



**Testimony of  
Vincent Sapienza  
Commissioner  
New York City Department of Environmental Protection  
before the  
New York City Council  
Committee on Environmental Protection**

**March 8, 2019**

Good Morning, Chair Constantinides and Members of the Committee on Environmental Protection. Thank you for the opportunity to testify today. My name is Vincent Sapienza. I am the Commissioner at the NYC Department of Environmental Protection (DEP). I am here to speak about the FY20 preliminary budget and FY19 Preliminary Mayor's Management Report or PMMR. First, I would like to speak to DEP's purpose, mission, and strategic plan.

**DEP's Purpose and Mission**

At DEP, we have the critical mission to enrich the environment and protect public health for all New Yorkers by providing high quality drinking water, managing wastewater and stormwater, and reducing air, noise and hazardous materials pollution. Our vision is to be a world-class water and wastewater utility while building a sustainable future for all New Yorkers.

New York City's water system is world-renowned. Since it was established more than 177 years ago, the system has continued to grow and now provides more than a billion gallons of clean drinking water every day to more than 8.6 million residents, and to the tens of millions of tourists and commuters who visit the City throughout the year. The water supply system also provides more than 100 million gallons a day to approximately one million people in neighboring counties. In all, New York City's water supply system provides drinking water to about half the population of New York State.

New York City gets its drinking water from 19 reservoirs and three controlled lakes spread across a nearly 2,000-square-mile watershed located in portions of the Hudson Valley and the Catskill Mountains. New York City's drinking water is widely considered among the best in the world, meeting or surpassing every national and state standard for quality. During 2018, DEP scientists performed 654,000 analyses of the water throughout our reservoir system and from the nearly 1,000 street-side sampling stations across every neighborhood in the City. Robotic monitoring stations on our reservoirs provided another 1.3 million tests to ensure that DEP is sending the best-quality water to New York City at all times.

Approximately 7,000 miles of water mains, tunnels and aqueducts bring this water to homes and businesses throughout the five boroughs, and 7,500 miles of sewer lines and 96 pump stations take wastewater to 14 in-city treatment plants. DEP recently changed the name of our treatment plants to Wastewater Resource Recovery Facilities. This name change is not superficial – it reflects our continuing transformation from basic handling and treatment of wastewater to being stewards of sustainable resources focused on minimizing waste, enabling a circular economy and embracing innovation. As



many of you know, DEP owns and operates one of the largest wastewater collection and treatment systems in the world, and these facilities treat over 1.3 billion gallons of wastewater each day. Thanks to critical long-term planning, strategic investments, our hardworking staff, and partnerships with stakeholders across New York City, today our waterways are cleaner than they have been in 140 years: no one alive has seen our waterways as clean as they are today. We now see whales, oysters, and wetlands returning to our shores.

Beyond these core responsibilities, DEP's scope includes improving air quality, reducing noise pollution, and protecting New Yorkers from hazardous substances—like asbestos and chemicals found at dry cleaners, auto body repair shops, hospitals, and factories. In addition to our emergency response functions we also regulate the management of hazardous materials and continue to work with stakeholders to improve safety and public health for workers, first responders, and the general public.

### **Preliminary Budget and the Strategic Plan**

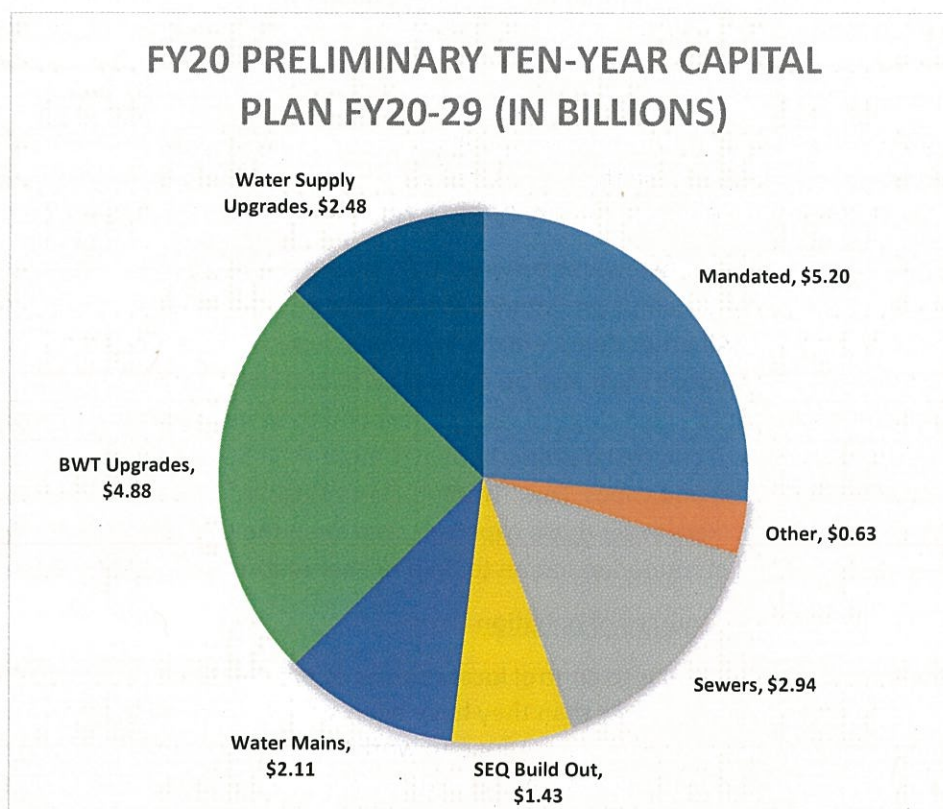
The nature of DEP's work means that we must plan in decades, not years. We are always looking 100 years ahead to ensure that water and sewer infrastructure will be reliable for generations to come. Last summer I released our 2018 Strategic Plan "Enriching Our Legacy" which reflects our priorities for shaping the future and focuses on seven overarching goals.

1. Provide world-class and sustainable water and wastewater services now and for future generations,
2. Control local sources of pollution to improve quality of life,
3. Reduce our carbon impact and mitigate the effects of climate change,
4. Increase public awareness of our operations and improve service to our customers,
5. Cultivate a diverse and highly qualified workforce to meet future challenges,
6. Maximize operational efficiencies across the agency, and
7. Leverage innovative approaches to improve performance.

The projected Expense Budget for the current fiscal year, FY19, is \$1.329 billion. For FY20, the Preliminary Expense Budget is projected to be \$1.317 billion. More than 40% of the expense budget is dedicated to personal services. Our workforce includes nearly 6,000 employees, including almost 1,000 members of staff working upstate in the watershed. All of our operational and capital water-related expenses are paid for with water and sewer payments.

DEP's Ten-Year Capital Plan (TYCP) has a budget of \$19.7 billion. The majority of this budget is dedicated to state of good repair work, or upgrades to keep our facilities functioning effectively and efficiently. About one-quarter of the capital plan budget is dedicated to meeting the requirements of various mandates. The construction of sewers and water mains make up the next two largest investments. All of these efforts ensure that our water and sewer systems will continue to serve the city's needs in the future.





Because our work is guided by our Strategic Plan, DEP's budget priorities reflect the seven goals set forth in the plan.

**1. Provide world-class and sustainable water and wastewater services**

Our first strategic goal is to provide world-class sustainable water and wastewater services, because DEP is first and foremost the City's water and sewer utility.

To meet our drinking water goals, our capital plan includes funding for several critical projects. In addition to funding for water main construction projects, the capital plan includes more than \$1.2 billion to meet mandates related to the Kensico-Eastview Connection Tunnel, more than \$500 million for dependability projects relating to the expansion of City Water Tunnel No. 3, Brooklyn Queens Leg, and more than \$980 million to reinforce the structural integrity of the Ashokan Reservoir and the Catskill Aqueduct Pressure Tunnels. This work will fully rehabilitate the dam, dikes, valve chambers, bridges, and other infrastructure that has allowed that reservoir to serve the city since 1915. Our Delaware Aqueduct Bypass Tunnel is the largest repair in the history of America's largest water supply. This \$1 billion project to repair the world's longest tunnel is ahead of schedule and on budget. Excavation of the tunnel is about 65% complete. The tunnel-boring machine will complete its work around the end of the year.

Nearly 13% of the expense budget (\$167 million) is dedicated to paying taxes on upstate watershed lands. As you know, the ownership of watershed lands represents a critical investment in maintaining the high quality of the City's drinking water by protecting it at the source and ensuring that it does not require more expensive treatment, such as filtration. I am pleased to report that we continue to work closely with upstate jurisdictions to make our tax obligations fair, stable and predictable.



Our wastewater system priorities are also apparent in the capital plan. There is funding for sewer construction, which includes expansion for neighborhood rezonings and land acquisition for our Blue Belt Program – our award winning investments to manage stormwater runoff using ponds, wetlands, and other ecological projects. The capital plan includes more than \$120 million to meet the mandate to reduce residual chlorine that is released and almost \$1 billion for facility upgrades at Hunts Point Wastewater Resource Recovery Facility (WRRF), North River WRRF, and Owls Head WRRF.

To further protect our wastewater services, DEP recently launched our “Trash It. Don’t Flush It.” campaign around the city. This campaign reminds people that only bodily waste and toilet paper should be flushed down the toilet. All other items – including wipes, feminine hygiene products, and cat litter – must be thrown away. Cooking oil must also be thrown away and not poured down the sink. DEP spends nearly \$19 million each year to clean clogged sewers, respond to sewer backups, dispose of wipes, and repair damaged machinery. It can cost a property owner more than \$10,000 to repair household plumbing damaged by grease and wipes. Our “Trash It. Don’t Flush It.” Campaign aims to protect infrastructure, help New Yorkers avoid those expenses, and keep the City fatberg free. We look forward to working with the council in future legislation to help further restrict this growing concern.

## 2. Control local sources of pollution

Our second strategic goal is to control local sources of pollution. As previously stated, New York’s waterways are currently cleaner than they have been since the Civil War. DEP is proud of our contribution to this improvement and we continue to work to make our waterways cleaner.

One of the most important issues we are focusing on is the reduction of combined sewer overflows (CSO). Over 60% the City was designed with a combined sewer system, which conveys wastewater and stormwater for treatment. During particularly heavy rain events this mixture may overwhelm the system and untreated flow can be released into local waterways. While we have reduced CSOs by more than 80% since the 1980s, our capital budget dedicates more than \$1.6 billion to meeting several CSO mandates, including constructing a CSO retention facility at Gowanus, constructing CSO projects for Hutchinson River and Bronx River, and developing a Citywide Long Term Control Plan for East River and Open Waters.

One of the key components of our CSO reduction strategy is the NYC Green Infrastructure Program. We have installed over 4,000 rain gardens around the city, which take pressure off of our WRRFs and reduce combined sewer overflows (CSO), all of which reduces our energy use. We also have robust partnerships with the Departments of Parks & Recreation, Education, and the New York City Housing Authority to retrofit city-owned properties with rain gardens, green roofs, and permeable pavements. To incentivize green infrastructure on private property we offer a Green Infrastructure Grant Program that funds up to 100% of the design and construction cost for green infrastructure projects. The Grant Program is open to not-for-profit organizations, private property owners, and businesses. This program is funded with capital money. We are constantly looking for ways to improve this program to facilitate even more participation and we are currently developing a new private incentive program to support this work.

Our expense budget includes funding for the chemicals that are necessary for both our drinking water supply and wastewater treatment. These are estimated to cost \$64 million in FY20, or about 5% of the Expense Budget.





Our facilities manage 1,200-1,300 tons of biosolids per day. This is projected to cost about \$57 million in FY20, or about 4% of the Expense Budget. It should be noted that as DEP continues to improve treatment, more and more biosolids get produced. Finding beneficial uses for this material is a key goal.

### 3. Reduce our carbon impact, in alignment with the Mayor's OneNYC initiative

As the Council is aware, *One New York: The Plan for a Strong and Just City* includes the pledge to reduce greenhouse gas emissions by 80 percent by 2050. DEP's third goal – to reduce our carbon impact and mitigate the effects of climate change – helps to meet this pledge. DEP reduced our greenhouse gas emissions by 23% percent between 2006 and 2018. We are proud to say that DEP is on track to meet the OneNYC goal of a 40 percent reduction by 2030.

DEP's most valuable opportunities for carbon and energy neutrality and power resiliency are in the biogas and biosolids produced by our wastewater treatment process. As discussed at a hearing a few weeks ago, DEP is transitioning our Wastewater Treatment Plants into Wastewater Resource Recovery Facilities, or WRRFs. Our WRRFs present an incredible opportunity to produce energy. Biogas can be used to produce heat and electricity. Biosolids can be used for carbon sequestration. Maximizing the productive use of these resources puts us on the path toward achieving energy neutrality. We have achieved 30% beneficial use of our digester gas already. This will increase to 56% by the end of this calendar year, with the completion of Newtown Creek's gas handling system and North River's cogeneration system.

DEP is the third-largest municipal consumer of electric power in New York City after the Department of Education and NYC Health + Hospitals, and our consumption will grow as we bring online new treatment processes for wastewater. DEP's energy costs, including heat, light, and power, account for \$109 million or 8% of the FY20 Expense Budget. To control energy costs and meet Mayor de Blasio's major commitment to reduce greenhouse gas emissions, DEP is investing in projects to reduce energy needs. We invest in energy-efficient equipment and systems, including the cogeneration plant at the North River Wastewater Treatment, and by training our staff to operate our facilities efficiently to reduce energy needs. We have identified more than 500 opportunities for energy conservation measures (ECM), which we are integrating into our state of good repair plan. We are expanding our use of solar photovoltaic, hydroelectric, wind, geothermal, and other zero-emissions systems. For example, the Port Richmond WRRF of Staten Island has the largest solar panel installation (1.3 MW) on a city-owned property. We plan to install more solar systems at other WRRFs across the city and continue to deploy small-scale wind turbines. We continue to investigate the feasibility of installing larger-scale wind power.

### 4. Increase public awareness of our operations and improve service to our customers

Our fourth goal is two-fold: increasing public awareness of our operations and improving our service to our customers and to businesses.

One of the most important pending improvements in customer service is the new billing system that we are creating. Our new Customer Information System will help DEP better meet customer expectations by empowering them with more data and analytics. Consumers will receive modern, easy-to-understand bills and will be able to access more services online through a new web portal. The contract to build the system is currently with the Comptroller's Office. We hope to start work with the vendor as soon as next month.



Increasing public awareness also includes expanding education opportunities. Through our work at the Visitor Center at Newtown Creek, the Queens Museum, and with schools around the city, we teach our community about the water supply, wastewater treatment, air quality, water conservation, and other important issues, such as climate change. We are working to expand our outreach to raise awareness, help people understand our work, and ensure compliance with environmental rules and regulations.

We are working to improve service in a few ways. We are incorporating more technology to improve communication with our customers. We are also streamlining the process to obtain water, sewer, and stormwater permits, to make these efforts less confusing and more efficient.

#### 5. Cultivate a diverse and qualified workforce

Cultivating a diverse and qualified workforce is an important goal. We are proud of the fact that our workforce is representative of the areas that we serve. More than 40% of our expense budget - \$555 million – goes to personal services. We have more than 6,000 funded positions, including 1,000 positions in the watershed upstate.

As part of our staffing efforts, we intentionally look to create career opportunities for historically underrepresented communities. We have made conscious efforts to work with local non-profits and job placement programs. Our recruitment outreach has increased in recent years and we continue to expand our efforts. Our Green Jobs staffing program is projected to have 163 people on staff in FY20, which is about twice the number that we had in FY17. This program includes about 50 positions for seasonal workers annually. These seasonal positions may lead to full-time opportunities for people who are successful in their roles.

#### 6. Maximize operational efficiencies

To improve our operations and save money, our next goal is to maximize operational efficiencies around the agency.

One critical way to do this is to leverage data effectively. DEP monitors hundreds of thousands of data points each year. These data can do more than tell us the status of our water and air quality. With predictive analytics, these data can be used to identify potential issues before they become problems. Predictive analytics can also support our other goals, such as optimizing performance and improving customer service. Similarly, data visualization systems can help our staff quickly identify trends and improvement opportunities department-wide.

Several years ago, we began systematically replacing the oldest water meters in the system, which also tend to be the most inaccurate. The capital plan includes \$73 million to continue this replacement project. The meter upgrades help DEP recover lost revenues and make collections more equitable, particularly with respect to non-residential versus residential customers. The replacement program incorporates accuracy testing of the new meters.

#### 7. Leverage innovative approaches to improve performance

Our final goal is to leverage innovative approaches to improve performances. DEP is a world-class water and wastewater system and we expect to stay at the forefront of our field.



We are engaging in new research and incorporating new technologies. For example, as discussed earlier, we want to maximize resource recovery at our WRRFs. We collaborate with other industry and learning organizations, adopting best practices and influencing national policymaking.

Innovative approaches often connect to other goals, such as increased efficiencies. For example, we are able to use technology to improve performance and allow staff to use their time more efficiently. Over the past decade, DEP has introduced tablets and similar devices to several field units, improving their productivity and responsiveness and increasing accuracy and safety. We continue to identify areas where innovative technology can improve operations in all areas – from water and wastewater treatment to response tracking.

#### **FY19 PMMR**

The FY19 PMMR highlights some of DEP's recent successes. We continue to have exemplary water quality and sewer service. Nearly all of our critical indicators met or exceeded the targets during the reporting period. We have improved our response time to air quality and noise complaints and we continue to respond to 100% of asbestos complaints within three hours. Our time to close noise complaints has improved by almost 20%, in part due to our improved use of technology in the field. We are very proud of our customer service quality overall, even as we consistently strive to improve our service.

The PMMR also indicates some of the areas where we need to focus additional attention. Sewer backup and catch basin complaints both increased during the first four months of FY19 this year. Both of these issues are attributed largely to the record rainfall experienced over the summer, but we are still taking steps to ensure better performance in the future. It is worth noting that despite the increase in complaints, sewer backup resolution times only increased by 48 minutes and catch basin response times actually decreased. Likewise, the time to close noise complaint cases has decreased by 20% this year. This success is due to our innovative use of technology, which allows field staff to make reports in real time, as well as of the recent local law that required DEP to inspect and clean catch basins more frequently.

As you can see, our 2018 Strategic Plan and our capital investments serve as a blueprint that reflects DEP's priorities for shaping the future. We commit to evolve the plan over the years to reflect emerging and changing trends while continuing to hold true to the visionary goals that are vital to creating a sustainable future for all New Yorkers. Thank you again for the opportunity to testify today. My colleagues and I are happy to answer any questions that you have.





Environmental  
Protection

# **2018 Strategic Plan**

## *Enriching Our Legacy*









Vincent Sapienza, P.E.  
Commissioner



Dear Friends:

At the New York City Department of Environmental Protection (DEP), we have the critical mission to enrich the environment and protect public health for all New Yorkers by providing high quality drinking water, managing wastewater and storm-water, and reducing air, noise, and hazardous materials pollution.

Over the past year, we worked across our organization to identify opportunities to improve services and to prepare DEP for the challenges ahead. Today, I am pleased to present the culmination of that effort, *2018 Strategic Plan: Enriching our Legacy*. Building on a strong history of strategic planning spanning more than two centuries, this plan outlines seven goals and forty-three specific initiatives that will guide our priorities as we strive to achieve our vision to be a world class water and wastewater utility, while building a sustainable future for all New Yorkers.

As we developed this plan, we tackled not only the questions of what we needed to achieve, but how we intend to do so. We identified eight core values that underscore the very essence of how we do business; those values are safety, integrity, service, support, diversity, transparency, sustainability, and innovation.

The only way we can achieve our goals is through the hard work and dedication of the 6,000 talented employees that make DEP the agency it is today. Their commitment to DEP's mission, vision, and values will make New York a better place to live, work, and enjoy life today and tomorrow.

Sincerely,

A handwritten signature in black ink, appearing to read "Vincent Sapienza".

Vincent Sapienza, P.E.  
Commissioner





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# INTRODUCTION

The New York City Department of Environmental Protection (DEP) holds the critical mission of enriching the environment and protecting public health for all New Yorkers by providing high quality drinking water, managing wastewater and stormwater, and reducing air, noise, and hazardous materials pollution.





Ashokan Reservoir

The New York City water supply system was established more than 175 years ago when City officials recognized that the existing water resources could not support the continued growth of the burgeoning metropolis. Their vision and the toil of generations of laborers eventually led to the creation of a dynamic, living water supply system spanning 2,000 square miles in upstate New York – more than six times the size of New York City itself. This engineering marvel delivers more than a billion gallons of drinking water, nearly entirely by gravity, from as far as 125 miles away to nine million New Yorkers and millions of visitors and tourists every day.

Similarly, public health sanitarians in the late 19th century recognized that New York was facing a public health crisis, as waste from residents clogged the streets and caused waves of cholera and other diseases. At first, their primary objective was simply to move wastewater away from the masses, so sewers were built to convey flow directly from homes and businesses to the harbor waters. Over time, the harbor became polluted and wildlife left our shores. In 1904, the City established the Metropolitan Sewerage Commission to develop a comprehensive plan to protect the City's waterways. Based on that plan, the City constructed – over a 56-year period – fourteen wastewater treatment plants that treat an average of 1.3 billion gallons of wastewater each day.

In 1977, the City consolidated the functions of water supply delivery and wastewater treatment to create the Department of Environmental Protection. This newly created agency was also charged with regulating air quality, noise, and hazardous materials. Continuous evolution of environmental policy including regulatory requirements have

broadened DEP's role in environmental protection and sustainability. Today, DEP employs nearly 6,000 people across the City and in our upstate watershed to carry out our important mission.

In 1985, New York State legislature passed the New York City Municipal Water Finance Authority Act. The Act created two public authorities that, working in tandem with the City of New York, provide a dedicated stream of funds to fully support the water and sewer system. The first of these public authorities, the New York City Water Board, is responsible for establishing water and sewer rates that raise revenues sufficient to meet the system's financial obligations. The other, the New York City Municipal Water Finance Authority, is responsible for issuing investment bonds that finance the system's capital improvement program.

***Our vision is to be a world class water and wastewater utility,  
while building a sustainable future for all New Yorkers.***

Building upon DEP's legacy of long-term planning, the seven goals and forty-three strategic initiatives outlined in this plan demonstrate our commitments to the public, our customers, colleagues, and regulators. Given the magnitude and scope of our responsibilities, many of our initiatives are complex and their implementation will span years, if not decades.

As we developed this plan, we considered a variety of factors, including current and upcoming federal and state mandates, financial plans, institutional knowledge, technological trends, workforce demographics, customer service responsibilities, and the economic impact of water rates on our customers.

This plan continues to place an emphasis on our core values, which celebrate DEP's fundamental beliefs in what matters as we go about performing our work and serving our customers. Our commitment to these core values enhances the likelihood that we will not only achieve our goals, but also sustain a culture that results in customer satisfaction and an inspired and engaged workforce.

*2018 Strategic Plan: Enriching our Legacy* is a blueprint that reflects our priorities for shaping the future. We commit to evolve the plan over the years to reflect emerging and changing trends while continuing to hold true to the visionary goals that are vital to creating a sustainable future for all New Yorkers.





Water Efficient Spray Shower at  
Harlem St. Nicolas Park





# OUR VALUES

We embrace eight core values as fundamental principles that guide how we approach and deliver on our mission. They shape the organizational culture that we believe best serves our employees and all New Yorkers.

Our core values are safety, integrity, service, diversity, support, transparency, sustainability, and innovation.



## SAFETY

**We put safety first and are committed to creating the safest workplace for everyone involved in our work.**

Every employee deserves to work in a safe environment and return home safely at the end of each day. Over the past decade, we have created a culture where safety comes first for every employee, contractor, and the public. We consistently improve our programs and policies to make the workplace as safe as possible.

## INTEGRITY

**We conduct ourselves at all times in a manner that is ethical, professional, and honest.**

Annually managing \$3.8B in public funds and ensuring compliance with environmental laws fundamentally requires ethical conduct and integrity. We are committed to creating an organizational culture in which employees exhibit ethical behavior and are accountable at all times. Our commitment to compliance makes us worthy of the public's trust in all that we do.

## SERVICE

**We employ a customer-focused approach in all that we do.**

We are driven by our commitment to provide value to all residents, business owners, and visitors of New York City. We strive to understand what each customer wants and needs so we can meet and exceed their expectations. We are equally committed to applying this approach to internal customers that provide service throughout DEP.

## DIVERSITY

**We embrace diversity across all demographics, including but not limited to race/ethnicity, gender/gender identity and expression, sexual orientation, age, disability/perceived disability, religion or creed, economic class, and their intersections.**

Our agency's workforce should reflect the composition of the communities we serve: talented, dedicated, passionate, and diverse. Our employees bring a wide array of skills and each one is a valued contributor to our mission. Through our commitment to diversity and inclusion and ensuring a workplace free from discrimination or bias, we strive to employ, attract, and retain the best and the brightest employees. Fairness and equity are fundamental to our culture.

## SUPPORT

**We support a culture of respect and invest in the professional growth and development of our workforce.**

Our employees are our greatest assets – their dedication, creativity, and innovation make DEP services world class. That is why we remain committed to maintaining productive and civil work environments as well as developing our employees' skills and knowledge so they can excel in their current roles and be well poised to advance their careers.

## TRANSPARENCY

**We communicate openly to encourage cooperation and understanding.**

Maintaining clear and open lines of communication, both with the public and internally, is critical to our long-term success. Communicating effectively with the public builds support for our projects, resolves concerns, and holds us accountable to achieve mutual goals. Sharing information across our internal units provides all our employees with the information they need to make timely, well informed decisions.

## SUSTAINABILITY

**We maximize the economic, environmental, and social benefits of our investments and responsibilities.**

As environmental champions, we must consider the profound economic, environmental, and social impacts our policies, procedures, and investments have on the City and upstate communities. Financial stewardship is especially important as we continue to demonstrate the long-term value of our work. Whether it is increasing our use of renewable energy, preparing for the impacts of climate change, supporting ecosystems, or any of our many other responsibilities, we are committed to creating a long-term, positive impact on the environment, society, and the economy.

## INNOVATION

**We embrace new ideas that improve our performance and service to our customers.**

Our industry and the world we operate in is constantly evolving, driven by shifting conditions such as climate change, income inequality, population growth, technological advancements, and new or more stringent regulatory requirements. To stay at the forefront of the industry and to keep our water rates as low as possible, we constantly assess our future market and customer needs and inspire our employees to advance new ideas and employ smarter technologies and processes across our operations.





Steel Liners for the Delaware Aqueduct Bypass Tunnel



# OUR PLAN

**DEP identified seven goals to move us toward our vision. These goals are:**

- **Provide world-class and sustainable water and wastewater services now and for future generations**
- **Control local sources of pollution to improve quality of life**
- **Reduce our carbon impact and mitigate the effects of climate change**
- **Increase public awareness of our operations and improve service to our customers and the business community**
- **Cultivate a diverse and highly qualified workforce to meet future challenges**
- **Maximize operational efficiencies across the agency**
- **Leverage innovative approaches to improve performance**

**Each goal is supported by a number of strategic initiatives, with internal action plans and discrete tactics, critical milestones, and performance metrics that will be tracked throughout implementation.**





GOAL

**Provide world-class and sustainable water and wastewater services now and for future generations**

# Strategic Initiatives

## **1 Develop a coordinated long-range master plan for our water and wastewater systems.**

More than a century ago, planners from the New York City Board of Water Supply developed comprehensive plans to build a far reaching water supply system more than a hundred miles away from the City. This ambitious plan, which accounted for millions more New Yorkers than the population at that time, has allowed New York City to grow and prosper without the constraints of a limited water supply. Then, as the public sanitation movement swept through New York in the early 1900s, the City again developed a comprehensive drainage and wastewater treatment plan to ensure that New Yorkers could live healthy, productive lives.

Building upon this legacy of long term planning, DEP continues to think big. Over the next four years, we will develop master plans for our water supply, wastewater, and stormwater systems to continue this legacy of long term planning. This initiative will produce plans that integrate existing and emerging drainage plan recommendations with related requirements for upgrades to DEP infrastructure. The planning effort will consider existing and emerging regulations, resiliency goals, climate change forecasts, system optimization initiatives, and population forecasts as well as community and stakeholder concerns. All recommendations for capital investments and system optimization opportunities in the short, medium, and long term will facilitate the construction and operation of a reliable, compliant, and scalable system to meet the needs of the City of New York.

## **2 Manage our assets to ensure the long-term sustainability and optimal efficiency of our water and wastewater services.**

Our water supply and wastewater treatment systems are composed of more than 100,000 individual assets. To maintain the high level of service that we deliver, we spend hundreds of millions of dollars each year to build, maintain and replace assets as needed to optimize performance, maximize useful life, and protect the public against risks of failure. In 2004, DEP established a formal asset management program to systematically inspect and analyze assets in our system and prioritize rehabilitation and replacement. Over the next four years, DEP will enhance this system to incorporate best maintenance



practices and enhance business case development processes to ensure that our assets operate at optimal performance and that we are making the most cost-effective public investments to keep our system in good repair.

### **3** **Maintain rates and sustain revenue to fund DEP's operations now and in the future.**

New York City's 8.6 million residents and DEP's 835,000 bill-paying customers make it possible to operate, maintain, and build the city's water and sewer infrastructure. Maintaining our high-quality services requires an integrated approach that encourages conservation and efficiency and maintains a fair and sustainable rate structure. DEP will work with the Water Board to investigate rate structure and customer assistance program options to equitably meet DEP's financial and operational needs while balancing affordability concerns and economic impacts to all customers. Working in parallel with DEP's rate analysis and strategy, we will implement a new customer billing system that will provide us with the flexibility and technology necessary to create and implement more intricate rate structures and respond more effectively to our customer's needs.

### **4** **Strengthen DEP's environmental health and safety culture.**

DEP is committed to fostering a culture of environmental health and safety (EHS) excellence at all levels of the agency. DEP will grow a culture of excellence through strong management commitment and by building an environment of trust and respect towards

Water Quality Testing







creating and sustaining functional partnerships. Across the agency, we will strengthen our EHS communications so that every employee lives and thinks about the safety of themselves and their colleagues during all facets of the work we do to fulfill DEP's mission. We will support and promote the means for employees, supervisors and managers alike to take personal responsibility for their safety and to look out for the safety of their colleagues. We will engage employees in the EHS process, build safety leadership across all levels, and develop EHS management systems to continuously support a positive EHS culture.

## **5 Leverage technology to increase the security of DEP's infrastructure and network.**

To protect DEP's systems from cyber-attacks, terrorism, and crime, we work diligently to safeguard our infrastructure and network. DEP is unique among the nation's large water utilities in that it has its own police force to protect the water supply system. DEP works closely with federal, state, and local law enforcement to protect the confidentiality, integrity, and availability of our digital systems from external threats. We will continue to leverage these partnerships to strengthen our cyber security posture and mitigate security risks.

## **6 Manage the watershed to ensure long-term protection of New York City's water supply.**

New York City is one of just five cities authorized to provide unfiltered drinking water to its customers. Protecting water quality at the source is our first line of defense in a multi-barrier approach to protecting public health that also includes effective treatment and operational controls that ensure exceptional drinking water quality. DEP's successful watershed protection program, which is recognized as a model worldwide, calls for a



City Water Tunnel No. 3

balance of regulation, acquisition of sensitive lands, partnership programs with watershed communities, and other actions to protect and manage water supply lands. Over the next decade, DEP will make significant investments to continue protecting this invaluable asset, to maintain compliance with the filtration avoidance determination, and to support sustainable economic development in the watershed.

## **7 Support the development of backup supplies for upstate water supply systems in our region.**

In addition to meeting New York City's water supply needs, DEP provides water to more than one million New Yorkers outside the city limits. In preparation for the shutdown of the Catskill Aqueduct for rehabilitation, which will in turn support the Delaware Aqueduct shutdown and repair in 2022, DEP is working with upstate communities that draw water from our system to ensure there are reliable, safe backup supplies available. Investing in our regional water supply systems will also equip the region to better respond to the growing threats of climate change, so that during periods of water shortage our regional partners can draw from their backup supplies rather than the City's system.

## **8 Expand outreach and enforcement efforts to protect the water supply system from cross-contamination.**

To protect New York City's drinking water supply systems from contamination, DEP has a robust water quality monitoring program and regularly performs sampling throughout the City. DEP also enforces the installation and maintenance of approved backflow prevention devices, which prevent materials from flowing back into the drinking water supply if there is a sudden or unexpected change in water pressure. Over the next four years, DEP will implement a series of improvements to ensure compliance with backflow regulations, including new auditing procedures to verify the accuracy of self-certified reports and enhanced engagement with the business community to ensure proper use of the devices.

## **9 Enhance sewer planning efforts.**

Due to climate change, rainfall is increasing both in quantity and intensity, affecting urban drainage. At the same time, sea level rise, dense new development, and various other factors are exerting additional and shifting demands on the sewer system. To improve sewer planning efforts and to support sustainable growth within the City, DEP will develop a digital sewer drainage planning tool. This tool will allow our technical staff to quickly analyze proposals that increase sewer demands and quantify needed upgrades to our sanitary and drainage systems for long-term sustainability.

## **10 Expand sewer infrastructure to underserved areas.**

Some parts of the City lack a completely built out sewer system and experience common street flooding, limiting the ability of these neighborhoods to develop and thrive. In 2015, Mayor de Blasio announced an unprecedented investment of \$1.5 billion over ten years to expand the sewer network in Southeast Queens and resolve many long-standing flooding concerns. In addition to delivering on this promise, DEP will expand the Mid-Island Bluebelt in Staten Island to provide local residents with high quality drainage infrastructure, and explore opportunities to install Bluebelts in other advantageous locations citywide.





Sludge Delivery at North River Wastewater Treatment Plant

## 11 **Reduce sewer backups and improper disposal of grease.**

Fats, oils, and grease found in food ingredients such as meat, cooking oil, shortening, butter, margarine, baked goods, sauces, and dairy products are the number one cause of sewer backups in New York City. When poured down any drain or toilet that connects to the sewer system, grease can build up in sewer lines, leading wastewater to backup into homes and businesses. In response to this problem, DEP has launched the Cease the Grease campaign to educate property owners, businesses, and institutions about proper grease disposal. Over the next four years, DEP will expand this educational program to reach a broader audience and pair it with data-driven, targeted maintenance protocols that will improve our ability to proactively identify grease prone areas and take appropriate actions before the sewer backs up.

## 12 **Transition wastewater treatment plants to wastewater resource recovery facilities.**

In the century since the City first began treating human waste, treatment facilities have evolved from primitive tanks that merely sifted out solids to modern, industrial facilities that make products that have value to both consumers and the environment. Over time, our fourteen facilities have undergone name changes aligned with their evolving functions – from sewage treatment plants, to water pollution control plants, to wastewater

treatment plants. As we look toward the future, our plants will become wastewater resource recovery facilities. These name changes are not superficial – they reflect the changing science and increased responsibility that has transformed wastewater utilities from handlers of wastewater to managers of sustainable resources, seeking the least-cost/highest return environmental and social solutions.

This transition, in both culture and day-to-day operations, embraces industry best practices to ensure a sustainable future that minimizes waste, maximizes valuable resources, and embraces innovation. We are transforming from an agency that conveys and treats wastewater to a leader in resource recovery and an essential partner in the circular economy delivering maximum environmental benefits. In the coming years, DEP will begin rebranding wastewater treatment infrastructure as resource recovery infrastructure and develop metrics to drive decision making towards the highest valued resource recovery opportunities to ensure sustainability and optimal cost-effective operation.

## **13** Launch a comprehensive effort to reduce the improper disposal of “flushable” wipes.

Over the last decade, DEP’s fourteen wastewater treatment plants received a significant increase of non-biodegradable waste, such as plastics-containing toilet wipes. Many of these products do not break down in water, and cause damage to screens, motors, pumps and other equipment. DEP has already launched a series of coordinated efforts aimed at getting New Yorkers to stop flushing wipes. We will build on these existing efforts by conducting and publishing a study that uses experiential and scientific evidence to better understand and demonstrate the harmful impacts of these materials at our wastewater treatment plants. Following the completion of the study, DEP will launch a targeted marketing campaign and will work with the New York City Council and policy organizations to develop legislative and legal drivers that will enforce behavioral changes throughout the City.







GOAL

Control local sources of pollution to improve quality of life

## Strategic Initiatives

### **14** Improve air quality by reducing airborne pollutants.

Air quality in New York City has significantly improved, though some communities continue to be disproportionately affected by local pollutant emissions. Even with recent air quality improvements, air pollution annually contributes to more than 2,000 deaths and 1,500 hospital admissions for people with lung and heart conditions, and approximately 5,000 emergency room visits for asthma in the City.

To further improve air quality, DEP will enhance several ongoing initiatives to curtail vehicular emissions. Over the next four years, we will work with the New York City Council to craft legislation that will further restrict engine idling. DEP will launch an aggressive anti-idling outreach campaign targeted at a wide variety of stakeholders, including school bus operators, truck delivery fleet owners, taxi companies, ride-sharing services, and the licensed trades. In addition, DEP will continue to control previously unregulated sources of particulate matter emissions by introducing new requirements to control emissions from commercial charbroilers.

### **15** Improve the quality of our waterways.

DEP's legacy of clean water action dates back to the 1890s with the construction of the first rudimentary wastewater treatment plant to protect farming and fishing in Brooklyn. The City's rapid population and industrial growth through the mid-20<sup>th</sup> century heightened the need for additional wastewater infrastructure. With the passage of the Clean Water Act in 1972 and modern environmental advocacy, the City began investing heavily in water pollution control. Today, our waterways are cleaner than they have been in 140 years, and we see whales, oysters, and wetlands returning to our shores. Still, there is much work to do.

Continuing to reduce and prevent pollution to protect the overall health of the harbor and connected waterways requires thoughtful planning of capital investments and broad stakeholder input. Working with local communities, DEP is developing a comprehensive year-round floatables reduction campaign that will include a citywide bag exchange program. We will conduct beach/park clean ups with our partners and coordinate a public



campaign to encourage New Yorkers not to litter. Over the next four years and beyond, DEP will continue to make capital investments, promulgate new regulations, and partner with the community and industry to reduce sources of pollution into our harbor so that all New Yorkers can enjoy clean, healthy local waterways.

## **16** Minimize odors from our industrial facilities.

DEP operates fourteen wastewater treatment facilities across all five boroughs, which process the 1.3 billion gallons of sewage that New Yorkers generate each day. In our effort to be good neighbors, DEP will make further improvements to odor control at these facilities by proactively identifying and mitigating odor sources through operational changes and investing in new capital equipment.

## **17** Reduce noise pollution throughout New York City.

Noise pollution, particularly from construction in evenings and on weekends, negatively affects the quality of life for New Yorkers across all five boroughs. Since 2013, construction-related noise complaints have risen 107%, and with the strength of the construction market, this trend is likely to continue. To reduce noise pollution, DEP will promulgate new rules and implement new procedures that specifically target construction noise. In addition, DEP will work with the private sector to identify and recommend best available technologies to limit noise impacts on local communities.

Whale Observed in NYC Harbor





## 18 Increase asbestos audits.

Exposure to airborne, friable asbestos remains a significant public health risk, even decades after the substance was banned. When older buildings are renovated, asbestos mitigation measures must be taken. DEP has a comprehensive program to inspect asbestos removal activities, to certify workers who do the removal, and to enforce asbestos safety rules. To ensure that all remediation work is undertaken correctly, DEP will promulgate new rules that will strengthen the training requirements for Certified Asbestos Inspectors and increase our auditing of construction sites.

## 19 Participate in the remediation of Superfund-designated sites.

Since the mid-19th century, the natural topography of New York City's waterways has been altered to create new or larger waterways to promote commerce and industry. For example, following the creation of the Gowanus Canal and the dredging of Newtown Creek, heavy industries such as foundries, shipyards, and gas manufacturing plants were built along these waterways. Today, both of these sites have been designated as Superfund sites based on the historic industrial discharges of pollutants.

While the primary cause of contamination in these largely man-made waterways is due to their historic uses, DEP is working to improve water quality and reduce combined sewer overflows into both the Gowanus Canal and Newtown Creek. This work will reduce the volume of discharge and support efforts by multiple levels of government to improve these waterways consistent with their intended uses. For example, in the Gowanus Canal, DEP has invested millions of dollars to repair and upgrade the flushing tunnel and the pumping station, and we will continue in these efforts through a multi-pronged improvement plan that will further reduce combined sewer overflows. Similarly, on Newtown Creek, DEP has upgraded the Newtown Creek treatment plant and proposed a new combined sewer overflow storage tunnel.





GOAL

**Reduce our carbon impact and mitigate the effects of climate change**

## Strategic Initiatives

### **20** Reduce greenhouse gas emissions and expand renewable energy sources.

Under *OneNYC: The Plan for a Strong and Just City*, Mayor Bill de Blasio pledged to dramatically reduce overall greenhouse gas emissions 80 percent by 2050 (80x50), specifically reducing emissions from City government operations 35 percent by 2025. Emissions from the water and wastewater systems are responsible for nearly 20 percent of City government emissions and wastewater treatment accounts for 90 percent of that.

Improving the efficiency of wastewater treatment, increasing the production of biogas, and capturing and beneficially using all biogas as a renewable energy source significantly reduces carbon emissions, offsets emissions from energy originating from traditional fossil-fuel sources, and creates financial benefits through the creation of marketable Renewable Energy Credits. DEP is embarking on a comprehensive energy plan to reduce energy consumption agency-wide through operational optimization, completing facility upgrades, targeting capital investments, integrating energy conservation measures in capital planning, and purchasing more efficient vehicles.

Over the next four years, DEP will expand our efforts to reduce emissions by exploring additional renewable energy sources, such as solar and wind at both in-city and upstate facilities, and we will work to harness and increase biogas production for beneficial reuse.

### **21** Restore natural habitats throughout New York harbor.

Due to billions of dollars in investment in wastewater treatment, New York City's harbor is cleaner today than it has been in more than century. Natural habitats and wildlife have returned to the area, as whales swim in New York Harbor and oyster populations are returning to Jamaica Bay. DEP will continue to support local ecosystem development by restoring wetlands, planting eelgrass, and building additional oyster populations across the harbor. These projects not only enhance the natural habitat, but also improve water quality by absorbing nutrients and other substances from the harbor waters.





Newtown Creek Wastewater Treatment Plant

## 22 Expand the green infrastructure program.

Green infrastructure softens the city's built environment, allowing stormwater to be naturally absorbed into the ground where it falls, or managed in an environmentally beneficial manner. Green infrastructure is a cost-effective method for managing stormwater in combined and separately sewered areas, and a practical strategy for mitigating flooding during heavy rain events. To date, DEP has constructed more than 4,000 green infrastructure assets. Over the next four years, DEP will continue to expand the green infrastructure program by developing new partnerships with City agencies, expanding the right-of-way program into medians and new areas of the City, launching a green infrastructure incentive program for private property, and launching a public "Adopt-a-Rain Garden" program.

## 23 Expand integrated water management through water conservation, water reuse, and resource recovery.

Water is one resource, starting in our watersheds to the north, traveling through aqueducts, homes and businesses, sewers, wastewater resource recovery facilities, and finally into New York Harbor. DEP's integrated approach to managing this resource, known as One Water, enables sustainable low-carbon growth, decreases stress on our drinking water supply, reduces flow to sewers and wastewater resource recovery plants, promotes community and ecosystem health and resiliency, and mitigates climate risks.

New York City has already made important progress in managing our water demand and reducing our impact on the environment. In 1979, 7.1 million New Yorkers consumed approximately 1.5 billion gallons of water a day, while today 8.6 million New Yorkers consume nearly one billion gallons of water a day. Building off past successes, DEP's One Water program advances water conservation measures, such as residential toilet replacements, municipal plumbing fixture upgrade programs, and leak identification in DEP-owned water supply infrastructure, expands stormwater reuse programs, and explores opportunities to use recycled water at our wastewater resource recovery facilities for non-potable uses.







GOAL

**Increase public awareness of our operations  
and improve service to our customers and the  
business community**

## Strategic Initiatives

### **24** Increase the public's awareness of DEP's mission and responsibilities.

At DEP, we recognize the critical importance of the services we provide to New Yorkers and the environment around them. Public engagement and outreach is important for environmental stewardship and literacy, while customer communication is a core component of managing and improving our service delivery.

We have a duty to educate our customers and stakeholders about our critical responsibilities and share our story with the public. We will establish a voice for DEP that elevates the agency's profile as a national and world leader in the industry and familiarizes the public with who we are. We will increase the agency's media presence, social media activity, and participation in creative events to raise the public's awareness of DEP's responsibilities and expertise in water supply delivery, customer service, water and sewer operations, wastewater resource recovery, engineering, ecosystem restoration, and environmental planning. Over the next three years, DEP will create a cohesive branding strategy that will simplify messaging, improve access to our services, and highlight all the work we do.

### **25** Expand education opportunities for local communities and external stakeholders.

DEP offers a number of ways that local communities and stakeholders can learn about the City's vital water supply, wastewater and stormwater treatment systems, air quality, water conservation, and other environmental programs. Programs ranging from the annual Water Resources Art and Poetry Contest to exhibits at the Visitor Center at Newtown Creek and the Queens Museum offer students and teachers a variety of opportunities to learn about DEP's infrastructure in fun and exciting ways.

Over the next four years, DEP will increase community engagement and expand opportunities to share more information with watershed stakeholders and communities about the operation, maintenance, and protection of the City's water supply and sewer system. We will also expand outreach to the business community to seek new partnerships and to ensure compliance with all environmental rules and regulations.



## 26 Enhance the customer's experience when calling DEP.

DEP is committed to providing transparent, high quality, and efficient service for our customers. Our current Interactive Voice Response (IVR) system is a citywide service used to interact with customers. Recognizing that DEP's customers require assistance relevant to our services, we will install a new, separate IVR system designed to reduce call wait times and increase customer satisfaction. The new IVR system will provide our customers the call experience they have come to enjoy from other companies and expect from us.

## 27 Employ digital communication to better serve our customers and employees.

As access to digital devices and platforms continues to grow, organizations are creating new opportunities to improve interactions with both internal and external stakeholders. DEP's geography extends across all five boroughs and 125 miles north of the City, making seamless digital communication essential for providing quality service to both our employees and our customers. DEP seeks to provide high-speed electronic transmission of images, data, voice, and video to these stakeholders in formats that draw attention and create a credible presence in the digital communications market.

Over the next three years, DEP will pilot and implement plans to expand digital communications capabilities to locations that serve our customers and to employee field offices. For example, DEP will begin to use chatbots internally for self-service for both our internal

Grease Outreach





and external customers and expand digital devices for emergency and routine communications. As part of the rebranding process for DEP, these new communications methods will strengthen our social media and web presence.

## 28 Streamline the permitting process for water and sewer connections.

The intricacies of permitting are often complicated and time-consuming. To provide timely, responsive, and accurate information to the construction and development community, DEP will establish and maintain a centralized electronic system to streamline our water, sewer, and stormwater permitting processes. In addition, we will publish online user guides to clearly explain the requirements, clarify the permitting process for the filing community, and improve turnaround times.

## 29 Increase opportunities for minority and women-owned business enterprises (M/WBE).

To increase meaningful participation of M/WBEs in DEP's diverse contract opportunities, DEP will continue to implement new approaches. We will further strengthen our outreach to minority and women-owned businesses by hosting workshops, information sessions, and networking opportunities to increase the share of our contracts won by M/WBEs. We will also work with M/WBE representatives to design a new M/WBE Mentoring Program that will provide on-site exposure to demonstrate how DEP utilizes contractors and vendors. Additionally, we will work closely with the Mayor's Office and other capital construction agencies to support broader, more systematic solutions to removing barriers and building market capacity for M/WBEs, such as access to bonding and lines of credit.





GOAL

Cultivate a diverse and highly qualified workforce to meet future challenges

## Strategic Initiatives

### **30** Attract and hire highly qualified, diverse talent.

Attracting the best talent is critical to meeting our current and future responsibilities. To ensure that we hire the best talent, we will work within the Civil Service system and with our city government partners to update title specifications and job descriptions where appropriate. Our goal is for our workforce to reflect the knowledge, skills, and abilities to succeed in today's competitive workplace and to drive DEP's vital projects and initiatives.

In addition, we will enhance our recruitment and other outreach programs and initiatives to attract a highly qualified and diverse candidate pool. These efforts will include leveraging diverse recruitment sources from which to secure equally diverse candidate pools. Internally, we will enhance training efforts to ensure that all our hiring managers and supervisors are competent in structured interviewing and interrupting unconscious bias in the workplace. We will also conduct a systematic review of our hiring process, from staffing needs assessment through onboarding, to reduce hiring cycle times and improve the hiring experience on all levels.

### **31** Provide career opportunities to communities or demographics that have been historically underrepresented.

DEP's geographically dispersed operations and job tasks provide substantial opportunities for creative recruitment strategies that span a broad socio-economic spectrum. To enhance our talent pipeline and provide access to sustainable career paths, we will work with our city government partners to explore new entry-level employment opportunities by developing "in-training" positions and apprenticeship programs. These positions and programs will provide underrepresented populations access to City jobs while they build the skills necessary to secure better-paying jobs in the future, both within and outside DEP.

In addition, we will explore expanding our partnerships with organizations that provide green infrastructure maintenance skills training to members of targeted communities. Building this skilled workforce is also expected to feed the talent needs within the growing field of small and M/WBE businesses devoted to this work.





DEP Interns

## **32** Leverage workforce diversity, employee engagement and inclusion in the workplace.

The ability to succeed in fulfilling our mission and serving our customers is dependent upon attracting, growing, and retaining a diverse, high performing workforce that reflects all segments of our society and values all aspects of our human diversity. As New York City continues to change ethnically and culturally, we strive to calibrate our recruitment strategies and workforce development and retention efforts to maximize employee engagement and value.

Over the next four years, we will also develop new programs to build agency and managerial competency and accountability in diversity and inclusion. Studies show that employee engagement and inclusion are among the core drivers of high employee morale and performance, and help to lower rates of turnover, complaints, accidents, and absenteeism. A commitment to building competency in these areas will translate into a long-term return on investment.

## **33** Enhance the talent pipeline for the future.

Over the next ten years, more than half of DEP's workforce will be eligible to retire. At the same time, we face rapidly changing technical and technological standards that are required to fulfill our mission-critical functions. In response to these challenges, we will develop robust programs to capture and supplement the institutional knowledge that is invaluable to the continued operation of our complex infrastructure.

Over the next four years, we will identify critical positions and technical competencies needed to preserve our accumulated experience while encouraging the rise of future leadership. We will also adopt multi-faceted enhancements to our operations so that we continuously engage, develop, and retain talent at all levels of the organization. This approach will include embedding performance coaching into our work culture, delivering more refined and real-time workforce planning, and pursuing new strategic investments for a multi-generational workforce. Professional growth and development opportunities, including unit-specific succession plans, rotational assignments, cross training and mentoring will be the cornerstones of our workforce strategic planning.







GOAL

Maximize operational efficiencies across the agency

## Strategic Initiatives

### **34 Insource in strategic areas to improve capital program delivery and operations.**

To deliver critical services to more than nine million New Yorkers, DEP operates an extensive and complex water and wastewater system. This system must be maintained, rehabilitated, upgraded, and enhanced to meet the needs of New Yorkers today and in the future.

DEP has a comprehensive state-of-good-repair program to meet our capital and operating needs, designed to ensure that our assets are repaired, replaced, and maintained for optimized system performance. Some types of maintenance are currently being done by private contractors. Moving forward, we will expand our in-house capabilities so that DEP employees can perform a broader range of maintenance activities, such as repair and replacement of complex mechanical and electrical equipment. This will reduce costs and improve timeliness of repairs while promoting staff competencies.

### **35 Streamline procurement processes.**

DEP strives to respond nimbly to operational priorities, which are often dependent upon contract procurement processes that are complicated. We will examine all procurement-related business processes and pursue opportunities to centralize, standardize, and clarify the dozens of requirements. This will improve contract award times while ensuring favorable terms.

### **36 Use predictive analytics to drive operational efficiency.**

DEP monitors hundreds of thousands of data points every year, including water quality samples collected at our upstate reservoirs, water consumption at 835,000 buildings, and air-pollution measuring devices spread across the City. The true value of all this data lies in our ability to use it in meaningful ways. Through predictive analytics, DEP will better use this data to identify potential problems before they occur. Predictive analytics will





DEP Police Training Exercise

also help us to optimize performance, cut costs, enhance customer experiences, and drive technological innovation. DEP will also develop partnerships with local universities to analyze our datasets for advanced predictive analytics and for research to identify efficiencies and better utilize big datasets from across our operations.

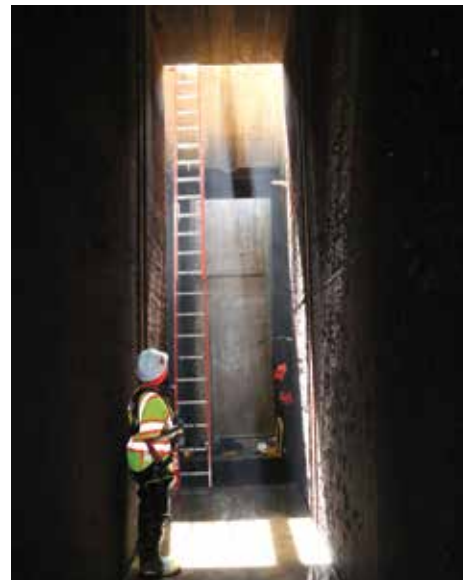
## 37 **Develop agency-wide data visualization systems.**

At DEP, we are continuously collecting and monitoring information on everything from personnel actions, to the status of ongoing construction projects, to the locations of new and existing green infrastructure assets. While all of this data ultimately helps us make decisions and monitor our progress, it can be easy to get lost in the vast sea of metrics. To help our operators better interpret the significant data they collect, DEP will develop multi-level visualization systems to quickly pinpoint trends and opportunities for improvement across our various functions. These tools will enhance performance, identify areas for improvement, and help us integrate best practices.

## 38 **Optimize DEP's vehicle fleet.**

In 2015, Mayor de Blasio launched NYC Clean Fleet, an effort to dramatically expand the number of electric vehicles and create the largest municipal electric vehicle fleet in the world. To support this initiative, DEP will undertake a comprehensive review of our fleet,

which includes light duty vehicles (such as sedans and small SUVs used by our inspectors and engineers) and medium- and heavy-duty construction vehicles (such as dump trucks, fork lifts, catch-basin cleaners, and Vactor trucks), to identify all opportunities to incorporate green technology while ensuring that our fleet meets the needs of our critical operations.







GOAL

Leverage innovative approaches to improve performance

## Strategic Initiatives

### **39** Engage in cutting-edge research and influence national policymaking.

To stay at the forefront of the industry, DEP conducts innovative research to optimize the quality of our drinking water and harbor water, maximize the efficiency of our resources (both people and dollars), prepare for the impacts of climate change, and minimize our greenhouse gas emissions.

Over the next four years, DEP will undertake new research efforts to study emerging contaminants in our watershed and evaluate new technologies to optimize effluent quality and maximize recoverable resources at our facilities. We will also collaborate with industry research and peer learning organizations to stay abreast of industry trends and influence national policymaking on water infrastructure issues.

### **40** Improve DEP's environmental, health and safety (EHS) measurement and performance.

Compliance with the environmental, health, and safety (EHS) rules that govern our operations must be a top priority for all of our employees and contractors, from the scientists who conduct 500,000 water quality tests every year to the operators who handle wastewater treatment chemicals and the engineers and workers on our construction sites.

DEP will strengthen its EHS performance measurement and analysis to include more leading indicators for better evaluating EHS risk factors as well as the effectiveness of our corrective actions and program areas. Some of the current and historical database information systems do not have full functionality for this purpose, which impedes access and retrieval of data required for meaningful analysis. DEP will establish and implement a clear framework for performance measurement, and will use leading EHS indicators to put DEP on a path to quickly recognize and address EHS risks.





Centrifuge Installation at Hunts Point Wastewater Treatment Plant

## **41** Develop an integrated water quality and hydrodynamic model of New York City's open waters.

The waters of New York City include the Hudson River, the New York Harbor, and a tidal estuary between the north shore of Long Island and the south shores of New York and Connecticut known as the Long Island Sound. These waterbodies have historically experienced water quality challenges, such as low levels of dissolved oxygen and high levels of nutrients, including nitrogen. Over the past decade, New York City has made significant investments to upgrade our wastewater treatment plants to improve water quality. Now that these investments are in full operation, DEP is working closely with our partners in the region to create an updated water quality and hydrodynamic model, beginning with Long Island Sound, which builds on current modeling techniques to ensure that any future policy and work is based on informed science.

## **42** Build in-house capacity to facilitate process improvement projects.

Innovation is one of DEP's core values, and we seek to identify and implement innovative solutions across our organization that reduce costs, shorten timeframes, and/or improve the reliability of our infrastructure. To facilitate these type of process improvement projects, especially those that cut across the operating functions of our organization, DEP will build an in-house team with specialized skills in process reengineering improvement as well as program and project management to support the implementation of strategic initiatives. This team will utilize standard practices, such as Lean, to drive improvements in the quality and outcomes of internal business processes and projects.

## 43 Expand the use of technology to improve performance.

Emerging technology enables DEP to better serve our customers by making us more efficient at our everyday tasks. Over the past ten years, DEP has deployed tablets and handheld devices to a number of field units, increasing their productivity and responsiveness. Tools like these are critical to accurately, safely, and efficiently documenting information obtained in the field and eliminating redundant work.

To increase our overall performance, we will share best practices across our organization and seek out new opportunities to implement technology that will help us collect data, streamline processes, and increase overall efficiency. Over the next four years, we will expand the use of innovative technology to additional units in engineering, customer services, and operations to promote productivity and reduce our reliance on paper.







DEP Employees Tour the New Croton Dam





# SUMMARY

In support of our mission and vision, the seven goals and forty-three strategic initiatives presented here are the blueprint for how DEP will achieve success in the coming years.





Robotic Water Quality Monitoring

While we work towards our goals, DEP's dedicated staff will continue to provide the quality services New Yorkers are accustomed to using every day. We intend for this plan to be a living document and we will publish yearly updates to monitor performance and provide accountability. If you would like more information on DEP or the strategic plan please visit our website at [www.nyc.gov/dep](http://www.nyc.gov/dep).

Thank you to the many DEP senior leaders, managers and employees who contributed to the development of this plan. This work is a compilation of many hours of collaboration and teamwork devoted to making DEP the best now and in the future. The plan is to be owned by every one of our employees as they are the driving force behind everything we do here at DEP.

# OUR VALUES

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- Safety** - We put safety first and are committed to creating the safest workplace for everyone involved in our work.
- Integrity** - We conduct ourselves at all times in a manner that is ethical, professional, and honest.
- Service** - We employ a customer-focused approach in all that we do.
- Diversity** - We embrace diversity across all demographics, including but not limited to race/ ethnicity, gender/gender-identity and expression, sexual orientation, age, disability/perceived disability, religion or creed, economic class, and their intersections.
- Support** - We support a culture of respect and invest in the professional growth and development of our workforce.
- Transparency** - We communicate openly to encourage cooperation and understanding.
- Sustainability** - We maximize the economic, environmental, and social benefits of our investments and responsibilities.
- Innovation** - We embrace new ideas that improve our performance and service to our customers.



# GOALS AND STRATEGIES

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## **Provide world-class and sustainable water and wastewater services now and for future generations**

1. Develop a coordinated 100-year master plan for our water and wastewater systems.
2. Manage our assets to ensure the long-term sustainability and optimal efficiency of our water and wastewater services.
3. Maintain rates and sustain revenue to fund DEP's operations now and in the future.
4. Strengthen DEP's environmental health and safety culture.
5. Leverage technology to increase the security of DEP's infrastructure and network.
6. Manage the watershed to ensure long-term protection of New York City's water supply.
7. Support the development of backup supplies for upstate water supply systems in our region.
8. Expand outreach and enforcement efforts to protect the water supply system from cross-contamination.
9. Enhance sewer planning efforts.
10. Expand sewer infrastructure to underserved areas.
11. Reduce sewer backups and improper disposal of grease.
12. Transition wastewater treatment plants to wastewater resource recovery facilities.
13. Launch a comprehensive effort to reduce the improper disposal of "flushable" wipes.

## **Control local sources of pollution to improve quality of life**

14. Improve air quality by reducing airborne pollutants.
15. Improve the quality of our waterways.
16. Minimize odors from our industrial facilities.

- 
- 17. Reduce noise pollution throughout New York City.
  - 18. Increase asbestos audits.
  - 19. Participate in the remediation of Superfund-designated sites.

### **Reduce our carbon impact and mitigate the effects of climate change**

- 20. Reduce greenhouse gas emissions and expand renewable energy sources.
- 21. Restore natural habitats throughout New York harbor.
- 22. Expand the green infrastructure program.
- 23. Expand integrated water management through water conservation, water reuse, and resource recovery.

### **Increase public awareness of our operations and improve service to our customers and the business community**

- 24. Increase the public's awareness of DEP's mission and responsibilities.
- 25. Expand education opportunities for local communities and external stakeholders.
- 26. Enhance the customer's experience when calling DEP.
- 27. Employ digital communication to better serve our customers and employees.
- 28. Streamline the permitting process for water and sewer connections.
- 29. Increase opportunities for M/WBE firms.

### **Cultivate a diverse and highly qualified workforce to meet future challenges**

- 30. Attract and hire highly qualified, diverse talent.
- 31. Provide career opportunities to communities or demographics that have been historically underrepresented.



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- 32. Leverage workforce diversity, employee engagement and inclusion in the workplace.
  - 33. Enhance the talent pipeline for the future.

### **Maximize operational efficiencies across the agency**

- 34. Insource in strategic areas to improve capital program delivery and operations.
- 35. Streamline procurement processes.
- 36. Use predictive analytics to drive operational efficiency.
- 37. Develop agency-wide data visualization systems.
- 38. Optimize DEP's vehicle fleet.

### **Leverage innovative approaches to improve performance**

- 39. Engage in cutting-edge research and influence national policymaking.
- 40. Improve DEP's environmental, health and safety (EHS) measurement and performance.
- 41. Develop an integrated water quality and hydrodynamic model of New York City's open waters.
- 42. Build in-house capacity to facilitate process improvement projects.
- 43. Expand the use of technology to improve performance.







Bill de Blasio  
Mayor

Vincent Sapienza, P.E.  
Commissioner



# TRASH IT. DON'T FLUSH IT.

**FATBERGS** form when grease, wipes and other stuff get flushed, clogging pipes and draining wallets.

[FatbergFree.nyc](http://FatbergFree.nyc)

[#FatbergFreeNYC](https://twitter.com/FatbergFreeNYC)

**NYC** Environmental  
Protection





**ENERGY VISION TESTIMONY**  
**NY City Council Committee on Environmental Protection**  
**Preliminary Budget Hearing, March 8, 2019**

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I'd like to thank the Committee and the Chair for the opportunity to testify. My name is Phil Vos, and I am Program Director at Energy Vision, a New York City-based national environmental non-profit focused on commercial and cost-effective options for decarbonizing our economy.

Wastewater treatment plants are essential to the overall health and safety of New York City. In addition to ensuring our waterways are clean, this infrastructure offers other benefits that do not receive the attention they deserve. I'm referring specifically to the "anaerobic digesters" at the City's 14 wastewater treatment plants—critical systems that help address the City's high level sustainability goals, but which in many cases need repair or upgrading.

Anaerobic digestion is the decomposition of organic materials in the absence of oxygen. At wastewater plants, sewage sludge is anaerobically digested in sealed vessels over a period of weeks. By the end of the process, the organic matter has been reduced in volume, its odor has been greatly reduced and it contains much lower levels of pathogens. The process also captures a significant amount of methane in the form of "biogas".

For both protecting the City's air quality and reducing its greenhouse gas emissions, biogas capture is critically important. Biogas from anaerobic digestion of sewage is 55-60 percent methane—a GHG with 86 times the global warming potential of carbon dioxide in the near term, and as much as 30 times in the longer term. Uncaptured, this methane would escape into the atmosphere, accelerating the process of climate change.

Wastewater treatment plants that capture biogas generally burn it onsite to produce heat and/or electricity; surplus gas is "flared," or burned off. Unfortunately, 70% of the biogas produced by NYC's 14 facilities is currently flared. In large part this is because there are few uses for this "raw" biogas beyond on-site combustion for electricity and heat.

With appropriate funding, however, there is a better option and significant opportunity for using New York City's wastewater biogas resource: upgrade it to pipeline quality "biomethane." Biomethane can be used for all the same things as conventional natural gas—heating and cooling, electricity generation, and vehicle fuel. But its GHG emissions are at least 50% lower on a lifecycle basis, and no drilling or fracking is involved.

Biomethane made from NYC's wastewater could be used to heat City buildings, or to fuel City or MTA fleets, greatly reducing GHG emissions from those sources, in support of our "80x50" sustainability goals. It could also be sold to generate revenue for the City—as recommended in a 2018 analysis by the Independent Budget Office.

The Newtown Creek facility is a great example of the possibilities. First, commercial food waste is being added to the digesters, which increases biogas production. Using excess digester capacity at our wastewater plants to "co-digest" City-generated food scraps is a path toward the City's "0x30" goal of reducing waste sent to landfills. Second, equipment to upgrade biogas is now being installed at Newtown Creek; once completed, biomethane from the facility will be injected into National Grid's network for use by businesses, residents and vehicle fleets.

Improving anaerobic digestion systems at our wastewater plants offers multiple benefits and opportunities: improving odor control; reducing GHG emissions by capturing methane; and reducing solid waste going to landfill. Upgrading the biogas captured by the digesters would provide a renewable source of clean energy that the City could use or turn into revenue. Revenue generated from the sale of biomethane could be redeployed to fund both "state of good repair" and innovative wastewater infrastructure upgrades.

We encourage the Committee to recognize the importance of upgrading anaerobic digestion infrastructure at our wastewater plants, and to evaluate increased production of biomethane from captured biogas.

Thank you,

Phil Vos

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