

Testimony of Vincent Sapienza, P.E.
Deputy Commissioner, New York City Department of Environmental Protection
before the
New York State Assembly Standing Committee on Cities
concerning
Infrastructure Needs Relating to Cities

Thursday, February 11, 2016
Lubin Dining Hall, Harold and Muriel Block Building, Albert Einstein College of
Medicine

Good morning Chairman Benedetto and Members. I am Vincent Sapienza, Deputy Commissioner of the Bureau of Engineering, Design and Construction (BEDC) in the New York City Department of Environmental Protection (DEP). Thank you for the opportunity to present testimony on the infrastructure needs of cities.

DEP has overall responsibility for the City's water supply and sewer system, including providing drinking water to all 8.5 million in-city New Yorkers and another 1 million upstate residents, maintaining pressure to fire hydrants, managing storm water, and treating wastewater. In addition, DEP also regulates air quality, hazardous waste, and critical quality of life issues, including noise.

DEP provides approximately 1 billion gallons of drinking water each day to more than nine million residents in New York City and upstate. The water is delivered from a watershed that extends more than 125 miles from the city, comprising 19 reservoirs and 3 controlled lakes. Approximately 6,800 miles of water mains, tunnels and aqueducts bring 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, where we treat approximately 1.2 billion gallons daily. Largely through our efforts, New York City's water bodies are the cleanest in more than 100 years of our monitoring. DEP has nearly 6,000 employees, including almost 1,000 in the upstate watershed. In addition, DEP has a robust capital program, with a planned \$14.7 billion in investments over the next 10 years.

One of the most important challenges DEP faces is managing the nearly 15,000 miles of water and sewer infrastructure that is very much the lifeblood of the City. Like many older cities our infrastructure is aging. But what sets New York City apart has been its standing commitment to making the necessary investments to continue to improve and rebuild that infrastructure. Since 2002, DEP has constructed or reconstructed over 523 miles of sewer and 512.6 miles of water mains.

DEP's FY 16-25 Capital Plan

Our commitment to continue critical investments in the system is reflected in DEP's FY2016-FY2025 Ten-Year Capital Plan, the budget for which is \$14.7 billion for FY16-25, as presented by Mayor de Blasio on May 7, 2015. Highlights of the Executive Ten-Year Plan are as follows:

Wastewater Treatment

The Executive Ten-Year Plan projects a \$5.6 billion investment in wastewater treatment projects, \$3.3 billion of which is for the reconstruction or replacement of components of the wastewater treatment plants and pumping stations.

The remaining \$2.3 billion investment will be used to mitigate combined sewer overflows, with \$805 million for green infrastructure such as green roofs and bioswales, and the remainder for gray infrastructure, such as tanks and tunnels to store wastewater.

In addition, \$167 million is budgeted for the construction of a new cogeneration plant at the North River Wastewater Treatment Plant. The new cogeneration plant will use renewable digester gas produced by the wastewater treatment process to both power equipment and heat the facility. It will help us reduce our energy use and help the City meet the Mayor's major commitment to reduce greenhouse gas emissions.

A significant part of our wastewater treatment budget is \$1.3 billion in funding to cover planned consent order work related to the Long-Term Control Plans (LTCs) for combined sewer overflows (CSOs) and stormwater control. This is a portion of a larger commitment being negotiated with DEC to invest \$3 billion over 30 years to improve water quality in designated water bodies. The most significant element of this commitment is \$300 million for improvements to reduce CSO discharges into the Gowanus Canal. In addition, DEP will undertake projects in Bronx River, Alley Creek, Hutchinson River, and Flushing Creek and measures in other waterbodies to be determined.

Reservoirs, Dams, Treatment Facilities and Water Mains

Over the next 10 years, the Administration is proposing to invest an additional \$3.3 billion in protecting the quality of our reservoirs and the integrity of our dams, providing for treatment where necessary, and maintaining and repairing the water main system conveying potable water to all New Yorkers. We have budgeted \$287 million for the reconstruction of dams in our three watersheds.

For the continuation of our current Filtration Avoidance Determination (FAD) programs, the Executive FY16-25 Capital Plan includes \$190 million, covering all our capital needs for the current FAD, including \$124 million for land acquisition. The alternative to the FAD is to have to build a costly new drinking water filtration plant. Our watershed protection programs passed their 2012 five-year review, and we are now in the second five-year period of the unprecedented award in 2007 of a ten-year waiver of the requirement to filter drinking water from the Catskill and Delaware watersheds. The key to maintaining the city's FAD has been the program's grounding in strong monitoring and scientific study, both of which support the three pillars of watershed protection—land acquisition; regulations governing activities such as agriculture, and stream and forest management, in the watershed; and programs with our watershed partners—upstate communities and organizations.

The Rondout-West Branch Tunnel Repair

Although this project extends even beyond the Ten-Year Plan, the Executive Budget provides over \$261 million for projects related to conservation and providing supplemental sources of water during the Delaware Aqueduct shutdown, associated with its repair. Increasing the capacity of the Catskill Aqueduct—a project distinct from pressurization—accounts for an additional \$131 million.

City Water Tunnel No. 3 and Related Work

It bears noting that the tunneling for the Brooklyn/Queens Section is complete. The shafts, connections and activation still have to be finished. This work has been deferred because the funding was re-allocated to another, more critical priority—specifically, the damn and dike strengthening of the Ashokan Reservoir. Our intent is to reinstate the funding for design and construction as other priorities shift.

Sewers

The Executive FY16-25 Capital Plan projects \$4.1 billion of spending on sewers including:

- \$1.2 billion for replacement of sewers (storm, sanitary or combined), including the Mayor’s initiative for accelerated replacement of some of our oldest infrastructure;
- \$2.2 billion for new sewers (of all types) of which:
 - Storm sewers as a category by itself (either new or reconstructed) accounts for \$1.8 billion of projected spending, of which \$245 million is for high-level storm sewers, including Third Avenue in Brooklyn; and
 - \$443 million of the total is for both the conventional sewers and the lands necessary to create Bluebelt systems, which are being extended beyond Staten Island to Springfield Lake in Queens, Van Cortlandt Park, the Bronx Botanical Garden, and other locations.

As the Committee may know, fat, oil, and grease buildup was the cause of 72% of confirmed sewer backups this past year. Over the past year, DEP has improved coordination among units that handle grease public outreach, grease trap inspection, and sewer maintenance. Because grease entry into sewers is preventable and relies on choices made by individuals, DEP has focused on public education as a way to reduce it. They have targeted education programs in schools and at professional organizations, and have also given out educational materials on a door-to-door basis in neighborhoods known to have prevalent grease problems. Where field crews observe persistent or systematic grease buildup in a commercial area, especially where restaurants are concentrated, they refer the location to DEP’s enforcement unit for targeted grease interceptor inspections.

Some key performance statistics showing changes from FY 10 to FY 14 include:

- Sewer backup resolution time: 33% decrease
- Catch basin resolution time: 55% decrease
- Number of catch basins with open work orders: 79% decrease from July 2010 to today
- Confirmed sewer backups: 45% decrease
- Sewer segments with recurring backups decreased by 45%
- Sewer segments with recurring backups in dry weather decreased by 53%

- Total sewer cleaning increased 158%

The FY 16-25 Capital Plan features the following highlights by borough:

In the Bronx, the Executive Budget projects \$811 million of capital spending from FY 16-25. Approximately \$283 million is budgeted for the Hunts Point Wastewater Treatment Plant, including \$33 million for new centrifuges and \$180 million for new digesters. Restoration of the Mosholu driving range, clubhouse and related work is budgeted for \$46 million in FY 16. To reduce CSOs into Pugsley Creek and Long Island Sound, DEP has budgeted \$72 million in FY 16 for construction of a parallel sewer that will help divert flow away from the creek.

In Brooklyn, the Executive Budget includes \$1.5 billion of planned commitments. The 26th Ward Wastewater Treatment Plant and associated sewer work to reduce CSOs into Fresh Creek account for \$373 million. Coney Island sewer improvements are funded at \$34 million in FY 16. An additional \$137 million is projected in FY17-25 for Coney Island sewers.

In Manhattan, the Executive Budget shows \$1 billion over the ten years between FY16 and FY25. The largest single project is the \$167 million cogeneration project at the North River Wastewater Treatment Plant.

Another \$242 million is for several projects at the Wards Island Wastewater Treatment Plant: reconstruction of final tanks; reconstruction of the boiler complex; and installation of emergency generators. The construction of water mains connecting two of the City Water Tunnel No. 3 shafts with the local water distribution system is funded at \$73 million.

In Queens, the Executive Ten-Year Plan shows a total of \$3 billion allocated for projects of all types. Sewers account for \$1.7 billion, of which \$1.5 billion is allocated for projects in Southeast Queens.

In Staten Island, the Executive Ten-Year Plan projects a total of \$1 billion, of which \$589 million is for sewers. The Snug Harbor sewer project is budgeted for \$24 million. Repairs to the Oakwood Beach Wastewater Treatment Plant and to the Hannah Street pumping station are projected to cost \$142 million. \$187 million is included in the budget for Mid-Island Bluebelts.

Joint Bidding

The execution of DEP's capital investments requires extensive coordination with the work of other utilities so that the maintenance and upgrading of all the City's infrastructure can proceed in an efficient and cost-effective manner. In 2014, DEP initiated a pilot program in conjunction with Con Edison and National Grid, identifying areas in the city where DEP was about to begin capital work on underground infrastructure, and coordinated with the gas utilities to accomplish their capital work at those sites simultaneously.

Coordinating with the gas utilities, DEP initiated water main replacement and sewer reconstruction projects in all 5 boroughs. Beginning with a water main replacement and

sewer reconstruction project on 119th Avenue in Queens, and concluding with a water main replacement project on Central Avenue in Staten Island, DEP has invested over \$7.6 million on infrastructure upgrades during this pilot program.

Based on the success of this pilot we continue identifying areas around the city where DEP can potentially work together with gas utilities to better coordinate infrastructure replacement for both DEP and private utilities. The Department of Design and Construction (DDC), which executes the majority of DEP's capital water and sewer projects, will coordinate our work with the gas utilities when a project is initiated.

In furtherance of this type of collaboration, the State Legislature passed and the Governor signed "Joint Bid" legislation in 2014. "Joint Bid" allows public work projects within New York City to include utility interference work in a public work project contract. In this context, utility interference work is defined as any work necessary or desirable for the completion of a public work project (e.g., replacement of water or sewer mains, catch basins, manholes or roadway reconstruction) that requires the maintenance, support, protection or other accommodation of energy, telecommunications or other private facilities or structures that are not publicly owned, located in or near the construction area of the project. Types of work included are removal, relocation, alteration, replacement, reconstruction or improvement of infrastructure or facilities.

Thanks to the State Legislature, this law gives the City a key tool in prioritizing and coordinating essential work with the gas utility companies, including utility interference work in any contract for a public work project. The objectives of Joint Bid are:

- To coordinate and prioritize all planned public and private work in the city's Right-of-Way to maximize public safety and prevent damage to critical facilities and excavation of newly constructed streets;
- Collaborate on design or pre-engineering in order to minimize conflicts among the multitude of underground facilities or structures;
- Remove interferences with public work construction in order to avoid unreasonable and costly project completion delays; and
- Minimize costs for all affected owners, public and private, of underground facilities within project area.

DDC is currently implementing Joint Bid by:

- Continuing utility coordination meetings to explore street work collaboration opportunities between utility companies and DDC;
- Selecting FY 2016 DDC projects in all five boroughs to pilot various Joint Bidding methods with the intent to fully transition to Joint Bidding for all FY 2017 projects; and
- Scheduling negotiation sessions with key decision makers to finalize a "Utility Joint Bid Agreement" or "Memorandum Of Understanding"

Design-Build

With regard to design-build (DB) DEP's Bureau of Engineering Design and Construction has evaluated the use of DB and believes that it can achieve savings of both time and money if it were able to implement DB in its wastewater treatment and sewer pump projects.

The primary savings from DB is time. Under the current system, DEP completes a design and then initiates the 15-month procurement process to hire a contractor. It then generally takes the contractor another three to four months for submittals, coordination with the designer, and mobilization. DB will allow the contractor to start work as soon as DEP approves the design, and DEP believes that DB will eliminate disputes that currently occur between designer and contractor, who are usually separate entities in the traditional design and construction process, shaving time and cutting potential damages for delay claims. DB would help DEP deliver projects faster, thus improving service to the public and helping to meet consent-order milestones. As for costs savings, if DEP were to execute \$200 million/year in construction projects using DB, the projected savings could be \$8 million/year in avoided costs.

The most appropriate employment of DB for DEP projects would be on the 96 sewage pumping stations in its wastewater conveyance system. These facilities are critical in transporting wastewater and stormwater from low-lying areas of the city and maintaining drainage and sanitation. As such, New York City's intricate system of pumping stations is fundamental to protecting the environment and public health, and DEP is committed to ensuring its continued performance and reliability.

One of DEP's priorities in the coming years will be hardening its wastewater infrastructure to increase resiliency against flood damage. Many of the City's pumping stations are located in close proximity to the waterfront and are at risk from flooding and power outages, as was evident during Hurricane Sandy. Flooding and power outages at pumping stations can have negative impacts for residents and businesses, including sewage overflows, backups and impacts on bathing beaches. Consequently, DEP has scheduled 31 pumping stations at priority locations for reconstruction in its FY 16 – FY25 Capital Plan.

Thank you again for the opportunity to present testimony. I would be happy to answer any questions.