



ONE WATER NYC:

2024 Water Demand Management Annual Update

NYC
Environmental
Protection

ONE WATER NYC:

2024 Water Demand Management

Annual Update

NYC Department of Environmental Protection

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What is Demand Management?

The New York City Department of Environmental Protection (DEP) holds the critical mission of enriching the environment and protecting public health for New Yorkers. DEP provides high quality drinking water to more than eight million New Yorkers daily, as well as managing wastewater and stormwater across the five boroughs.

Despite a steady increase in population since the 1980s, New York City's average daily water demand has decreased dramatically over the past several decades; since 2009, the daily demand has been below that of the 1960s drought. Several factors are responsible for this decrease, including increased efficiency and awareness regarding water conservation and the implementation of DEP's **Water Demand Management Program**.



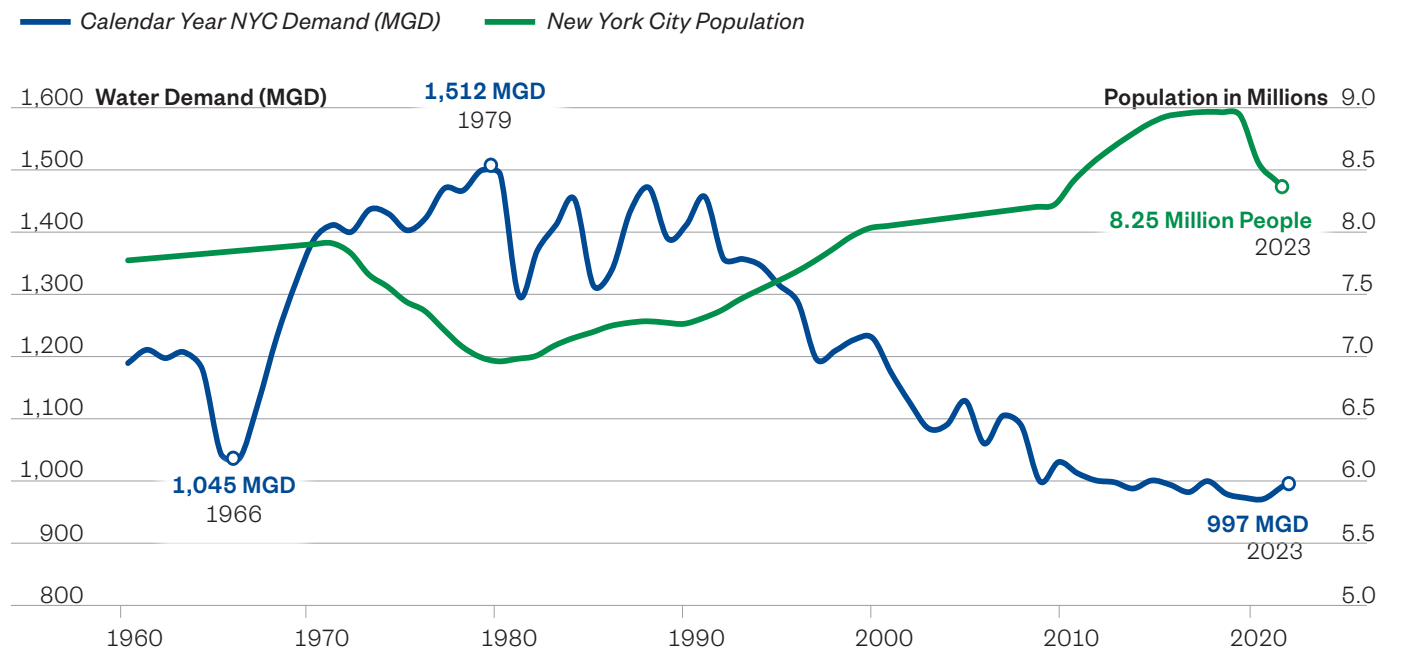
Ashokan Reservoir

The Demand Management Program has been critical towards reducing water consumption and improving water efficiency across New York City through targeted management strategies, but as environmental, social, and economic landscapes continue to transform, it will be necessary to adapt these management strategies to ensure future needs are met in a sustainable and equitable manner. To ensure a holistic approach to this, DEP is implementing a One Water Strategy to assess the water system in its entirety to address current issues and plan for future challenges the city will face. This report will take a deeper dive into the holistic nature of One Water and highlight example projects that encompasses its core values.

Historical Water Demand and Population

Since 2009, average daily demand has been below the 1960s drought-of-record (1,045 MGD). In 2021, average daily demand hit a 60+ year low (979 MGD). Demand in 2023 slightly decreased compared to 2022 from 999 MGD to 997 MGD.

*MGD = Million Gallons per Day

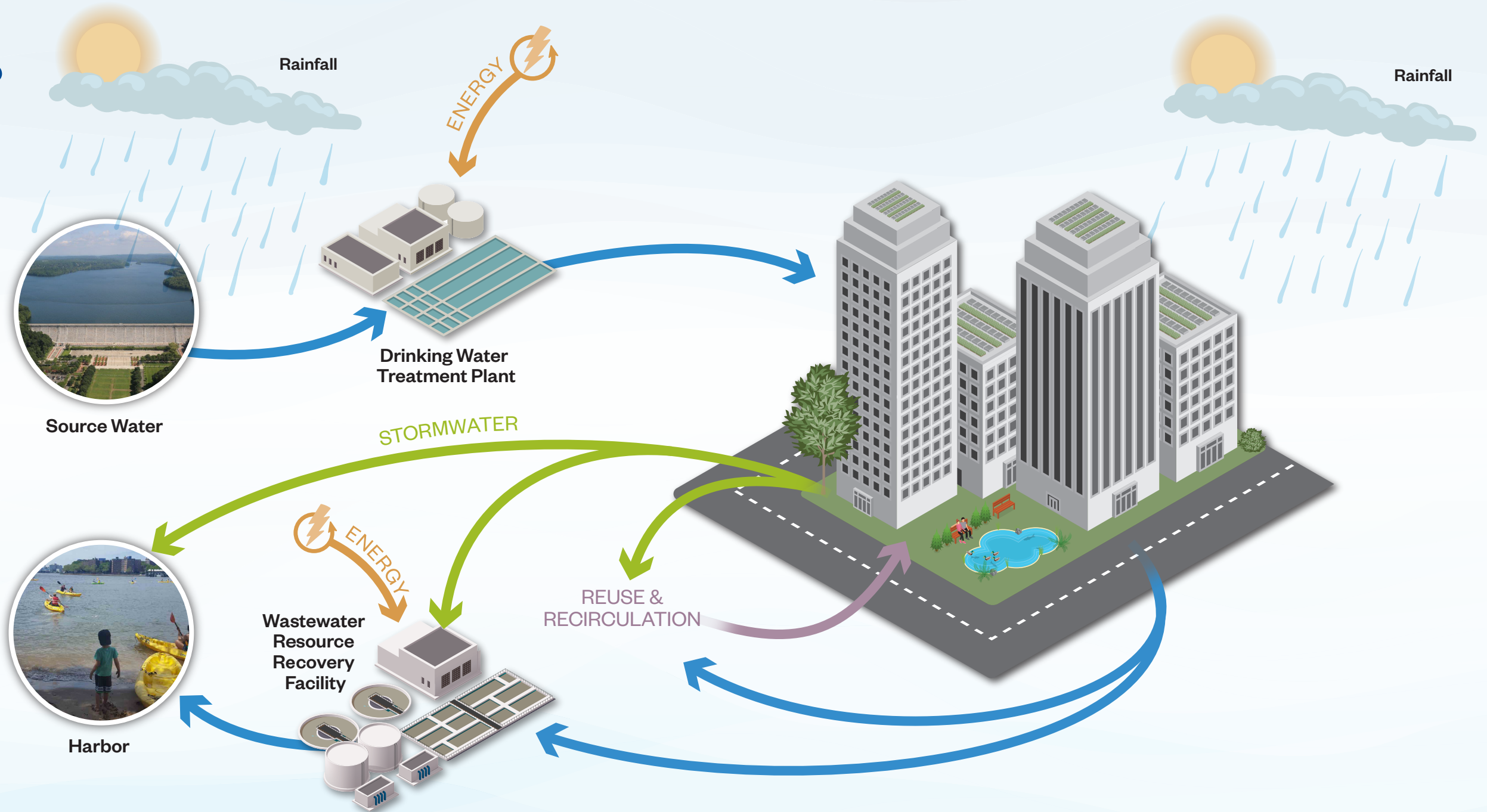


Average Daily Demand (MGD)
2014: 996
2015: 1,009
2016: 1,002
2017: 990
2018: 1,008
2019: 987
2020: 981
2021: 979
2022: 999
2023: 997

Per Capita Demand (GPD)
2014: 115
2015: 115
2016: 113
2017: 112
2018: 114
2019: 112
2020: 111
2021: 116
2022: 120
2023: 113

WHAT IS ONE WATER?

One Water is a holistic approach to water management which emphasizes that all water has value. While water may seem infinite, less than 1 percent of water is accessible for human use. Because the amount of water in the world is finite, the benefit of every drop should be maximized. One Water requires looking at the water system in its entirety, considering the current and future needs of all its users, and balancing them with future spending commitments to preserve affordability.



WATERSHED APPROACH

Considering the entire water cycle builds on the success of our upstate watershed programs and provides the right water for the right use (including the reuse and recirculation of our water resources where possible).

FLEXIBLE FRAMEWORK

Planning holistically allows DEP to adjust quickly to future events such as climate change impacts, unexpected budgetary restrictions, evolving regulatory requirements, and changing organizational priorities.

NATURAL RESOURCE USE

Using less water reduces the need for energy for treatment at our water and wastewater facilities, and also leaves more water in the natural environment.

MAXIMIZE CO-BENEFITS

Utilizing green infrastructure provides natural treatment for stormwater while reducing flooding from rain events and also reducing the stress on the overall system. Collected rainwater can be reused for nonpotable applications.

COMMUNITY-BASED PROGRAMS

Learning about the water cycle helps New Yorkers understand how their water use impacts the water system. Incentive and affordability programs support water savings and provide equitable opportunities for financial relief for water services.

WHY ONE WATER?

One Water embraces establishing new strategies to address citywide issues including population growth, climate change, and equity. Our One Water approach considers how water management impacts surrounding waterbodies and influences quality of life in New York.

GROWTH AND REDEVELOPMENT: Recently updated water demand and wastewater projections through 2055 show that demand and flow are expected to increase. While the updated projections will assist in identifying specific areas for water conservation and reuse projects, mitigating increases in demand and promoting low-impact development will also require an improved understanding of the potential impacts of population growth and other community changes.



Integrated planning promotes low impact development

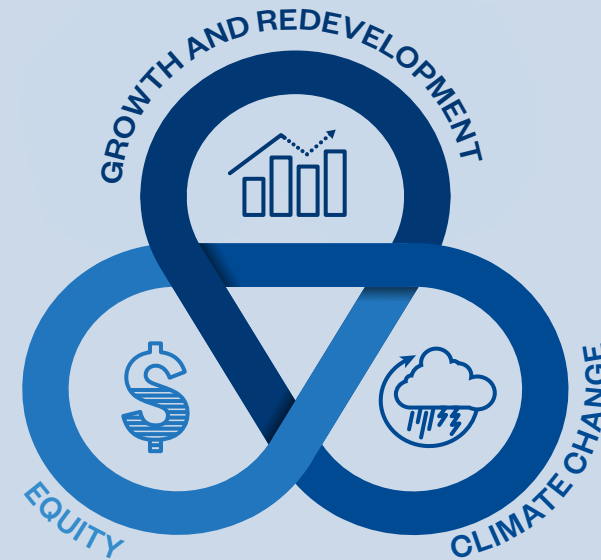


Water reuse saves water and reduces CSO events



Innovative design solutions achieve co-benefits

EQUITY: Improving equity is an important component of DEP's long-term planning strategy. Climate change risks are expected to exacerbate existing inequalities across the city, emphasizing the need to make cost-effective investments that address multiple objectives and to identify the most vulnerable communities.



CLIMATE CHANGE: Climate scientists predict an upward trend in precipitation and that there will be a 1.5x increase in rainy days greater than 1 inch by the 2080s. This coupled with an over 50% increase in intense hurricanes by 2100 and up to 30 inches of sea level rise by the 2050s indicate that we need to continue planning and be ready to adapt. Although the Northeast region of the United States is considered water rich, the area is still subject to periodic drought, so we need to implement "no regrets" strategies for both wet and dry extremes.



Affordability of water services is essential



Reliable access to safe drinking water is a top priority



Community partnerships help shape our water future



Drought risk may be affected by changes in rainfall and temperature



Reducing combined sewer overflow events improves water quality



Resiliency of the water system is increased by demand management

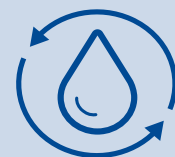
ONE WATER FOCUS AREAS



AFFORDABILITY

DEP works to balance the needs of underserved communities and prioritize customer affordability. Learn more about DEP's affordability programs by clicking on the links below:

- [Financial Assistance Programs](#)
- [Water Conservation & Reuse Grant](#)



REUSE AND RECIRCULATION

Reuse and recirculation involves the recycling of nonpotable water for purposes other than drinking. The implementation of this focus area helps ensure water resources are used widely and responsibly across NYC.



EDUCATION AND OUTREACH

Education and outreach promote public engagement in the development of one water priorities. Expanding this focus area facilitates timely public input on projects.

SYSTEM OPTIMIZATION

DEP delivers over one billion gallons of drinking water to over nine million New Yorkers every day. Delivery of this water is made possible through 7,000 miles of water mains and 830,000 service lines in residential and non-residential buildings and a vast water supply system that encompasses 2,000 miles of protected watershed, including 19 reservoirs and three controlled lakes. For operating and maintaining the large in-city distribution system, much of which is underground, DEP employs systemwide best practices, which include pressure management, systemwide leak detection and repair, meter replacement, Automated Meter Reading (AMR) software, and providing an online platform for customers to track and monitor water use and detect leaks in their buildings.

2023 Total
Water Savings
11.05 MGD



Watermain installation at Willets Point, Queens

Leak Detection
In 2023, DEP surveyed a total of **669 miles** of water mains. As a result of leaks proactively found and repaired, DEP estimates that **11.05 MGD** of water was saved.



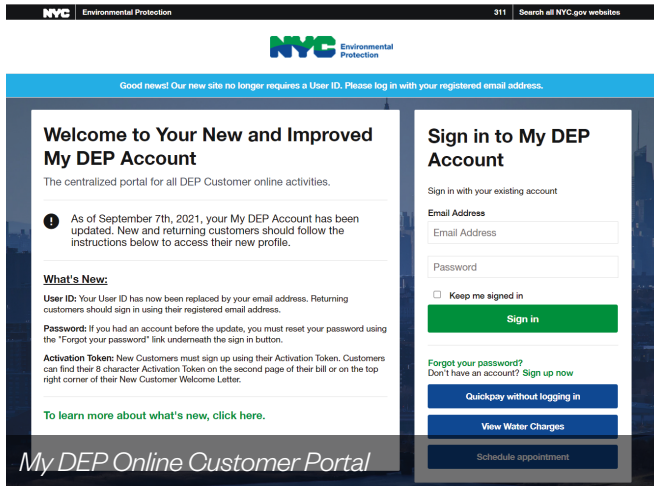
DEP staff installing an automated water meter

Optimize Metering and Replace Large Water Meters
831
large meters replaced in 2023



Bureau of Water and Sewer Operations workers replacing hydrants

Hydrant Maintenance and Illegal Use
Leaking and/or vandalized fire hydrants can result in significant water waste; an illegally opened fire hydrant can release more than **1,000 gallons per minute**.
DEP Stats in 2023:
7,574 hydrants repaired **834** hydrants replaced **10,487** hydrants maintained



My DEP Online Customer Portal

Customer Data and Leak Alerts
About **478,000** customers enrolled in My DEP Account to view their bills and water usage; over **699,000** customers signed up for leak alerts.



Commissioner Rit Aggarwala visits DEP staff as they replace sewer pipes

Optimize Pressure Management
In 2023 DEP completed **4,465** preventive maintenance inspections/calibrations on pressure regulating valves
In 2023, the number of breaks per 100 miles was 4.97, which is below the City's 10-year average of 6.43, and well below the accepted industry average of 25 breaks per 100 miles annually. DEP also overhauled 1 of the 457 pressure regulating valves that are in use citywide.

MUNICIPAL PARTNERSHIPS

YONKERS

The Wholesale Customer Demand Management Program was launched by DEP in 2014 to extend demand reduction strategies to its wholesale customers (Utility Partners). The goal of this program is for Utility Partners to implement demand management projects to reduce demand by 5% from their 2013 baseline demand. These Utility Partners include the Town of Greenburgh, the Village of Ossining, the Village of Scarsdale, the Village of Tarrytown, Westchester Joint Water Works (WJWW), the City of White Plains, and the City of Yonkers. Unfortunately, unforeseen circumstances brought on by the COVID-19 pandemic resulted in DEP and its Utility Partners agreeing to terminate the existing contracts under this program.

However, DEP's robust outreach and engagement, coupled with the determination and initiative of Utility Partners, resulted in a sustained average savings of 5.31 MGD. These savings were achieved through a combination of multiple demand management strategies such as water loss control, automated metering infrastructure and monthly billing, municipal upgrades, residential indoor fixture replacement voucher programs, and water filtration plant upgrades. DEP thanks and recognizes its participating Utility Partners for implementing conservation projects and water loss control strategies to achieve these savings.

Anticipated Total Water Savings
1.3 MGD

PROSPECT PARK

In 2024, DEP continued coordinating with Prospect Park Alliance (PPA) to replace an existing service line valve in Prospect Park with an estimated demand savings of 0.8 MGD. The service line supplies potable water to Prospect Park Lake, and during rain events, PPA staff discharge water from the lake into the combined sewer system to avoid flooding the park. Additionally, during summer when evaporation occurs, Prospect Park Lake is supplied with an estimated 1 MGD or more of potable water to maintain health and aesthetics. As an integrated, One Water project, this valve replacement is expected to reduce CSOs during rain events to Gravesend Bay and the Upper Bay by up to 12 million gallons per year.

In December 2020, DEP and DPR executed a MOU for this project and completed the funding transfer from DEP to DPR. Currently, the design and contract bid for this project is complete and procurement is underway.

Anticipated Total Water Savings
.8 MGD



CASE STUDY: PARTNERSHIP WITH THE CITY OF YONKERS

In January 2023, DEP was able to reinstate our partnership with the City of Yonkers, NYC's largest wholesale customer, to implement a combination of tailored demand management strategies. Yonkers obtains all its water from the NYC water supply and is experiencing shortage risks for maintenance and rehabilitation projects due to its aging distribution system, which serves a diverse topography. To address this, Yonkers has selected three main strategies for implementation:



Initiate leak detection, pressure management, and leak repairs

Estimated Savings:
1.1 MGD

Implement a customer portal with semi-annual billing and advanced metering infrastructure leak alerts

Estimated Savings:
.2 MGD

Contingency future fixture replacements as needed and pending available funding

Estimated Savings:
.05 MGD

This effort is currently underway and is expected to result in an additional 1.3 MGD in savings over the course of 5 years.



REUSE & RECIRCULATION

DOMINO DISTRICT WATER REUSE

The Domino District Non-Potable Water Reuse Project in Brooklyn, NY includes the installation of a district-scale nonpotable water reuse system that will be able to treat over 400,000 gallons per day (gpd) of wastewater generated from the Domino Sugar factory redevelopment and adjacent buildings. The system will produce treated nonpotable water to be used in place of potable water for toilet flushing, cooling towers, and irrigation. The project will reduce the demand on New York City's potable water supply system by saving up to 200,000 gallons of potable water per day while also reducing flows to combined sewers and wastewater treatment facilities.

LEGEND

- New Building
- Existing Building
- Domino District
- Private Sewer
- Non-Potable Water Distribution
- Treated Effluent to Stormwater Outfalls
- Discharge to Existing Sewer



PROJECT STATUS

In Proposal

ONE WATER BENEFITS

- ~200,000** Gallons per day of reduced water consumption
- ~3,000,000** Gallons per year of reduced combined sewer overflow

CENTRAL PARK RECIRCULATION

DEP is partnering with the Department of Parks and Recreation and Central Park Conservancy to construct a system to capture and recirculate stormwater in the Park's northern waterbodies. These waterbodies, the Pool, Loch, and Harlem Meer, are currently fed by City water. City water flows by gravity from the Pool to the Loch and Meer and overflows to the City's combined sewer system at the outflow of the Meer. By replacing city water with stormwater, this project will reduce potable water demand and reduce combined sewer overflows to the East River. In addition, recirculation will improve the water quality of the Park's northern waterbodies. To fund this, DEP submitted this project for the National Oceanic and Atmospheric Administration's (NOAA) Climate Resiliency Regional Grant. If awarded, construction would begin in October 2025. The Harlem Blueways project proposes to expand the Central Park Recirculation Project to include a stormwater conveyance system to the neighboring corridors in South Harlem, layering green infrastructure along the corridors for additional benefits.

PROJECT STATUS

Design Complete

ONE WATER BENEFITS

- ~480,000** Gallons per day of reduced water consumption
- ~3,800,000** Gallons per year of reduced combined sewer overflow





EDUCATION & OUTREACH



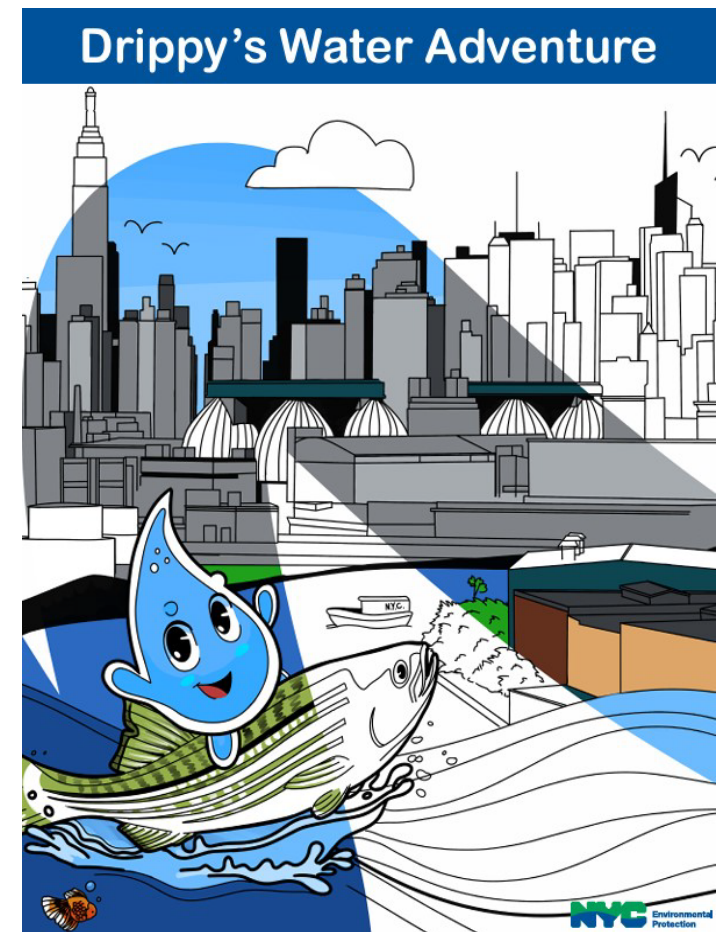
Aya C., Art & Poetry Contest Winner 2021

Drippy's Water Adventure Coloring Book

Through the Department of Design and Construction's Town+Gown program, DEP partnered with the Fashion Institute of Technology (FIT) to design a new educational resource called Drippy's Water Adventure. Join Drippy and friends for a fun-filled adventure exploring New York City's water story, from mountain top to sea! Drippy's Water Adventure offers students, and adults alike, an interactive coloring book full of activities and vocabulary highlighting NYC's extensive water and wastewater infrastructure. The book illustrates water use and New York City's water resources, wastewater treatment process, harbor water quality, stormwater management and green infrastructure, and stewardship opportunities. Since publishing this exciting new resource in Spring 2023, DEP has distributed more than 10,000 copies to schools and education partners citywide.

Water Resources Art and Poetry Contest

For the last 38 years, DEP has hosted an annual Water Resources Art & Poetry Contest to recognize students' understanding of and appreciation for our shared water resources. In 2024, more than 1,700 NYC and watershed students from 2nd through 12th grade attending over 100 public, charter, independent, and parochial schools participated in this special program. Student entries highlighted five central contest themes: Water: A Precious Resource; NYC's Drinking Water Supply; NYC's Wastewater Treatment System; Harbor Water Quality and Healthy Marine Ecosystems; and Climate Change and Water Stewardship. DEP hosts a celebration to honor the contest winners, their teachers, and families.



OUR ONE WATER COMMITMENT

NYC has many diverse stakeholders, and the principles and practices of the people and businesses that make up our dynamic city will play an important role in how we meet our water challenges.

As the largest combined water and wastewater utility in the United States, DEP is committed to becoming a nationwide leader in the One Water movement. We will demonstrate the benefits of integrated, holistic planning to our communities through our actions and support of sustainable projects that promote the value of each and every drop of NYC water.

It is our vision that this collaborative approach to water management will provide the right combination of strategies to secure a sustainable water future for generations to come.



YOUR PART IN ONE WATER

DEP wants YOUR ideas to shape the future of One Water in NYC. Funding and incentives are currently available through our Water Conservation and Reuse Grant Program and through rate incentives. We hope you will reach out to us with your project ideas and to learn more about whether they may qualify for funding.

As part of our commitment to One Water, DEP also invites community feedback. To promote collaboration, foster continual improvement, increase engagement, and identify new programmatic focus areas for DEP's One Water programs, we encourage you to reach out to us with ideas or projects that help promote water sustainability and assist DEP in identifying future opportunities.

Interested in learning more about One Water and water conservation?

Check out these links!

[Water Conservation](#)

[One Water](#)

