restored 90 million gallons of drinking water storage capacity by completing the major renovations to the western cell of the Lanpher Reservoir located in Shaler Township.

This project involved replacing the cover and liner of this critical treated drinking water storage facility which provides water to PWSA's customers in Pittsburgh's northern neighborhoods, the Borough of Millvale, and Reserve Township.

With the western cell fully restored, PWSA has begun work on the eastern cell. The entire Lanpher Reservoir renewal project includes improvements to the perimeter wall, the gatehouse as well as construction of new metering and new facilities to improve water quality.

This project is estimated to cost $30 million.

WATER MAIN REPLACEMENT PROGRAMS

PWSA has approximately 960 miles of water mains with an average age of about 80 years old. More than 40 percent were installed prior to 1920.

Given the age of the system, and lack of spending in prior years, PWSA is initiating a water main renewal program. Pipeline condition assessments and overall system prioritization is being formalized. Over the next several years, PWSA will replace small diameter water pipes at an annual replacement rate of 20 miles of pipe per year.

After that aggressive program, our long term water line replacement program will average about 10 miles per year. This proactive approach to managing the network of pipes that make up our water distribution system will improve system reliability and water quality, reduce breaks, and ensure that our firefighters have sufficient water pressure. It will also reduce water loss and service disruptions.

Coordinating water main replacements with other PWSA projects, as well as other utility and City projects, will reduce the overall cost of the renewal program.

LARGE DIAMETER WATER MAINS

PWSA manages 122 miles of large diameter water mains – 16 inches in diameter or larger. Many of these large diameter mains are made of riveted steel. These pipes are difficult to repair and often result in significant service outages and damage.

As such, PWSA is initiating a pipe condition assessment methodology to strategically plan for the renewal or replacement of these critical assets. Those pipes with the greatest risk of failure will be prioritized.

SMALL DIAMETER WATER MAINS

Strategically improving small diameter water mains will improve water pressure, maintain water quality, and minimize disturbances throughout Pittsburgh's neighborhoods. We are focusing on replacing mains that are undersized (4" and 6" in diameter), made of unlined cast iron and mains with a history of frequent breaks and/or water quality issues.

This is an ongoing capital program. Expenditures will range from $10 to $40 million per year.

WATER TREATMENT PLANT

Located along the Allegheny River, the Water Treatment Plant (WTP) draws our water and treats it before it's distributed to our customers in Pittsburgh and neighboring communities. Still considered a state of the art treatment process, the WTP, like much of the system, has suffered from a lack of investment in recent years. The last major modernization of the WTP was completed in 1969.

Today, we're prepared to once again reinvest in this critical facility. PWSA has identified a series of projects that will renew the treatment plant in its entirety by rebuilding its intake facilities, treatment systems and replacement of the century-old 44 million gallon Clearwell.

In addition, PWSA will upgrade its two finished water pumping stations, both more than 50 years old.

While the innerworkings of the plant are essential to the treatment and distribution of water, the exterior of the building, its connection to the river, and surrounding environment are also critically important to us. PWSA envisions modernizing the buildings to meet current standards for energy efficiency, utilizing renewable energy, and adhering to industry leading green building standards.

We are collaborating with Friends of the Riverfront to extend public trail access through our site to continue the trail system that follows the Allegheny River. The new water treatment facility will also incorporate a new community mural to highlight the historical significance of the rivers and their importance to Pittsburgh. These projects are in their planning and design phase and will be completed in sequential order to ensure safe and continuous distribution of water.

PWSA currently estimates the initial investment to be approximately $120 million.

Draft rendering of PWSA's Aspinwall Drinking Water Treatment Plant and Allegheny River Trail

HIGHLAND PARK PUMP STATION AND RISING MAIN

Projects, including replacing the existing Highland-Garfield Pump Station, adding a new rising main to connect the Highland Reservoir service area, and adding new pumping capacity, will ensure an uninterrupted and reliable water supply to over one-third of our customers.

The new Highland-Garfield Pump Station will replace the existing pumping station that was used to supply water to the Garfield Tank. It will also provide a supplemental and redundant supply of drinking water to the Highland I reservoir water district.

To connect the new pumping station to the Highland I Reservoir water supply system, a new 48- inch rising main will be constructed. The rising main will be near the upper entrance to Highland Park.

This project is in collaboration with the Pittsburgh Parks Conservancy, the Port Authority of Allegheny County, and the City of Pittsburgh's Department of Public Works and its Department of Mobility and Infrastructure to incorporate park features, mobility improvements, and green stormwater infrastructure to benefit the community. It is estimated to be completed in 2023 and cost $32 million.

HIGHLAND PARK MEMBRANE FILTRATION PLANT AND ULTRAVIOLET (UV) DISINFECTION SYSTEM

PWSA is installing an ultraviolet (UV) disinfection system at the Highland Park Membrane Filtration Plant (MFP) to provide enhanced drinking water treatment that will exceed state requirements and reduce potentially harmful disinfection byproducts. Treating water with UV disinfection is highly effective because UV attacks organisms at the genetic level, rendering them harmless. UV disinfection will also allow the Highland Park Reservoir 1 to remain uncovered and serve as an amenity to the public. When the project is completed, the MFP will provide up to 21 million gallons of treated drinking water per day.

In addition to the UV system upgrade, PWSA is completing security upgrades at the MFP and the Highland Park Reservoir 1. Upgrades include improvements to the reservoir wall and 24/7 video and live surveillance.

These projects will be completed in 2019 and will cost approximately $4.3 million.

STORMWATER

When the combined sewer and stormwater system is overwhelmed, pollution flows into our rivers and raw sewage can back up into basements. In other words, a failing stormwater system is a public health and safety issue.

In 2017, pollution flowed into our rivers more than 60 times because the combined system couldn't handle the volume of water.

PWSA's stormwater projects will capture and collect rain water – and treat it on site – so it doesn't immediately flow into the sewer system, mix with sewage, and overflow into a river or a backup into a basement.

Managing stormwater is challenging and costly, but because PWSA is publicly owned we can focus on doing what is right, for the long term, not what might be most expedient or profitable now.

That means pursuing green solutions to stormwater problems that are financially and environmentally sustainable.

We're focusing on critical areas so that we can turn today's biggest flooding and sewer backup risks into tomorrow's cleanest and greenest neighborhoods.

SAW MILL RUN

PWSA, in collaboration with 11 neighboring communities, is developing an integrated watershed management plan throughout Saw Mill Run.

The Saw Mill Run Watershed is one of the first plans within the Pittsburgh region to develop a collaborative approach to managing stormwater. The plan will help to spur economic development and improve the quality of life for those living and working in its surrounding neighborhoods.

Saw Mill Run currently uses traditional, end-of-pipe solutions to manage stormwater, which has led to flooding, high sediment loads, and combined sewer overflows. The Saw Mill Run plan will utilize a combination of techniques.

The estimated cost of this project, currently in its planning phase, is approximately $6.5 million.

FOUR MILE RUN STORMWATER IMPROVEMENT PROJECT

Four Mile Run encompasses Schenley Park and several neighborhoods including Greenfield, Hazelwood, Oakland, and Squirrel Hill. These neighborhoods, like many throughout Pittsburgh, experience the impacts of stormwater that has nowhere to go.

This project will capture and route stormwater through a natural channel that will follow the path of the historic streams that formed Four Mile Run from Panther Hollow Lake to the Monongahela River. Panther Hollow Lake overflows will be redirected to discharge directly into the Monongahela River instead of the combined sewer.

Redirecting the flow of water through a natural channel will help to prevent combined sewer overflows and reduce the intensity of flooding that occurs throughout Four Mile Run.

This project is in its design phase and will cost approximately $40 million.

NEGLEY RUN

PWSA is partnering with the Army Corp of Engineers, Pennsylvania Department of Transportation, and other stakeholders to design and construct a stormwater separation project along Washington Boulevard to provide a new stormwater outfall to the Allegheny River.

The project will also include wetlands development, detention and other features to reduce combined sewer overflow volume, reduce flooding, and improve water quality.

This project is in its design phase and is estimated to cost $15 million.

MAIRDALE AVENUE STORMWATER IMPROVEMENT PROJECT

The Mairdale Avenue Stormwater Improvement Project will improve the flow of stormwater through Riverview Park by using a combination of surface and subsurface green stormwater infrastructure solutions to stabilize stream banks, mitigate erosion, redirect and store stream flow, and capture stormwater runoff.

It will also decrease the occurrence of surface and basement flooding near the project area and reduce the amount of sediment and debris that often blocks the combined sewer system. The project will also enhance public amenities within the park.

Design costs for this project are approximately $1.8 million.

SOUTHSIDE PARK / 21ST STREET

The Southside Park/21st Street Stormwater Project is being designed to manage stormwater and stream inflows that enter the combined sewer system in the South 21st Street corridor.

The project will decrease nearby surface and basement flooding. It will also reduce the amount of sediment and debris that often blocks the combined sewer system.

As part of this project, PWSA will determine the feasibility of providing a new stormwater outfall to convey stormwater flows directly to the Monongahela River via South 18th Street instead of relying on the combined sewer system.

This project is currently in its planning and design phase and is estimated to cost $8.7 million.

Stormwater infrastructure project at Centre and Herron in the Hill District

A rendering of plans for Wightman Park

WIGHTMAN PARK

Through a public process that started in 2014, community members helped develop a master plan the final design for an improved Wightman Park. The planned improvements create a safer, cleaner, greener, and more accessible space for the public to enjoy.

PWSA is incorporating the stormwater components of the Wightman Park Master Plan to improve drainage and combat stormwater issues in the surrounding area.

The stormwater components will redirect stormwater flow from adjacent streets into systems in the park and store stormwater in retention tanks during large storm events.

Additionally, the site will be regraded to improve the flow of stormwater and includes green infrastructure solutions including an infiltration pond and rain gardens.

Construction is anticipated to begin in 2019 and it will manage 5.4 million gallons of runoff per year.

The design cost is $2.4 million.

MARYLAND AVENUE

The Maryland Ave Stormwater Project will consist of distributed green stormwater infrastructure systems in four targeted areas within the Shadyside neighborhood. This area is one of the city's largest contributors of combined sewer overflows within the combined sewer system.

Additionally, this project will help to alleviate the widespread occurrences of basement backups and street flooding throughout the neighborhood.

Design costs for this project is approximately $11 million.

SEWER

Sewers are the often "out of sight, out of mind" work horse of a functioning water infrastructure system. We usually don't think much about sewers until something goes wrong with them. That is why for so many decades, we took for granted that the sewers that were built generations ago would last forever. We know now that is not the case, so we are prioritizing rebuilding key sewers and outfalls.

SEWERS UNDER STRUCTURES

As Pittsburgh grew, many of its buildings and bridges were constructed over existing sewer infrastructure. Now, due to aging pipes and limited accessibility, there has been an increasing rate of failure of these critical assets. PWSA is investing $6.7 million in the next few years to rehabilitate, relocate or reroute sewer lines located under buildings and bridges or adjacent to steep slopes that are prone to landslides.

Replacing this infrastructure will make our sewer system more resilient and reduce the likelihood of property damage, costly emergency repairs, and service outages.

SMALLMAN STREET WATER AND SEWER IMPROVEMENTS

In early 2018, PWSA began one of its most visible infrastructure projects – replacing the water and sewer lines along Smallman Street between 16th and 21st Streets. These pipes, over 100 years old, were located under the existing Produce Terminal. To avoid service disruptions and emergency repairs, PWSA began construction to replace this aging component of our water and sewer system before it failed, benefiting the investments in the area.

The project also meets requirements set by the Environmental Protection Agency to replace, where practical, combined sewer systems with systems that separate stormwater and wastewater.

The Strip District is one of Pittsburgh's most active business districts and it is a popular destination for locals and visitors alike. PWSA proactively coordinated construction with affected businesses and City departments to minimize construction disruptions.

This $13 million project is on schedule and under budget. It will result in over 7,000 feet of new water lines, storm sewer, and sanitary sewers, while improving water quality and the reliability of our water, storm, and sewer system for the next 50-100 years.

MAYTIDE STORM AND SANITARY SYSTEM IMPROVEMENTS

Localized property and street flooding are well-documented at the intersection of Maytide Street and the Sanderson City Steps in the Carrick and Overbrook neighborhoods. Topography, a lack of investment, and poor street maintenance cause unsafe conditions during severe storms.

PWSA is designing a project that will replace sanitary and storm sewer infrastructure on portions of Merrit Avenue, Sanderson Avenue, and Maytide Street to manage flows during storm events.

This project is currently in its design phase and is estimated to cost $6.2 million.

Historic 1914 photo of sewer construction in Pittsburgh

THANK YOU:

Thank you for reading our plan for Pittsburgh's water future. Many of these projects are a work in progress and subject to change over time. We know that the future is bright at PWSA and look forward to serving you through 2030 and beyond.

PHOTO CREDITS

Page 2 – Courtesy of Getty Images, girl at PPG Fountain

Page 3 – Courtesy of PWSA, fishing in Highland Park

Page 4 – Courtesy of PWSA, Community Event, Highland Park Reservoir, and a PWSA customer

Page 10 – Courtesy of PWSA, (top to bottom, left to right), top row: Lanpher Reservoir during construction, Second row: Stormwater project at Centre and Herron, inside the Highland Park Microfiltration Plant, Construction on Smallman Street, Third row: inside the Highland Park Microfiltration Plan, the Garfield Water Tower.

Page 11 – Courtesy of PWSA, (top to bottom, left to right), top row: Construction on Smallman Street, outside of the Highland Park Microfiltration Plant, Second row: inside the Highland Park Microfiltration Plan, a Stormwater manhole cover, outside the Water Treatment Plant in Aspinwall, Third Row: Highland Park Reservoir.

Page 12 – Courtesy of PWSA, a PWSA customer

Page 13 – Courtesy of PWSA, construction on Smallman Street

Page 14 – Courtesy of PWSA, a rendering of upgrades to the Aspinwall Water Treatment Plant

Page 15 – Courtesy of PWSA, inside the Highland Park Microfiltration Plant

Page 16 – Courtesy of Getty Images and PWSA, community members planting a rain garden

Page 17 – Courtesy of PWSA, rain garden at Centre and Herron

Page 18 – Courtesy of PWSA, rendering of stormwater work at Wightman Park

Page 19 – Courtesy of PWSA archives, Historic photo of a sewer tunnel under construction, 1914

See more photos from PWSA's historic archives and today at pgh2o2030.com

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