



ONE WATER NYC:

2025 Water Demand Management Annual Update

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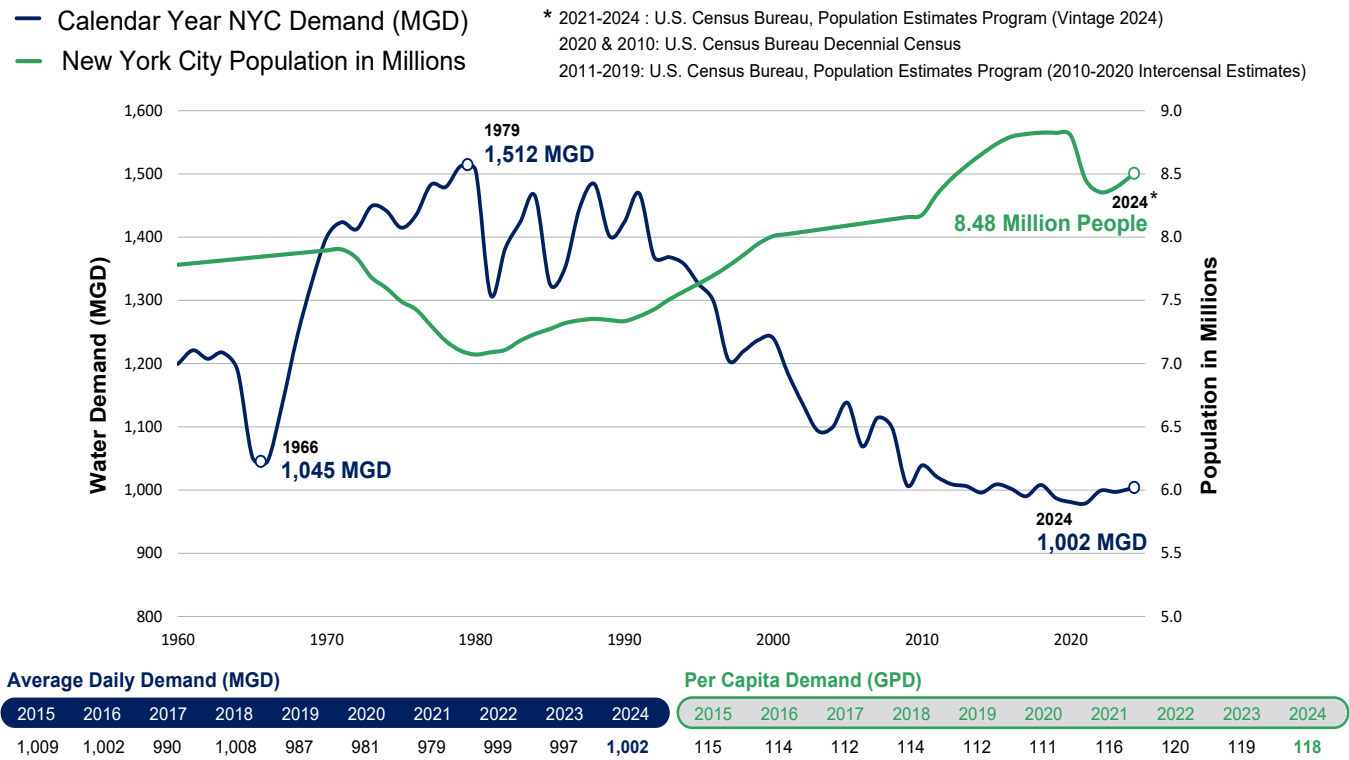
WHAT IS DEMAND MANAGEMENT?

The New York City Department of Environmental Protection (DEP) holds the critical mission of enriching the environment and protecting public health. DEP manages the nation's largest municipal water supply system, which provides high-quality drinking water each day to our wholesale customers and nearly 10 million residents, including 8.3 million in New York City. Additionally, DEP manages 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**.

The Demand Management Program has been critical towards reducing water consumption and improving water efficiency across New York City through targeted management strategies, to meet future needs in a sustainable and equitable manner. DEP is implementing a holistic One Water Strategy that will address current issues and plan for future challenges that the city's water system may face. As seen with the recent drought in Fall 2024, Demand Management Program efforts to reduce water consumption are instrumental to ensuring a resilient water supply system that can adapt to changing environmental, social, and economic conditions. This report will take a deeper dive into DEP's application of One Water and highlight example projects in NYC that encompasses its core values.

HISTORICAL WATER DEMAND AND POPULATION



2024 drought levels in the Ashokan Reservoir.

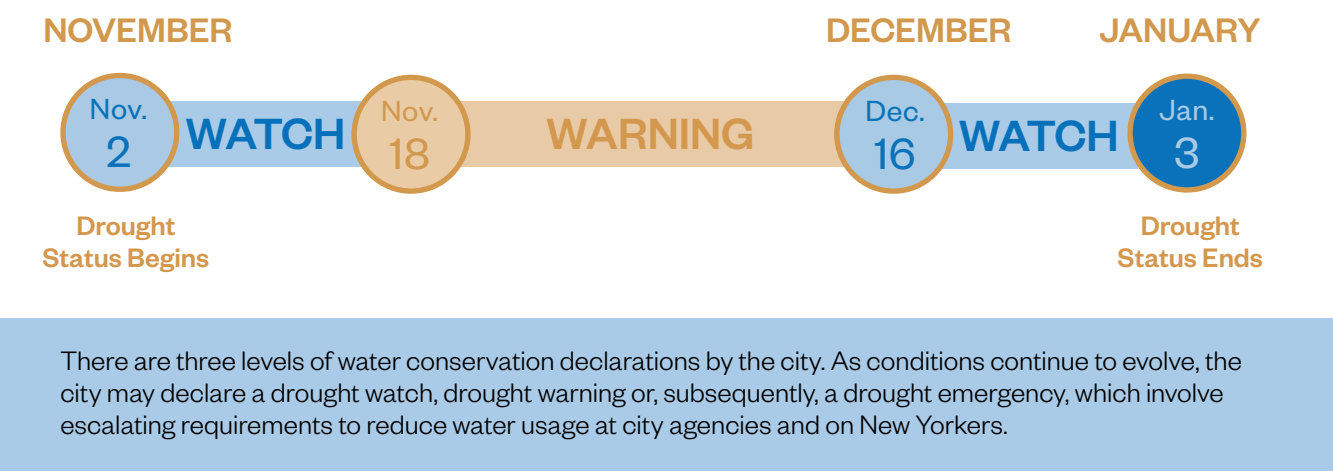
In Fall 2024, New York City saw its longest rainless streak in recorded history. This coincided with the City's repair work on the \$2 billion Delaware Aqueduct Repair Project. The repair of the Delaware Aqueduct, which delivers half of the city's water supply from the Catskill Mountains, is one of DEP's largest infrastructure projects. This work will stop a decades-old 35 million-gallon-per day leak under the Hudson River, by connecting a parallel tunnel to bypass the leak. To ensure the city was able to meet its water needs, conserving water and keeping reservoir levels sufficient was even more important during these historically low records of rainfall.

The final bypass connection requires shutting down and draining the Delaware Aqueduct during the winter months when demand for water is typically at its lowest. In consideration of this planned shutdown combined with the historically low rainfall levels, NYC declared a Drought Watch on November 2nd, 2024. New Yorkers were encouraged to take the drought seriously and conserve water where possible.

DEP worked to enhance City agencies' water shortage response plans and ensure a coordinated effort across all levels of government. The Drought Watch was elevated to a Drought Warning on November 18th, 2024.

As NYC moved into a Drought Warning, this involved escalating requirements on government agencies and New Yorkers to reduce water usage. New Yorkers were encouraged to report open fire hydrants and street leaks to 311, check their homes for leaks, and run the dishwasher and washing machine only when full to name a few actions. As dry conditions continued, the Delaware Aqueduct Repair Project was paused as water reserves across all reservoirs were not sufficient enough to complete the project in the spring. Pausing the project allowed DEP to protect the long-term health of the water supply while continuing to provide New Yorkers with optimal quality drinking water.

DROUGHT STATUS TIMELINE 2024-2025



Reservoir storage levels improved greatly in December after significant rainfall in the watershed, melting snowpack in mountain regions, and restored flow from four critical reservoirs. As a result, on December 16th, 2024, the Drought Warning was downgraded to a Drought Watch. Strategic decision-making by DEP, conservation efforts by New Yorkers, and favorable weather conditions where November and December saw a 20% above average precipitation levels together contributed to the replenishment of the city’s reservoir system and a lifting of the Drought Watch on January 3rd, 2025.

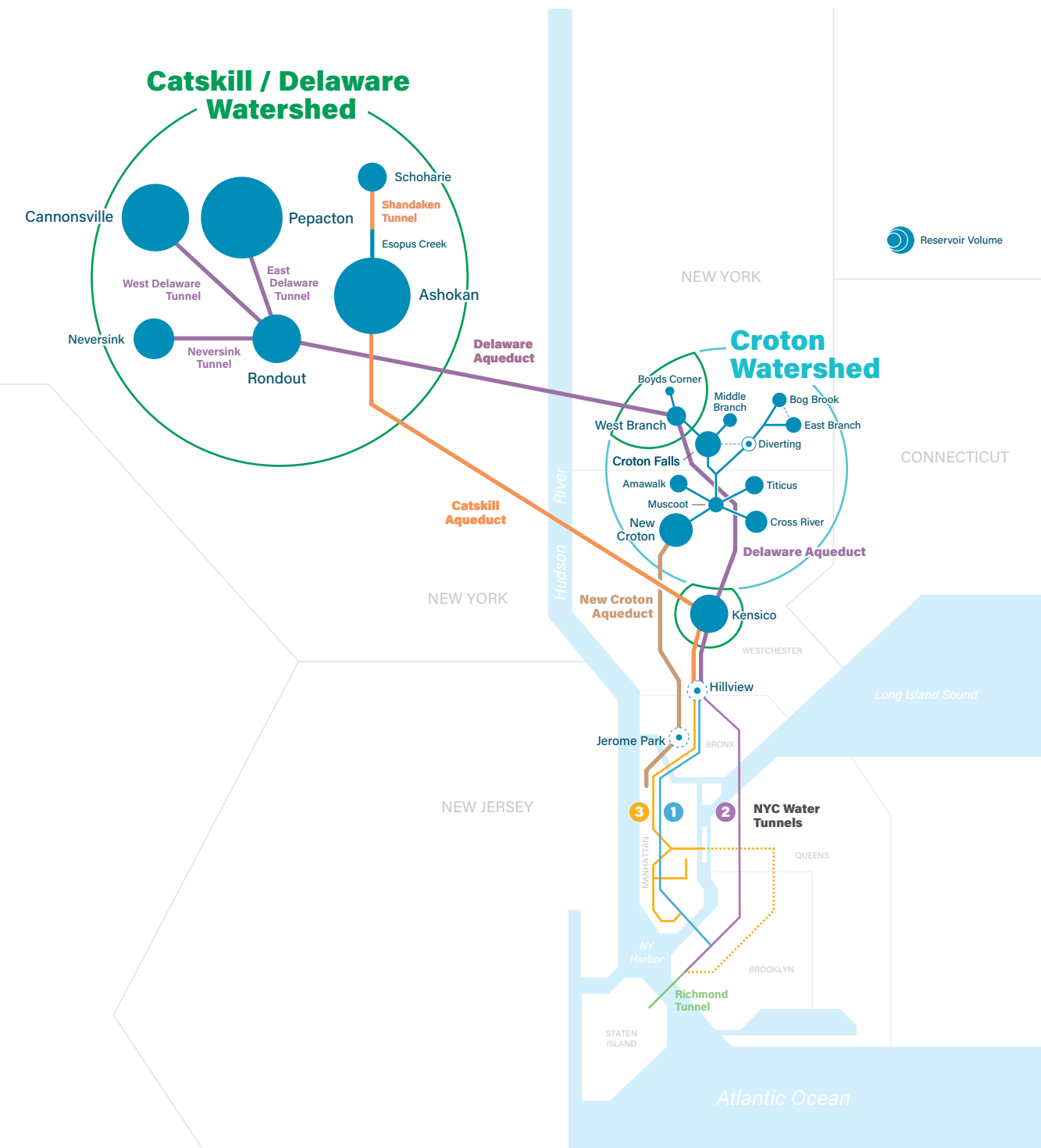
With the drought in recent memory, DEP is taking this opportunity to redefine the future of drought preparedness as well as plan for the upcoming shutdown of the Delaware Aqueduct. Even with a 1.3 million increase in population since 1980, demand for water has dropped by approximately 35%, making New York City one of the most water-efficient large cities in the country. Given highly variable future climate conditions, the recent drought highlights the need for continued emphasis on water conservation and resiliency throughout

the city and for a holistic and integrated approach to managing our water supply; every drop of water that moves through our system counts.

WATER CONSERVATION IN ACTION

The Demand Management Plan Annual update highlights DEP’s commitment to implement innovative water conservation strategies and projects to meet the city’s sustainability goals. For example, one of the ways DEP is working towards improving water conservation and reducing the city’s water demand is to promote water reuse. In early 2025, the NYC Department of Health developed the [New York City Nonpotable Water Systems Guidance Manual](#) to provide guidance pertaining to the design, the benefits, and operation of nonpotable water systems for developers in New York City. The release of the manual is an important milestone towards advancing water reuse as a strategy to improve the city’s sustainability.

NEW YORK CITY'S WATER SUPPLY SYSTEM



NEXT STEPS

Building on the lessons learned from the recent drought and the temporary pause of the Delaware Aqueduct Repair Project, DEP is taking proactive steps to strengthen New York City’s long-term water supply resilience. This includes exploring ways to enhance drought response tools, improve coordination with high-use customers, and promote water reuse and efficiency citywide. In 2025 and beyond, DEP will continue advancing drought preparedness and water conservation through several key initiatives:



Delaware Aqueduct Repair.

Delaware Aqueduct Repair Planning

Lessons from the 2024 pause will inform new decision-making frameworks. DEP will continue to refine contingency plans and evaluate optimal timing for the next shutdown window. As of this year, completion is anticipated after 2027.



Drought in Schoharie Reservoir.

Drought Preparedness Strategy

Findings from peer city interviews and interagency coordination during the drought response will inform an updated drought preparedness strategy, with an emphasis on clearer public messaging, more robust demand reduction protocols, and equitable access to conservation resources.



Local engagement event.

Public Engagement and Behavior Change

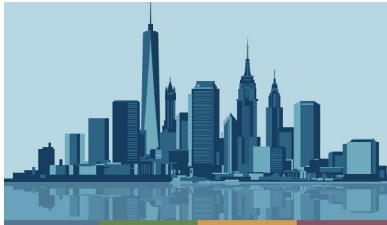
DEP will expand its public education campaigns on leak detection, efficient appliance use, and reporting water waste. Enhanced partnerships with community groups and schools will help foster a culture of conservation across all boroughs.



DEP meter reading.

Data-Driven Conservation Planning

DEP will continue to identify high-use customers and sectors, leverage advanced metering infrastructure (AMI) to monitor usage trends, and prioritize conservation measures with the greatest water-saving potential. AMI data will also support early engagement, targeted outreach, and voluntary reduction efforts among top water users.



New York City
Nonpotable Water Systems
Guidance Manual

Water Reuse Implementation

Following the release of the NYC Nonpotable Water Systems Guidance Manual, DEP will work with developers, building owners, and City agencies to promote adoption of water reuse projects. Pilot programs and case studies will help demonstrate feasibility and track performance.

By taking these steps, DEP is reaffirming its commitment to protect the city’s water supply, improve system resiliency, and lead by example.

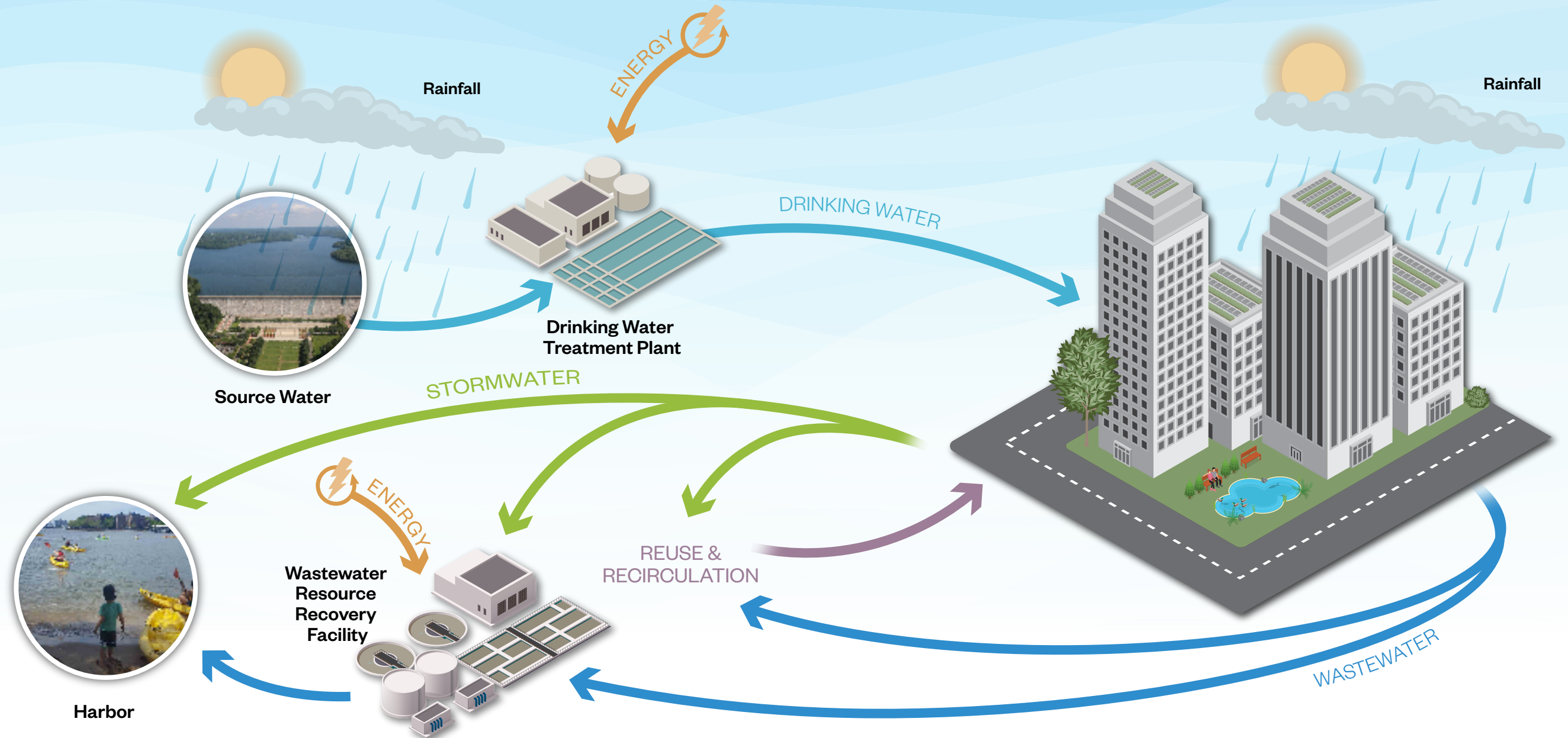
DEP'S ONE WATER STRATEGY

The following sections provide an overview of the One Water approach and its application across DEP demand management projects. This includes a summary of DEP's efforts to optimize system operations, reduce water usage through our partnerships, encourage water reuse, and continue spreading awareness through ongoing education initiatives.



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?

DEP embraces establishing new One Water strategies including affordability programs, reuse and recirculation opportunities, as well as education and outreach to address citywide issues. These issues include population growth, climate change, and equity. By taking these actions, DEP can continue to provide high quality water and essential services to New Yorkers.



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 Program](#) & [Water Conservation & Reuse Grant](#)



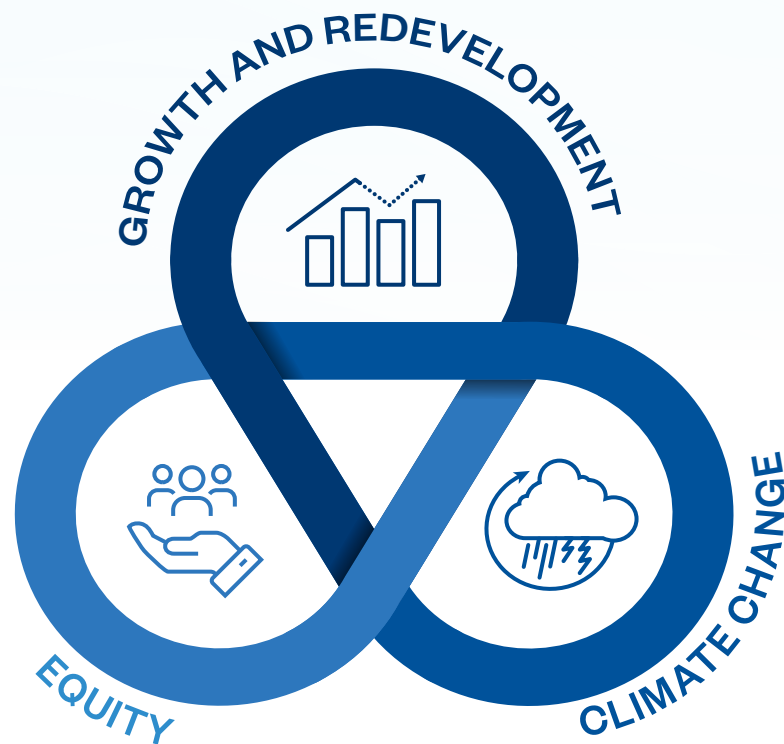
REUSE AND RECIRCULATION

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.



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.



Affordability
of water services is essential

Reliable
access to safe drinking water is a top priority

Community partnerships
help shape our water future

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.



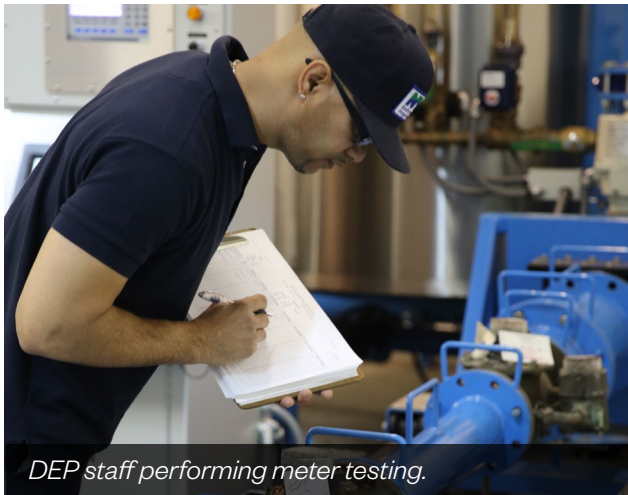
Drought
risk may be affected by changes in rainfall and temperature

Reducing combined sewer overflow
events improves water quality

Resiliency
of the water system is increased by demand management

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.

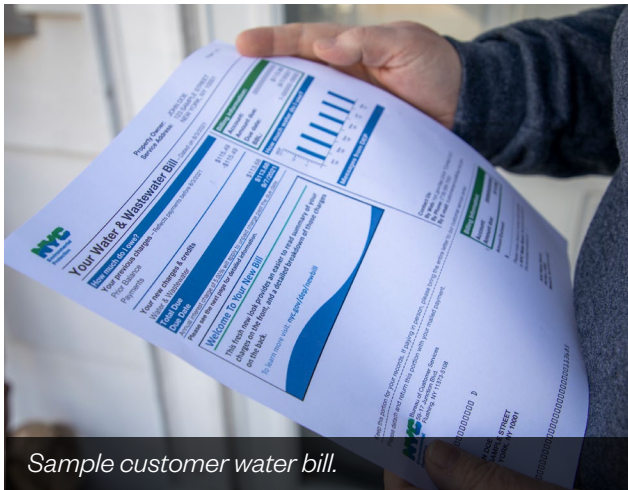


DEP staff performing meter testing.

OPTIMIZE METERING AND REPLACE LARGE WATER METERS

3,773

large meters replaced in 2024



Sample customer water bill.

CUSTOMER DATA & LEAK ALERTS

525,000

customers enrolled in My DEP Account to view their bills and water usage and over

702,000

customers signed up for leak alerts.



DEP employee performing water pipe inspection.

LEAK DETECTION

In 2024, DEP surveyed a total of

1,648 miles

of water mains. As a result of leaks proactively found and repaired, DEP estimates that

12.5 MGD

of water was saved



DEP employee performing hydrant maintenance.

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 2024:

7,283

hydrants repaired

850

hydrants replaced

8,607

hydrants maintained



BWS employees testing valves at the Ashokan Reservoir.

OPTIMIZE PRESSURE MANAGEMENT

In 2024, the number of breaks per 100 miles was 5.70, which is below the City's 10-year average of 6.3, and well below the accepted industry average of 25 breaks per 100 miles annually. DEP also overhauled 3 of the 444 pressure regulating valves that are in use citywide.

In 2024 DEP completed

5,120

preventive maintenance inspections/calibrations on pressure regulating valves

MUNICIPAL PARTNERSHIPS

UTILITY PARTNERS

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.

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. Currently, the design is finalized, and construction will be completed in 2025.

ESTIMATED SAVINGS
.8 MGD

CASE STUDY: PARTNERSHIP WITH THE CITY OF YONKERS

DEP is continuing to partner 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.



Prospect Park Lake valve replacement.

REUSE & RECIRCULATION

DOMINO DISTRICT WATER REUSE

The Domino-District Non-Potable Water Reuse Project is a grant applicant for DEP's Water Conservation & Reuse Grant Pilot Program. The project is located in Brooklyn NY and 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.

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

Central Park Conservancy and DEP have partnered with Parks to construct a system to capture and recirculate water in Central 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 over- flows to the CSS 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. Recirculating this stormwater will save up to an estimated 0.48 million gallons per day (MGD) of potable water and relieve system stress during potential water supply shortages. It is anticipated that this project will reduce CSO discharge by up to 3.8 MGY, addressing capacity constraints on the wastewater and stormwater infrastructure.


Central Park design is underway and will continue through 2025. To help fund this, NYC Parks Department was awarded a New York State Green Resiliency Grant and are currently coordinating with Central Park Conservancy and the New York State Environmental Facilities Corporation to finalize the grant agreement. Contingent upon receiving the necessary permits and approvals, construction would begin in October 2025.

PROJECT STATUS

Design Complete

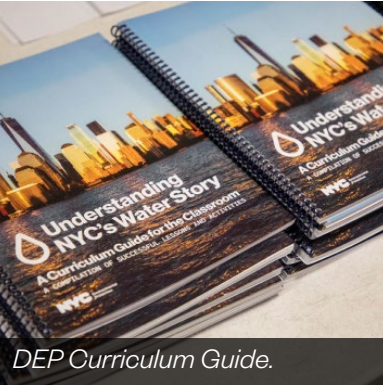
ONE WATER BENEFITS

 **~480,000**
Gallons per day of reduced water consumption

 **~3,800,000**
Gallons per year of reduced combined sewer overflow



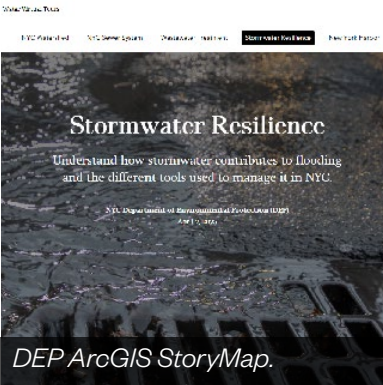
EDUCATION & OUTREACH



DEP Curriculum Guide.

Curriculum Development

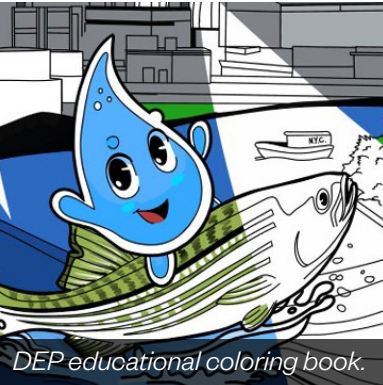
In addition to the popular Understanding NYC’s Water Story: A Curriculum Guide for the Classroom, DEP continued to develop and distribute a variety of educational resources for students and educators that support an interdisciplinary, hands-on approach to teaching about NYC’s water resources. In response to this past fall’s historic drought, DEP spread awareness by compiling a resource guide of water conservation lessons and activities and demonstrating these materials for teachers attending NYC Public Schools’ Climate Action Day trainings.



DEP ArcGIS StoryMap.

ArcGIS StoryMaps

Using ArcGIS StoryMaps, DEP designed a new [Stormwater Resilience Virtual Tour](#) about the nature-based tools used to manage stormwater and reduce flooding and harbor pollution in NYC. This new interactive resource can be found in DEP’s NYC Water Virtual Tours collection, which features in the field footage, expert interviews, and historic information about the NYC watershed, sewer system, wastewater treatment process, and harbor protection programs.



DEP educational coloring book.

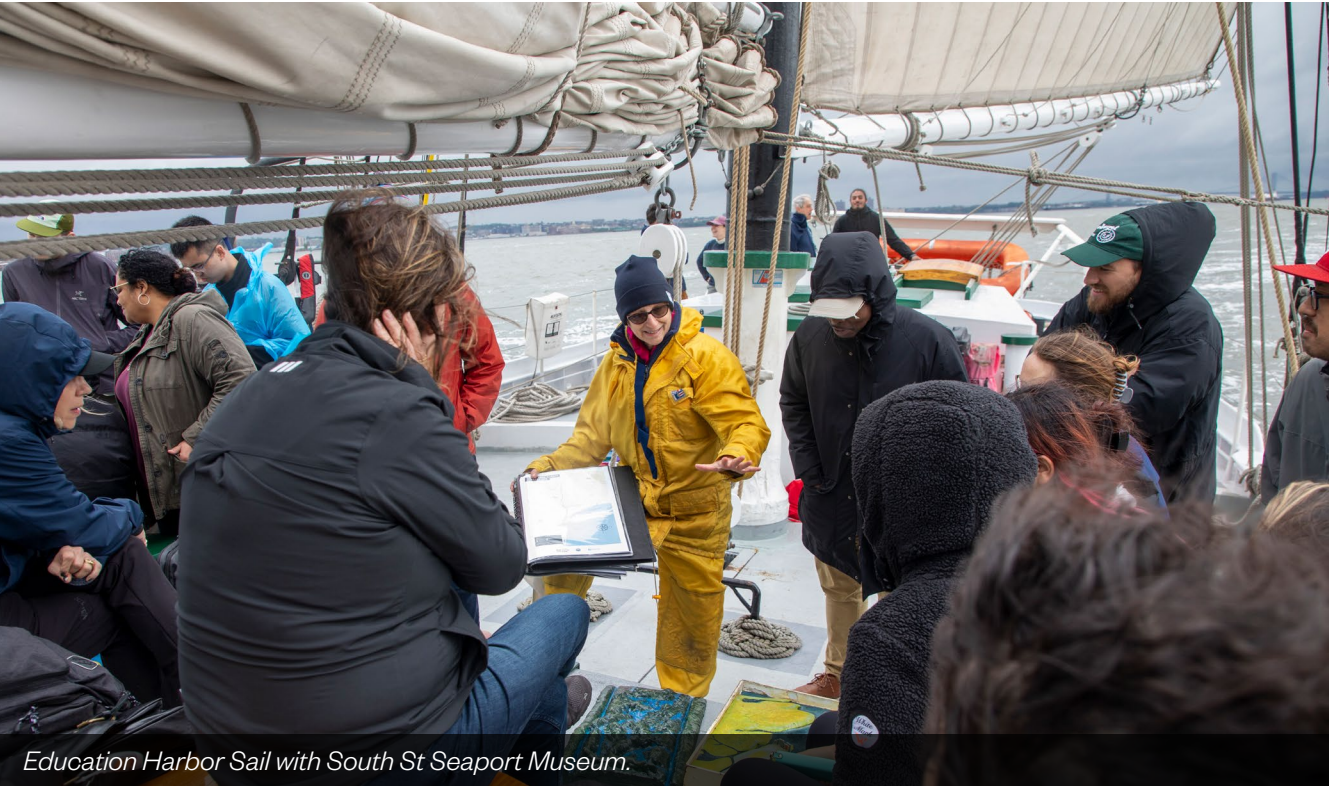
Drippy's Water Adventure

DEP distributed another 10,000 copies of Drippy’s Water Adventure, a coloring book developed through the Department of Design and Construction’s Town+Gown program with the Fashion Institute of Technology, that includes activities and vocabulary highlighting NYC’s extensive water and wastewater infrastructure.

Professional Learning Opportunities

Throughout the year, DEP conducted professional learning opportunities (PLO) for formal and non-formal educators about harbor water quality, watershed protection, stormwater management, wastewater resource recovery, climate change, and the history of the New York City water supply. Partners included the NYC Public Schools’ STEM and Service in Schools units and Office of Energy and Sustainability, New York State Parks, New York Sea Grant, Watershed Agricultural Council, South Street Seaport Museum, Sanitation Foundation and many other cultural and environmental organizations. Some 2024 highlights include DEP’s popular Watershed

Forestry Bus Tour, tours of the Newtown Creek WRRF’s waste-to-energy initiatives, a tour of NY Aquarium, harbor sails with the South Street Seaport Museum, a day-long study of the Long Island Sound with New York Sea Grant and SUNY Maritime, and a presentation on the Delaware Aqueduct Repair Project and statewide drought. As a Continuing Teacher and Leader Education (OTLE) sponsor, as approved by the New York State Education Department, DEP continued to support New York State teachers who participated in our PLOs by providing credit towards their required training hours.



Education Harbor Sail with South St Seaport Museum.

