Testimony of Angela Licata
Deputy Commissioner of Sustainability
New York City Department of Environmental Protection
before the
New York City Council Committee on Environmental Protection
concerning
Oversight - The City's Wastewater Infrastructure – Current Condition and Future Plans
Council Chambers, City Hall
December 13, 2017

Good morning, Chairman Constantinides and Members of the Committee. I am Angela Licata, Deputy Commissioner of Sustainability in the New York City Department of Environmental Protection (DEP). With me are Jim Mueller, P.E., Acting Deputy Commissioner of Engineering, Design and Construction, and Mikelle Adgate, Director of Stormwater Management Outreach, as well as other DEP staff. Thank you for the opportunity to testify on the current condition of and future plans for New York City's wastewater infrastructure.

Protecting the waterways, the environment and public health of New York City are central to DEP's mission. Today, water quality in New York Harbor is better than it has been in over 100 years. Crucial to bringing the Harbor to its current state has been over $12 billion in projects that DEP has completed since 2002. These projects include wastewater treatment plant upgrades, sewer separation and sewer system upgrades, combined sewer overflow abatement, green infrastructure, marshland restoration, nutrient removal from wastewater and hundreds of other projects.

In approximately 60 percent of the city, the sewers combine sanitary flow, created each time we turn on a tap, flush a toilet, or use a water-discharging appliance, with stormwater runoff that enters the sewers whenever it rains or snows. This system serves an essential role in protecting public health and the environment. During some rain events, while functioning as designed, the system can become overburdened. When this occurs, a mix of stormwater and untreated wastewater may discharge directly into surrounding waterbodies as combined sewer overflow (CSO) to protect the treatment process at the wastewater treatment plants.

Between the 1970s and 2011, over $40 billion was invested to build two wastewater treatment plants and upgrade treatment processes in the other 12. These projects were critical for the growth and development of the City and reduced CSO volumes flowing into the Harbor by 82%. We see the benefits of these investments as the City's residents reconnect with the waters, and marine life and oyster restoration projects once again begin to thrive in our surrounding waterways. Ideally, we would all like to reduce CSOs by 100%. However, we acknowledge that CSOs still present a challenge, especially for the smaller, man-made tributaries that have no natural currents or tidal flows. DEP, working under a 2012 consent order with the New York State Department of Environmental Conservation, is required to develop 11 Long Term Control Plans (LTCPs), which are comprehensive evaluations of long-term solutions to reduce CSO events, and to continue to improve water quality in New York City's waterbodies. Each LTCP is unique and built upon earlier investments and projects to develop approaches for each waterbody to achieve applicable New York State water quality standards. LTCPs are or will be

implemented using a hybrid green and grey infrastructure approach to address, measure, and mitigate the effects of CSO events.

Prior to the LTCP submittals DEP committed over $4.1 billion toward CSO control. This includes $2.6 billion in commitments toward grey infrastructure projects, and $1.5 billion toward green infrastructure (GI). Grey infrastructure projects include tanks, tunnels, sewer separation, weir modifications and floatable-litter control.

In 2017, DEC approved seven of our Long-Term Control Plans, and two plans are currently under review. With these nine plans, DEP is prepared to spend an additional $4.4 billion over the next 25 years to continue to mitigate the impacts of combined sewer overflows. Total investments in CSO abatement are at least $8.5 billion. Two additional plans are under development for submittal in 2018 and the costs associated with those plans to mitigate CSO discharges has yet to be determined.

The nine submitted plans include a wide range of CSO mitigation projects including:

- Two CSO storage tunnels, one for Flushing Bay and the other for Newtown Creek. Ranging in diameter from 18' to 30' these tunnels provide for both conveyance and storage of CSO, and the contents of the tunnels will be pumped back to the wastewater treatment plants after storm events. These projects require less permanent aboveground property than storage tanks and we minimize surface construction impacts.

- Two sewer-system improvement projects, one for Bronx River and the other as a component of the Newtown Creek LTCP. In Newtown Creek we have proposed expanding the exiting Borden Avenue Pump Station to increase capture rates and direct more flow to the plant. For Bronx River, sewer modifications will create additional capacity while reducing overflows into the River. Both of these projects leverage existing infrastructure in order to control costs and enhance capture rates.

- The LTCPs for Alley Creek, Flushing Creek, and Hutchinson River utilize disinfection of CSO discharges with chlorine during the recreational season, and DEP will also construct dechlorination facilities to remove any excess chlorine residual. It is important to highlight that in Alley Creek and Flushing Creek, earlier investments in CSO storage tanks resulted in substantial reductions in CSO volumes, and leveraging these existing tanks as chlorine contact tanks enables the disinfection process to have adequate detention times to achieve bacterial kills; it also makes these alternatives extremely cost effective. Disinfecting CSOs will further reduce bacteria into all three waterbodies and will significantly improve water quality during the recreational season. Many municipalities across the country including cities in Vermont, Michigan, California and Washington disinfect combined sewer overflows using chlorination/dechlorination or in some cases just chlorination.

Based on our data and modeling, the LTCP projects identified thus far will bring key water quality indicators such as dissolved oxygen (which is important for ecological health), and fecal coliform (an indicator of sewage-related pollution) into compliance with existing State water

quality standards nearly 100% of the time during the recreational season. All nine waterbodies will be fishable/swimmable under existing standards.

DEP's $1.5 billion Green Infrastructure Program is one of the most ambitious green infrastructure programs in the country. DEP works with the Departments of Parks and Recreation, Transportation, and Design & Construction and the Economic Development Corporation to saturate priority watersheds with rain gardens in City-owned streets and sidewalks. As part of the program, DEP has also invested in green jobs, creating over 50 new maintenance positions and training staff to care for the rain gardens. DEP also conducts research and development and tracks the performance of GI to better understand how it works to reduce the urban heat island effect and improve air quality.

In addition, working with partner agencies, DEP has 54 sites where often-large green infrastructure projects are in construction or completed at parks, playgrounds, schools, and New York City Housing Authority complexes. DEP also has hundreds of other sites that are in design or under consideration for construction with partner agencies. These partnerships with our sister agencies are critical: not only are we reducing impervious area and managing stormwater, we are contributing to important community amenities and programs such as the Parks Department's Community Parks Initiative. DEP has also distributed over $15 million through its grant program to private property owners and is developing a new private incentive program to encourage green infrastructure on non-City owned property. Many remarkable projects have been completed thus far as part of the green infrastructure grant program, including the Brooklyn Navy Yard green roof and farm, Queens College common spaces, Bishop Loughlin High School green roof, and the New School green roof.

In addition to the work to reduce CSOs, DEP is also leading a multi-agency effort to develop a New York City Stormwater Management Program to control stormwater runoff in the 40% of the City that is served by separated sewers. In these areas, one pipe sends sanitary waste to the treatment plant for treatment while the other sends stormwater to a nearby waterway. As you can imagine, this stormwater can pick up many pollutants as it washes over industrial properties, streets and sidewalks, or construction sites. This program, known as MS4, combined with our LTCP efforts, reflects integrated watershed management that relies on highly scientific data collection and analysis, creative urban planning assessments, foundational engineering practices and principles from around the country, and innovative financing as we seek to leverage existing capital projects and programs while maintaining a state of good repair.

In summary, we have committed $4.1 billion, including green infrastructure, to reduce CSOs and are preparing to spend an additional $4.4 billion on the approved LTCPs on cost-effective projects that achieve significant water quality benefits. In an ideal world, with unlimited resources, and with consideration of the impact on the water rate and our ratepayers, we could consider investing even more ratepayer dollars to further reduce CSO discharges. It is important to note that our best estimates show that achieving 100% CSO control would cost nearly $30 billion yet still not achieve all of the applicable water quality standards due to a number of factors, including the nature of the tributaries. This would impose a substantial burden on our ratepayers with limited benefits and, as I will describe, would crowd out investing in other

projects to ensure that our current assets are properly maintained and to protect our critical water supply needs.

As we celebrate the 175th anniversary of the opening of the Croton Aqueduct, and supply over a billion gallons of water to nine million New Yorkers every day, it is not surprising that DEP oversees a capital-intensive process in one of the largest capital programs in the region. In April 2017, Mayor de Blasio announced DEP's $18 billion capital plan for FY18-27, which represents a $3 billion increase over the 2015 Ten-Year Plan. The additional funding is primarily for service improvements, regulatory mandates, and sustainability.

For example, the costliest dependability projects in FY18-FY27 Ten-Year Plan are: the Kensico-Eastview Connection Tunnel at $1.2 billion; completion of City Tunnel Number 3's Stage 2 in Brooklyn and Queens at $600 million; and the Catskill Aqueduct Repair and Rehabilitation at $155 million.

While DEP is making and planning considerable investments in important capital projects, including reducing CSOs, we also look to keep our rates as affordable as possible. Nevertheless, rates have risen, and, at the same time, household income has been stagnant for nearly 30 years! We need to keep in mind our ratepayers' ability to fund our operations and investments without putting undue burden on them. This is especially challenging as regulations and mandated projects have increased, and federal assistance has declined to nearly zero.

Rates were relatively flat until 2000 when DEP was required to embark on a number of mandated projects, and the system needed critical state of good repair projects. Adjusted for inflation, rates have risen 160% since 1990; and rates nearly doubled between 2006 and 2016. Beyond stagnant incomes, other costs for DEP customers have risen, too. Housing, food, and healthcare have all risen faster than inflation. This is all a significant challenge to our customers. Currently, approximately 20% of households pay more than 4.5% of their income for water and sewer, and by 2030 this number could rise to more than 30% of households paying over 4.5% of household income on water and wastewater services.

The system maintains a four-year forecast of anticipated increases in water and sewer rates. The current forecast, which spans Fiscal Years 2019 through 2022, indicates an annual water and sewer rate increase of nearly 3.3%, totaling a 13.8% rate increase during this four-year period. This means that over the next four fiscal years, our rates are expected to grow faster than the Federal Reserve's 2.0% annual inflation target, which would mean a cumulative increase of 8.2% over four years. The current rate forecast is based on the City's four-year capital plan for DEP, released in April 2017. Additions to this capital plan, such as funds for an expanded set of CSO projects, would result in a higher forecast for future rate increases. In addition, since approximately 60% of system revenues are applied toward debt-related service, the level of future rate increases also depends on the cost to the system of issuing debt. Higher market rates of interest, or unfavorable changes to the federal income tax code, would also result in higher-than-forecast increases to water and sewer rates.

DEP looks to control costs and structure debt in a conservative manner that reduces the financial impact of significant investments, such as the $5 billion Newtown Creek Wastewater Treatment

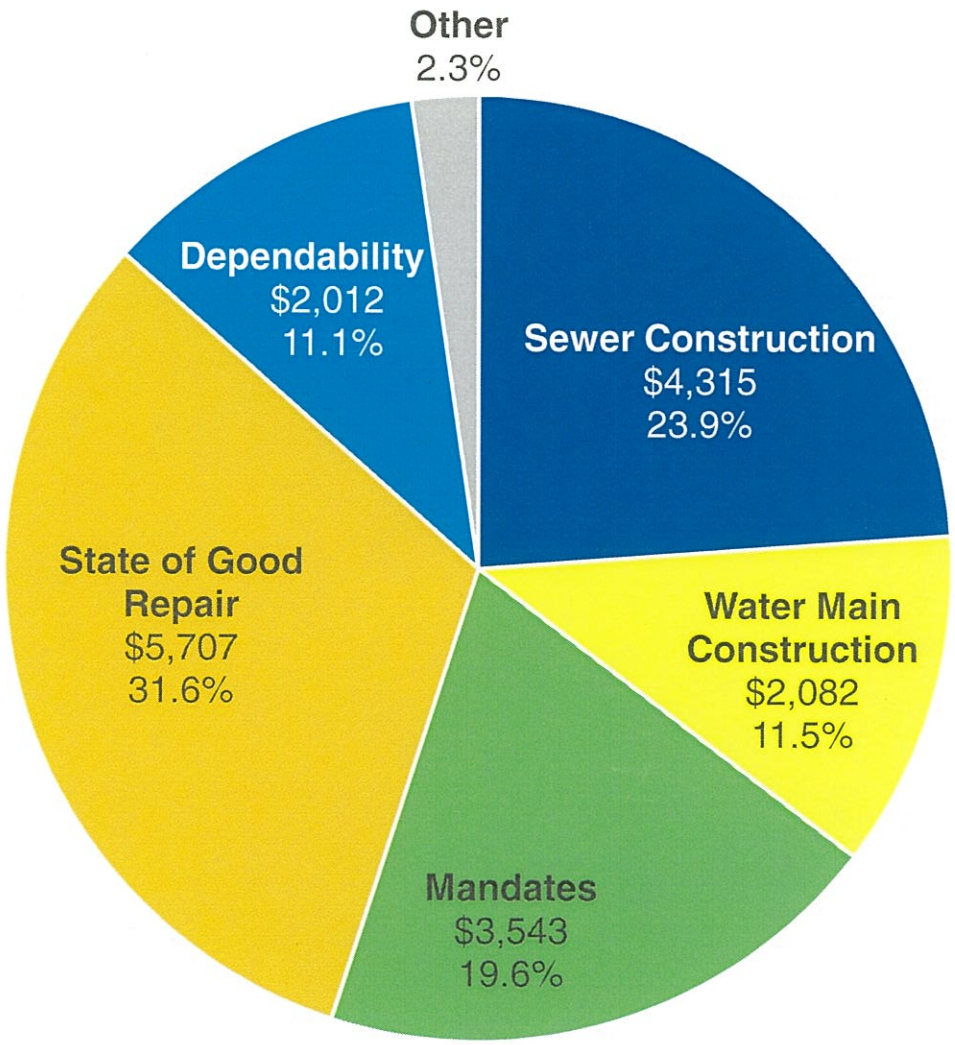
Plant upgrades, on our ratepayers. As a result, DEP has been able to keep water and wastewater charges to a little over one cent per gallon, about average for U.S. cities. That said, legal mandates have real and significant impacts on ratepayers' pocketbooks. Mandated projects can also compromise consistent investment in state of good repair and other important investments as we look to control costs. In fact, in FY 2017, mandates cost average homeowners $229 per year.

As the nation's largest water utility we work to be good stewards of the environment around us by maintaining and expanding the network of mains, sewer pipes and wastewater treatment plants that comprise the City's sewer system, while remaining conscious of the rates our customers pay. Balancing the costs and benefits of each planned project is critical to our work and we are confident that we will continue to see significant improvements in all of the waters where New Yorkers live, work, learn, and play.

Again, thank you for this opportunity to testify. I will be glad to answer any questions.

NYCDEP 10-Year Capital Plan

FY 2018 – FY 2027
(in millions)



Total: $18.1 Billion

Note: Dollar amounts from FY18-FY27
TYP

NYC Environmental Protection

IMPROVING NEW YORK CITY'S WATERWAYS

Reducing the Impacts of Combined Sewer Overflows

FALL 2017

nyc.gov/dep

TABLE OF CONTENTS

OVERVIEW

With over 522 miles of shoreline, the waterways in and around New York City are critical to where we live, work and play. The City first began testing water quality in the harbor over 100 years ago, and since that time real progress has been made to improve the water quality of New York's waterbodies through planning, investment, innovative technologies, and stakeholder participation focused on controlling "combined sewer overflow" or CSO.

The New York City Department of Environmental Protection (DEP) leads these efforts as part of its responsibility to protect public health and the environment by ensuring supplies of clean drinking water and collecting and treating wastewater for the 8.5 million residents of New York City. Every day, DEP collects and treats 1.3 billion gallons of wastewater through a vast network of pipelines and pump stations that deliver wastewater to 14 treatment plants. In approximately 60 percent of the City, the sewers combine sanitary flow, created each time a New Yorker turns on a tap or flushes a toilet, with runoff that enters the sewers whenever it rains or snows, serving an essential role in protecting public health and the environment. While the Waste Water Treatment Plants (WWTPs) are designed to treat twice the permitted dry weather flow, during some rain events the system can become overburdened. When this occurs, a mix of stormwater and untreated wastewater may discharge directly into surrounding waterbodies as combined sewer overflow, or CSO to protect the treatment process at the WWTP.

In 2012, a groundbreaking consent order between DEP and the New York State Department of Environmental Conservation initiated development of 11 Long Term Control Plans (LTCPs), which are comprehensive evaluations of long term solutions to reduce CSO events and to continue to improve water quality in New York City's waterbodies. Each LTCP is unique and seeks to develop approaches for each waterbody to achieve applicable New York State water quality standards. LTCPs are or will be implemented using a hybrid green and grey infrastructure approach to address, measure, and mitigate the effects of CSO events.

Since the beginning of the LTCP process, DEP has actively sought public participation in the development of each LTCP and has worked with a variety of stakeholders across the City.

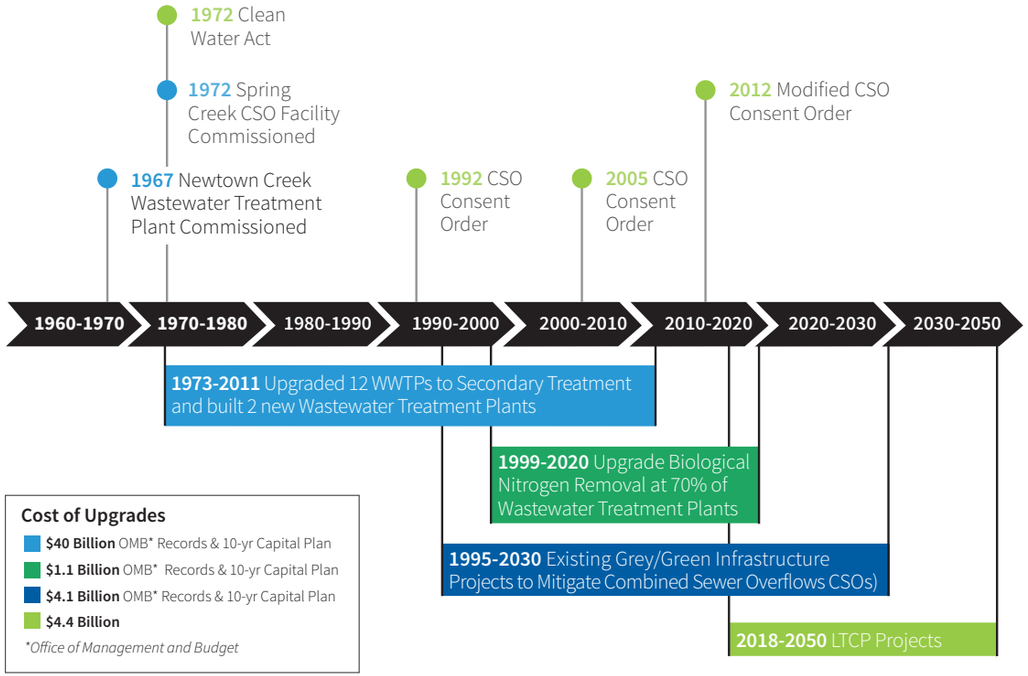
After significant programming and billions of dollars in investment, testing of harbor water quality is better today than it has been in more than 100 years. But there are still improvements to be made. The following describes progress made to date to reduce CSOs, ongoing efforts underway to further reduce CSOs, and ways you can be involved to improve water quality in NYC.

INVESTMENT AND SUCCESS TO DATE

Historical Waterbody Investments

Improving New York Harbor's water quality has been a City and DEP priority for decades. Over $45 billion in investments has led to an 80 percent reduction in annual CSO volume. With several LTCPs approved and more in the pipeline, current and planned infrastructure investments will result in significant water quality improvements.

Major Historical Timeline for Wastewater Infrastructure



Wastewater

Every day, wastewater goes down sinks, tubs, showers, toilets, and other drains and then flows into New York City's sewer system. WWTPs remove pollutants to meet state and local water quality requirements, before releasing the treated water to the City's waterbodies and watersheds. At the WWTPs, physical and biological processes closely duplicate how wetlands, rivers, streams, and lakes naturally clean and filter water. Treatment at these plants is quick, taking only about seven hours to remove most of the pollutants.

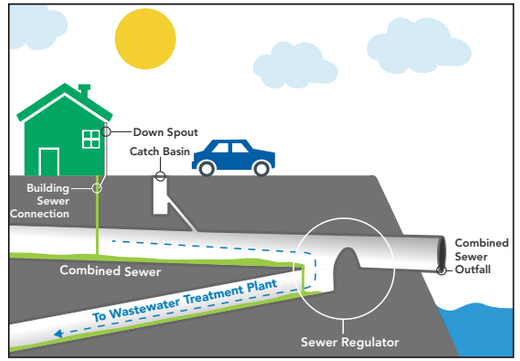
Stormwater

Stormwater runoff is generated from rain and melting snow which is conveyed over impervious surfaces such as rooftops, streets, and sidewalks that prevent rain and other water from being absorbed into the ground. As a result, much of the stormwater in New York City flows as runoff into the combined sewer system which is designed to accept stormwater and minimize local flooding.

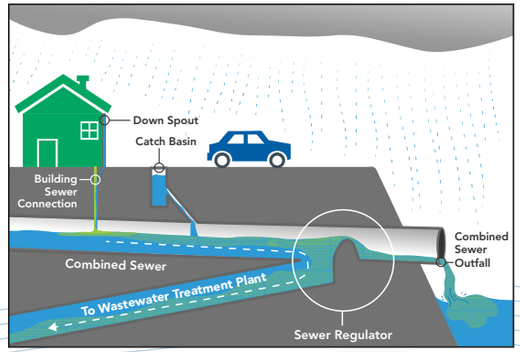
Combined Sewer Overflow

The combined flow of wastewater and stormwater runoff is conveyed to one of DEP's 14 WWTPs for treatment. When the combined sewer system is overburdened during a storm event, a mix of stormwater and untreated wastewater is discharged directly into surrounding waterbodies at certain outfalls as a "combined sewer overflow," or CSO. CSOs can be problematic because of their negative effect on water quality and can hinder recreational uses in local waterbodies.

Dry Weather Conditions



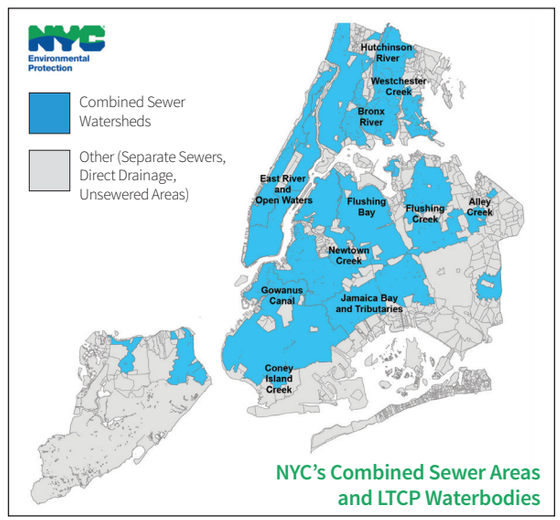
Wet Weather Conditions



New York City invests in grey and green infrastructure practices to improve water quality.

Grey Infrastructure

Large-scale, centralized or end-of-pipe controls such as retention tanks or sewer modifications are called grey infrastructure. Recent DEP construction projects have included upgrades in key wastewater treatment facilities, storm sewer expansions and the construction of several large CSO retention tanks to further mitigate this chronic source of pollution. One or more of the following project types, described in further detail below, have been or will be implemented for the 11 waterbodies included in this program.



NYC's Combined Sewer Areas and LTCP Waterbodies

Tanks CSO retention tanks are large facilities that capture CSO discharge during a wet weather event and pump it back to a wastewater treatment facility after the storm when there is capacity in the sewer system. NYC has four existing CSO tanks: Alley Creek, Flushing Creek, Jamaica Bay tributaries: Paerdegat Basin, Spring Creek.

Tunnels CSO storage tunnels function similarly to CSO retention tanks. The underground large diameter pipe or tunnel has the capacity to hold combined sewage and rain water during most storms, helping to reduce CSO events. After the storm is over, the flow stored in the tunnel is pumped back into the wastewater treatment facility. NYC does not have any existing CSO storage tunnels. The Newtown Creek and Flushing Creek LTCPs propose significant tunnels.

Disinfection CSO disinfection is provided by killing bacteria in CSOs. Chlorination of sewage remains the most common and effective wastewater disinfection practice. The Alley Creek and Flushing Creek LTCPs propose disinfection at their existing existing CSO retention tanks. In-pipe disinfection is proposed for Hutchinson River and for an additional outfall to Flushing Creek.

Pipe Capacity Providing larger combined sewer pipes can provide capacity to convey more flow to the WWTPs, or to relocate CSOs to less sensitive discharge locations. The Bronx River LTCP includes projects to increase pipe capacity.

Weir Modifications Bending weirs and weir modifications prevent smaller rainfall events from tipping into the receiving waters. During a large rainfall event, the structure will bend or open, thus allowing a CSO to occur and prevent upstream flooding.

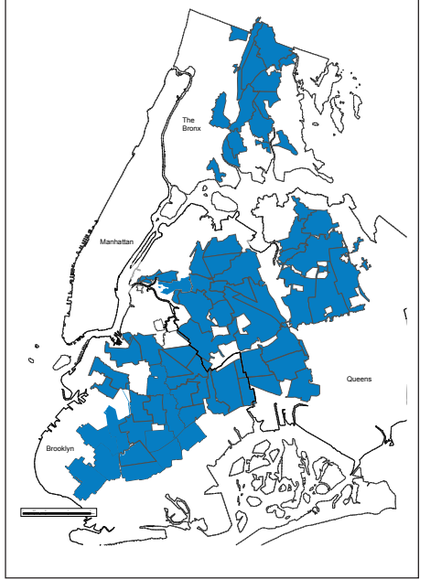
Floatables Control Floatables controls could include nets or screens at the end of a pipe, or underflow baffles to keep the materials in the combined sewers, as well as source controls such as catch basins to keep these materials out of the sewer system.

Sewer Separation Sewer separation is used to prevent storm flow from getting into the combined sewers, freeing up capacity in the combined sewers and reducing overflows.

Green Infrastructure (GI) is a set of techniques that detain stormwater runoff through capture and controlled release before entering the sewer system. GI may also retain runoff through capture and infiltration into the ground below or vegetative uptake and evapotranspiration. GI also has many co-benefits such as neighborhood beautification, air quality improvements, and cooler temperatures in hot summer months.

Through its GI program, DEP works to saturate priority watersheds with GI based on the specific opportunities each watershed presents. Many projects are Right-of-Way Green Infrastructure (ROW GI), which includes area-wide implementation of rain gardens in streets and sidewalks. As part of the GI program, DEP also maintains constructed GI in the ROW, conducts research and development and tracking on the performance of GI. DEP also retrofits City-owned property such as schools, parks and public housing with green roofs, permeable pavements, synthetic turf fields and other GI techniques. The City offers a grant program that funds the design and construction of GI on private property. The City has committed $1.5 billion to green infrastructure through 2030.

Green Infrastructure Program Areas



Visit nyc.gov/greeninfrastructure to download the latest GI Annual Report and learn about green infrastructure in each of the LTCP waterbodies.

Blue/Green Roofs Green roofs consist of a vegetative layer that grows in an engineered soil, which sits on top of a drainage layer. Green roofs are capable of absorbing large amounts of stormwater and provide other ancillary benefits, such as reduced heat island effect. A blue roof regulates stormwater runoff from the roof to the sewer system and provides temporary storage and detention of stormwater.

Bioinfiltration Bioinfiltration systems include rain gardens or constructed wetlands that consist of a vegetated space with specially engineered soils and native plant species that are used to absorb water and filter associated urban runoff pollutants.

Rain Gardens Installed in the sidewalk, rain gardens utilize engineered soils and native plants to absorb water and filter pollutants flowing along the curb.

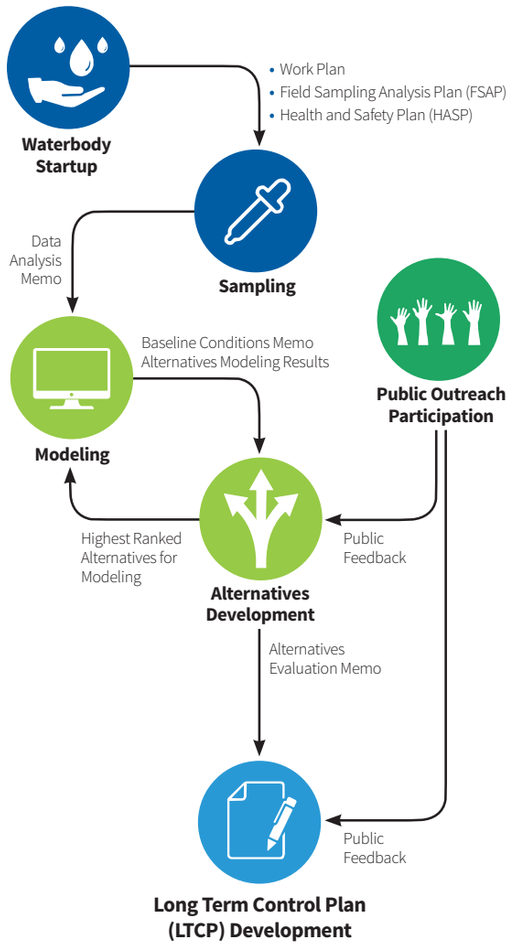
Rain Barrels Rain barrels capture stormwater from roofs and store it for future non-potable use, such as watering lawns or gardens.

Porous Pavement Porous pavement systems allow rainfall to infiltrate through the pavement surface material while providing a subsurface gravel storage zone to encourage infiltration into the subsoil and slow outflow.

Subsurface Infiltration A subsurface infiltration practice uses pipes, stone and/or chambers to hold and filter stormwater before it is released into underlying soils. Water is usually carried into the system by inlets and drains.

LONG TERM CONTROL PLANS

LTCP Planning Process



Long Term Control Plans (LTCPs) identify and evaluate solutions to reduce the impacts of CSOs and improve water quality in New York City's waterbodies and watersheds. Each LTCP builds on existing or planned projects from previous water quality and restoration efforts.

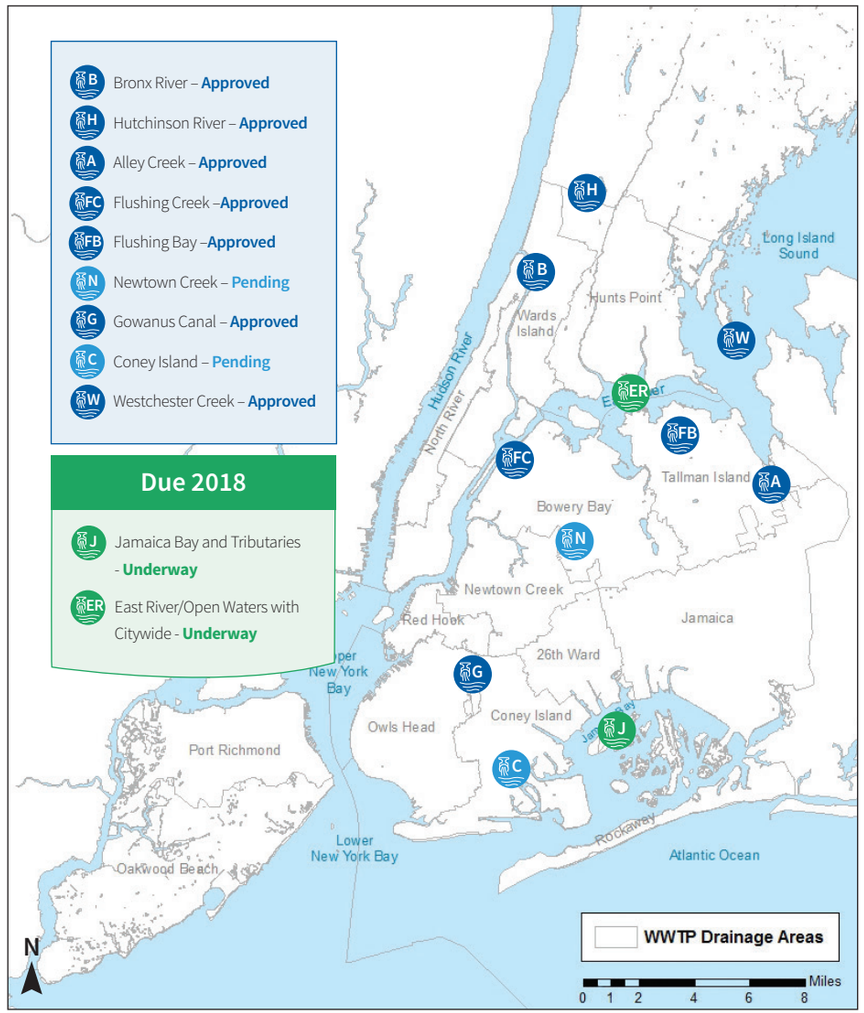
The LTCP process:

- Assesses the attainability of current water quality standards, next highest standards and fishable/swimmable goals of the Clean Water Act;
- Identifies an appropriate balance of grey and green infrastructure for different watersheds; and
- Includes a robust, targeted process to involve residents and interested stakeholders in determining the highest desired use for each waterbody.

LTCP Modeling

Multiple modeling tools provide information about how stormwater runoff and sanitary wastewater flows move and consequently discharge into waterbodies, helping us understand how water quality could be impacted. As each LTCP is initiated for each waterbody, the models are updated to reflect:

- Updated sewer system flow and water quality information, as needed, based on recent field monitoring data;
- Revised sanitary flows based on 2040 population projections and most recent water usage projections; and
- Reevaluated rainfall conditions to incorporate recent wet weather events.



Hyrdaulic Relief

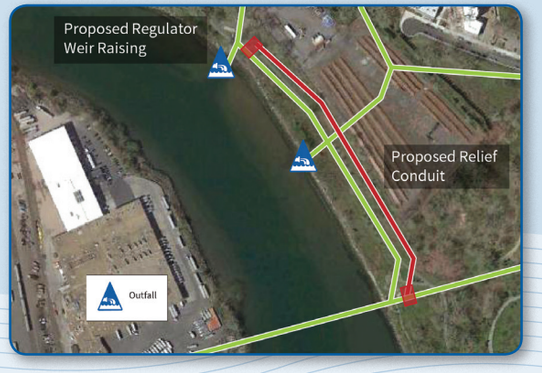
Bronx River Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer system upgrades to maximize flow to the wastewater treatment plant; outfall netting and screens to control floatable materials; and green infrastructure. The cost of the constructed grey infrastructure projects is $46 million.

Approved LTCP: $185 million investments for sewer modifications to provide hydraulic relief and additional floatables control. The approved LTCP Project is predicted to provide an additional 149 MG (33%) reduction in annual CSO volume and bacteria load to the Bronx River. *Expected completion: 2026.*

Future Water Quality Benefit: The overall reduction in CSO volume to the Bronx River from the Pre-Existing Projects condition is predicted to be 194 MG (39% reduction).

Green Infrastructure: Continue to identify GI opportunities.



Disinfection

Hutchinson River Long Term Control Plan

Investments Made Prior to the LTCP Process: Hunts Point WWTP headwork improvements and green infrastructure. The cost of the constructed grey infrastructure project is $3 million.

Approved LTCP: $167 million investment for seasonal disinfection with dechlorination, floatables control, and construction of an extension of outfall HP-024 along with continued implementation of green infrastructure. The approved LTCP Project is predicted to provide an additional 14% reduction in the annual bacteria load by treating 65 MGY of CSO volume discharging to the Hutchinson River. *Expected completion: 2030.*

Future Water Quality Benefit: The overall reduction in CSO volume to the Hutchinson River from the Pre-Existing Projects condition is predicted to be 39 MGY (11% reduction).

Green Infrastructure: Continue to identify GI opportunities.

Disinfection

Alley Creek Long Term Control Plan

Investments Made Prior to the LTCP Process: A CSO storage facility and other sewer system improvements. The cost of the constructed grey infrastructure project is $139 million.

Approved LTCP: $12 million investment for seasonal disinfection with dechlorination of the discharge from the existing CSO storage facility. The approved LTCP Project is predicted to provide an additional 59% reduction in the annual bacteria load by treating 78 MGY of CSO volume discharging to Alley Creek. *Expected completion: 2024*.

Future Water Quality Benefit: The overall reduction in CSO volume to Alley Creek from the Pre-Existing Projects condition is predicted to be 198 MGY (60% reduction).

Green Infrastructure: Continue to identify GI opportunities.

Disinfection

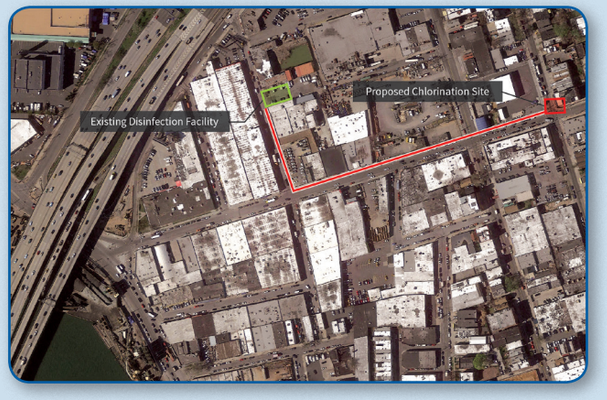
Flushing Creek Long Term Control Plan

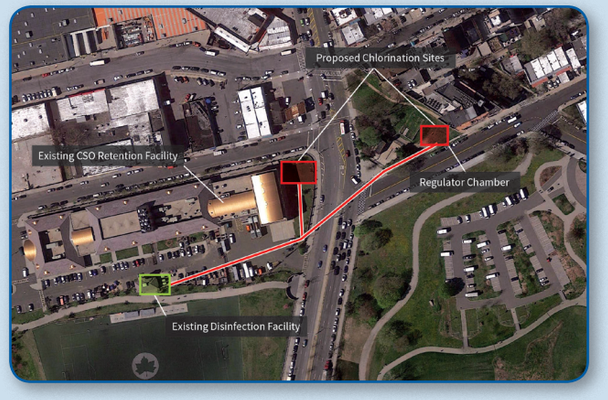
Investments Made Prior to the LTCP Process: A CSO storage facility, other sewer system improvements and green infrastructure. The cost of the constructed grey infrastructure project is $363 million.

Approved LTCP: $18 million investment for seasonal disinfection with dechlorination of the discharge from the existing CSO storage facility; seasonal disinfection with dechlorination at outfall TI-011; and continued implementation of green infrastructure. The approved LTCP Project is predicted to provide an additional 51% reduction in the annual bacteria load by treating 584 MGY of CSO volume discharging to Flushing Creek. *Expected completion: 2025.*

Future Water Quality Benefit: The overall reduction in CSO volume to Flushing Creek from the Pre-Existing Projects condition is predicted to be 1,212 MGY (50% reduction).

Green Infrastructure: Continue to identify GI opportunities.





Tunnels

Flushing Bay Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer improvements including diverting low-lying sewers and regulator modifications; dredging and restoration of Flushing Bay; and green infrastructure. The estimated cost of the ongoing grey infrastructure projects is $69 million.

Approved LTCP: $1,616 million investment for a 25 MG CSO storage tunnel along with continued implementation of green infrastructure. The approved LTCP Project is predicted to provide an additional 747 MGY (51%) reduction in annual CSO volume and bacteria load to Flushing Bay. *Expected completion: 2035.*

Future Water Quality Benefit: The overall reduction in CSO volume to Flushing Bay from the Pre-Existing Projects condition is predicted to be 1,094 MGY (61% reduction).

Green Infrastructure: Continue to identify GI opportunities.

Tunnels

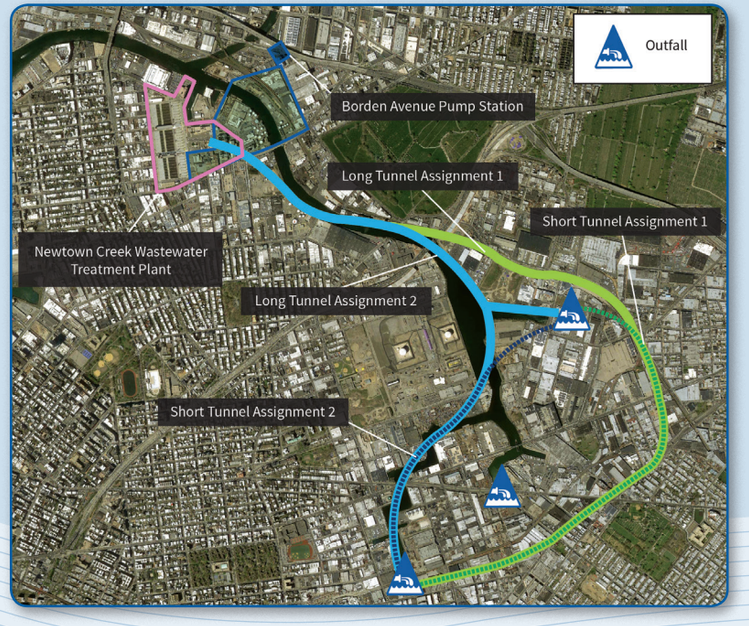
Newtown Creek Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer system improvements including bending weirs and floatables control; WWTP expansion; in-stream aeration; and green infrastructure. The estimated cost of the ongoing grey infrastructure projects is $259 million.

Approved LTCP: $1,422 million investment for a 39 MG CSO storage tunnel and an expansion of the Borden Avenue Pumping Station along with continued implementation of green infrastructure. The LTCP recommended plan is predicted to provide an additional 691 MGY (60%) reduction in the annual CSO volume and bacteria load to Newtown Creek. *Expected completion: 2042.*

Future Water Quality Benefit: The overall reduction in CSO volume to Newtown Creek from the Pre-Existing Projects condition is predicted to be 1,001 MGY (69% reduction).

Green Infrastructure: Continue to identify GI opportunities.



Tanks

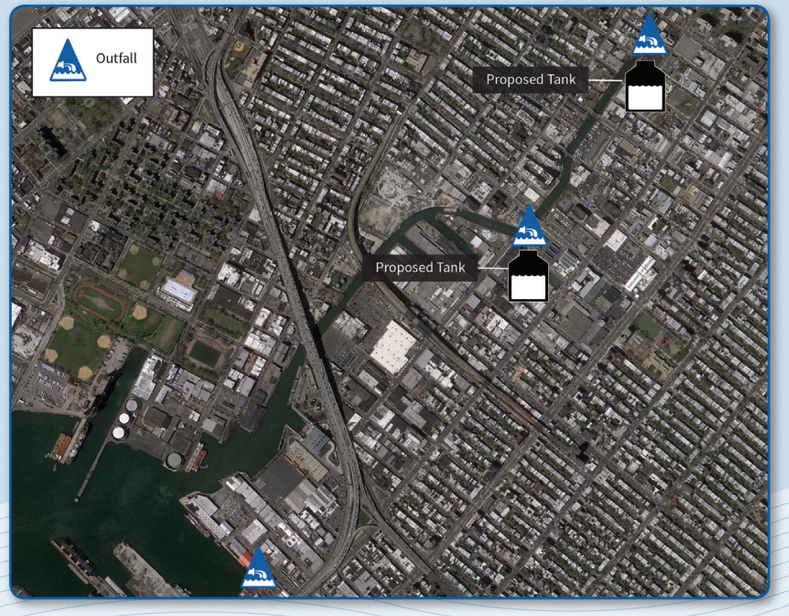
Gowanus Canal Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer system improvements including the restoration of the flushing tunnel and reconstruction of the Gowanus Pumping Station and green infrastructure. The cost of the completed grey infrastructure projects is $194 million.

Approved LTCP: The LTCP did not recommend an additional project for Gowanus Canal beyond continued implementation of green infrastructure, but as part of a Superfund program, two CSO storage tanks will be constructed at an estimated cost of $932 million. The Superfund plan is predicted to provide an additional 148 MGY (56%) reduction in the annual CSO volume and bacteria load to the Gowanus Canal.

Future Water Quality Benefit: The overall reduction in CSO volume to Gowanus Canal from the Pre-Existing Projects condition is predicted to be 344 MGY (75% reduction).

Green Infrastructure: Continue to identify GI opportunities.



Other Investments to Date

Coney Island Creek Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer system improvements including the upgrade of the Avenue V Pumping Station and a new wet weather force main. The cost of the completed grey infrastructure projects is $197 million.

Approved LTCP: The LTCP did not recommend an additional CSO project for Coney Island Creek. DEP will conduct ongoing illicit trackdown, additional flow monitoring and MS4 prioritization.

Future Water Quality Benefit: The overall reduction in CSO volume to Coney Island Creek from the Pre-Existing Projects condition is predicted to be 160 MGY (68% reduction).

Green Infrastructure: Continue to identify GI opportunities.

Westchester Creek Long Term Control Plan

Investments Made Prior to the LTCP Process: Sewer system improvements including weir modifications; a Pugsley Creek parallel relief sewer; and green infrastructure. The estimated cost of the ongoing grey infrastructure projects is $124 million.

Approved LTCP: The LTCP did not recommend an additional project for Westchester Creek beyond continued implementation of green infrastructure.

Future Water Quality Benefit: The overall reduction in CSO volume to Westchester Creek from the Pre-Existing Projects condition is predicted to be 501 MGY (63% reduction).

Green Infrastructure: Continue to identify GI opportunities.

Program Commitments and Outflow Reductions

Waterbody	Existing Grey Infrastructure Projects	Actual Incurred Costs (Millions)	CSO Volume Reduction (%)	LTCP Project	Escalated Capital Costs (Millions)	CSO Volume Reduction (%)	CSO Bacteria Reduction (%)	Treated CSO Volume (MGY)
Alley Creek	CSO Storage Facility and Other Sewer Improvements	$139	60%	Seasonal Disinfection of Existing CSO Storage Tank	$12	-	59%	78
Westchester Creek	Weir Modifications and Parallel Sewer	$124	63%	None	$0	-	-	-
Hutchinson River	Hunts Point WWTP Headworks	$3	11%	Seasonal Disinfection and Floatables Control for New Outfall	$167	-	14%	65
Flushing Creek	CSO Storage Facility and Vortex Facilities	$363	50%	Seasonal Disinfection of Existing CSO Storage Tank and Outfall	$18	-	51%	584
Bronx River	Maximize Flow to WWTP and Floatables Control	$46	39%	Hydraulic Relief and Floatables Control	$185	33%	33%	-
Gowanus Canal	Flushing Tunnel and Pump Station Reconstruction	$194	43%	Superfund CSO Storage Tanks	$932	56%	56%	-
Coney Island Creek	Pump Station Expansion and Wet Weather Force Main	$197	68%	None	$0	-	-	-
Flushing Bay	Sewer Diversion, Dredging, and Regulator Modifications	$69	19%	CSO Storage Tunnel	$1,616	51%	51%	-
Newtown Creek	Sewer and WWTP Improvements and Aeration	$259	21%	CSO Storage Tunnel and Upgrade of Borden Ave Pump Station	$1,422	61%	61%	-
Paerdegat Basin	CSO Storage Facility and Dredging	$394	56%	TBD	-	TBD	TBD	TBD
Jamaica Bay & Tributaries	Sewer Improvements, CSO Storage Facility and Dredging	$631	30%	TBD	TBD	TBD	TBD	TBD
East River/ Open Waters	Facility, Conveyance, and Regulator Improvements	$196	-	TBD	TBD	TBD	TBD	TBD

*Pre-Existing Project CSO volumes reflect conditions without Waterbody Watershed Facility Plan (WWFP) Projects, Green Infrastructure and other sewer improvements.

Existing Green Infrastructure Program Total $1.5 billion + **Existing Grey Infrastructure Projects** $2.6 billion = **Pre-LTCP CSO Program Total** $4.1 billion

LTCP CSO Program Total $4.4 billion (as of Fall 2017)

Stakeholder engagement is a central part of LTCP development and DEP's efforts to protect NYC's waterbodies and watershed quality. There are plenty of ways to stay involved in the City's efforts to protect and improve water quality in New York City.

Join the City's Stormwater Advisory Group. Email LTCP@dep.nyc.gov to join the Group's listserv. You'll get invites to upcoming meetings and receive important stormwater related announcements.

Visit the City's CSO Program Website. You can download presentations and even view some of the LTCP public meetings! Important documents such as the Long Term Control Plans are also available at nyc.gov/dep/ltcp.

Visit a Green Infrastructure Practice. The City has constructed thousands of green infrastructure practices. Visit nyc.gov/greeninfrastructure to view an online map and find a project near you!

Wait… We all need to use water every day. But when there's a heavy storm and heavy household water usage, our sewers can reach capacity. When this happens, a mix of stormwater and wastewater can end up in our waterways. In 2016 DEP initiated a pilot program in which the City sent registered participants a message when there was a heavy storm so they knew to wait to use water until after the storm ended. Participants pledged to take shorter showers, delay laundry and dishwashing and if they were really brave… waited to flush the toilet. If you want to join a future Wait Pilot email us at wait@dep.nyc.gov.

Don't Trash Our Waters. Trash in our harbor often begins as litter on our streets and sidewalks. Rain water can carry street litter to nearby storm drains, or catch basins, where it enters the City's sewer system. This litter can eventually make its way to our waterways, which can hurt local wildlife and put human health at risk. To improve water quality and protect wildlife and local communities that rely on our waterways, DEP implements a variety of programs and works with other agencies to help keep trash and debris out of the sewer system and local waters. Citizens like you can also help to keep our waters trash free.

We encourage New Yorkers to:

- Generate less trash
- Keep your street clean
- Adopt-a-Basket
- Adopt-a-Bluebelt
- Adopt-a-Highway or Greenway

You can also learn more by visiting **nyc.gov/trashfreewaters.**


NYC
Environmental
Protection

NEW YORK CITY SOIL AND WATER CONSERVATION DISTRICT

New York City Council
Committee on Environmental Protection

Oversight Hearing
New York City's Wastewater Infrastructure

December 13, 2017

Thank you for the opportunity to submit this testimony regarding New York City's wastewater and stormwater infrastructure.

The NYC Soil and Water Conservation District (the District), part of a nationwide system of 3000 districts, assists New Yorkers and local decision-makers in making wise use of the City's soil, water and related resources. Our mission is to 1) conserve, preserve and protect natural resources; 2) improve water and soil quality; 3) prevent soil erosion and sedimentation; and 4) promote the health, safety and general welfare of the City. The District has promoted green infrastructure before such term existed. As early as in 2000 the District worked with the Gaia Institute to install a rain garden in Brooklyn, capturing runoff from a parking lot into a constructed wetland. The District has continued to educate and promote the use of ecological engineering and natural systems in managing stormwater and currently serves on the Steering Committee of the Stormwater Infrastructure Matters Coalition. The District is also the pioneer, in partnership with the USDA Natural Resources Conservation Service, in the urban soil survey. Soils are a critical component of green infrastructure and the District is at the forefront of furthering research in urban soil science.

I would like to begin by recognizing the tremendous work accomplished by the NYC Department of Environmental Protection (DEP). Our waterways are cleaner than decades ago and we do have more waterways where recreation is possible. Our drinking water continues to be the nation's (or even the world's) best. I know managing wastewater generated by more than 8 million residents and millions of other commuters and visitors is no easy task and appreciate the dedication and hard work of the DEP staff.

While it is good to celebrate our accomplishments, we must also remain focused on challenges that remain. I support and agree with the testimonies submitted by the partner organizations calling out the shortcomings in the CSO Long Term Control Plans. I, too, am deeply concerned about chlorination, diverting flow, planning time horizon, and lack of integrated planning between the CSO and MS4 areas, among other issues.

I would like to focus my testimony on green infrastructure (GI) on private properties.

I understand the DEP is committed to and making significant investments in GI. I also understand the DEP is revising the GI Grants Program to foster more GI on private properties. However, I, along with my colleagues, was recently informed that the new GI Grants Program will focus on large private properties (>50,000 sq. ft.). This size was selected based on analysis of private properties in the CSO watersheds and the cost effectiveness.

While I understand the mandate on the DEP to maximize cost effectiveness and to prove the efficiency of the GI approach, I would like to urge the agency to think more creatively on how we can promote GI on private properties, particularly those under 5,000 sq. ft. Rather than waiting for the results on GI on large properties, there should be parallel efforts to promote GI on small properties. Such efforts do not necessarily have to divert financial resources away from existing programs. When a great majority of properties are held in private

ownership, and a large portion of those are small properties, we are missing out on opportunities to implement more GI. There are many small property owners who are interested in greening their buildings but they need technical and financial assistance or incentives or all three. We must find ways to leverage private resources to capitalize on the changing attitude of private property owners. To do so, we need both regulations and incentives.

I believe re-evaluating the water rate structure is an important first endeavor in leveraging private resources. As the demand for capital dollars rises, we must ensure our water rates are affordable for those who are most vulnerable and equitable such that those who generate more stormwater are charged more. By re-structuring the water rate to a "polluter pays" structure, combined with a GI credit system (reduction of water bill for installing green infrastructure), we can leverage private resources more effectively. The City can begin a new structure as a revenue neutral measure but a more equitable water rate system will likely generate more revenue for stormwater management. Such a system is in place in many municipalities including our neighbor to the south, Philadelphia.

The DEP should also consider amending building codes to require GI on private property redevelopment and new development. The stormwater detention rule implemented several years ago was a good first step but we can do better. I do not underestimate the challenges involved in changing building codes, but mandating green infrastructure is an effective way of leveraging private resources. If combined with rate restructuring described above, GI mandate may not be as difficult to implement.

There is an existing incentive program that needs to be improved: the Green Roof Tax Abatement program. It is set to sunset in March 2018 and warrants renewal with substantial revisions. While this is not a DEP program, I include it as an example of an incentive program. If calibrated properly (meaning, higher per-square-foot abatement amount, streamlined bureaucracy, etc.) this incentive program has the potential to increase the number of green roofs on small private properties.

These and other recommendations for private property GI are eloquently presented in the recent report, *Catalyzing Green Infrastructure on Private Property*, by NYU Stern Center for Sustainable Business and the Natural Resources Defense Council. We all know the DEP cannot do this alone but the agency does not have to go it alone: we have tools to bring the private sector on board.

The District is committed to working with the DEP to improve our waterways so that every New Yorker is able to reap the benefits of local waterways without risking her/his health. I look forward to partnering with the City Council in this worthy endeavor.

Thank you again for this opportunity.

Submitted by:
Shino Tanikawa
Executive Director

TESTIMONY of Cafeteria Culture, December 13, 2017
New York City Council Committee on Environmental Protection
Oversight - The City's Wastewater Infrastructure – Current Condition and Future Plans

Chair Constantinides, Committee Members and staff, thank you for allowing me this opportunity to speak.

I am the Executive Director and Founder of Cafeteria Culture, a non-profit environmental education organization, originally called Styrofoam Out of Schools. We catalyzed the complete elimination of styrofoam trays from New York City (NYC) schools by partnering with Department of Education (DOE) School Food Directors, We work creatively to achieve zero waste schools and climate smart communities, engaging students as our partners-in-change. Our programs merge citizen science and civic action with media and arts education. Through our Plastic Free Waters programs, students in low-income communities take on community leadership roles to reduce local plastic street litter that becomes deadly global marine pollution.

I am grateful to be here today to present concerns about our city's contribution to the pervasive global marine plastic pollution crisis and to share recommendations for reducing the unacceptable amounts of plastic litter that flow into our local waterways.

Marine plastic debris is one of greatest global environmental and health challenges of our time and our city contributes to this global crisis.

- More than **8 million tons of plastics** are entering our waters every year (Jenna Jambeck); which is equivalent to dumping a truckload of garbage per minute into the world's ocean (Wold Economic Forum);
- **80% percent of ocean plastic originate on land** (Eunomia Research, UK);
- The US made the top-20-list of countries generating the most ocean-bound plastic debris because of dense costal populations and large consumption of products (Jambeck);
- By 2050, in a business as usual scenario, there will be more plastic than fish, by weight (United Nations Environment Program, UNEP);
- Plastic litter easily breaks down into tiny pieces called **microplastics, which act like sponges in the ocean and absorb toxic chemicals, such as PCB's and flame retardants.** So, when a fish eats a piece of plastic, it is eating these chemicals too.
- It is estimated that there are 51 trillion pieces of these microplastics, pieces smaller than 5 millimeters long, creating a "plastic smog in our oceans" (Marcus Ericksen, 5 Gyres);
- More than one quarter of all fish are estimated to have microplastics inside them with likely impacts on the health of fish, marine wildlife and humans (per a 2016 UN report);
- **It is estimated that 165 million plastic particles are floating In NYC estuaries, at any given time** (NY/NJ Baykeepers)
- **Plastic fibers, or microfibers** from our synthetic clothing are washing down our drains and have been found in tap water around the world and in NYC (Orb Media);

- **The Hudson River dumps 300 million** clothing fibers into the Atlantic Ocean each day (Rozalia Project);
- This month, over **200 countries signed a United Nations resolution to eliminate plastic waste in the world's ocean** (UNEP in Nairobi, Kenya).

Recommendations

1. **Provide funding for urgently needed collaborative research on local plastic marine pollution** to determine sources, amounts, and specific types of plastic debris in waterways. This will shed light on the magnitude of the problem and inform policymakers with data for passing legislation to reduce plastics from entering out waterways *upstream.*
2. **Increase funding for *innovating* public outreach and creative messaging on Combined Sewer Overflow** issues, emphasizing the *health* implications of sewage and plastic street litter in our waterways as motivation for behavioral change.
3. **Increase and diversify green infrastructure and public messaging on public school properties and improve interagency collaboration.** More green spaces will address the combined need for neighborhood beautification, climate mitigation, climate resiliency, improved learning environments, *and* decreasing stormwater runoff. Our 1200 public school buildings are ideal locations for green infrastructure, including bioswales, green roofs, rain gardens, and permeable play areas, which can also provide exciting education opportunities for students, teachers, custodial staff, and neighboring communities.
4. **Mandate an *Environmental Literacy* requirement** with curriculum starting as early as pre-K, teaching the basics of plastic free waters, zero waste, and climate change. We are piloting this curriculum. Let's get serious about investing in education that will help our children make healthy decisions for *their* future.
5. **Reduce microfibers that are flowing into our waters** by working with NGO's, clothing and washing machine manufacturers, and businesses to develop new strategies and create public outreach campaigns to educate public on this issue with simple steps to take, such as washing clothes less, air drying and hand washing (especially fleece!).
6. **Engage local design universities** to tackle complex, intersecting problems of rat reservoirs, flooding, and stormwater runoff as a way to ensure gardens and green spaces in Council District 1 NYCHA and DOE properties and to inspire cutting-edge solutions.

Cafeteria Culture recognizes the progress that NYC has made, dramatically improving the quality of our local waters. We urge the city to continue to invest in improving on-land management of storrmwater, innovating education and outreach and supporting new research.

With gratitude,

Debby Lee Cohen
Director and Founder, Cafeteria Culture

also
- Manhattan Solid Waste Advisory Board member, Chair of Messaging
- Plastic Free Waters Partnership NY/NJ - Steering Group Lead (www.plasticfreewaters,org)

PS 15 The Patrick F Daly Magnet School of the Arts

Peggy Wyns-Madison, Principal
Julie Cavanagh, Assistant Principal

TESTIMONY of Students from PS 15, Patrick F. Daly School,
Department of Education, New York City
New York City Council Committee on Environmental Protection
Oversight - The City's Wastewater Infrastructure – Current Condition and Future Plans
December 13, 2017

Students: Ronen Battis, Sharon Li, Kayla Delgado, Angellina Sanchez
Teacher: Ms. Ieman Elzoghby

Hello Chair, Committee Members and staff, thank you for allowing us this opportunity to speak. We are Ronen Battis, Sharon Li, Kayla Delgado, and Angellina Sanchez. We are from PS 15, Patrick F. Daly school in Red Hook, Brooklyn, representing the 5th grade. We would like to thank the city council for this opportunity to speak.

We have been learning about plastic street litter that becomes dangerous marine pollution and how it gets there. We collected street litter and litter data from our streets in Red Hook and from a beach at Jamaica Bay Wildlife Refuge.

And guess what? We found the same types of litter in both places. In one street litter survey on just one block in our neighborhood, we found 233 pieces of litter that will never bio-degrade. Imagine how many pieces of litter there are in ALL of New York City!

We learned with Cafeteria Culture that when it rains as little as one tenth of an inch per hour, New York City's combined sewer system is overwhelmed and the mix of polluted stormwater from our streets and untreated, raw sewage from our toilets, sinks, and showers goes directly into our waterways.

That means when it rains, everything -- street litter and things we flush down the toilet -- goes out to the ocean! We know that plastic litter shouldn't be in the ocean. Our fish and marine life think that plastic litter is food and they eat it! Especially because all the plastic litter gets smaller and smaller and never bio-degrades. It just keeps polluting our precious waterways and oceans. Imagine opening up a fish and finding plastic inside it! And then eating that fish!

After we learned about how much litter we have in our neighborhood, we came up with lots of community ACTIONS to teach our neighbors about how plastic street litter affects marine life. We performed plays to teach our neighbors and gave away reusable bags that we made from t-shirts. We made charts and graphs from our litter data to ask the Department of Sanitation for recycling bins on the street. And we made banners to hang on the fence to tell our neighbors the story of what happens to our street litter. And guess what? It worked! We know because we compared the data. In our last street litter survey, the litter was reduced by two thirds.

First we want to thank NYC for all that they have done already to improve the city's wastewater management system. But this is not enough. We really want the city to continue to improve the Combined Sewer Overflow system.

For example: You can let the water go somewhere to wait until after the rain stops. And then it can go to the Wastewater Treatment plant like normal. Or the storm drains on the street could be better designed: make the bars smaller and block the litter from going in. And why not paint a message right on the drain or the curb? We would LOVE to have permission to make storm drain art in our neighborhood in Red Hook! Why can't we?

Cities all over the US have done this. These that we're showing are from Maryland. At least you can make a system to capture the litter near the outfall pipes, like "Mr. Trashwheel" in Baltimore!

We are *students* and we know that the health of our oceans affects the health of all of us.

We also know that good data drives policy. We hope that our numbers and our experience teaches you what it taught us: that we need to do more to reduce the amount of plastic litter going into our waters -- *now!*

Contact: Debby Lee Cohen, Director/Founder DL@cafeteriaculture.org 917-282-0253
A Project of Fund for the City of New York, 121 Avenue of the Americas, 6th floor, NY, NY 10013

THE URBAN ASSEMBLY
New York
HARBOR
SCHOOL

New York Harbor School

City Council Wastewater Infrastructure Hearing
Wednesday December 13, 2017 - 10am
City Hall, NYC

Thank you Mayor De Blasio, City Council Speaker Melissa Viverito, Councilman Constantinides, Commissioner Sapienza and Commissioner Seggos for your time and hearing my testimony today.

My name is Liam Daretany and I am a Junior at the Urban Assembly New York Harbor School and I'm here on behalf of my fellow divers and the entire student body, as well as young people across the city. The Harbor School is a public high school located on Governors Island in the heart of New York harbor. The school instills a sense of environmentalism in its students that we take with us beyond our high school careers. I grew up only a few blocks away from Midland beach on Staten Island and as far back as I remember I have always been told "NEVER go in the water, you'll grow an extra arm!" and I thought it was a joke until I got to the Harbor School. At my school I participate in a unique three year Professional Diving program which allows me to graduate with many certifications on top of my highschool diploma and prepares me for a career working in our harbor as well as for college. With Combined Sewage Overflow Systems still operating in the city this makes my life as a diver more difficult than it should be, we need to wait 72 hours after it rains as little as a quarter of an inch to avoid contact with things like fecal coliform and prescription drugs.

New York Harbor was once a stunning habitat that was home to an inconceivable amount of biodiversity but now you can hardly see your hand two feet in front of your face. We are a city that has forgotten its roots; the harbor that allowed us safe passage and access to shipping we have used as a personal dumping ground. The oysters that built our economy are now killed off by over-pollution, the fish we once thrived off of are now too toxic to even think of eating. We can change this. We could go back to what we once had and the first steps would be to find an alternative solution to Combined Sewage Overflow systems in New York Harbor. Programs such as the Billion Oyster Project can then more effectively continue their work to restore and thus maintain the environment and students such as myself can access the water without worry. Thank you for hearing me out today I hope you will take my testimony and the testimony of others who speak today into consideration.

THE URBAN ASSEMBLY
New York
HARBOR
SCHOOL

New York Harbor School

City Council Wastewater Infrastructure Hearing
Wednesday December 13, 2017 - 10am
City Hall, NYC

Hello. My name is Mahambe Toure. The dumping of CSOs have cost my classmates and I many days of diving throughout my three years at New York Harbor School. Being a diver, I've learned to deal, but looking back on all the dives I have missed out on, I wonder how much better of a diver I would be now if I'd been able to dive all those days I missed due to Combined Sewage Outflows.

I'd like to read a short statement from one of our diving teachers, Leonard Speregen:

I was a commercial diver in NY Harbor for a large portion of my diving career and I have seen an amazing change in our harbor since the Clean Water Act. However, everytime it rains and the DEP feels the rainfall will exceed more than ¼ inch of rain there is a discharge of untreated sewage and oil and gasoline filled street runoff. As a professional diver it was my job to dive regardless of the water condition. Now that I'm a teacher at The New York Harbor School my students are the ones impacted by this discharge. I cannot train them in the harbor in these conditions. It negatively impacts their training and ultimately their safety and health. It is well past time to upgrade our untreated sewage storage system. Responsible people do not treat their environment this way. Today it affects my students - tomorrow everybody.

Thank you for listening.

SWIM Coalition
Stormwater Infrastructure Matters

Testimony of Stormwater Infrastructure Matters (SWIM) Coalition Before the New York City Council, Environmental Protection Committee Wastewater Infrastructure Hearing, December 13, 2017

Re: NYC Wastewater and Stormwater Infrastructure Plans for Water Quality Improvement in NYC Waterways

My name is Jaime Stein and I am the Stormwater Infrastructure Matters (SWIM) Coalition steering committee chair. Thank you for the opportunity to offer the following comments on behalf of SWIM.

We thank the Committee on Environmental Protection for your oversight of the City's water quality improvement plans to ensure that DEP's efforts are directed towards effective, sustainable solutions that protect our waters for both human recreation and ecosystem protection.

SWIM is a diverse group of more than 70 community-based, citywide, regional and national organizations, water recreation user groups, institutions of higher education, scientists, citizens and businesses who advocate for the health of New York City's vital waterways,

Since our founding in 2007, SWIM has closely followed the development and implementation multiple iterations of the CSO Consent Order, and called for the development of the City's Sustainable Stormwater Management Plan (which City Council mandated in Local Law 5 of 2008), the inclusion of Green Infrastructure in the City's stormwater management plans, and provided input for the current Green Infrastructure Plan, the Green Roof tax abatement, and the Green Infrastructure Grant program.

SWIM members have participated in an ongoing and productive dialogue with Commissioners and Deputy Commissioners and their staff at the Department of Environmental Protection (DEP) over the past decade, participated in previous (but no longer active) advisory groups convened by DEP, and been deeply engaged in the development and implementation of the City's water quality improvement plans, including Long Term Control Plans under the CSO Consent Order and the Stormwater Management Program under the City's municipal separate storm sewer (MS4) permit .

All of the above-mentioned plans, orders, and programs will provide a comprehensive blueprint for how we will all improve water quality in our waterways, and make our waterways safe to access for recreational, economic, and educational purposes, while making New York City more resilient to the effects of climate change, providing green jobs for residents, and improving neighborhood health and quality of life.

We still have a long way to go in order to meet the "fishable, swimmable" federal health standards mandated for NYC's waterways and make them safe and healthy for use by everyone.

SWIM Coalition respectfully offers the following testimony as a proposed guide for how the City can move forward toward meeting the aforementioned goals. Our testimony today is focused on DEP's efforts to reduce combined sewer overflows and polluted runoff in NYC waterways.

The biggest ongoing sources of water pollution to New York City waters are raw sewage discharges ("combined sewer overflows" "CSOs") from the combined sanitary/storm sewers and stormwater runoff from the City's municipal separate storm sewer system ("MS4"). MS4 and CSO pollution contaminate the waterways where New Yorkers wade, swim, fish, boat, and play. The overflows and runoff make many of our waterways unsafe for recreation and degrade habitat for fish and wildlife. DEP studies show that we cannot clean up our waters without addressing both of these stormwater pollution problems.

In brief, the testimony highlights the following topics:

SWIM's Guiding Principles for Clean Waterways in NYC

Effective CSO Long Term Control Plans:

- Expedite LTCP implementation timelines
- Reject chlorination disinfection in some of the proposed LTCP's
- Reduce CSO overflow volume, rather than redirecting or chlorinating raw sewage
- Align the City's plans for the combined sewer areas and separate storm sewer ("MS4") areas of the City

A Robust and Adaptively Managed Green Infrastructure Plan:

- Comprehensive contingency plan to meet missed milestones
- Improved interagency coordination for green infrastructure on municipal property
- Diversify green infrastructure methods beyond bioswales
- Stimulate more green infrastructure on private property
- Expand green infrastructure to the MS4 area of the city

Equitable Financing & Water Rates:

- Create a more equitable rate structure
- Direct DEP to conduct a rate restructuring study.

Water Quality Standards that Protect Human Health:

- Base all plans on modern, protective water quality standards

SWIM Coalition
Stormwater Infrastructure Matters

Transparent and Inclusive Decision making Process

- Provide genuine opportunities for public input, and accountability for the City and State to address public concerns, during the development, approval, and implementation of CSO Long Term Control Plans

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Clean waterways are an important issue for many New Yorkers in this coastal city. Waterbodies around the City provide citizens from every borough with a much needed physical and emotional relief from the harsh environs of the most urbanized city in the nation. The Stormwater Infrastructure Matters (SWIM) Coalition, a citywide group of over 70+ waterway stakeholders, is deeply concerned that the City and State are not doing enough to ensure fishable, swimmable waters in many of our local waterways.

Since the passage of the Clean Water Act, the bedrock law that protects our waterways, NYC has made significant progress in improving water quality in some of our waterways - as evidenced by the number of people who now have the opportunity to visit our waterfronts - whether to run, bike, paddle, walk, study the wildlife habitats and rich ecosystem of our vital estuaries, fish, or have a family picnic. We recognize the significant effort that DEP has put into developing and implementing programs and capital improvements underway today, as well as those completed in years and decades past. And we are well aware that, in a city as large and densely developed as New York, with a sewer system as old and sprawling, the challenges are great.

However, the fact remains that. more 45 years after the passage of the Clean Water Act, we still have not met the goal - across the City - for fishable and swimmable waters. Some portions of the City's waterfront remain choked with trash and raw sewage, others have chronic low-dissolved oxygen conditions, and yet others are closed and completely fenced off from their surrounding communities.

The City's current plans for addressing CSOs, if implemented as they currently stand, will ensure that we do not meet that goal for decades to come. Indeed, they do not put us on a path to meet those goals at any point in the future.

The solutions in the current LTCPs will take decades to implement, leave entire sewersheds unaddressed and unmitigated, and are limited - in places like Flushing Creek - to treating the symptoms of our water quality problems, rather than the causes.

The New York State Department of Environmental Conservation (DEC) has, to date, approved a series of seven deeply flawed CSO Long Term Control Plans to address the more than 20 billion gallons of sewage that flows into our waterways each year. The approved plans, based on New York's outdated water quality standards, cover overflows to the Bronx River, Hutchinson River, and Westchester Creek in the Bronx; Gowanus Canal in Brooklyn; and Flushing Bay, Flushing Creek and Alley Creek in Queens. DEP has also submitted plans for Coney Island Creek and Newtown Creek which are under DEC review. Plans remain under development for Jamaica Bay and its tributaries and for the "East River/Open Waters," which includes the Hudson River, East River, Harlem River, Upper and Lower New York Bay, western Long Island Sound, Arthur Kil, and Kill van Kull.

The approved and submitted plans will not make our waterways safe for recreational activities. They will leave hundreds of millions of gallons or billions of sewage overflows in each waterbody annually, on dozens of occasions per year. Many of the plans do not reduce overflow volume at all and instead call for diverting raw sewage into the East River or dumping chlorine into raw sewage before discharging it to rivers, creeks, and bays.

Further, based on DEP's claims that the waterbodies covered by the remaining plans meet recreational water quality standards, due to the faster dilution that occurs these larger waters, we anticipate that DEP will not propose significant reductions in the approximately 15 billion gallons of annual sewage overflows into these waters.

DEP's approach envisions that, by 2042, the city will decrease total sewage overflow volume only by about one-third (to around 18 billion gallons per year) as compared to levels three decades earlier (27 billion gallons per year in the early 2000s). Most of that reduction has already occurred today -- which means the next two decades will bring little improvement to most waterways in the city!

SWIM Coalition has distributed Fact Sheets[1] outlining community concerns with each of the city's proposed CSO Long Term Control Plans and shared SWIM's Principles for Clean Waterways in NYC[2](signed by 29 SWIM Coalition Member Organizations and Supporters so far) with all of the City Council and many elected officials citywide, to alert them about the flawed plans in their districts. We've shared the principles as a guide for how the city and state can improve on the plans that are meant to protect our waters from sewage and polluted runoff.

We offer our Guiding Principles for Clean Waterways as a framework for more robust, transparent, and equitable water quality improvement plans in New York City:

- **Protect communities and guarantee Equity**: Ensure that low income and environmental justice communities benefit from both green and gray infrastructure investments. Prioritize these communities when siting green infrastructure, to maximize health, quality of life, and economic benefits to underserved communities.

- **Ensure decision making is inclusive and transparent, and solutions are based in effective collaboration:** Meet the Clean Water Act goal of "fishable, swimmable" waters through meaningful collaboration among state and federal agencies, the City, community and environmental organizations, and local elected officials. Ensure that cleanup plans, permits, and other key decisions are grounded in local solutions with community engagement and buy-in.

- **Meet federal health standards:** Ensure all Combined Sewer Overflow ("CSO") Long Term Control Plans meet EPA's current recreational water quality standards, not the state's outdated standards, which EPA has found do not protect public health.

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[1] http://bit.ly/2AMmM6H

[2] http://bit.ly/2AMcxyW

- **Develop smarter and fairer approaches to funding water quality infrastructure:** Leverage private investment in green infrastructure to reduce public costs. Reform rate structures and improve customer assistance programs to ameliorate cost burdens on ratepayers, while raising necessary revenue for water infrastructure investments.

- **Use a holistic planning approach to address all pollution sources in all New York City waters:** Place all polluted waterways on the state's list of impaired waters (the "303(d) List"), and create pollution budgets ("Total Maximum Daily Loads" or "TMDLs") to meet water quality standards. Use these TMDLs to establish binding limits on sewer overflows, polluted runoff, and other pollution sources from within the City and upstream communities. Do not disconnect CSO planning from efforts to address polluted runoff in areas served by separate storm sewers (the Municipal Separate Storm Sewer System ("MS4"), particularly when both pollution sources affect the same water body.

- **Do not kick the can down the road:** Our polluted waters are being used for fishing, swimming, paddling, and other recreation now; they are burdening communities and local economies now. CSO cleanup plans should ensure progress as quickly as possible, not sanction delays of up to15-25 years (or for some proposed CSO plans, even longer).

- **Focus on reducing volume and frequency of CSOs throughout the city, not disinfection of overflows, aeration to dilute pollution, or relocation of outfalls:** Reduce the amount of sewage in the water and the number of times overflows occur in each water body, in each neighborhood, and from each outfall. Do not rely on unsustainable, Band- Aid approaches that seek to mask the problem.

- **Prioritize green infrastructure:** Maximize cost-effective solutions that capture runoff as a resource, reduce flow into overburdened sewers, and improve neighborhoods. Ensure that every city agency is all-in with an ambitious citywide green infrastructure plan that includes comprehensive outreach and maintenance to ensure success.

- **Protect fish and coastal habitat by reducing nitrogen pollution:** Require all CSO Long Term Control Plans to enhance nutrient reduction to protect New York City's aquatic ecosystems, including Long Island Sound and its adjacent bays. Nitrogen in sewage overflows from New York City significantly contributes to the Long Island Sound's "dead zone."

Effective CSO Long Term Control Plans

We call on the City and State to establish plans that reduce the amount of sewage and the number of times overflows occur in each water body, in each neighborhood, and from each outfall. We ask you not to not rely on unsustainable, Band- Aid approaches that seek to mask the problem.

Three CSO Long Term Control Plans approved by the state (for Alley Creek, Flushing Creek and the Hutchinson River) rely on disinfection with chlorine rather than reducing the volume of CSO. This is a

band-aid solution that creates a new pollutant (chlorine, which can harm habitats and the local waterway ecosystems). The plans for Alley Creek, Flushing Creek, and the Hutchinson River call for "disinfection" of otherwise untreated sewage with chlorine. The state has approved these plans, even though DEP is still testing out whether chlorination can simultaneously meet pathogen-reduction goals and prevent toxic chlorine from harming waterways.

At a recent public meeting in November, DEP officials indicated that they plan to dechlorinate the overflow before it enters the waterways but as yet, have not been able to test that aspect of the process because it is difficult to gauge and test dechlorination during an overflow event which says to us that the process is as yet, unproven in NYC's system and should not be approved by the State. Some scientific experts have noted that the chlorine may not even reduce pathogens in solid fecal matter. There are too many unknowns about this process for it to be approved by the State.

Additionally, several of the proposed plans, such as the Bronx River LTCP, propose diverting overflows rather than capturing the volume. Diverting some of the CSO volume to other waterbodies, like the East River, will only result in increasing the fecal pathogen loading into the estuary, further contaminating the New York Harbor and Long Island Sound. This does not mitigate the effects of the fecal pathogens, but rather increases the geographic distribution of the contamination. Dilution and redistribution are not solutions to pollution and should not be viewed as a viable alternative to CSO reduction.

There are better solutions for CSO volume reductions that include both green infrastructure and grey infrastructure to reduce the volume and frequency of overflows and make our waterways safe and healthy for people, fish, and wildlife.

A Robust and Adaptively Managed Green Infrastructure Plan:

Green infrastructure practices -- such as rain gardens, green roofs, roadside plantings, and permeable pavement -- captures stormwater runoff before it reaches overburdened sewers and uses it as a resource to improve neighborhood health, climate resilience, and quality of life. Cities across the nation recognize green infrastructure as a cost-effective means of reducing CSOs and polluted runoff. While it is not the sole solution in New York -- where significant investments in "gray" infrastructure like pipes, pumps, tanks, and tunnels are also essential -- the City should maximize the cost-effective use of this sustainable solution.

DEP's 2010 Green Infrastructure Plan committed the City to this path. Based on analysis by the Independent Budget Office, DEP's current Capital Commitment Plan includes $787 million in spending on green infrastructure from FY17-FY20 to achieve the City's green infrastructure targets and maximize water quality and community benefits. We highly commend DEP for committing such a substantial budget to green infrastructure.

Despite DEP's accomplishments since 2010 installing thousands of "bioswales" (also known as roadside "rain gardens") in many neighborhoods, we have serious concerns about the fact that the first milestone target in DEP's green infrastructure program has been missed by more than half.

The current goal stated in DEP's 2010 Green Infrastructure Plan and in the current Consent Order is to manage stormwater on 1.5% of impervious surfaces in combined sewer areas within the first five years of the program, and 10% by the end of the 20-year plan. These targets were incorporated into

the City's CSO Consent Order with the state. Last year, following the fifth year of the plan, DEP released a Contingency Plan stating it missed the first target by more than half. DEP's proposed solution for "catching up" over the next 5 years was, essentially, to do more of the same. Further, DEP provided no explanation of how it could not only catch-up to missed targets, but also how twill meet the much higher green infrastructure target set for 2020, which is to manage runoff from 4.0% of impervious area, nor how it will get on track to meet the ultimate 10 % in2030.

In July of this year, the state approved two DEP reports in which DEP acknowledges it hasn't met the 2015 milestone. In particular, DEC's approval of a green infrastructure "Contingency Plan" allows DEP an additional five years to meet the 2015 target.

DEC's letter approving the GI Contingency Plan expresses doubt that DEP can actually meet the initial GI target even by 2020 -- much less meet the original 2020 target of 3,150 acres of impervious area managed with green infrastructure, or the ultimate 2030 target of approximately 8,000 acres (equal to 10% of the total impervious area that drains into the combined sewer system). It also instructs DEP to work on justifying a claim that the City has made its "best efforts" to meet the milestone. Under the Consent Order, that would let the City off the hook for accomplishing the interim and long-term GI targets.

Through our numerous and greatly appreciated meetings with DEP, we understand that there are many challenges with green infrastructure in the right of way. We also understand that, since submitting the Contingency Plan, DEP has begun expanding its green infrastructure efforts on other city properties, and is developing new approaches to stimulate retrofits on private property.

We commend DEP's achievements to date implementing bioswales in the public right of way and the success DEP has had in terms of the amount of stormwater the bioswales divert (which is far more than originally anticipated when they were installed) from the City's combined sewer system during rain events and snowmelts. And we are encouraged by some of the new directions DEP has told us it is taking, to broaden its focus beyond the right of way.

We believe there are many opportunities to improve the green infrastructure program significantly.

First, DEP adopted a stormwater rule in 2012 that required new development projects in the combined sewer portion of the city to capture runoff for slow release into the sewers. This rule did not adopt the best practice used in cities of all sizes around the country, which is to require on-site capture, without release, of the vast majority of runoff using green infrastructure techniques. Unsurprisingly, according to DEP's own reporting, the result of this rule has been mostly underground storage tanks and very few green infrastructure projects. DEP also reports that, when tallying up its stormwater management improvements under the CSO Order, it has not even been able to track the benefits of the "slow release" practices built under the rule.

DEP should strengthen the rule -- or Council should adopt a stronger requirement, by ordinance, as city councils in many other cities have done -- to drive the use of green infrastructure solutions, and should count the stormwater capture benefits of these practices towards DEP's consent

order goals. Earlier this year, the Council adopted Local Law 97 of 2017, which provided for DEP to adopt such a rule in MS4 areas. As per our December 13, 2016 testimony [3] on that bill, City Council should adopt legislation directing DEP to adopt on-site stormwater capture (or "retention") standards for development in the combined sewer portions of the city, not just the MS4 area.

Second, we believe DEP's green infrastructure techniques can be diversified beyond the standard right-of-way- bioswale, which DEP now calls rain gardens. DEP has used alternative designs for ROW green infrastructure in Northeastern Queens after residents complained about the bioswale design, for reasons unrelated to environmental performance. Citywide, **we believe a wider palette of designs, to optimize environmental performance, will result in greater opportunities for green infrastructure in the right-of-way.** For example, over 4 years ago, City Council passed a law (Local Law 80 of 2013)[4] requiring DEP and DOT to do a pilot study on permeable pavement and report back to the Council by a certain date. The report was due in April 2016. It is our understanding that, as of April 2016, an RFP to construct the pilot had not been released and, to our knowledge, the study remains incomplete and agencies have made no report or recommendations to the Council. **In a City that is filled with impervious surfaces which limit stormwater infiltration, permeable pavement should be a high priority component of the City's "Green Infrastructure" Plan.**

Third, City Council should ensure that every city agency is all-in with an ambitious citywide green infrastructure plan, that takes advantage of all opportunities to retrofit public facilities with green infrastructure. A local law enacted earlier this year (Local Law 97 of 2017) makes a step in the right direction, by requiring that new or substantially renovated city buildings over a certain size must evaluate the feasibility of including green infrastructure. But that law applies only to buildings – not to other capital projects such as parks and roads. And it does not require *implementation* of green infrastructure where the technical evaluation finds it to be feasible. City Council should amend Local Law 97 to address those limitations and ensure that all city capital projects incorporate green infrastructure wherever feasible..

Innovative GI solutions such as **Sponge Parks** - small street-end parks with a high capacity to capture and retain stormwater - can deal with a much greater quantity of stormwater than right-of-way bioswales, and there are ample opportunities for them at the many streets that dead end into our local waterways around the City. **DEP has begun to pilot this effort with the first Sponge Park at the end of 2nd St in the RH-035 CSO shed of the Gowanus Canal. This installation is designed to handle 1 million gallons of runoff from several blocks, but current NYC practice for grading public streets diverts runoff to sewers at every intersection, so the installation is currently just managing 21,530 gallons of stormwater from one block.** Current grading and drainage practices funnel storm- water runoff into existing sewer inlets at the low points of every intersection, contributing directly to the level of CSO discharge in the canal. Alternative grading and drainage practices could direct stormwater runoff through appropriate intersections and towards Sponge Parks where it would be removed from CSO infrastructure and returned directly to the water cycle. **We call on the City Council to encourage DEP and DOT to work together on these types of solutions that can be integrated into the planned work taking place all around the City now and in the future.**

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[3] http://bit.ly/2iUW2Zs

[4] http://bit.ly/2koy6Of

Further, inter-agency cooperation, on all sorts of green infrastructure, should include comprehensive public outreach and robust maintenance programs to long-term ensure success

Fourth, the City should substantially improve and scale up DEP's current green infrastructure grant program to support private property retrofits. There have been very few projects awarded a green infrastructure grant (we only find public record of less than 40 over the four years of the program, and know that the number awarded each year has been decreasing) due to, among other things, the hurdles private property owners must go through to get reimbursed. **We know there is much enthusiasm for green infrastructure throughout NYC, but without being able to access funding or a rebate, many property owners cannot afford even the preliminary design costs. It simply does not pay off without financial incentives.**

We are aware that DEP is working to restructure and overhaul the current grant program and are hopeful about their efforts to improve it. We offered recommendations in response to DEP's 2016 Request for Information in connection with this effort. But progress has been very slow, and DEP needs help to transform the private retrofit program. SWIM joined many other environmental and community-based organizations in supporting the detailed recommendations of a report published earlier this year, showing how the City, working across agencies and in partnership with community-based organizations and the private sector, can scale up an effective program to stimulate cost-effective green infrastructure retrofits on private property. We urge City Council to work not only with DEP, but with the Mayor's Office of Sustainability and a wide range of agencies identified in that report to make the City a leader in this area. **A revamped program can learn from, and complement, the City's highly-regarded (and well-resourced) energy efficiency and renewable energy building retrofit programs, and join those initiatives in contributing significantly to OneNYC equity goals.**

Fifth, as discussed in a separate section below, restructuring DEP's water rates to create a separate charge for stormwater services would provide critical incentives for private investment in green infrastructure retrofits.

Finally, in past testimonies[5] and comment letters, SWIM Coalition has called for an expansion of the green infrastructure program into separately sewered area, which comprise about 30% of the city. Currently, GI is only slated for the combined sewer areas of the City. We believe the MS4 Stormwater Management Plan, which DEP is currently developing, should expand on the goal and include extensive green infrastructure to manage stormwater runoff.

[5] http://bit.ly/2knSCih

Financing & Water Rates:

A major contribution to creating more incentives for green infrastructure would be to restructure the water and wastewater bill to properly account for the amount of stormwater runoff a property contributes to the City's sewer systems. Currently, wastewater and stormwater are charged as a single fee. Properties with large impervious surfaces (such as a parking lot) have a greater impact on the City's stormwater management expense than those with less impervious space, such as a single-family home. Those large impervious properties are vastly under-charged relative to the burden they impose on the sewer system while other properties, which use a lot of potable water but have small impervious "footprints," are over-charged. Restructuring the water rate so that there is a separate fee for stormwater is a more equitable way to charge for the water, sewer and stormwater services that DEP provides. Properly designed, this approach would reduce existing bills for multi-family affordable housing and would not create unfair or unaffordable burdens on any residential customers; indeed, we believe it can be structured so that all residential ratepayers so either a reduction of or no increase in their bills.

A separate stormwater fee, based on impervious area of a property, has already been implemented in nearly 2,000 municipalities across the country, including larger cities with combined sewer systems like Washington, DC and Philadelphia.

A restructured water rate will create a market for green infrastructure and provide opportunities for incentives, such as rebates or credits, for green infrastructure. **We recommend City Council adopt legislation requiring DEP to conduct a rate study (with ample input from stakeholders and advocates from all sectors) to develop a rate structure that prioritizes equity and the environment, and which ensures a reliable source of ongoing funding for green infrastructure and other stormwater management needs. It has been a decade since DEP conducted a rate study to evaluate options for a stormwater fee, and we have not seen any significant progress since then.**

Updated Water Quality Standards:

The State and City are relying on dangerously outdated water quality standards that do not protect swimmers, kayakers, educators and students, recreational fisherman, and others who come into contact with the water. Bacterial pollution from untreated sewage can lead to intestinal illnesses, rashes, and infections, and excess nitrogen fuels algae blooms and low-oxygen dead zones in Long Island Sound.

Since 1986, EPA has known – and has informed New York State – that the state's standards must be updated to match federal health standards. EPA specifically told New York that it "expect[s]" the State "to adopt [the federal standards] ...to be both scientifically defensible and fully protective of...recreation[al] use."

The state has ignored calls by both the public and by the U.S. Environmental Protection Agency EPA to update its standards. As a result, DEC has not required the City develop CSO Long Term Control Plans that meet modern, protective water quality standards. Rather, the plans DEP is putting in place now, for implementation over the next two to three decades, are based on out of date water quality standards and will not protect public health.

SWIM Coalition
Stormwater Infrastructure Matters

It is time to bring our water quality standards into the modern era and make sure that the State and City are using the best standards that protect human health.

In response to these flawed plans, in April of this year, a coalition of New York City and regional environmental organizations initiated legal action against the U.S. Environmental Protection Agency (EPA) for failing to protect the health of people who swim, boat and fish in New York City waters – or who *would* if the waters were not contaminated with untreated sewage scores of times each year.

SWIM Coalition calls on the NYC City Council Committee for Environmental Protection to adopt a resolution in support of the legal action and to encourage the state to formally adopt the updated standards and hold DEP and the City accountable for meeting them.

As noted by one of the groups who joined the lawsuit, *ensuring waters are safe for recreation has been a core requirement of the Clean Water Act since 1972. It is indefensible that, in 2017, EPA is looking the other way as New York refuses to adopt valid standards necessary to protect its citizens from dangerous pathogens that can cause severe illness.*

Transparent and Inclusive Decision-making

We call on City Council to ensure that there are genuine opportunities for public input in the development of CSO Long Term Control Plans, and accountability for the City and State to address public concerns during the development, approval, and implementation of those plans.

While DEP has made a concerted effort to hold 3, and sometime more than three, public meetings in communities where CSO Long Term Control Plans are being developed, they have not provided the public and local stakeholders with the opportunity to review and comment on a draft of their proposed plans before they are sent to the State for approval.

We note that, in developing the Stormwater Management Plan for the MS4 portions of the city, DEP has so far been more inclusive and transparent in its public outreach and participation efforts. We hope this will continue and will carry over into the process for developing the remaining CSO Long Term Control Plans.

Earlier this year, we were caught by surprise by the State's sudden approval of several CSO plans without any public meetings to review the proposed plans for several waterways, and without inviting any public comment on the complete, proposed plans, or on any changes that DEC and DEP discussed after the plans were submitted. Many of our members called for those meetings and, more broadly, for genuine opportunities to provide feedback and have it addressed in DEP's development of the proposed plans and in the state's review of the plans. Instead, DEP invited feedback only at much earlier stages in development of the plans, when it was unknown what DEP would be proposing or how those proposals, and DEC never invited feedback during its review. Our members, and the general public, were in the dark through most of the process about how these plans would impact local neighborhoods for decades to come. Even most members of the City Council appeared to be unaware of what DEP was proposing --

whether to spend billions of dollars on capital improvements in their districts, or none -- until after DEP completed its plans or even after the state approved those plans.

When the City held a comprehensive overview of all the proposed CSO LTCP's last month, stakeholders for individual waterbodies did not get a full review of the specifics for their waterways or a chance to ask questions about the plans for their waterway. The individual fact sheets DEP provided for each LTCP were very helpful, but a full discussion of the plans that the individual waterway meetings provide was not possible at that November 15th meeting.

Moreover, unlike fact LTCP sheets created and circulated by SWIM (referenced above), DEP's fact sheets told the story of what CSO reductions would be achieved, but provided little or no information on how much of a CSO problem would be left behind.

Going forward, the DEP and DEC must engage in depth with local stakeholders, for both the plans already developed and/or approved and those still under development. Where plans are controversial, they should be reopened based on public input. Waterway stewards must be provided ample opportunity to engage with both technical experts at DEP and decision makers at DEP and the Mayor's office about the plans that are going to impact their neighborhoods and waterways over the next two decades. And they must have confidence that their concerns will be heard and addressed.

The high turnout (about 100 people) and remarks by many attendees at DEP's Citywide CSO public meeting last month reinforced that many waterway stakeholders are deeply invested in following and understanding all the implications of the CSO Long Term Control Plans and wish to be part of the decision - making process, and to be provided, in a timely way, information that will allow them to participate meaningfully. These stakeholders are the eyes and ears on the ground and have valuable input that neither City nor the State has the resources to gather. To leave the public out of critical phases of the process is a loss on all sides.

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We thank the City Council for Environmental Protection for holding this public hearing today and providing the invaluable opportunity for the voices of waterway stakeholders from around the City to be heard. We look forward to a healthy public discourse on the concerns people have raised here today. We commend DEP's investments and progress on the plans to date and look forward to our continued dialogue in the years ahead.

NEW YORK CITY COUNCIL
COMMITTEE ON ENVIRONMENTAL PROTECTION

Oversight Hearing:
The City's Wastewater Infrastructure,
Current Condition and Future Plans

December 13, 2017

Testimony of Carter Strickland
New York State Director
The Trust for Public Land

Thank you Chairperson Constantinides and Members of the Committee for the opportunity to testify on this important topic.

My name is Carter Strickland and I am the New York State Director of The Trust for Public Land, a national non-profit organization that works to create parks and protect land for people, ensuring healthy, livable communities. I am here today to discuss (1) my organization's view about water quality in the harbor and its impacts on our communities, (2) our work in helping manage stormwater runoff through the use of green infrastructure solutions in parks and playgrounds under a partnership with the New York City Department of Environmental Protection (DEP) and other city agencies, and (3) my suggestions for strengthening and improving the delivery of green infrastructure and public-private partnerships.

Since 1978, The Trust for Public Land has worked with communities and the government to improve New York City neighborhoods through our land protection and open space initiatives. In that time, we have seen the City dramatically transformed, from the depths of urban decay to the heights of revitalization. In just 40 years, New York City has become a place that attracts and retains families, workers, and tourists, rather than repels them.

New York Harbor has undergone a similarly dramatic transformation as the City has invested billions of dollars in in wastewater infrastructure, including upgrading sewers and wastewater treatment plants, as well as a $1.5 billion dollar commitment in the NYC Green Infrastructure Plan. These investments are starting to transform the very landscape of the city, with 4,000 rain gardens built already in the city-owned right of way. The return of whales, dolphins, and seals to New York Harbor is evidence of much better water quality.

The City's investments in water quality have also opened up the waterfront to residential development and parks. The Trust for Public Land has been actively involved in reimagining public uses of the now-desirable waterfront areas with the creation of beloved parks like East River Park in Williamsburg. We also created the Buffer the Bay report about the future of Jamaica Bay, the Harbor Herons Report designating protected habitat for wildlife, and area-wide visioning plans for the Harlem River and Astoria-Long Island City neighborhoods. These projects illustrate one of The Trust for Public Land's guiding beliefs – that parks and open space

are critical infrastructure that make cities and their residents healthier, happier, more prosperous, cleaner, greener, and more resilient.

Improved water quality has also allowed for the preservation and recovery of natural coastal areas at the edge of the land and water. Not incidentally, the waterfront is also a key line of defense from storm surge, and those areas with intact, healthy wetlands fared much better than developed areas during Hurricane Sandy. The Trust for Public Land has worked to protect the last remaining wetlands in New York City with our funding partners at the Port Authority of New York & New Jersey. From acquiring portions of Idlewild Marsh behind JFK Airport, to conserving Old Place Creek in Staten Island, to protecting and creating the first post-Sandy resilient waterfront park in Heritage Park on the North Shore of Staten Island, we have invested in natural waterfront areas to New York City. These provide a full range of benefits, include recreational areas for kayakers and birdwatchers to nurseries for fish and birds that can now live and prosper in the cleaner water of New York Harbor.

Development and use of the land in New York City affects water quality in New York Harbor through stormwater runoff. This is a factor considered by The Trust for Public Land when we plan, design, and deliver parks and open spaces that provide recreational, health, and environmental benefits. For example, The Trust for Public Land has been involved with building 194 playgrounds to date. This infrastructure provides new parkland within a 10-minute walk of 3.5 million New Yorkers and has transformed 150 acres of barren asphalt school lots into green infrastructure playgrounds (see attached "before" and "after" photographs of one of our playgrounds). Since the inception of our playgrounds program to create new public parkland at schools for a growing city, we have worked hand-in-hand with the City to incorporate green infrastructure elements like trees, permeable pavers and rain-absorbing gardens into our playgrounds. These playgrounds are a cost-effective way to mitigate potential storm water damage by collecting millions of gallons of runoff that would otherwise flood streets, overwhelm sewers and pollute local waterways.

Since 2013, DEP has helped fund eleven of our green infrastructure playgrounds, each of which absorb an annual average of 650,000 gallons of rainwater. One, at JHS 185 in Queens, will capture 1.1 million gallons annually. Collectively, our green infrastructure playgrounds built with DEP collect nearly 6.4 million gallons of rainwater annually. We have four more green infrastructure playgrounds in the design and/or construction phase: two in Queens, one in Brooklyn and one in Manhattan. These four playgrounds will capture an additional 3 million gallons of storm water once they are complete. The green infrastructure playground partnership with The Trust for Public Land allows DEP to extend the reach of the NYC Green Infrastructure Plan to public schools, just as a similar relationship with the Parks Department through the Community Parks Initiative extends green infrastructure to parks.

But much of the land area in the city is privately owned, and to improve water quality in a meaningful way DEP will have to design programs, incentives, and partnerships to control stormwater runoff from all of those roofs, driveways, and other impervious surfaces. One powerful mechanism for changing the behavior of private property owners is the water bill. On the drinking water side, DEP's programs to install meters in the 1990s caused landowners to understand the true costs of water and take steps to repair leaks and reduce water use. DEP

supported these efforts through a toilet rebate program and, later, the installation of smart meters. This is widely viewed as one of the most effective water conservation programs in the country – water use in New York City has dropped from a peak of 1.6 billion gallons per day in the early 1980s to approximately 1 billions of gallons today, even as the City's population has grown. This has allowed DEP to avoid the significant resources would have been required to acquire, transmit, and treat new drinking water supplies.

We need an analogous program on the stormwater side, whereby DEP assess an economic charge for impervious surfaces and provides a credit for pervious surfaces so that landowners can understand the costs of stormwater runoff and have incentives to reduce the impact of their properties. Against that backdrop, DEP's Green Infrastructure Grant Program will serve a support function similar to the toilet rebate program, and will have greater uptake than it currently has. DEP could also make the grant program more attractive by dropping the requirement for easements on private property; it would be much more attractive, efficient, and effective to avoid the costs of policing easements and to allow landowners to discontinue green infrastructure systems by paying into a green infrastructure fund or trading credits on an open stormwater market. In fact, "in lieu of" payment systems are well established, and we understand that DEP is considering such a program in its citywide MS4 program.

Thank you for the opportunity to testify today on this important topic.

Before and After Playground Renovation at PS 154M in Harlem, NY

RIVERKEEPER.
NY's clean water advocate

New York City Council
Committee on Environmental Protection

Oversight Hearing
New York City's Wastewater Infrastructure – Current Condition and Future Plans

December 13, 2017

Thank you to the New York City Council Committee on Environmental Protection for inviting us here today to testify on this vital issue facing New York City.

Riverkeeper is a member-supported watchdog organization whose mission includes safeguarding the environmental, recreational and commercial integrity of the waters of the Hudson River, including the East River, New York Harbor, and tributaries thereto. Riverkeeper has a long history of advocacy, citizen science, and litigation (where necessary) on the issues before the Committee today, including stormwater control, water quality standards, and clean water compliance.

Overall, Riverkeeper asks that that the Council demand more of the Mayor and our city agencies – more investment, more innovation, and more urgency. Decades have already passed without clean water; we can't let decades more go by with the status quo.

First and foremost, I would also like to officially echo and support the testimony of the SWIM Coalition as well as a number of our colleagues from clean water, community, and advocacy groups from around the City. Their statements address our community's collective concerns about green infrastructure progress on private and public property, the immediate need for water rate equity improvement and modernization with a citywide stormwater fee, and the dangers of the city's long timelines for grey infrastructure implementation.

Perhaps most immediately, we would like to echo the calls our partners are making regarding chlorination. Stormwater and sewage should be captured, then treated, not treated in lieu of capture. By chlorinating our combined sewer system, we are effectively killing the canary in the coal mine – we're simply addressing one issue, fecal coliform levels, used to indicate the presence of other problems. Ecosystem impacts, implementation problems, as-yet-inconclusive pilot projects, and a host of other risks associated with this proposed technology have all been overlooked by the state and the city.

While agency officials have expressed confidence that this unproven system could work, we shouldn't be banking our environment, public health, and in the case of communities like Flushing, Queens, our economic future on unknowns. The City should be investing in capturing

stormwater and sewage, not chlorinating it. Better yet, green infrastructure investments – which keep water out of the sewers and storm drains in the first place – are an even better option for the City.

Second, the Long Term Control Plans (LTCPs) submitted by the City to-date – many of which have been approved by the state – have raised a number of significant oversight questions; questions which should be answered both so as to affect how the DEP and DEC finish their review of the remaining LTCPs and to change how the LTCPs are implemented by the City.

- Clean Water Goals. With these LTCPs, it is taken as a given that we will continue to have a city burdened by CSO events – up to 30 or more in some of the major LTCP waterbodies. Why is it acceptable to us that it is unsafe to be on or in our local waterways for, sometimes, days after rainstorms? Stormwater and sewage pollution has been a citywide environmental and public health issue for hundreds of years, yet we're always behind the ball on solutions. When we had drinking water crises, we created the world's finest drinking water system. When we ran low on open space, we built Central Park. When it rains, New Yorkers cannot use their water – and that will not change under these LTCPs. Where's the new generation of New York innovation?

- Environmental Impact Assessments. From a public process standpoint, one of the major unanswered questions about the LTCPs has been whether – and when – environmental impact review will happen. We have heard the agencies say that such a review may happen at the time an LTCP-ordered project is ready for permitting. This is backwards. In the development of the LTCPs, the city was faced with competing alternatives; that was the time to conduct environmental review. In a hypothetical weighing of chlorination compared to capture, a full assessment of the suite of impacts associated with chlorination may have led the agency to selection of capture infrastructure. At the very least, such a review would have detailed the impacts to be mitigated or avoided if chlorination were the ultimately selected project alternative. Unfortunately, no such review was made; the agency was able to submit millions and billions of dollars of plans for infrastructure projects that may take decades to build without once considering whether any environmental, historic resource, noise, air, transportation, energy, or ecological impacts can or should be avoided or mitigated.

- Unaddressed CSOs. While several of the submitted and approved LTCPs contain large-scale infrastructure investments that capture many millions of gallons of stormwater (eventually, after decades of construction), hundreds of CSOs around the City are entirely, permanently unaddressed. In areas such as Bowery Bay, Gravesend Bay, the Harlem River, and the entirety of Manhattan, the City proposes no grey infrastructure projects. Small-scale investments and community-based stormwater control can help with green infrastructure implementation in the areas that are not priority watersheds for the DEP. With swimmers, fishermen, boaters, and waterfront economies around all five boroughs, and often near a CSO, we cannot afford to leave most of our 520 miles of waterfront open to rain-driven sewage contamination. We ask Council to push the City to develop a program for these forgotten CSOs to ensure that we make progress toward clean local water across all City sewersheds.

- Ecosystem Planning. An oyster can filter fifty gallons of harbor water per day. Wetlands absorb stormwater runoff and filter contamination. Green infrastructure improves air quality. Street trees in bioswales cool the air. We should be investing as much time in ecosystem solutions as we do hard-edged grey infrastructure solutions to better take advantage of the numerous co-benefits to be won by thinking across the entire system. By including softer shorelines and stormwater treatment wetlands in places like Flushing Creek, the DEP can use ecosystem restoration itself to clean and improve water quality. Moreover, these solutions provide storm surge resilience, educational opportunities, and jobs (e.g., green infrastructure maintenance positions). More attention must be paid to green, system-wide solutions to stormwater and wastewater control.

- Modernized Standards. Finally, we ask that Council require the DEP base all of their decisions for stormwater and wastewater investments – under LTCPs or any other clean water program – on *Enterococcus* bacteria tests, as described in the EPA's Recreational Water Quality Criteria published in 2012. At the moment, the City measures and models LTCP impacts on *Enterococcus*, but it makes its final decisions on outdated and, according to the EPA, scientifically indefensible fecal coliform standards. Moreover, the city should be directed to assess water quality along waterfronts and riverbanks, not only in the DEP's center-channel testing stations. Other cities, and every other state in the nation, have adopted more modern methods of testing risk; it is well past time NYC modernized its methods.

We ask that the City Council ensure that the DEP answers some of these questions, and the Mayor answer the rest. Our future wastewater investments and policy decisions – which may total in the billions of dollars – deserve the full attention of the entire suite of city agencies, a full public process, and a full consideration of stormwater control alternatives.

Third, and finally, we ask for the Council's help in ensuring that stormwater capture and control becomes the status quo for any new projects in the City. Every day across the city new buildings, restorations and renovations, facilities, additions, and expansions are approved. Every day, roads, sidewalks, medians, intersections are torn up and rebuilt. Every day the city's agencies and partners make plans and visions for parks, plazas, developments, commercial districts, and industrials zones. Every day, these decisions are made without minimum required levels of stormwater capture or control.

We live in the most densely populated urban area in the nation, with absolutely towering levels of impermeable cover – we've got a lot of people packed onto a lot of pavement. Other aspects of this problem have been addressed: we make sure subways can handle new people before allowing density changes, we make sure that the power grid can handle new loadings from commercial corridors, we ensure that schools have enough seats if more children will live in a district, we don't let buildings use incandescent lights or burn heavy fuel oils – for energy and clean air reasons. We take stock of our limiting factors and work out solutions. For stormwater, we have not yet done that.

We don't look at Newtown Creek, or Flushing Creek, or the Gowanus Canal and consider that we should be using every road repair, every roof replacement, and every zoning change to incrementally improve our stormwater infrastructure. Our city's history is littered with examples of the consequences of letting infrastructure burdens slip by unaddressed; we cannot let that happen here.

Riverkeeper is encouraged by recent news from the DEP that it has managed to work with DOT and Parks to begin using the city's public spaces for more than just capturing the rain that falls onto a site by going above and beyond and using our parks to manage stormwater falling on and around the parks. While there might be some of these projects on the way soon here in NYC, this type of systems thinking has been the norm in cities all around the nation for years.

With a city administration as complex at ours, we need the Council's help moving the needle on this effort to make it so that clean water and stormwater capture – in every tributary, sewershed, and park in the city – is always considered, never waylaid.

To close, the City needs structured Council oversight and a thorough, citywide hard look at our aging sewer systems. From the oldest storm drains to the newest skyscrapers, our wastewater systems deserve the same attention as our energy, drinking water, transportation, and solid waste infrastructure systems. As we have since 1966, Riverkeeper looks forward to working with the City and the Council on our clean water future.

Thank you again for this opportunity to testify.

TESTIMONY OF
LAWRENCE LEVINE
SENIOR ATTORNEY
NATURAL RESOURCES DEFENSE COUNCIL

BEFORE THE
NEW YORK CITY COUNCIL
COMMITTEE ON ENVIRONMENTAL PROTECTION

OVERSIGHT HEARING ENTITLED
THE CITY'S WASTEWATER INFRASTRUCTURE –
CURRENT CONDITION AND FUTURE PLANS

DECEMBER 13, 2017

Good morning Mr. Chairman and members of the Committee. I am Lawrence Levine, Senior Attorney in the Water Program at Natural Resources Defense Council. I appreciate the opportunity to testify today.

I also serve on the Steering Committee of the Storm Water Infrastructure Matters (S.W.I.M.) Coalition. S.W.I.M. represents over 70 organizations dedicated to ensuring swimmable and fishable waters around New York City through natural, sustainable stormwater management practices in our neighborhoods. The Coalition's members are a diverse group of community-based, citywide, regional and national organizations, water recreation user groups, institutions of higher education, and businesses.

NRDC fully endorses the Coalition's testimony today. We join with our coalition partners in sounding the alarm bells over the Department of Environmental Protection's (DEP's) plans to reduce combined sewer overflows (CSOs). These Long Term Control Plans (LTCPs) will condemn waterways across the City to massive amounts of sewage pollution, indefinitely into the future. Under the plans – as is the case today – CSOs will far too often make the city's waterways unfit for recreation and continue to despoil coastal fish and wildlife habitat.

Since last month, more than 2,500 NRDC members and online activists sent messages to the Mayor, DEP Commissioner, City Council Speaker, and the Chair of this committee, urging the City to do much, much better. The Mayor has provided no response so far. DEP held an annual public meeting in November to promote its plans and take limited questions, but has yet to offer a forum for substantive, two-way dialogue to address community concerns about each LTCP and explore alternative approaches. We sincerely thank the Speaker and the Chair for convening this oversight hearing to investigate the concerns that have been raised by so many community and environmental organizations and individuals across the city.

You will hear today from many witnesses about many specific ways the City can and must improve its approach. Rather than re-tread the same ground, I will focus my testimony on two specific issues: (1) revamping the City's efforts to stimulate green infrastructure on private

property; and (2) reforming DEP's rate structure to equitably generate the funds needed for clean water investments.

On those issues, we make three specific requests of the City Council:

- Stormwater rules for development projects: City Council should pass legislation directing DEP to adopt on-site stormwater retention standards for development in the combined sewer portions of the city and track the CSO reductions achieved by implementing the new standard.

- Grant program for green infrastructure retrofits on private property: NRDC urges City Council to work with DEP to ensure that an innovative, scalable, new green infrastructure program has the backing it needs from the Office of Management and Budget, the Mayor's Office of Sustainability, and other city agencies, and to ensure that the program launches in 2018 and succeeds in reaching communities most in need.

- Rate restructuring: City Council should pass legislation requiring DEP to conduct a study and develop recommendations for restructuring the City's water rates to simultaneously promote (i) equitable generation of needed revenues, (ii) widespread use of green stormwater infrastructure, and (iii) water conservation practices. The study should be required to address at least three new rate structure components: a separate stormwater fee; tiered water and wastewater rates; and expanded low-income assistance programs.

More broadly, in regard to the City's CSO program, we ask the Committee and the Council to exercise your oversight authority, as well as your legislative authority, to ensure that the City implements effective, equitable, sustainable solutions that clean up our waters, protect public health, improve neighborhood quality-of-life, create green-collar jobs, and improve the City's resilience to climate change. We ask you to *hold DEP and its sister agencies accountable* for achieving those goals and *empower these agencies to succeed.*

1. The City Must Revise its Deeply Flawed CSO Long Term Control Plans to Achieve "Fishable, Swimmable" Waters.

NRDC commends DEP for the substantial progress it has made since the 1990s in reducing CSOs and improving water quality, which enables millions of New Yorkers to enjoy our waterways and waterfronts in ways that were not possible in decades past. But we cannot emphasize strongly enough that the problem is far from solved.

In most of the city, if it has not rained recently, the water is typically clean enough to swim, wade, or paddle safely, and people in waterfront parks can enjoy the fresh air. But, far too often, after even small rain events, our waters are not clean enough to touch and the smell of sewage wafts ashore. In the majority of the City that is served by combined sanitary and storm sewers, polluted runoff from even small rain events (as little as one-tent of an inch) overwhelms the system, triggering sewage overflows that foul our waters with disease-causing microorganisms,

toxic chemicals, trash, and other pollutants, rendering them unsafe for recreation and degrading habitat for fish and wildlife.

The City's sewer system dumps over 20 billion gallons of raw sewage mixed with polluted runoff into local waters in a typical year – more than any other city in the country – from over 400 locations, in all five boroughs. DEP reported these overflows on 85 days last year and 100 days so far this year.[1]

I encourage you to look at the "Open Sewer Atlas" online, which provides an interactive map, using DEP data, that shows for every outfall how many overflow events and how much total overflow volume occurred in 2016.[2] I also encourage you to sign up for the alert system managed by the NY Department of Environmental Conservation so you can see how often sewage overflows and illegal discharges take place in your districts, and we encourage you to make other City Council members aware of the alert system so they can warn their constituents about contamination in their local waterways.[3]

Under the federal Clean Water Act, the City's CSO Long Term Control Plans are supposed to be the means for solving this problem – for ensuring that sewage overflows are controlled so our waters can be "fishable and swimmable." These plans determine what investments will be made – or will not be made – over the next 25 or more years to reduce sewage overflows.

Unfortunately, DEP has produced a series of plans – for rivers, creeks, and bays in Queens, the Bronx, and Brooklyn – that will leave hundreds of millions or billions of gallons overflowing into each waterbody annually, on dozens of occasions per year. Moreover, these plans will not come close to meeting federal health standards. And, where they do propose CSO reductions, the capital improvements are delayed on average more than a decade, and in some cases as much as 18 to 25 years.[4]

Plans remain under development for the city's largest water bodies, including the Hudson River, East River, Harlem River, Jamaica Bay, Upper and Lower New York Bay, Arthur Kill, and Kill van Kull. But DEP has long suggested that it does not believe significant further reductions are needed in these places. If DEP takes that approach, total CSO volumes citywide will be not much smaller in the 2040s than they are today – it appears that around 18 billion gallons of CSOs will remain.

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[1] NRDC has extracted all of New York City's CSO event reports from the state's "sewage right to know" database. We have organized the data in a spreadsheet, showing the dates of every overflow report from October 2015 through November 2017. The spreadsheet can be viewed here: https://drive.google.com/open?id=1kxmNcKtSGazfTpr7Qe5XccSx1phfQNmbNjl7QMM1dEU.

[2] http://openseweratlas.tumblr.com/wetweathermap.

[3] You can find instructions to sign up for these alerts here: http://www.dec.ny.gov/docs/water_pdf/pubvideotrans.pdf.

[4] For further details, see the fact sheets and other resources available on the S.W.I.M. Coalition website at https://www.swimmablenyc.org/cso-ltcp.

To put this in a broader historical context, when the last plan is fully implemented at least 25 years from now, total CSO volume would decrease by only by about one-third as compared to levels four decades earlier (27 billion gallons per year in the early 2000s). Most of that reduction has already occurred today – which means the next 25 years would bring little improvement to most waterways in the city.

The City can and must do much better than these plans. In short, the City must do more to reduce the volume and frequency of overflows, rather than redirecting overflows from one place to another or dumping chlorine into the sewers as is proposed in many of the LTCPs. The City must engage in-depth with local stakeholders and instill confidence that their concerns will be heard and addressed. The City must adopt plans that meet the U.S. Environmental Protection Agency's recreational water quality standards and expedite implementation timelines, in order to realize the promise of fishable, swimmable waters.

I refer you to the testimony of the S.W.I.M. Coalition for more details on how to the City must improve the LTCPs. And I urge each of you and your colleagues on the Council to press DEP for answers and hold the City accountable for results.

2. The City Must Take Bold Action to Stimulate Green Infrastructure on Private Property

DEP reported last year that it is falling far short of its targets under its 2010 Green Infrastructure Plan and the 2012 CSO Consent Order, achieving less than half of the amount of green infrastructure it was supposed to achieve by 2015. DEP's official "contingency plan," which the state recently approved, anticipates taking another five years, until 2020, just to meet that missed target – and an unknown amount of time to achieve the higher target originally set for 2020. DEP's Contingency Plan also called into question whether it should even continue to aim for its existing long-term green infrastructure targets, suggesting that large portions of the City simply do not need any new green infrastructure.[5]

There are many opportunities for DEP to improve upon its current green infrastructure program. Other cities around the country have implemented or are implementing all of them, in one form or another. Today's testimony from the S.W.I.M. Coalition identifies the full range of improvements that are needed for DEP's green infrastructure program to succeed in the long term. I will focus here on strategies to expand green infrastructure implementation on private property.

a. DEP must strengthen its stormwater management rule for new development in CSO areas and track the benefits of implementing the rule.

DEP's 2010 Green Infrastructure Plan, like other leading cities' green infrastructure plans, relied on private investment in new development projects to generate substantial amounts of green

[5] See DEP's "Contingency Plan" and DEC's approval letter here: http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml.

infrastructure, without capital expense to DEP. This was to be achieved through a DEP regulation mandating on-site stormwater management in new development.

In January 2012, DEP adopted a rule for development in the combined sewer portions of the city that requires "detention" of runoff (i.e., capture and slow release into the sewers) – an approach that DEP acknowledges is less effective than "retention" (i.e., using green infrastructure to capture runoff for infiltration, evapotranspiration, and/or reuse, without release into the sewers). Unsurprisingly, DEP reports that, over the last five years, the rule has resulted in little or no actual green infrastructure, but rather things like underground holding tanks.[6]

Over time, DEP seems to have abandoned the use of stormwater rules as a tool for implementing green infrastructure. When DEP adopted the stormwater detention rule, it promised to revisit the rule to consider replacing it with a more effective retention standard.[7] But, although DEP is developing a new retention standard for separately sewered portions of the city, it is taking no action to develop or apply such a rule in the combined sewer portions of the city. Further, DEP reported last year that it has not even tracked the CSO-reduction benefits of the existing "detention" rule.[8]

DEP must embrace this essential tool in the green infrastructure toolkit. Since DEP has not taken the initiative, City Council should pass legislation directing DEP to adopt on-site stormwater retention standards for development in the combined sewer portions of the city and to track the CSO reductions achieved by implementing the new standard.

b. <u>The City should launch a new, large-scale grant program for green infrastructure retrofits on private property.</u>

Other cities have found that widespread adoption of green infrastructure retrofits at existing private development is a critical element of cost-effective green infrastructure implementation. New York City is far behind other cities on this approach.

DEP's efforts to promote green infrastructure retrofits on private property have focused on the Green Infrastructure Grant Program. While that program has funded some very good, high-visibility projects over the last 5-6 years, the total number of projects funded and built has been

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[6] See DEP's GI Annual Reports here: http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml.

[7] See this letter from then-DEP Commissioner Strickland: http://swimmablenyc.info/wp-content/uploads/2012/01/CHS-ltr-to-L.-Levine-re-Stormwater-Rule-12-21-2011.pdf.

[8] DEP's June 2016 "GI Contingency Plan," which reported on progress towards green infrastructure milestones, claims credit towards those milestones only for publicly-funded projects and describes an approach to meeting the next set of milestones that also relies only on publicly-funded projects. DEP has also reported to NYSDEC that it has not been able to track all of the privately-funded development projects covered by its stormwater rule in combined sewer areas, and therefore is unable to assess the water quality benefits of the stormwater practices included in those private projects. See DEP's GI Contingency Plan; the 2015 Green Infrastructure Annual Report (footnote 5); and the 2016 GI Performance Metrics Report (footnote 10), all available here: http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml.

very small, and the program is not currently designed to be "scalable" to achieve significant amounts of cost-effective green infrastructure citywide.

DEP's Green Infrastructure annual reports and the Mayor's OneNYC plan reported that DEP is developing an improved approach. In the fall of 2016, DEP released a Request for Information, seeking recommendations for launching a new program to build green infrastructure managing runoff on 1,000 acres of private property.[9] By the end of November, DEP had received responses representing over 100 organizations.

In August 2017, NRDC and the NYU Stern Center for Sustainable Business published a report that provides a roadmap to revamp this program. The report's detailed recommendations are based on more than 250 expert interviews, stakeholder meetings, and the work of an NRDC finance analyst working from DEP's offices. These recommendations were endorsed by a wide range of environmental and community-based organizations.[10]

The report calls for an innovative, community-supported grant program to fund and build green infrastructure retrofits on privately-owned land. It explains how this program can be designed not only to improve water quality, but also to leverage DEP's green infrastructure investments to make quality-of-life improvements in underserved neighborhoods, support affordable housing goals, create green-collar jobs, and improve the city's climate resiliency.

A summary of the report's recommendations is appended to my testimony.[11] We would welcome the opportunity to brief you further on the details.

We understand that DEP is now developing a program along these lines. It would be a tremendous shift in the way DEP has approached green infrastructure retrofits on private property. The innovative nature of the program will require collaboration across multiple city agencies, and presents many opportunities to integrate green infrastructure into existing OneNYC green building initiatives. Moreover, to launch the program, DEP will likely need the Office of Management and Budget (OMB) not only to approve a budget request, but also to approve novel ways of deploying city funds in public-private partnership.

NRDC urges City Council to work with DEP to ensure that this innovative program has the backing it needs from OMB, the Mayor's Office of Sustainability, and other city agencies, and to ensure that the program launches in 2018 and succeeds in reaching communities most in need.

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[9] DEP, Request for Information (RFI), Management of a Green Infrastructure Private Property Incentive Program, Sept. 19, 2016, https://a856-cityrecord.nyc.gov/RequestDetail/20160912013.

[10] See the report here, which includes a list of the supporting organizations in a letter that prefaces the report: NRDC, *Catalyzing Green Infrastructure on Private Property: Recommendations for a Green, Equitable, and Sustainable New York City* (2017),

https://www.nrdc.org/resources/catalyzing-green-infrastructure-private-property-recommendations-green-equitable-and

[11] NRDC's lead author of the report also provided an overview in a blog post here: https://www.nrdc.org/experts/alisa-valderrama/paying-private-property-owners-nyc-go-green.

c. DEP should create financial incentives for green infrastructure as part of a restructured water and sewer rate.

NRDC's August 2017 report also strongly recommended using stormwater fees, based on a property's impervious area, as an incentive for green infrastructure on private property. Lessons learned from other cities show that the most effective green infrastructure retrofit grant programs are coupled with stormwater fees – and, specifically, with the availability of reduced fees, on an ongoing basis, for properties that retrofit with green infrastructure to reduce their runoff.

This topic is discussed in detail in the section below, as part of a broader discussion of the need to restructure DEP's water and sewer rates.

3. The City Should Reform the Water and Sewer Rate Structure to Promote Equitable Generation of Revenue for Water Quality Improvements and Create Incentives for Sustainable Water Management.

DEP's current rate structure does not provide a fair and equitable means of generating sufficient, sustainable funding to support long-term efforts to reduce pollution from CSOs and stormwater runoff.

As DEP has been developing the LTCPs over the last 4-5 years, it has emphasized in virtually every public presentation its belief that spending more than DEP proposes to spend would be "unaffordable" for ratepayers – especially for low-income households. Indeed, many of DEP's LTCPs devote nearly as much space to arguing that greater investment in CSO controls would be unaffordable as they devote to technical evaluations of alternative CSO control measures.

DEP's affordability analyses suffer from many flaws. Most significantly, DEP takes the current rate structure as a given, and models the extent to which increased DEP capital spending would translate into higher water and sewer costs at the household level, especially for low-income households. The problem with this approach is that DEP's current rate structure does not equitably allocate the burdens of paying for the water and sewer system. It unnecessarily places too much of the responsibility of paying for increased investment on low-income households, making these investments seem less affordable than they are for a city with as many resources as New York. This is a solvable problem.

It is well past time for the City to reform its water rate structure to allow DEP to raise the revenue needed for clean water investments without imposing undue burdens on lower-income households. A new rate structure also should be designed to create incentives for green infrastructure and water conservation. There are many models to draw from in other cities.

To spur immediate action, City Council should pass legislation requiring DEP to conduct a study and develop recommendations for rate restructuring that simultaneously promote (i) equitable generation of needed revenues, (ii) widespread use of green stormwater infrastructure, and (iii) water conservation practices. The study should be required to address at least three new rate structure components, which are discussed further below: a separate stormwater fee; tiered water and wastewater rates; and expanded low-income assistance programs. The legislation should

charge DEP with developing options in time for consideration during the FY20 rate-setting cycle (which will take place in the spring of 2019). The legislation should also require stakeholder participation in DEP's study, such as through the creation of a rate restructuring advisory committee.

a. Stormwater fees

Under DEP's current rate structure, revenue for *stormwater* management (in both the combined sewer and separate sewer systems) is generated through *wastewater* charges. However, wastewater rates based on the amount of *drinking water* used by a customer – which, in reality, is *completely unrelated* to how much stormwater a property puts into the sewer system.[12]

Properties with large impervious surfaces have a greater impact on the City's stormwater management expenses than properties with less impervious space, or properties that manage runoff from their impervious space on-site. For instance, a large non-residential property may use very little potable water but have a large amount of impervious surface, and therefore contribute a significant amount of stormwater runoff. Conversely, a multifamily residential property uses much more water than such a non-residential property, but typically contributes much less runoff to the city sewer system because of its smaller impervious footprint.

Under DEP's current rate structure, in which stormwater revenues are generated based on drinking water usage, the large impervious property in the above scenario pays virtually nothing towards the City's stormwater costs, while the multi-family residential property pays vastly more than its fair share. This inequitable pricing scheme puts an unfair burden on many ratepayers – including affordable housing residents – and fails to create incentives for sustainable stormwater management.

By restructuring rates to create a separate stormwater fee – based on a property's impervious area, not potable water usage – the City can create a more equitable rate structure, incentivize green infrastructure on private property, and generate a dedicated revenue source for storm water management. At least 1,600 municipalities around the country, both large and small, now have a separate stormwater fee, typically based on impervious area.[13] There are many models that the City can draw from; for example, Philadelphia made a revenue-neutral transition to a stormwater fee from a previous rate structure that was very similar to New York's current rate structure.[14]

With a revenue-neutral transition to a well-designed stormwater fee structure, it should also be possible not only to reduce total costs for multi-family buildings, but also to reduce (or at least

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[12] Currently, wastewater and storm water are calculated as a single amount, which is 159% of the metered water charge.

[13] See "2016 Western Kentucky University Stormwater Utility Survey," https://www.wku.edu/engineering/civil/fpm/swusurvey/.

[14] A July 2016 *City Limits* article provides more context on the stormwater fee issue in New York City, including a comparison to Philadelphia. *City Limits*, "Stormwater is New Challenge to City's Clean Water Plans," July 12, 2016, http://citylimits.org/2016/07/12/stormwater-is-new-challenge-to-citys-clean-water-plans/.

hold steady) the total bill for single-family homeowners, since a stormwater fee will tend to shift burdens overall from residential properties to large commercial and industrial properties. NRDC and Riverkeeper are currently working with a rate consultant to evaluate the impacts of various stormwater fee structures on different categories of ratepayers.

In 2009, DEP completed a study on potential rate structure reforms, including a separate stormwater fee. [15] At that time, DEP stated that it would "seek input from property owners and other stakeholders, which will be used to develop recommendations for rate-structure modifications that will be presented to the water board this spring [of 2010]."[16] DEP has yet to propose any modifications to the rate structure, except for a very small "pilot" project for stand-alone parking lots. Nor, to our knowledge, has DEP done any follow-up analysis to the 2009 study to help develop such a proposal. (During the FY16 rate setting process, at least one Water Board member, Adam Freed, encouraged DEP to pursue a stormwater fee, but we have seen no follow-up by DEP in the FY17 or FY18 rate setting process.)

b. Tiered (or "inclining block") rates for water and wastewater

DEP's 2009 rate study also investigated tiered (or "inclining block") rates for water and sewer service, which would charge a higher per gallon rate for increments of water beyond a certain level of use (e.g., based on reasonable per-household or per-resident usage). This could allow most residential users to pay lower per gallon rates, while incentivizing conservation among high-volume residential and non-residential users. NRDC is not aware of any follow-up by DEP after the 2009 rate study. (During the FY16 rate setting process, Water Board member Adam Freed again encouraged DEP to pursue tiered rates.)

Tiered rates are widely used around the country. Like a separate stormwater fee, tiered rates have the potential to reduce bills for affordable multi-family buildings – especially if coupled water conservation assistance from DEP. As explained in a recent 2016 report by the U.S. Environmental Protection Agency, tiered rates have both equity benefits and conservation benefits:

> Water pricing should encourage and reward water conservation, while also ensuring that utility costs are adequately covered. This is often accomplished with an increasing block rate system which—in addition to the flat fee for fixed costs—includes a variable rate for volume of water consumed, with higher rates as water consumption increases. Increasing block rates (also called inclining or tiered block rates) can be structured with a reasonably priced first tier for water quantities that provide for essential household needs, and increasing price signals

[15] See link to the study in this DEP press release: http://www.nyc.gov/html/dep/html/press_releases/09-14pr.shtml. A longer version of the rate study is available here: http://www.nyc.gov/html/dep/pdf/water_board/dep_water_rate_study_03182010.pdf.

[16] See DEP's press release on the study: http://www.nyc.gov/html/dep/html/press_releases/09-14pr.shtml

at higher use rates that represent more discretionary use. This allows for equitable provision for basic needs and avoids burdening low-income customers.[17]

c. Enhanced low-income customer assistance programs

There is a growing awareness within the water industry that effective affordability policies are needed to facilitate if the water infrastructure investments that are necessary to protect water quality for people and the environment. Moreover, advocates for social, economic, and environmental justice have increasingly called attention to the harms of unaffordable water bills – including water shutoffs that can lead to loss of housing and even temporary loss of custody of children.

DEP is to be commended for being among the minority of water and wastewater utilities nationwide that offer customer assistance programs to help low- and fixed-income households afford their water and sewer bills. Yet, DEP's current programs likely do not meet the full need – and that need will increase over time, as rates continue to rise to meet the City's full range of water infrastructure investment needs.

"Low-income customer assistance programs" are common for electric and gas utilities, but they are much less common for water and sewer utilities, both nationally and in New York State. In the energy sector, there is both federal funding support (the Low-Income Home Energy Assistance Program, or LIHEAP) and, as of 2016, a New York State Energy Affordability Policy that funds additional low-income customer assistance, for customers with household income up to 200% of the poverty level.[18] But no analogous federal or state programs exist for the water sector – either in New York or in other states.

In response to this challenge, some water and sewer utilities around the country – though by far a minority – are adopting various types of low-income customer assistance programs. A 2016 U.S. Environmental Protection Agency (EPA) report found that many of these programs offer only short-term relief for customers facing temporary financial hardship, or "flexible" payment terms to customers already in arrears, while others include "bill discounts" or "lifeline rates," which provide a long-term reduction in low-income customers' bills. A small number provide targeted water efficiency assistance to help customers reduce bills by using less water.[19] Additionally, since EPA published that report, Philadelphia's municipal water and sewer utility this year became the first in the nation to adopted another type of low-income assistance program, known as a "percentage-of-income payment plan." For customers with household

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[17] EPA, *Best Practices to Consider When Evaluating Water Conservation and Efficiency as an Alternative for Water Supply Expansion* (2016), https://www.epa.gov/sustainable-water-infrastructure/best-practices-water-conservation-and-efficiency-alternative-water

[18] Office of Governor Andrew Cuomo, "Governor Cuomo Announces New Energy Affordability Policy to Deliver Relief to Nearly 2 Million Low-Income New Yorkers," May 19, 2016, https://www.governor.ny.gov/news/governor-cuomo-announces-new-energy-affordability-policy-deliver-relief-nearly-2-million-low.

[19] EPA, Office of Wastewater Management, *Drinking Water and Wastewater Utility Customer Assistance Programs* (April 2016), available online at https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww_utilities_cap_combined_508.pdf.

income up to 150% of the federal poverty line (or higher in some cases), the city now offers water and sewer service on a sliding scale based on a percentage of household income. Through this new program, which has gained national attention, 60,000 customers will be eligible for discounted bills as low as $12 per month.[20]

In New York City, DEP's Home Water Assistance Program (HWAP) provides an annual bill discount of approximately $116 to low-income, disabled, and senior citizen one- to four-family homeowners who qualify for certain other means-tested government benefits. DEP this year also adopted an innovative Multifamily Water Affordability Program (MWAP), which provides per-unit bill credits to building owners who make long-term, binding commitments to maintain affordable rents and meet certain water efficiency requirements.[21]

To our knowledge, DEP has never done a study of whether, and to what extent, these programs fall short of meeting the needs of low-income residents. It seems very likely that they do not. For example, since the HWAP credits are a flat amount for all eligible participants, the credits are unlikely to meet the full needs of participants on the lower end of the income scale (and may not even meet the full needs of those at the higher end). It is also unclear whether the eligibility criteria are sufficient to include all of those in need of assistance. Further, DEP does not provide targeted water efficiency assistance for low-income customers. Since these customers tend to live in older housing, they are more likely than others to have older, inefficient plumbing fixtures and leaky pipes. Targeted water efficiency assistance would help these customers reduce their bills while supporting DEP's systemwide water conservation goals.

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Thank you for the opportunity to testify today. NRDC looks forward to working with the Committee and City Council to ensure our waterways are fishable and swimmable, while ensuring that all New Yorkers have affordable access to safe and sufficient water and sewer service.

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[20] City of Philadelphia, Office of the Mayor, "Philadelphia Launches New, Income-Based, Tiered Assistance Program," June 20, 2017, https://beta.phila.gov/press-releases/mayor/philadelphia-launches-new-income-based-tiered-assistance-program/; J.B. Wogan, The Cost of Water Is Rising. Philadelphia Has an Unprecedented Plan to Make It More Affordable, *Governing*, July 5, 2017, http://www.governing.com/topics/transportation-infrastructure/gov-philadelphia-income-based-water-bills.html.

[21] DEP Home Water Assistance Program, http://www.nyc.gov/html/dep/html/customer_assistance/home_water_assistance_program.shtml; DEP Multi-Family Water Assistance Program, http://www.nyc.gov/html/dep/html/customer_assistance/multifamily_water_assistance_program.shtml.

Recommendations at a Glance
from
Catalyzing Green Infrastructure on Private Property: Recommendations for a Green Equitable and Sustainable New York City (August 2017)
Natural Resources Defense Council & NYU Stern Center for Sustainable Business

1. **Make water and sewer rates more fair and equitable by restructuring them to include a separate stormwater fee, and create a strong stormwater management rule that requires the use of green infrastructure in development projects:**

    - Base property owners' stormwater-related fees on the amount of stormwater their property creates, rather than, as currently done, on the potable water they use, which bears no relation to stormwater costs. This fee re-alignment can not only create a more fair and practical water rate structure, but can also improve the affordability of water and sewer service for low- and moderate-income New Yorkers.
    - Adopt on-site stormwater retention rules for new and redevelopment projects, so that additional development does not increase the City's existing stormwater burdens.

2. **Commit decisively to make green infrastructure on private property a core component of the City's green infrastructure and sustainability efforts:** Clear indications of DEP's commitment such as public statements, long-term budgets, and timelines are needed to spur the private sector and community actors to invest the time and effort to become the strong partners that DEP requires to make its program a success. Additional steps that help demonstrate commitment include:

    - Use capital dollars to enable the new private grant program to scale and to ensure long-term funding.
    - Develop a plan for long-term operation, maintenance, and monitoring of private green infrastructure.
    - Make publicly available the full cost of building *public* green infrastructure to use as a ceiling for what DEP should offer to pay for *private* green infrastructure.

3. **Create a new grant program, which works in combination with a new stormwater fee, to motivate private property owners to retrofit existing properties with green infrastructure:** More than 50 percent of the land targeted for green infrastructure is privately owned, and DEP has recognized that it cannot reach its mandated green infrastructure goals by focusing only on the public right-of-way. To reach those goals, the City needs to motivate private property owners to install green infrastructure on existing development. DEP can achieve this by doing the following:

    a) Provide grants to pay for the construction of cost-effective green infrastructure on private land, learning from DEP's existing, small-scale grant program and the experiences of other cities. To successfully attract property owners citywide, a new

program should provide a direct financial benefit to property owners—beyond reimbursing the direct costs for green infrastructure.

b) Design the program to be as transparent, simple and flexible as possible for property owners.
   - Encourage project bundlers to bring multiple green infrastructure projects to DEP.
   - Guarantee payments for pre-development costs and facilitate project financing, so property owners are not burdened with out-of-pocket costs.

c) Engage a third-party to administer the new program by hiring a professional program manager, partnering with another city agency or quasi-public agency, or creating a new not-for-profit organization. Contract with the third-party on a pay-for-performance basis to help ensure effective use of DEP funds and ensure that the third-party takes on some of the risk of program execution.

d) Bring community-based organizations (CBOs) into the program as important partners to help the program succeed and help achieve OneNYC goals.
   - Partner with CBOs from program design through implementation, and institutionalize their role through a new formal advisory body.
   - Integrate equity metrics, environmental justice considerations, and climate change vulnerability indicators when prioritizing where DEP grant funds are spent.
   - Ensure that CBOs have the support they need to play diverse roles in the new grant program.

e) Look to affordable housing as an opportunity for green infrastructure to support both clean water goals and broader OneNYC goals.
   - Partner with HPD in the near-term and use DEP capital funds to build GI on affordable housing at a large scale.
   - Leverage state and federal programs that promote sustainable and green housing.
   - Consider marketing to Housing Development Fund Corporation co-ops, which offer opportunities for green infrastructure.

4. **<u>DEP cannot do this alone. The City should integrate green stormwater infrastructure throughout all relevant city agencies, programs, and policies:</u>**

- Integrate green infrastructure into all OneNYC building initiatives, taking advantage of the capacities of existing city-supported entities focused on making energy-related improvements in buildings.
- Enhance the Cool Neighborhoods NYC Initiative by including green infrastructure installations with new DEP support.
- Bundle green roofs with solar power.

Testimony of Dr. Judith S. Weis at City Council Environmental Protection Committee. Wastewater Infrastructure 12/13/17 jweis@newark.rutgers.edu

I am an estuarine ecologist, Professor Emerita at Rutgers University, and am Co-Chair of the Science and Technical Advisory Committee of the NY/NJ Harbor & Estuary Program. I studied the estuaries of NY/NJ for 40 years, during which time I saw great improvements in the biodiversity and health of our estuaries, due to the Clean Water Act and building and upgrading of sewage treatment plants. However, despite those improvements, there is still a long way to go for our waters to be healthy. For example, our research showed that animals in our waters are impaired in their predator/prey behavior, which causes alterations in the food webs (Weis et a. 2011).

Like others, I am concerned about the lack of transparency in developing long term control plans and flaws in the plans that will leave too much raw sewage entering the water, but will focus my comments today on **green infrastructure** for absorbing water.

One of my research interests is salt marshes, about which I wrote a book (Weis and Butler, 2009). Salt marshes provide many services relevant to the pollution in our waters. They act as sponges, and absorb a considerable amount of water from rain storms or flooding, thus reducing the amount of CSO or other discharge into the harbor. There are a number of projects restoring and enhancing salt marshes around the city – these should be supported, expanded, and developed further. Additional acreage of salt marshes will also absorb more CO_2, and thus reduce the city's "carbon footprint", and reduce effects of warming and sea level rise, which would exacerbate the pollution in our waters.

A couple of years ago, I noticed a new patch of greenery on Columbus Ave. in the '80s. It was a bioswale, with an informative and engaging sign explaining what it is and what it does. I was delighted to see it and assumed it was the first of many to be constructed along our streets. But I saw no more built around the neighborhood. Bioswales are also green infrastructure that absorb water during rainstorms, reducing CSO and the amount that flows out to the harbor. We should have more of them constructed all over the city, along with rain gardens. They also can be attractive bits of greenery in a neighborhood if people are educated about them and can care for them. Greening the city will have enormous benefits, not only for reducing impervious surfaces and polluted runoff, but in absorbing more greenhouse gases and making neighborhoods more attractive. Porous pavement is another technique that has been used successfully in other cities, especially along sidewalks and alleys, to absorb more rain water.

References:

Weis, J.S. and C. Butler 2009. Salt Marshes: A Natural and Unnatural History. Rutgers University Press.

Weis, J.S. L Bergey, J Reichmuth, A Candelmo-2011. Living in a contaminated estuary: behavioral changes and ecological consequences for five species. BioScience 61: 375–385

166A 22nd Street
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On the ground – and at the table.

New York City Environmental Justice Alliance testimony to the New York City Council Committee on Environmental Protection in relation to the current conditions and future plans of the City's Wastewater Infrastructure.

December 13, 2017

Good morning Chairperson Costa and Members of the City Council. My name is Annel Hernandez and I am here to testify in support of expanding green infrastructure on behalf of the New York City Environmental Justice Alliance (NYC-EJA). Founded in 1991, NYC-EJA is a non-profit citywide membership network linking grassroots organizations from low-income neighborhoods and communities of color in their struggle for environmental justice. NYC-EJA empowers its member organizations to advocate for improved environmental conditions and against inequitable environmental burdens. Through our efforts, member organizations coalesce around specific common issues that threaten the ability of low-income and communities of color to thrive, and coordinate campaigns designed to affect City and State policies – including green infrastructure and climate resiliency.

Because a number of the NYC-EJA member organizations come from communities overburdened by lack of green spaces, proximity to potential waterfront toxic exposures, and air pollution dirty industries clustered in their neighborhoods, our organization is a key advocate of Green Infrastructure (GI). Our NYC Climate Justice Agenda is a multi-year research and advocacy campaign to address the need for a comprehensive community-based approach to community resiliency. In 2017, we released a report, which analyzed Mayor de Blasio's OneNYC plan and made several recommendations to strengthen the City's policies in environmental justice communities. We highlighted that GI is an essential piece of integrated climate adaptation and mitigation planning. With rising flood risks, increasing temperatures, and air pollution, the City must continue to prioritize an aggressive expansion of GI – and other complementary urban forestry and ecologically-grounded coastal protection investments – in environmental justice communities facing disproportionate environmental burdens and climate vulnerabilities. In pursuit of a Just Transition, New York City should be leading the nation in the innovative GI strategies that meet our ambitious environmental and resiliency targets.

We commend the NYC Department of Environmental Protection (DEP) for successfully constructing over 4,000 green infrastructure assets across five boroughs in the past few years. We recognize the efforts made by DEP to work across agencies to facilitate the construction of GI on our streets, public land, and private properties. In particular, the dramatic expansion of GI in neighborhoods that are disproportionately vulnerable to extreme heat – including Bedford Stuyvesant and Bushwick in Brooklyn, and Soundview in the Bronx – is an important climate resiliency strategy. Going forward,

DEP should work to increase GI maintenance in these neighborhoods that to date have seen new Bioswales and Rain Gardens collect debris and trash. Additionally, we ask that DEP work to expand their current targeted neighborhoods to include other environmental justice communities in need of GI including the South Bronx and Sunset Park. Finally, we urge the DEP to increase citywide engagement with community-based organizations as they plan for future investments, and neighborhood level engagement in finalizing design of new and much needed GI assets, as well as public information on the modernization and coastal protections of the wastewater treatment plants.

In addition to improving the water quality of waterways, GI provides multiple co-benefits including mitigating urban heat island effect, improving air quality, enhancing coastal resiliency projects, reducing energy demand, and creating local workforce development opportunities. The creation of new job opportunities for maintenance is promising, and we are eager to see additional job growth as the GI program continues to grow.

Furthermore, we commend DEP for expanding the GI grant program to include the City's Significant and Maritime and Industrial Areas (SMIA). As part of our Waterfront Justice Project, we have advocated for increasing coastal resiliency and other best management strategies to prevent toxic exposure during extreme weather events and storm surges. By expanding targeted areas to Municipal Separate Storm Sewer System (MS4) areas in addition to the Combined Sewer Overflows (CSO) areas, DEP will help increase the climate resiliency of the City's industrial businesses and working waterfronts.

NYC-EJA commends the New York City Council for holding a hearing on the current conditions and future of our wastewater infrastructure, and creating an opportunity for public comment on this important strategy to improve environmental conditions and increase climate resiliency. A climate justice framework is central to NYC-EJA 's work, and we look forward to a continued collaboration with the City and DEP to mitigate the threats of climate change and improve environmental conditions in the communities that need it most.

CRAUDERUEFF

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Testimony to the Environmental Committee of the New York City Council

Re: The DEP Green Infrastructure Grant Program

December 13, 2017

Rob Crauderueff, CEO & Founder, Crauderueff & Associates

I. Introduction

Good morning. Thank you to the Environmental Committee of the New York City Council for the opportunity to share my company's experience and recommendations with you. Crauderueff & Associates provides value-driven landscape design and owner's representation for projects funded by the DEP Green Infrastructure Grant Program (the "Grant Program.") We also provide financial and public administration consulting for communities interested in developing effective green infrastructure programs.

I am focusing my testimony on the Green Infrastructure Grant Program because of the tremendous opportunity for it to scale, providing a long-term solution to improving water quality in New York City.

My firm's services have resulted in more than $1 million in commitments from DEP and a complementary green infrastructure pilot program administered by HPD. However, as I will discuss, there are significant, unnecessary legal barriers to participation, especially for the affordable housing sector. We have prospective affordable housing projects totaling approximately four acres that cannot quality for program funding, and therefore will not move forwards without improvements to the program. We share this testimony based on our experience administering multiple grants as well as speaking to dozens of property owners interested in this Grant Program.

II. Regulatory Context

As you are aware, the City of New York has received an extension for meeting its 2016 green infrastructure targets.[1] To date, private property has played a minor role in the City advancing its green infrastructure targets. According to the DEP's 2016 Green Infrastructure Report, thirty-four project have been funded since the program's inception in 2011.[2] Although the Grant program has enabled the City to learn many of the costs, benefits and practical applications of green

[1] See e.g. memo from DEC approving DEP's proposed green infrastructure contingency plan. Dimura, Joseph. July 5, 2017. Available at http://www.nyc.gov/html/dep/pdf/green_infrastructure/dec-approval-of-the-green-infrastructure-contingency-plan.pdf

[2] NYC Department of Environmental Protection. 2016. NYC Green Infrastructure 2016 Annual Report. Available at http://www.nyc.gov/html/dep/pdf/green_infrastructure/gi_annual_report_2017.pdf

infrastructure, it has not scaled in a way to meaningfully improve water quality and communities on a citywide basis.

However, with a set of modest improvements, Grant Program could transform the sector's marketplace in New York City, substantially helping DEP to meet the city's 2020 goals.

III. Grant Program Highlights

Before providing a critique of the program, it is important to recognize key components of the program that are working well and should be continued:

1. *The program covers the full cost of many projects.* This ensures property owners can afford the project.
2. *The program has a large overall budget.* This provides a high level of confidence for property owners and technical service providers to submit applications and participate in the program.
3. *Once projects receive an initial 'conditional letter of award', the projects are highly certain to be funded.* This enables 3rd parties to finance projects, allowing property owners to avoid bearing costs for projects.
4. *The DEP program administrators are professional, responsive, and helpful.* This assistance helps services providers and property owners navigate the program.

IV. Grant Program Challenges

The primary challenge to the grant program is an excessively onerous restrictive covenant requirement. Several additional challenges also could be addressed to enhance program creativity and efficiency.

1. *The restrictive covenant prevents many property owners from participating for numerous reasons.*

   It is noteworthy that although the Grant Program fully funds the cost of projects, only a few dozen have received funding to date. This is primarily due to an overly stringent restrictive covenant document.[3]

   Any property owner applying for funding through the Grant Program must agree to this document, which has two primary goals: first, to ensure the green infrastructure asset remains on the property for at least twenty years, and second, to ensure it is properly maintained. However, the document contains restrictions well beyond what is necessary to realize these two goals, dramatically inhibiting participation.

   The following five aspects of the restrictive create significant barriers to participation:[4]

[3] The restrictive covenant may be accessed at http://www.nyc.gov/html/dep/pdf/green_infrastructure/declaration-of-restrictive-covenant.pdf

[4] A more thorough review should be conducted by legal council to identify all aspects of the restrictive covenant inhibiting participation in the Grant Program.

a. **Overly stringent subordination clause**
Properties are required to subordinate any future mortgage to the DEP grant program. However, it is not sensible for the DEP, as sponsor of a relatively small green infrastructure project (e.g. ranging from appx. $100,000 to $1 million), to require subordination of a loan with a much greater value, frequently in the tens of millions of dollars. Loan positions are a matter of substantial negotiation during the financing and re-financing of a building. Even though the restrictive covenant exempts existing mortgages, many properties are likely to need to re-finance in the future. For affordable housing, projects typically re-finance after 15 years, during the term of the restrictive covenant.

b. **Narrow definition of ownership**
The restrictive covenant only allows for one owner, without anticipation of future transfer of ownership. However, the legal ownership of many ground-up development projects - including affordable housing - changes upon completion of the project. Developers would feel more comfortable participating in the program should the restrictive covenant more readily recognize that ownership, and therefore responsibilities of meeting the requirements of the grant, will need to change over time.

c. **Narrow definition of lenders**
A broad range of lenders and investors may participate in a development project. The restrictive covenant does not include language that accommodates the totality of financial stakeholders involved in a project.

d. **Unclear terms in the event a building is demolished, e.g. for new development**
Although demolition for new development is a common practice in New York, there is no clear process for how a property owner could develop a project after receipt of a green infrastructure project. The only clear aspect is the property owner would be in a breach of contract with DEP (though the enforcement mechanism remains unclear). This uncertainty prevents property owners in New York City from participating in the program.

e. **Unclear green infrastructure valuation in the event of catastrophe/force majeure**
While the property owner is required to re-build due to a catastrophic event, there is no method for taking into consideration the useful life of the green infrastructure asset at the time of the event.

2. Broader inter-agency challenges must be addressed directly

It is important to recognize that DEP is one of several City agencies involved in the approval and oversight of the grant program. The Office of Management and Budget must approve any changes to the restrictive covenant, which must be accepted 'as-is' by property owners. The projects also must be registered with the City for DEP to issue a notice to proceed. Other city agencies that may have an ownership stake in a building (such as HPD and HDC) must also sign-off on the

document for a property owner to receive funding. For this reason, leadership must come from the Mayor's Office to ensure changes are developed and implemented effectively.

3. Additional challenges create a less efficient and less innovative program

There is a range of additional challenges to the grant which also should be addressed. These are of secondary importance to improving the restrictive covenant, but are also worthy issues to address in moving forwards. While below we provide two such recommendations, further outreach to program participants may identify additional opportunities to improve the program:

a. *Overall time to release funds is slow.* It takes appx. 1 to 2 years from the point of application through completion. The City should consider assessing opportunities to reduce the review time of designs and the many bureaucratic steps required for the project to receive a notice to proceed, when funds may be released.
b. *DEP will not fund soft-to-hard costs greater than 20% regardless of the project size or type.* In turn, smaller projects and innovative projects requiring greater soft costs may not move forwards.

V. Grant Program Recommendations

1. *Improve / remove the restrictive covenant.*

We put forth two options for the City to consider in improving the restrictive covenant:

a. **Option #1** Consider use of City expense funding rather than bond funding for the Grant Program, increasing agency discretion over grant administration. Many of the concerns over the long-term use of green infrastructure funding arose out the need to restrict the use of bond funding. The City would be provided more flexibility to administer the program by drawing from DEP's allocation of City expense funding. In this instance, the City should consider removing the restrictive covenant altogether, and replace it with a simple participation agreement with property owners.

b. **Option #2** Should the City continue to use bond funding for the Grant Program and deem the restrictive covenant necessary, the City should enhance the restrictive covenant to accommodate the practical needs of the development community.
    i. **The specific improvements should be developed in collaboration with major developers, property owners, and lenders.** The improvements should include, though not be limited to, addressing unreasonable subordination requirements, the definition of ownership, the definition of lenders, and enhanced clauses for catastrophic events.
    ii. Allow the buy-out of the green infrastructure asset in the event the property owner seeks to redevelop the property for other uses, or terminate the agreement with the City for other reasons. DEP could write into its agreement the option to buy out of the contract using 20-year straight-line depreciation, after a minimum participation period (e.g. 3 years). For example, a property owner receives a $100,000 green infrastructure grant from DEP. After seven years, the property owner sells the building to a developer, who demolishes the

building. The developer pays DEP $65,000 to buy out the contract, and DEP re-allocates those funds toward another project. This would provide property owners greater flexibility in the future use of their buildings, increasing participation rates. Moreover, the restrictive covenant is vague with respect to the enforcement mechanism in the event a property owner does keep the green roof on its building for the 20-year timeframe. A clearly defined buy-out clause would provide more certainty to both DEP and the property owner. In turn, property owners will be more likely to participate and while the City gains a stronger enforcement mechanism for non-participation.

iii. A specialized, pre-approved restrictive covenant should be developed for affordable housing. An alternative boiler-plate agreement for affordable housing approved by HPD and HDC, as well as feedback from developers and lenders, should be created. Affordable housing in New York already has intensive 40-year restrictions on uses, so the City should be willing to relax other requirements (such as concerns over transfer of property ownership) because HPD agreements already restrict the uses for a timeframe much longer than the restrictive covenant period. The definition of a mortgage should be expanded to include a "recognized mortgage" as the long-term mortgages may not be in place at the time the grant agreement is executed, for ground-up development projects.

2. *Additional recommendations*

Finally, we provide recommendations of secondary importance that would further improve the Grant Program:

a. Provide expedited review for boiler-plate projects such as extensive green roofs.
b. Expedite the time it takes for projects to be registered with the OMB to allow DEP to issue a notice to proceed.
c. Provide greater funding for innovative projects that require higher soft costs than standard projects (i.e. more than 20% of hard costs).
d. Consider the administrative capacity of DEP to significantly expand the scope of the program, and increase capacity where necessary.

VI. Conclusion

In sum, DEP has built a solid foundation for an expanded Grant Program. Scaling the program can greatly help the City meet its green infrastructure commitments pursuant to its Consent Order with New York State. Affordable housing providers constitute one important stakeholder group with a great interest in the program, though they cannot consistently participate in the program. However, numerous improvements are necessary, greatly though not exclusively related to the restrictive covenant. Fortunately, these issues can be addressed in a short timeframe. Importantly, inter-agency coordination, as well as coordination with the private sector, is paramount to developing effective solutions. We call on City leadership to prioritize the enhancement of this program, in pursuit of a greener, more equitable New York City. Thank you again for your time.

Waste Water Infrastructure City Council Testimony
12/13/17

Thank you Council member Constantinides and members of this committee for holding this important hearing today.

I am the Education Coordinator for Newtown Creek Alliance, I previously worked as liaison and aide to your colleague Council Member Levin, I am a member of the Newtown Creek CAG Superfund steering committee and I am a resident of North Brooklyn. I am here today speaking as board member and representative of Neighbors Allied for Good Growth, also known as NAG, an organization, developed in the early 90's, out of our neighborhood's desire to recapture its waterfront, reduce local environmental hazards, and advocate for public policies promoting healthy mixed-use communities. We advocate with and for the people who live and work in the North Brooklyn neighborhoods of Greenpoint and Williamsburg. Our approach to these issues is guided by the principle that our entire community is entitled to participate in decision-making and negotiation processes affecting our neighborhood, leadership of local mobilization efforts, and the design of a future vision for our community.

The neighborhoods of North Brooklyn are proud waterfront communities that have spent years fighting for access to their waterfronts and the cleanups of the waters they are fighting to access. We are in the final stages of seeing a major upgrade to the Newtown Creek Waste Water Treatment facility, the largest waste water treatment plant in the city that treats waste water from an enormous geographic area, including Manhattan, Queens, and Brooklyn. We are working now towards a clean Newtown Creek, a Federal Superfund site, a site long contaminated by industry that changed our city forever and was here before any of us were born. Greater contamination however plagues the waterbody, a result of billions of gallons of Combined Sewage Overflows every year. With the DEP's Long Term Control Plan, we will see only a 60% reduction. We are deeply concerned that with DEP's announced plans for abatement the Newtown Creek will continue to be befouled at every major rain event, which are projected to be more and more frequent. We are also deeply troubled at the lack the public's ability to engage in deciding our waterbodies fate. There were public meetings but there were no public comment periods, there was no opportunity to truly weigh in on the proposed plan, not through public comment or through our elected representative. Since we were not allowed a seat at the table, we deserve an explanation as to why we were not, why didn't the DEP feel it necessary to work with the people of the city in developing these plans? Ultimately, a 60% reduction is ok, but certainly not enough and we should all demand a better solution to this chronic problem. Our neighborhoods deserve more and so does the City of New York.

We are not a City and North Brooklyn is not a community that will be content with notices to stay out of the water after rain events, especially as we are now in the process of experiencing exponential growth in North Brooklyn. Right to Know laws are certainly helpful but they are not a solution to this problem nor should we accept that they are an acceptable replacement for clean water. The 2005 rezoning of the Williamsburg and Greenpoint waterfront has already brought thousands of new residents to our community and the real density build out has only just begun. We will see tens of thousands of newcomers in the next 10 years and many will look to the water as an extension of the open space we need to be healthy and happy people. We are already seeing a burgeoning boating community and we expect this to continue to grow as our waterfront is further developed, people want to, and should be able to swim, fish, and otherwise recreate in our waters without fear of being made ill or swimming through floatables.

Additionally, rezonings don't end with the approval of new land use; they require commensurate infrastructure investments made in tandem to mitigate economic, social and environmental disasters. We do not believe that enough has been done to alleviate the burden that high density development will have on our community, and waste water infrastructure is one glaring omission. We expect to see these things in the span of our lifetimes as well. Not only is the current proposal for Newtown Creek not adequate in terms of capture, which should be 100%, how long do we have to wait for completion? Will I be too old to truly enjoy it? Will I still be alive? Will these tunnels be built at the same time as the Superfund remedy? Before? After? It is unclear and that is unfair.

In summary, we want a seat at the decision making table, we need our voices to be heard. We have lived alongside bespoiled waters for too long and we do not think demanding clean water is too much to ask, we in fact believe it is our right. We want this to take place as our neighborhood is being rebuilt for thousands more new residents and we want to make sure, as we grow, the city keeps pace with this growth. Makes adequate laws requiring stormwater capture on site, with green roofs, rain gardens, retention and detention tanks. We do need a restructuring of our water rates, we should see properties with big parking lots and huge rooftops pay. In short, we are counting on you all here today to press these points for us and to champion our waters.
Thank you for your time today and for taking my testimony, on behalf of North Brooklyn, into consideration.

Testimony of Catherine McVay Hughes
NYC Council Committee on Environmental Protection Oversight Hearing
The City's Wastewater Infrastructure – Current Condition and Future Plans
City Hall, Council Chambers, Manhattan
Wednesday December 13, 2017 10:00am

Good morning, Chair Constantinides and Members Levin, Lancman, Richards and Ulrich. Thank you for the opportunity to testify. My name is Catherine McVay Hughes. I served 20 years on Manhattan Community Board One, more than half that time as Chair or Vice-Chair. After Superstorm Sandy, I was appointed Co-chair of NY Rising Community Reconstruction Program for Southern Manhattan[i]. I am a founding member of CB1's "Manhattan Tip" Resiliency Task Force and a member of the NY Harbor Regional Storm Surge Barrier Working Group (SSWG). I speak as a 30-year downtown resident, proud of what we have built and re-built in Lower Manhattan and my concern about how the City's wastewater infrastructure will function in the age of climate change, extreme weather events and rising sea levels.

Over five years ago, Superstorm Sandy overwhelmed the current storm water control plan and combined sewer overflow (CSO). It just did not work as sewage backed up into buildings and washed up into our streets and buildings. The need for CSO and storm water discharge investments drives me to speak about sea level rise and storm surge protection. Without those latter investments the investments in CSO and storm water controls either will be ineffective or quickly become obsolete.

The ability for CSO's and storm water to discharge both during and after a storm is predicated on gravity discharge to surrounding water levels that will be much higher in the future due to sea level rise, and higher still during storms that cause coastal flooding. While you know and I know this, the attendees to this hearing may not realize it, and we have to be able to put the two together immediately.

Yesterday at the NYC Council Committee on Committee on Recovery and Resiliency Oversight Hearing it became clear that the future of the National Flood Insurance Program (NFIP) and its reauthorization are unclear and that new flood maps are expected to come out in about five years. In the meantime, scientific data increasingly points to climate change as a major threat to New York City. Moody's, a major credit rating agency, recently added climate to credit risks and warns cities to address their climate exposure or face rating downgrades[ii]. We do not know if or how much the Federal government will assist in rebuilding our communities after the next Superstorm Sandy which cost $19 billion in repairs – and some downtown infrastructure is still under repair such as the Brooklyn Battery Tunnel.

Climate change will worsen inequality in our society if under-served communities become uninhabitable. Migration, some planned and some in panic, will stress already overburdened social welfare systems and infrastructure. The best way to mitigate these effects is to limit the greenhouse gases that are causing climate change.[iii] It is more important than ever for the City to be a leader to protect our roughly 500 miles of coastline.

In the meantime, the City must **construct a layered defense of Local Sea Walls and Regional Storm Surge Barriers to address future storm surges**. A 20-25 foot high off shore regional NY NJ Metro Regional Storm Surge Barrier System:

- would avoid the complex hydro geologic, built infrastructure and social infrastructure issues faced by the current dual-purpose NYC Special Initiative for Rebuilding and Resiliency (SIRR) and Rebuild by Design (RBD) projects[iv]
- could protect the Metro Area for the next 100 years, allowing for long term change
- would protect far more communities than the current SIRR and RBD projects for the same $20 billion cost, about the cost of one $19 Billion Sandy type storm

In the absence of a regional solution, SIRR and RBD are local projects that could be built quickly with minimum cost and maximum effect. However, many of these projects are now delayed, downsized, over budget or underfunded and leave many communities, buildings, businesses and critical infrastructure facilities as

vulnerable to the next Sandy as to the last. Currently, waterfront communities are pitted against each other for the limited funding available instead of working together on a comprehensive approach such as the Bifurcation Approach of the NY Harbor Storm Surge Barrier which would be more cost-efficient, more effective, more fair and more inclusive. There continues to be a funding gap in the Manhattan Tip portion of the East Side Coastal Resiliency project. Furthermore, the City has not yet publicly shared its short-term nor medium-term plans for a comprehensive coastal defense for the Financial District, our country's fourth largest business district.

There is historic support for the NY Harbor Storm Surge Barrier Option.[v] The Regional Surge Barrier is one of five alternatives currently being considered by US Army Corps of Engineers (USACE) NY-NJ Harbor and Tributaries (HATS) Coastal Storm Risk Management Feasibility Study.[vi] Both the SSWG and National Institute of Coastal Harbor Infrastructure (NICHI) are advocating for serious consideration of offshore surge barriers as part of the layered defense system.

One way to do this is for the City to **reduce GHG Emissions to meet NYC's commitment to the Paris Climate Agreement 1.5C**. The initiative to make NYC the first city to mandate that existing buildings dramatically cut greenhouse gases (GHGs), announced by the Mayor at the September 2017 C40 talks, is critical to NYC meeting its 2020 deadline to deliver the Paris Agreement objective of limiting global temperature rise to 1.5 degrees Celsius. Unfortunately under current proposed law Int 1745-2017 (Local Law to amend the administrative code of the city of New York, in relation to green buildings), the NYC plan sets no deadlines in the next three years and will therefore deliver zero reductions from the 25,000 buildings affected by Int. 1745. The proposed deadlines stretch to 2030 and 2035 and result in a Citywide decrease of only 7% of GHGs. The City needs to be a leader by starting now to dramatically reduce its carbon footprint, starting with City-owned buildings, including hundreds of schools that are still burning highly polluting No. 4 heating oil.

As a large investor, and as the hub of the global financial system, the City needs to **support the work of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD)** to advance climate risk disclosure worldwide. CERES, a nonprofit, runs the campaign Disclose What Matters that spearheads the call from investors and companies to disclose material sustainability issues, such as climate change risks, in financial filings.

Resiliency means much more than building walls at the waterfront. The greatest city in the world can overcome the challenge of climate change and show the way for the whole world.

Affiliations (for purposes of disclosure): Catherine McVay Hughes is a member of the Board of the Battery Park City Authority, Earth Institute at Columbia University Advisory Board, CERES Presidents Council, Lower Manhattan Development Corporation, The Trust for Governors Island, the South Street Seaport Museum and WTC Scientific Technical Advisory Committee. She holds an MBA from the Wharton School of Business and a Bachelor of Science degree in Civil Engineering from Princeton University.

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[i] https://stormrecovery.ny.gov/regional-communities/lower-manhattan

[ii] https://www.bloomberg.com/news/articles/2017-11-29/moody-s-warns-cities-to-address-climate-risks-or-face-downgrades, "Bond rating agencies such as Moody's are important both for bond issuers and buyers, as they assign ratings that are used to judge the risk of default. The greater the risk, the higher the interest rate municipalities pay."

[iii] https://paw.princeton.edu/article/geosciences-feeling-heat

[iv] Currently the SIRR and RBD Projects are based on a design concept of using local infrastructure to provide coastal resiliency for both Sea Level Rise and Storm Surge. However, sea level rise and storm surge while capable of having a devastating cumulative impact are in fact two very distinct and separate phenomenon that require two very different design specifications and have very different cost profiles and community impact.

[v] CB1 Resolution passes unanimously urging USACE to conduct a study about the feasibility of installing storm surge barriers to protect NYC (1/4/12); Manhattan Borough Board Tidal Surge Preparedness Resolution passes unanimously (9/20/12); Governor Cuomo in his State of the State Address and his 2100 Report calls for study of a regional storm surge barrier (1/13) and continues to commit unequivocal support for advancing this option

[vi] http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/nj/coast/NYNJHATS/NJHatPres.pdf?ver=2017-10-16-141621-747

Supporting Data for Testimony of Catherine McVay Hughes

Protecting New York and New Jersey from Future Disastrous Storm Surges

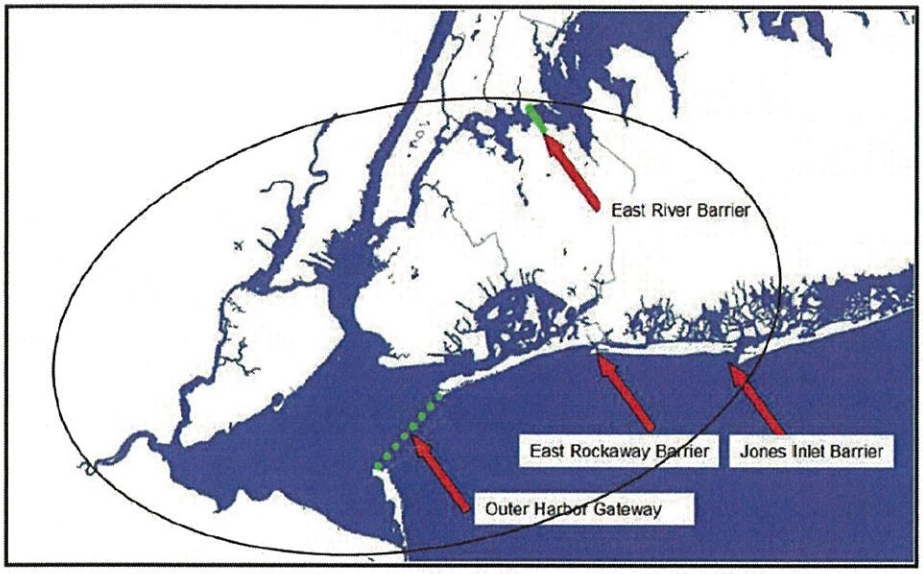
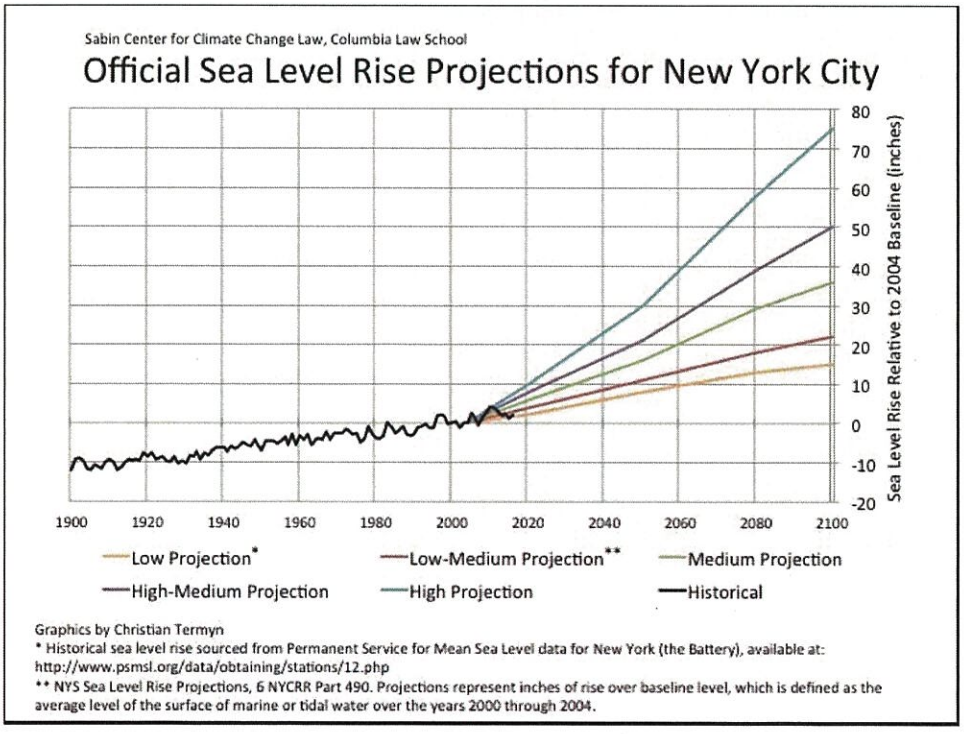


Fig 1: Schematic diagram locating possible outer harbor and coastal storm surge barriers designed to protect, within the circle of protection, the all five boroughs of New York City including Jamaica Bay, many south shore communities on Long Island, northern New Jersey including Hoboken and the Meadowlands, the three major airports (JFK, LaGuardia, and Newark), Port Elizabeth and surrounding industrial infrastructure[8].



Which sea level rise will we lock in?[vii] That depends on how quickly we do wholesale reconfiguration of how we produce, store and use energy, interact with our urban environments, and use our infrastructure.

Sea level rise by 2100 assuming **4.0 degrees C Warming (7.2 degrees F)** as estimated by Climate Central, Surging Seas Mapping Choices

Sea level rise by 2100 assuming **1.5 degrees C Warming (2.7 degrees F)** as estimated by Climate Central, Surging Seas Mapping Choices

[vii] https://choices.climatecentral.org/#12/40.7124/-74.0010?compare=temperatures&carbon-end-yr=2100&scenario-a=warming-4&scenario-b=warming-1.5; "Warming of 4 °C (7.2 °F) is close to our current path, would represent a breakdown in efforts, and corresponds to 8.9 m (29.2 ft) of locked-in global sea level rise. The span from 2-4 °C covers the likely range of possible outcomes from global climate talks at COP21 in Paris."

Testimony for the City Council hearing on sewage infrastructure December 13, 2017

My name is Matt Malina and I am the director of NYC H2O an NGO that provides education programs about NYC's water system and ecology. Since 2014, we have brought 12,000 students on Water Ecology & Engineering Field trips to historic reservoirs and wetlands in the five boroughs. These serve to connect our city's younger citizens with the stormwater infrastructure and marine ecology. Furthermore, we conduct beach cleanups to get these sites ready for our field trips and have had over 1,000 volunteers participate in our events thereby connecting even more city residents to their waterways.
What's more, as part of these cleanups we provide an ecology lesson and use nets to catch fish to study in jars with water so that people can see for themselves that our waterways are full of marine life that need protection.

5th grade students studying a fish on an NYC H2O field trip to Plumb Beach.

1. The plan to treat Flushing Creek's CSO's with chlorine is not a sound one. You can't treat a natural waterway like a swimming pool if you expect wildlife to live in it and that presumably is the goal of cleaning up our waterways. Here is the issue; Chlorine

requires 30 seconds of contact time in order in order to work as a disinfectant. DEP plans to add chlorine to the sewage overflows when it rains. The problem is that they don't have a plan to capture the stormwater to contain it for long enough so that the chlorine has time to do its job. As a result, chlorine will run into the Flushing Creek killing wildlife.

When the DEP says that chlorine 'has been done before', what they mean is that chlorination has been done in FACILITIES before; as far as anyone can tell (DEP included) no one, in the nation, has ever dumped 'bleach' (as the commissioner refers to it) into the sewers during storms.

NYC H2O guides seining while on a field trip to Plumb Beach.

2. You might recall that in Sept 2016, it was reported that Coney Island Creek had an illegal sewer connection. Sanitary sewer lines from the Beach Haven apartments were dumping raw sewage directly into the Creek. It was difficult to ascertain from DEP or DEC for months whether the problem had been remediated. Furthermore, DEC & DEP failed to communicate also when they first discovered the illicit connection. Community leaders were informed through citizen scientists, not the agencies. DEP had been collecting water samples for the LTCP in 2014, noticed elevated levels of bacteria, but it wasn't until 2016 that anyone found out about it. What's more, is that through citizen science water testing done by the NYC Water Trail and Kingsborough Community College, it was demonstrated that there are more such illegal connections. It is very difficult to communicate with DEP or DEC to determine if these illegal connections have been located and fixed. No updates are provided.

3. You have heard from our colleagues that DEP has not done its due diligence on public feedback. As another example, the last hearing I attended all the DEP personnel cleared out of the room as soon as the finished reading their testimony. To help address this, we recommend that DEP testify last so that they at least can hear testimony at council hearings.
   There were several articles this year about residents in Flushing opposing bioswales which are really just rain gardens where the sidewalk meets the curb. Residents complained that the bioswales were filling with trash. They even convinced State Senator Tony Avella to speak out against them. We recommended that DEP teach their summer interns about them and employ them for upkeep and neighborhood outreach. We received no response from their Director of Education. Instead many of the summer interns sit around watching people drink from the temporary water fountains that the DEP sets up in the summer time at farmers markets and other public events. I gave testimony before the summer at the DEP

4. Tibbetts Brook: There is consensus from the NYC Parks Dept and DEP and many NGO's, that "daylighting" the Tibbetts Brook is a good idea. It will reduce CSO's and save money. Currently, clean water from the Tibbetts Brook gets put in a sewer line and sent to the Wards Island Sewage Plant for treatment which costs 0.4 cents per gallons. Tibbetts Brook flows 5 million gallons on a dry day! That is a lot of water being treated unnecessarily and costs the city $5M per year!
   DEP could easily fund this project which should only cost $15M. And those costs would be recouped in a few years by reducing the flow to Wards island. Yonkers has daylighted two sections of the Saw mill River. In the long run green infrastructure is cheaper than hard grey infrastructure plus would have many environmental benefits.

5. Another opportunity for green infrastructure is in Manhattan where there is very little of it. Central Park has a reservoir that is no longer used as part of our water supply but the reservoir is still filled with water. Yet all the irrigation needs of the park, and even making stream run are filled by tap water. Why not use the water in the reservoir to supply this water? An engineering study was commissioned by DEP in 1997 to do this and it was ignored. I have it here.

6. The DEP needs oversight. I'd like to remind the committee that last year, Jim Dwyer of the NY Times broke the story that construction on crucial component of City Water Tunnel #3 - a connecting shaft in Maspeth - was defunded. The mayor held a press conference and did a quick about face. This never should have happened. We recommend oversight hearings biannually to help ensure that DEP's plans are better communicated to the public and they can listen to feedback.

Bronx Council for Environmental Quality Comments to the Chair of the New York City Council Committee on Environmental Protection Costa Constantinides on the City's Wastewater Infrastructure – Current Condition and Future Plans, T2017-6938, December 13, 2017, by Karen Argenti (karen@bceq.org)

Please accept these comments on the City's Wastewater Infrastructure on behalf of the Bronx Council for Environmental Quality (www.bceq.org). We are an all-volunteer membership 501c3 organization, founded in 1971 to protect the natural and historic environment. Since 2001, we have been focused on developing connections to and along the Harlem River and have created on-water access and activities in an effort to improve water quality. We formed a coalition of groups called the Harlem River Working Group. Our group received technical assistance from the National Park Service RTCA Program, were included in the Urban Waters Federal Partnership (UWFP); and raised more than a half a million dollars from two planning grants: the New York State Department of State's Harlem River Brownfield Opportunity Area (BOA) Steps 1 & 2; and Wildlife Conservation Society/NOAA Grant to capture stormwater from the elevated highway onto a pop-up wetland in an unimproved waterfront park. After completion, we asked NYS DOS about a Harlem River Watershed Plan and discovered that the Parks Department was able to apply for funding as a result of our BOA grant. For the past two years, we have been working on this with Parks – the DEP has been invited, as well.

We have waited for and are excited about the January 31, 2018 kickoff of the Long Term Control Plan for the Harlem River and the other Open Waters group for a long time. The Bronx side of the Harlem River waterfront has the distinction of having WI-056, the largest outfall in the city in terms of catchment area and volume discharged. We were told in 2006 that it discharged more than one billion gallons per year. It is the largest Tier 1 Outfall, constituting half the discharge contributed by CSOs along the Harlem River from parts of the Bronx and Manhattan. It has dry water discharges, as well. Since the 1990s, we have advocated for Daylighting Tibbetts Brook both inside and outside Van Cortlandt Park (including purchasing the CSX abandoned property outside the park) which would greatly reduce the occurrences of CSOs at WI-056. Can you tell us why the DEP's largest problem is being tackled last?

We believe that the DEP Plan has us slated to spend the next 15 to 25 years wasting ratepayer funds. Existing large concrete construction projects are very expensive and take long time to build. We see other LTCPs as a guide: Bronx neighbors are unhappy with the proposals for Westchester Creek, Hutchinson River and the Bronx River. Citywide plans fair no better. If the City Council wants to be effective, our sister cities, like Philadelphia and DC have good examples for us to follow.

Last month, I attended the NYC Soil and Water Green Infrastructure (GI) Tour of Philadelphia. All segments of the population are working together to capture every drop of water before it goes into the pipe. They have set and are reaching their goals. On the other hand, what is New York City's goal? Improving Water Quality? Removing existing discharges by 10% or 50%? Minimizing flooding? What is the schedule? The Budget? How does the budget impact the schedule?

Let's talk about the DEP GI public and right-of-way program. Every other city knows that GI is the quicker, less invasive and more economical option. The DEP GI plan manages 10% of impervious area. It is included in the LTCP as part of the "baseline", but the LTCP itself doesn't propose any new GI. While GI is better for the natural environment, the current design guideline only captures the small rain events. Given the increase rainfall intensity expected with climate change, they could do better by increasing the use of GI, extending the design to capture larger but more severe rain storms. (The Gaia Institute did this on Stratford Avenue in the Bronx.) If every block captured the 100-year storm, the area would be cooler, the river would be cleaner, and the treatment plant would not spend so much money on electricity cleaning clean water. I've even heard of a study comparing standard stormwater infrastructure with 18 rain gardens along a public right of way was enough to capture all the rain that fell on that catchment area.

Another GI program that is lacking is for the private sector. There has to be a better way to provide incentives for private stakeholders to build GI on their property. Discounting water fees based on what is built is a better idea than giving funding and asking private owners to sign away their rights for 20 years. If City Council wants this to work, everyone has to become partners and stakeholders together.

Lastly, something has to be done with the MS4 program. Same questions about the goals and plans apply. Most areas of the Bronx are surrounded by water and have direct discharges into those water bodies. In the Harlem River Watershed, we have Van Cortlandt Park -- most of that park and the CSX property mentioned above is not tied into a CSO pipe. To protect our waterways and stop flooding, we need for all of this to be recognized. Thank you.

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NEW YORK CITY COUNCIL ENVIRONMENTAL PROTECTION COMMITTEE
DECEMBER 13, 2017 PUBLIC OVERSIGHT HEARING
CALENDAR ITEM # T2017-6938
TESTIMONY BY LAURA SPALTER, CHAIR OF ENVIRONMENT & SANITATION COMMITTEE OF BRONX COMMUNITY BOARD # 8

Good morning Chair Constantinides and members of the Committee. My name is Laura Spalter. I am the Chair of the Environment & Sanitation Committee of Bronx Community Board No. 8.

On behalf of Bronx Community Board 8, I would like to thank the committee for holding this hearing to address the serious impacts of Combined Sewer Overflows (CSO) on our city's water bodies and communities. As chair of Bronx Community Board 8's Environment and Sanitation Committee, I took the opportunity to ask Mayor de Blasio the following question during last February's Town Hall Meeting: "When will Bronx Community Board 8 be included in DEP's Long Term Control Plan (LTCP) to address our serious CSO and local flooding problems?" The acting Commissioner, Vincent Sapienza, responded that our issues are very important to the DEP, and they are looking at the Harlem River (located in Community Board 8).

On April 12, 2016, Community Board 8 passed and sent a resolution to then DEP Commissioner Emily Lloyd and our elected officials advocating for the daylighting of Tibbetts Brook both inside and outside of Van Cortlandt Park. It noted that during and after rainstorms, the large volume of clean water from Tibbetts Brook overwhelms the Wards Island Stormwater Treatment Plant beyond its capacity, causing raw, untreated sewage to be discharged into the Harlem River in violation of the Clean Water Act. Daylighting Tibbetts Brook, along with the addition of Green Infrastructure to absorb storm water run-off, would reduce CSO and help alleviate our severe flooding issues along the Broadway corridor.

Thank you again for this opportunity to comment on this critical environmental and public health issue, which has long been a priority for the Environment and Sanitation committee. Expansion of DEP's Long Term Control Plan and Green Infrastructure Program is long overdue in order to mitigate deleterious street flooding conditions and their impacts, and pollution caused by Combined Sewer Overflow. Please continue to keep us informed of your progress.

WATERFRONT ALLIANCE

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Public Testimony
New York City Council, Committee Environmental Protection

Re: The City's Wastewater Infrastructure – Current Condition and Future Plans

December 13, 2017

Roland Lewis, President and CEO
Waterfront Alliance

The Waterfront Alliance is a non-profit civic organization and coalition of more than 1,000 community and recreational groups, educational institutions, businesses, and other stakeholders committed to restoring and revitalizing New York Harbor and the surrounding waterways.

Over the last generation, many of New York's waterways have become clean enough for regular recreational use, as more people are boating, fishing, and swimming in our shared waters thanks to progress spurred by the Clean Water Act and capital improvements made by the City and the State. New York Harbor is also now a more conducive place for fish, shellfish, and marine bird populations, even as commercial shipping grows.

But we still have a long way to go in order to meet the standards of "fishable and swimmable" waters. While toxins in our waterways have been reduced considerably, significant problems persist. One significant cause of water pollution is combined sewer overflow (CSO), which occurs when excess stormwater and untreated wastewater discharge directly into the city's waterways. On average, approximately 20 billion gallons of sewage are dumped into the waters each year, depending on rainfall volumes. We must take several steps to ensure that our waterways are not only protected but improved, to foster the wellbeing of millions of residents and visitors and support the regional economy.

We are at risk of underinvesting in solutions to our antiquated combined sewer system that pollutes the waterways during precipitation events. In 2005, the City and State executed an order to reduce CSO volume in New York City. This agreement called for a citywide and waterbody-specific long-term control plans (LTCPs) to achieve specific standards consistent with water quality goals of the Clean Water Act. Twelve years later, six LTCPs have been approved, of which with several more pending or under development.

Additional review of and financing for CSO remediation plans is necessary for public health and environmental sustainability. Unfortunately, these plans fall short of what is needed to properly clean our waters. They fail to meet federal health standards for contact with the water. After implementation, they will continue to allow billions of gallons of sewage to overflow annually into our waterways. Several plans do not reduce sewage outfall, opting instead for a chlorine disinfection technique, which would kill indicator bacteria rather than clean the waterways. Twelve years into the process, several plans allocate a decade or more to complete the system upgrades.

The City should conduct a review of citizen science results to identify potential modifications to timing and locations of its sampling program to sample where people come into contact with the water. Water quality samples are taken at dozens of locations across the city's waterways by both NYCDEP and citizen scientists. This year the Waterfront Alliance launched the Harbor Scorecard, which among other indicators measures New York City community districts' relative water quality based on combined

sewer overflow volume, Enterococcus bacteria and oxygen levels for fish survival. It revealed significant disparities: official water testing samples, generally taken in mid-channel locations, fail to meet EPA standards for safe swimming in approximately 20 percent of samples. Samples collected by citizen scientists, at nearshore areas where people are using the water for recreation and education, fail the same standards in roughly 33 percent of tests. Additionally, the City should commit to adopting the EPA's current water quality standards for bacteria that pose human health risks, rather than the State's outdated standards, which the EPA has found do not protect public health.

The City should also prioritize green infrastructure improvements for better stormwater capture and healthy communities. Green Infrastructure captures stormwater runoff from streets, sidewalks, parking lots, and rooftops to reduce flow into overburdened sewers, as well as provides new community green space, using engineered systems that typically feature soils, stones, and vegetation. Greater review should be applied to ensure that NYCDEP will meet the long-term goals established through its Green Infrastructure Program, launched in 2011. Crucially, every agency, not just DEP, should commit to green infrastructure in all public construction projects, and have the necessary resources to do so.

In addition to public investments, the City should develop a mix of incentives and penalties encouraging property owners to reduce their stormwater runoff. The City should study how and whether to reform NYCDEP's current stormwater revenue mechanisms, which are based on metered water usage. One approach commonplace in more than 1,000 municipalities nationwide would be to create a stormwater fee, based on a property's impervious area, in which rate payments reflect a property's contribution to discharge and pollution, rather than usage. Use of green infrastructure, porous pavement, or green rooftops could lead to reduced rate payments and help establish a "polluter pays" principle for our shared waterways.

New York City should be a world leader with healthy waterways for everyone to use. We look forward to the day when we do not look longingly on the Hudson, East, or Bronx Rivers on a sunny day after heavy rainfall the day before, and when untreated sewage poses no longer poses health risks to paddlers, swimmers, and marine habitat. We thank you for the opportunity to present this testimony, and welcome any questions you may have.

Save the Sound®

TESTIMONY OF
TRACY BROWN
DIRECTOR
SAVE THE SOUND

BEFORE THE NEW YORK CITY COUNCIL
COMMITTEE ON ENVIRONMENTAL PROTECTION

HEARING: "OVERSIGHT - THE CITY'S WASTEWATER INFRASTRUCTURE – CURRENT CONDITION AND FUTURE PLANS"

DECEMBER 12, 2017

Good morning Chairman Constantinides, members of the Committee on Environmental Protection and City Council members. I'm Tracy Brown, director of Save the Sound. Save the Sound is a bi-state program of Connecticut Fund for the Environment with offices in Mamaroneck, NY and New Haven CT. Our mission is to restore and protect Long Island Sound and its environs. I appreciate the opportunity to testify today on behalf of Save the Sound and our members.

Summary of Testimony

For decades, excess nitrogen entering our coastal waterways have devastated the health of Long Island Sound and the East River[1]. The impacts are clear: low-oxygen waters and fish die-offs, murky waters and harmful algae blooms, and disappearing coastal marshes. We have made progress reducing human generated nitrogen pollution over the last 20 years, but must make further reductions if we want a healthy Sound that is safe for people and wildlife.

New York City recently met an important goal, estimate in the 2001 Nitrogen TMDL, to reduce nitrogen pollution entering Long Island Sound from East River wastewater treatment plants (WWTPS) by 58.5% based on 1990 levels. This tremendous investment in the health of the Sound—$900 million invested in upgrades at four East River WWTPs—will pay dividends in cleaner water and a healthier ecosystem for years to come.

Thanks to this investment, and similar ones made in other Sound coastal communities, the hypoxic (low oxygen) dead zone in western Long Island Sound is now smaller. However it is

[1] Latimer, J.S., M.Tedesco, R.L. Swanson, C.Yarish, P.Stacey, and C. Garza, eds. 2014. Long Island Sound: Prospects for the Urban Sea. Springer Series on Environmental Management. Springer Publishers, NY. p.539.

still there, stretching from the East River past the coasts of Westchester and Nassau County in the hot summer months, wreaking havoc on marine life and critical ecosystems.

The East River, which connects Long Island Sound with New York Harbor, receives 60% of the treated wastewater effluent in New York City. The River carries this large burden of nitrogen pollution into Long Island Sound. Overall the nitrogen from the East River account for 33% by volume of the nitrogen entering Long Island Sound; 18% when adjusted for impact on Sound water quality.[2]

New York City six East River WWTPs discharge approximately 35 tons of nitrogen every day into the East River (Figure 1). These six plants still account for 97% of the city's nitrogen load to the Sound.

Plant	Nitrogen (lbs./day)	Nitrogen (lbs./day) Adjusted for LIS*
Bowery Bay	10,858	2,280
Hunts Point	6,592	1,384
Tallman Island	4,092	859
Wards Island	13,858	2,910
Newtown Creek	31,658	3,482
Red Hook	3,917	430
* 2016 Average Nitrogen Discharges: Adjusted for Impact on Long Island Sound Water Quality		

Figure 1: The New York City wastewater treatment plants that impact Long Island Sound. These wastewater plants handle 60% of NYC's wastewater.

Save the Sound offers the following recommendations:

- At this time New York City is trading nitrogen credits with Westchester County, which has yet to meet its nitrogen reduction commitment. This demonstrates the City's ability to exceed the 58.5% nitrogen removal target committed to in the 2001 Nitrogen TMDL. Based on this fact, and the need to continue to ratchet down on nitrogen for the health and future of Long Island Sound, the East River, and our communities, Save the Sound calls on New York City to increase its nitrogen treatment at the four upgraded plants to achieve a 70% nitrogen reduction rate in 2018 and beyond.

[2] Save the Sound, 2017. New York City Nitrogen Report: East River and Long Island Sound. Available from: https://greencitiesbluewaters.files.wordpress.com/2017/11/nyc11-22evening.pdf.

- If additional nitrogen reductions are needed, upgrading the Newtown Creek wastewater treatment plant to include nitrogen removal should be evaluated. This plant is one of two remaining East River WWTPs which did not get upgraded to treat nitrogen. Taking into account the adjustment for impact on Long Island Sound water quality, 30% of the remaining nitrogen load from the East River is coming from the Newtown Creek plant (Figure 2).

- Save the Sound calls on New York City to clean the bays and harbors of the East River and Long Island Sound by revisiting and improving the Combined Sewage Overflow (CSO) Long Terms Control Plans for those communities. These waterways, home to Orchard Beach and many neighborhood swimming clubs where the public most often comes into contact with city waterways, are stressed from nitrogen and fecal bacteria pollution. Strategies designed to meet safe fecal bacteria standards should not come at the expense of other important environmental goals and responsibilities such as protecting our living shorelines, coastal habitats and the wildlife that rely on them. Save the Sound calls on New York City to reject chlorination of CSOs in Alley Creek, Flushing Creek and the Hutchinson River and focus instead on CSO flow reduction.

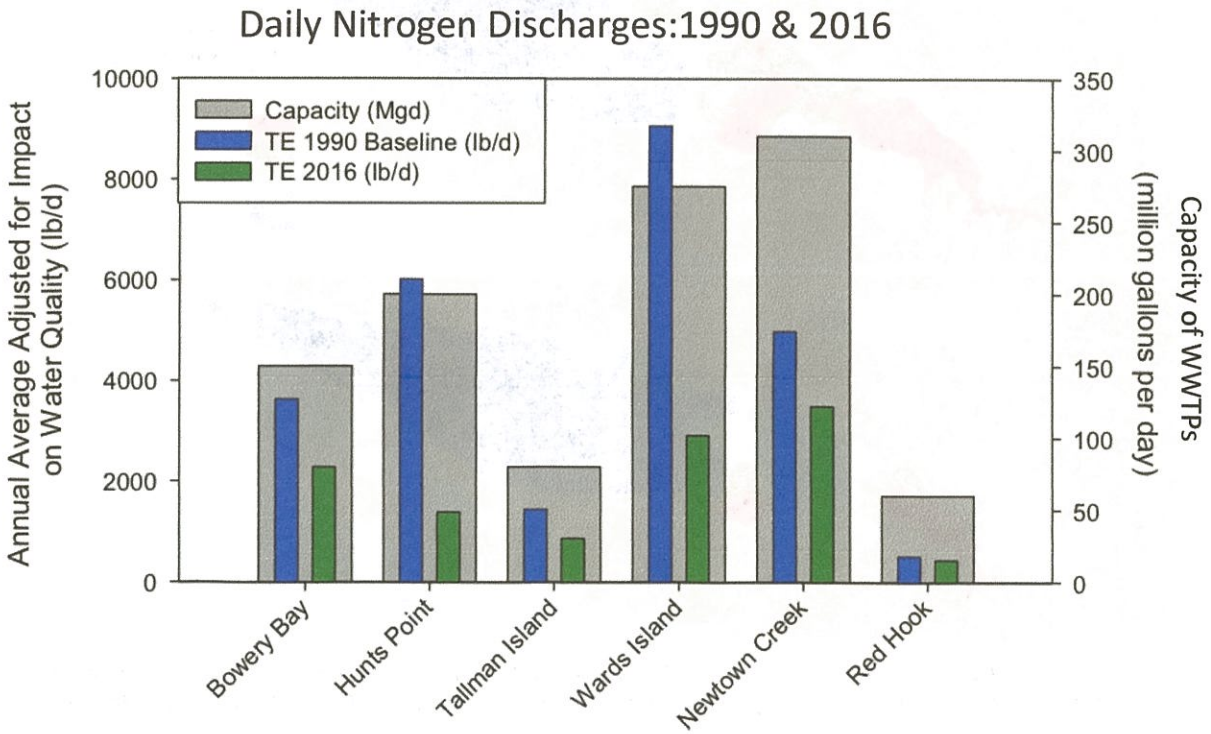

Figure 2: Load of nitrogen to the East River from wastewater treatment plants. Nitrogen in effluent adjusted for impact on Long Island Sound water quality for the six wastewater treatment plants in the East River sewershed as reported by the plants for 2016 versus the baseline of 1990. The nitrogen load was adjusted using the fractional impact of nitrogen loads on hypoxia in Long Island Sound. Image credit: Jamie Vaudrey.

Save the Sound®

The Problem: Impacts of Excess Nitrogen

In coastal salty waters, nitrogen stimulates growth of plant-like organisms, both microscopic (phytoplankton) and those visible to the human eye (seaweed)[3]. As on land, adding nitrogen fertilizes plant life in our coastal waters, but the amount of nitrogen being added to Long Island Sound is equivalent to or greater than what we would put on an intensely farmed agricultural field[4]. While a little nitrogen is beneficial to coastal waters, too much nitrogen changes the ecosystem—fueling the growth of nuisance and toxic algae blooms, creating low oxygen dead zones where fish can't survive, and killing the coastal marshes that provide important wildlife habitat and protect coastal communities from extreme storms—a process called eutrophication.

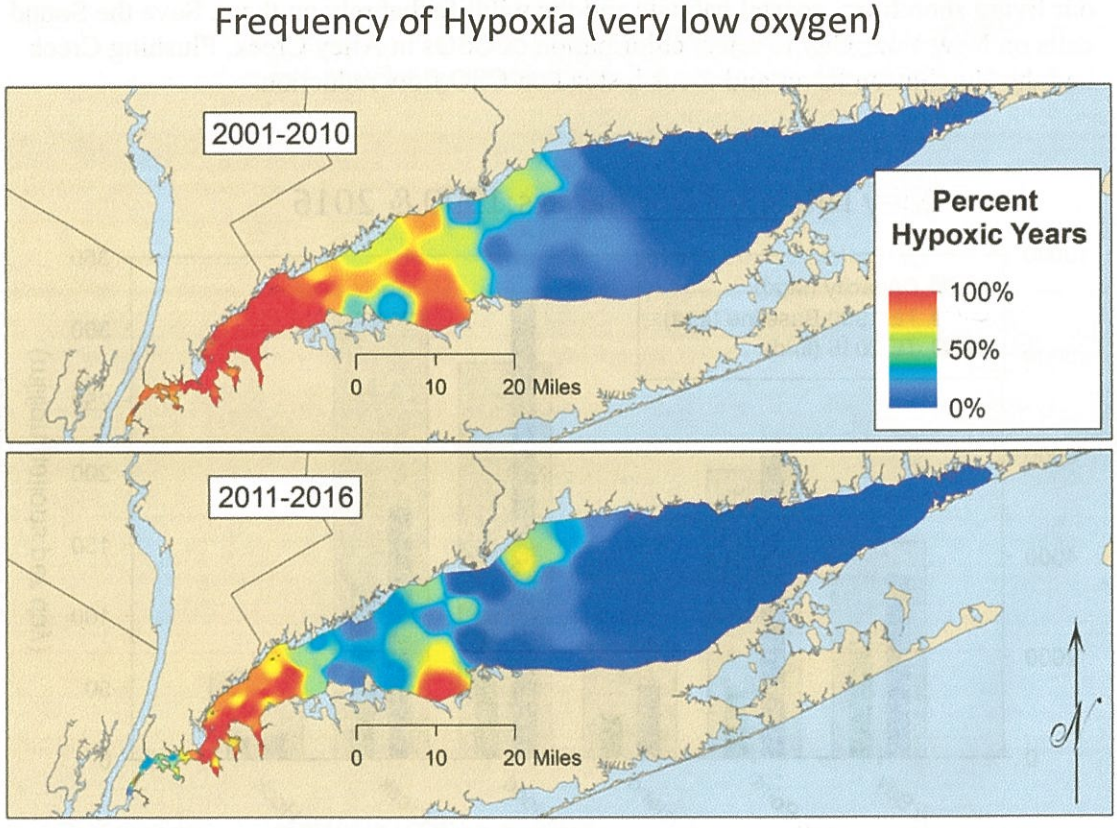

Figure 3: Frequency of hypoxic (very low oxygen, < 3 mg/L) conditions in Long Island Sound from 2001 to 2016. Red indicates higher frequency, blue is lower frequency. Image credit: Save the Sound, with data from CTDEEP, NEI- WPCC IEC, NYCDEP.

[3] Howarth, R.W. and R. Marino. 2006. Nitrogen as the limiting nutrient for eutrophication in coastal marine ecosystems: evolving views over three decades. Limnology and Oceanography. 51(1): 364-376.

[4] USEPA. 2015. EPA's Report on the Environment (ROE): Agricultural Fertilizer. Available from: https://cfpub.epa.gov/roe/indicator.cfm?i=55.

Unacceptably low levels of oxygen in the waters, or hypoxia, occur every summer as a result of the level of eutrophication in the East River and the western end of Long Island Sound (Figure 3). A comprehensive look at historic oxygen data collected by New York City Department of Environmental Protection (NYCDEP) and its predecessors demonstrates hypoxia in the East River dating back to 1920[5]. Nassau County and New York City monitoring data show hypoxia spreading as far as Cold Spring Harbor and becoming a near-annual summertime event in the early 1980s. In fact, the 1980s saw the spread of hypoxia into the Western and Central Basins of Long Island Sound[4]. A review of evidence going back 1,000 years reveals Long Island Sound summertime hypoxia did not occur until the 1800s, with a second ecosystem shift indicating worsening conditions in the 1970s[6].

Hypoxia can lead to a shift in the types of plants and animals found in an area; only those that can tolerate periods of low or no oxygen remain[7]. Eutrophication coupled with warming temperatures and acidification of the waters due to climate change exacerbates these changes; both the number of different types of marine life and the total number of individuals can decrease[8].

The good news is that the area of hypoxia in the Sound may have decreased by roughly half of what it was in 1987; we need a few more years of monitoring to confirm this decrease because it varies widely year-to-year. Investments in upgrades to wastewater treatment plants that discharge to the Sound over the last 20 years have driven this reduction.

Even with these reductions in area, hypoxia continues to be an annual occurrence in the East River and Western Sound. The overall hypoxic area of approximately 95 square miles in 2017 is still much larger than in 1920 when hypoxia was found only in the 11.5 square miles of the East River.

New York City's Progress on Nitrogen Reductions

New York Department of Environmental Conservation (NYSDEC) and CTDEEP created a nitrogen TMDL for Long Island Sound in 2000. Among other requirements, the plan mandated a 58.5% reduction of nitrogen discharged to the Sound from wastewater treatment plants serving New York City, Long Island, Westchester County, and Connecticut, through a phased approach over 15 years, using 1990 levels as the baseline.[9] The target took into account reductions

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[5] Parker, C.A. and J.E. O'Reilly. 1991. Oxygen depletion in Long Island Sound: A historical perspective. Estuaries. 14(3):248-264. DOI: 10.2307/1351660.

[6] Varekamp, J.C., E. Thomas, K. Beuning, M.R. Buchholtz ten Brink, and E. Mecray. 2004. Environmental Change in Long Island Sound over the last 400 years. Final Report, EPA Assistance Agreement X-9812950-1. p. 28.

[7] Howell, P. and D. Simpson. 1994. Abundance of marine resources in relation to dissolved oxygen in Long Island Sound. Estuaries. 17(2): 394-402. DOI: 10.2307/1352672.

[8] Conley, D.J., J. Carstensen, R. Vaquer-Sunyer, and C.M. Duarte. 2009, Ecosystem thresholds with hypoxia. Hydrobiologia. 629: 21-29.

[9] NYSDEC and CTDEP. 2000. A total maximum daily load analysis to achieve water quality standards for dissolved oxygen in Long

expected from existing programs throughout the Sound's watershed designed to lower nitrogen loads, so the majority of new efforts to curb nitrogen fell to the wastewater treatment plants.

In New York City, the plan called for four of the six New York City wastewater treatment plants that directly impact Long Island Sound— Hunts Point, Bowery Bay, Wards Island, and Tallman Island in the Upper East River—to be upgraded to treat nitrogen. NYCDEP and NYSDEC decided to upgrade the four Upper East River plants to a degree that the nitrogen load from all six plants, adjusted for impact on Sound water quality, would be reduced by the mandated 58.5%. Therefore, the two plants in the Lower East River—Newtown Creek and Red Hook—were not upgraded to treat nitrogen.

In September 2016, New York City reached that goal after an approved deadline extension. According to NYCDEP reports, the East River wastewater treatment plants have reduced their nitrogen discharge by 60%[10]. By going above and beyond the required reductions, the East River plants were able to "trade away" their excess reductions to offset shortfalls by wastewater treatment plants in Westchester County that are still working to meet the 58.5% reduction.

The nitrogen removal technology installed at the plants converts nitrogen present in wastewater into inert nitrogen gas that is released harmlessly into the atmosphere[10]. This work required significant upgrades to much of the plants' supporting infrastructure—an investment that not only reduced nitrogen discharges, but also brought the plants into a good state of repair for decades into the future.

Action Needed

Eutrophied systems can recover and Long Island Sound is on that road to recovery. But rehabilitation of an ecosystem takes time, sometimes decades[11]. The key is to identify the main causes and work to reduce those sources. In some cases, restoration efforts will be needed to bring back critical habitats like tidal marshes, seagrass beds, and oyster reefs. These habitats are part of a vibrant and diverse Long Island Sound, and once reestablished, can also help to maintain water quality. Efforts to restore these habitats are already underway, but to ensure their continued success and to expand these habitats throughout Long Island Sound, further reductions in nitrogen inputs are needed.

Even with the most recent upgrades to the wastewater treatment plants throughout the Long Island Sound area, nitrogen inputs impacting water quality are still dominated by this sewer

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Island Sound.

[10] NYCDEP. 2017. $1 Billion Nitrogen Reduction Project Improves the Health of the East River and Long Island Sound (17-1). Available from: http://www.nyc.gov/html/dep/ html/press_releases/17-001pr.shtml#.WfpgK2iPI2w.

[11] Diaz, R.J. 2001. Overview of hypoxia around the world. Journal of Environmental Quality. 30(2): 275-281.

source which contributes about 31% of the total nitrogen load when adjusted for impact on Long Island Sound water quality (Figure 4, left). Even after achieving the 58.5% reduction of nitrogen leaving wastewater plants, the East River wastewater treatment plants alone account for 18% of the total nitrogen load to Long Island Sound, or 56% of the load originating from all sewer sources in the Long Island Sound watershed (Figure 4, right). While great progress has been made reducing the nitrogen leaving wastewater treatment plants around the Sound, including New York City, additional reductions are needed to further improve water quality. Reductions in nitrogen loads to the East River are integral to this process.

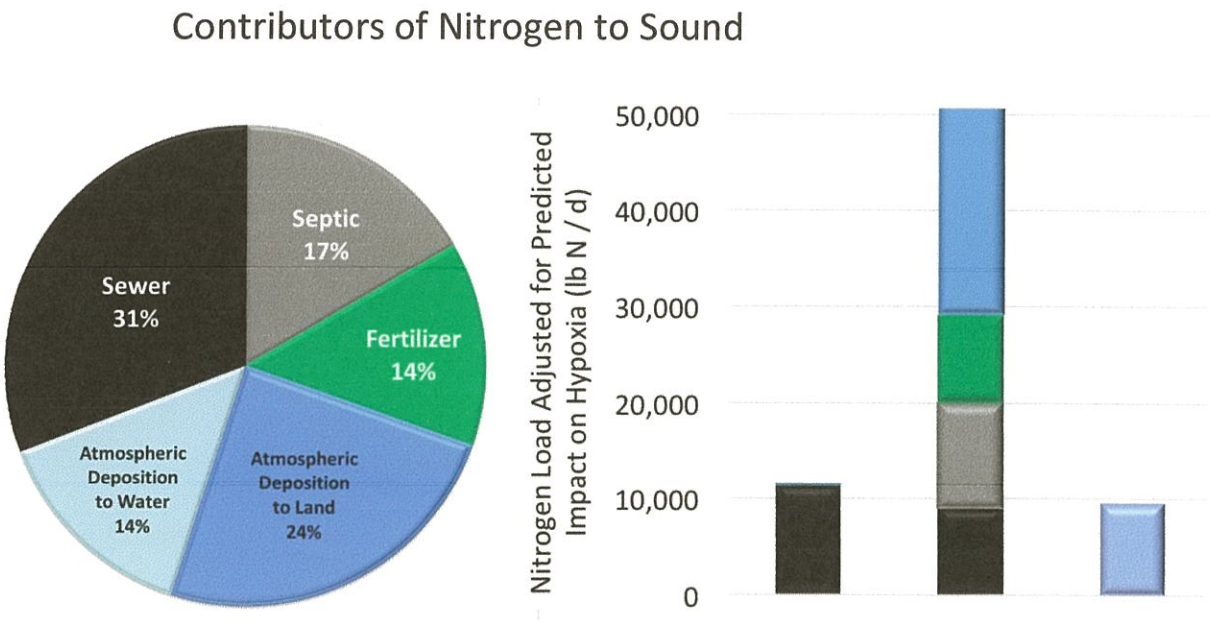

Figure 4: Source of nitrogen loads to Long Island Sound. Nitrogen loads are adjusted to account for the impact of different entry points into the Sound on water quality. Values are based on WWTP nitrogen loads from 2016 and current atmospheric deposition estimates. Septic and fertilizer were determined using the most recent census data (2010) and land cover data (2011).The pie chartshows the sum of all sources presented in the bar chart. Image credit: Jamie Vaudrey

In the East River, 97% of the nitrogen load is attributed to wastewater treatment plants. This is in stark contrast to the rest of Long Island Sound's watershed (including all areas extending up to Canada), where atmospheric deposition dominates at 47% of the load; septic is 20% and sewer is 17% of the load (Figure 4, right - middle bar).

The East River receives wastewater effluent from six treatment plants servicing the Bronx and portions of Manhattan, Queens, and Brooklyn (Figure 2).Taking into account the adjustment for impact on Long Island Sound water quality, 30% of the remaining nitrogen load is coming from one of plants that did not receive the upgrades to treat nitrogen, Newtown Creek (Figure 2). To further reduce nitrogen entering the Sound, New York City needs to continue to focus on its

wastewater treatment plants and look for further reductions they can achieve in the six wastewater treatment plants that impact the Sound. This could be achieved by getting a higher reduction using the newly installed equipment at the four Upper East River plants and/or by installing nitrogen removing technology at the Newtown Creek Plant.

EPA Calls for Additional Reductions: 2015 EPA Nitrogen Strategy

The target set for reducing nitrogen from wastewater treatment plants was met by Connecticut in 2015 and by New York State in 2016. After reviewing the response in the Sound, USEPA called for continuing efforts to reduce nitrogen, as detailed in the Long Island Sound Nitrogen Strategy issued in 2015[12,13]. This new guidance document moves beyond wastewater treatment plants, recommending a more holistic approach to addressing the nitrogen pollution problem.
The four central recommendations are:

1. Complement Long Island Sound TMDL nitrogen management initiatives with efforts to address other eutrophication-related impacts; for instance, involving coastal communities in addressing local problems caused by nitrogen.

2. Convert the current nutrient criteria from a narrative which describes the desired goal (i.e. eliminate hypoxia) to numeric criteria (i.e. nitrogen in the water cannot exceed X kilograms per liter).

3. Customize the numeric criteria for each of three watershed groupings:
   a. Coastal watersheds that directly drain to embayments or nearshore waters.
   b. The three large rivers that drain into the Sound—the Connecticut River, Housatonic River, and Thames River.
   c. Western Long Island Sound coastal watersheds with large, direct discharging wastewater treatment plants (includes plants located in portions of New York City, Westchester County, Nassau County).

4. Continue to support monitoring, modeling, and researching the link between nitrogen loading and bottom-water dissolved oxygen conditions in the open waters of the Sound.

As noted in EPA's cover letter accompanying the Long Island Sound Nitrogen Strategy, "Despite this progress, there is more to do."[11] Improving water quality in Long Island Sound,

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[12] USEPA Region 1 and USEPA Region 2. 2015. LIS Nitrogen Strategy Cover Letter, 12-23-15. p. 4. Available from: http://longislandsoundstudy.net/wp-content/uploads/2016/02/ LIS-Nitrogen-Strategy-Cover-Letter-final-12-23-15.pdf.

[13] USEPA Region 1 and USEPA Region 2. 2015. LIS Nitro- gen Strategy enclosure: Evolving the Long Island Sound nitrogen reduction strategy. p. 13. Available from: http:// longislandsoundstudy.net/wp-content/uploads/2016/02/LIS-Nitrogen- Strategy-Enclosures-12-23-15-1.pdf.

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reducing the area of hypoxia, and providing habitats supportive of a diverse and vibrant community of sea life require a continuing commitment to reduce nitrogen inputs to the Sound.

Summary

- New York City succeeded in meeting its target to reduce nitrogen pollution entering Long Island Sound from East River wastewater treatment plants.

- The hypoxic dead zone in Long Island Sound is now smaller, but still there, stretching from the East River past the coasts of Westchester and Nassau County in the hot summer months, wreaking havoc on marine life and critical ecosystems.

- New York City remains one of the top contributors of nitrogen to the Sound, discharging approximately 35 tons of nitrogen into the East River every day, contributing 18% of the nitrogen pollution that is de- grading water quality in Long Island Sound.

- Six East River wastewater treatment plants still account for 97% of the city's nitrogen load to the Sound.

- Save the Sound calls on New York City to increase its nitrogen treatment at the four recently upgraded plants, committing to a 70% reduction in 2018 and beyond.

- If additional nitrogen reductions are needed, upgrading the Newtown Creek wastewater treatment plant to include nitrogen removal should be evaluated.

- Save the Sound calls on New York City to clean the bays and harbors of the East River and Long Island Sound by revisiting and improving the Combined Sewage Overflow (CSO) Long Terms Control Plans for those communities, rejecting chlorination of CSOs in Alley Creek, Flushing Creek and the Hutchinson River, and focusing instead on CSO flow reduction.

Thank you for the opportunity to submit this testimony.

Respectfully,

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Testimony of Guardians of Flushing Bay before the New York City Council, Environmental Protection Committee Wastewater Infrastructure Hearing, December 13, 2017

Re: NYC Wastewater and Stormwater Infrastructure Plans for Water Quality Improvement in NYC Waterways

My name is Alex Herzan and I am here speaking on behalf of the Guardians of Flushing Bay, a consortium of Dragon Boat Teams and concerned citizens who care about the safety and water quality of Flushing Creek and Flushing Bay, and more broadly, all of NYC's surrounding waters.

As regular recreational users of Flushing Bay, we have been exposed to the deleterious effects of Combined Sewage Overflows. After a rainfall, and it does not have to be much, we have seen floating debris – condoms, tampons and other flushed items – as well as dead or dying animals. Dead rats and horseshoe crabs can be a fairly common sight after a rain. As recreational boaters who participate in dragonboating - the fastest growing water sport in America – we have each been exposed to alarming levels of bacteria, viruses, and toxic contaminants. Our teammates have suffered from rashes, diarrhea, eye infections and other illness as a result of exposure to these waterways in the heart of one of the richest cities in the world, a city burdened with centuries-old sewage systems and a frustrating lack of commitment to clean, fishable, swimmable waterways.

While we paddle and come into contact with water in Flushing Bay, the water quality is heavily impacted by Flushing Creek, which has been awarded the "golden Toilet Award" by the NYC Water Trail Association Citizens Water Quality testing group because our citizen-testing program revealed consistently high levels of bacteria in the water this past summer.

THIS SITUATION SHOULD NOT EXIST. It is solvable. It is approachable. It can be fixed now, not only after two more decades. Clean water will drive healthy communities, which, in turn, will drive resilient economies. City Council: we need your help.

We need to invest more in our infrastructure NOW to prevent further deterioration of our waterways. The DEP's LTCP plan that has been proposed and accepted by the State for Flushing Creek calls for chlorinating the Creek's sewers during the recreational season – an unproven technology that will not mitigate even one gallon of CSO into the creek and the Bay. For Flushing Bay, the proposal is for a CSO storage tunnel that will not be complete until 2035.

This means 18 more years of boating among dead rats, tampons, and harmful bacteria, until CSOs are reduced only by half in the Bay, and by Zero in the Creek – leaving our members, our teammates, and countless dragon boating children from all over the city paddling in over 2 Billion gallons of sewage discharges every year for two more decades at least.

Then, the City says that by the mid-2030s (or later), we'll still be facing at least 1.8 Billion gallons of sewage discharges a year, forever. This remaining problem is more than five times the current amount of CSO pollution the entire sewer area of Pittsburgh, PA, is burdened with today – and they're going to be cleaning their sewage up.

Why can't we capture – not chlorinate our CSOs, and get started now – not wait close to a decade to begin planning?

Climate change means that we can expect more storms that are more intense. At this point in time, about 20 billion gallons of Combined Sewage Overflow are dumped into NYC waters every year. Flushing Bay and Creek, which are home to the largest outflows in the city, are burdened by more than 10% of the City's total sewage pollution.

This is unacceptable and we respectfully ask that the city council ask the city and state to capture, not chlorinate, CSOs. With implementation of a more distributed green infrastructure system and CSO capture for Flushing Creek, the City and its residents will greatly benefit from a restored ecosystem in Flushing Bay and Creek.

Committee on Environmental Protection:

Oversight - The City's Wastewater Infrastructure – Current Condition and Future Plans

December 13th, 2017

Good morning Chair and esteemed Council Members,

My name is Michael Higgins Jr. and I am lead community organizer at Families United for Racial and Economic Equality (FUREE). FUREE is a member of Turning the Tide (T3), a community-based collaboration led by the Fifth Avenue Committee in partnership with Red Hook Initiative (RHI), and Southwest Brooklyn Industrial Development Corporation (SBIDC) with the objective of building the resiliency of public housing in the communities of Gowanus and Red Hook as well as the capacity of its residents to benefit from billions of government and private investment and prepare for future disaster events that will be caused by climate change.

The lack of capacity in New York's current combined sewer overflow system has been had a disparate impact on the health and quality of life for residents of public housing surrounding the Gowanus Canal in Brooklyn. The canal is located less than a block away from Gowanus Houses, home to over 3,000 residents. These citizens of New York City have to adapt to not only the smell that accompanies the release of nearly 400 million gallons of wastewater annually but also the flow of raw sewage in the case of flooding events when such materials are allowed to enter the canal and the New York Bay untreated. It is partially due to this fact that the EPA, DEP and responsible parties for the Gowanus Superfund cleanup have agreed to a remediation plan which includes the placement of two large wastewater retention tanks along the canal with volumes of 8 million and 4 million gallons respectively to make up for the current lack of infrastructure in an area experiencing rapid real estate development and population growth.

At the same time, T3 has heard the stories of numerous local NYCHA residents, with those living on the first floor of their buildings in Warren Street Houses and Gowanus Houses, who have to deal with ongoing sewer backups in their bathrooms and kitchens in moments where the system is unable to handle additional burdens. We hope that this committee can provide clarity on the question about who is ultimately responsible in oversight of these inadequate connections between public housing buildings and the sewer system, whether that be NYCHA or DEP. The installation of caps to prevent the backflow of untreated waste is necessary in ending a severe health hazard to these residents and quality of life issue that does not seem to be faced by any other local tenant living in the private housing market.

Since the announcement of the siting of the first retention tank at the head of the Gowanus Canal, T3 has advocated for its placement in the immediate vicinity of the waterway, rather than on a brownfield lot adjacent to the canal which is now holds the public Douglass and Degraw swimming pool. The tank, while necessary to address a mushrooming demand for wastewater removal, should not be installed that may lead to the permanent removal of a community asset such as a public pool. For this reason, we

are in support of the use of site acquisition by the city to take over select lots adjacent to the canal to place the tank and headhouse as well as what we hope to be green space. Explicitly, this would include the lots of 242 Nevins Street, 234 Butler Street, and 270 Nevins Street. We also understand that there is a need for additional green infrastructure - from bioswales that can hold and slowly release rainwater to using more permeable pavement to deal with both the excessive runoff and rising sea levels in the near future.

Notwithstanding the addition of the tank, T3 feels that the canal - as the release point for the area watershed including Park Slope, Carroll Gardens, Cobble Hill and Boerum Hill - is bearing too high of a burden that is detrimentally impacting the health of local NYCHA residents. We suggest plans be made long-term to divert some of the current waste to stop overburdening the local infrastructure currently in place. In the short term, one suggestion would be to mandate that new development over a certain size be required to host its own waste treatment facilities to prevent the increase of additional waste water. We would also like to see additional accountability tools that will allow local residents to report and be informed on the state of pollution that they are at risk of going forward into the future.

Thank you for the opportunity to testify here today.

Contact Information

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Sabine Aronowsky - saronowsky@fifthave.org

Karen Blondel - kblondel@fifthave.org

NCA
NEWTOWN CREEK ALLIANCE

December 13th, 2017

Testimony for Hearing T2017-6938: The City's Wastewater Infrastructure – Current Condition and Future Plans

My name is Willis Elkins, I am a Greenpoint resident, Chair of the Environmental Committee for Brooklyn Community Board 1, Co-Chair of the Newtown Creek Superfund Community Advisory Group and avid waterway user. Today, I offer testimony as the Program Manager for the Newtown Creek Alliance. Our organization has served as a leading community voice for the cleanup of one of the country's dirtiest waterways; located in the geographic center of NYC. In addition to a legacy of toxic contaminants, Newtown Creek is severely impaired by the release of untreated sewage which is directly related to our wastewater infrastructure. This past summer NYCDEP submitted a Long Term Control Plan to address the impacts of sewage overflow; here are some of our main concerns of this issue.

Timeline: The main component of the LTCP is a storage tunnel that would capture approximately 60% of sewage overflow from the three largest outfalls on the Creek. While we are encouraged to see this investment in large-scale infrastructure needed to limit sewage from being dumped into our Creek we are extremely discouraged by the lengthy timeline proposed. The tunnel would not be complete until the year 2042 - a full 25 years from now. For perspective, Newtown Creek will not have a chance of actually meeting Clean Water Act Standards until a full 70 years from when the legislation was passed. This lengthy timeline ensures ongoing pollution and resulting threats to human health and local wildlife for decades to come.

Additionally, with a federal Superfund investigation underway and Record of Decision expected in the next few years, there is risk that a prolonged delay of CSO pollution control may affect the process and ultimate outcome of the Superfund remediation. Recontamination and remedial action delays are very real risks given the LTCPs 25-year planning horizon. These communities have suffered a polluted Newtown Creek for too long; we deserve real reduction of CSO and remediation of contaminated sediments in a timely fashion. In order to effectively remediate Newtown Creek, ongoing sources of contamination and pollution - including the annual, extreme Combined Sewer System discharges into the Creek - must be controlled. Only when we've stopped making matters worse can we truly begin to turn the corner toward restoration. We ask that the timeline for this vital project be accelerated, and for action toward construction to begin immediately.

60% is Still Failing: While we applaud the strong investment in building out the proposed underground storage tunnel we also hold true to a basic principle: sewage does not belong in our waterways. We believe that a 60% reduction is a positive step in the right direction; but we need to not only reduce the volume of sewage overflow but the frequency of when overflow events are occuring. The most active CSOs in Newtown Creek currently discharge approximately 42 times per year. Our proposed plan would cut that by an estimated 55%, or 19 discharges per year. In other words, the long term plan still allows for sewage discharge once every three weeks, on average. As you may hear from others today; most of the other waterbodies around NYC will not even see this sort of reduction in the amount or frequency of CSO events. For most of NY Harbor, we can expect sewage in our waterways on a near weekly basis - for decades to come.

To which, we ask is this really a long term plan? It may bring us into seasonal compliance with complicated numerical standards regarding bacteria levels during recreational seasons, but do we as residents of NYC, as leaders of NYC, accept sewage in our waterways as an inevitable fact of life? If the city can tackle other serious human and environmental health issues with targets, not of mitigation but elimination, why can't we do the same for stormwater? Vision Zero (transportation); Zero Waste (sanitation); where is our Zero Sewage (environmental

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protection)? It is here where we look not just to the folks from DEP; but from the elected leaders to set the highest of goals for protecting these great tidal waters that surround the archipelago we know as New York City.

Process: Another large concern for us is the process by which these 25 year plans were developed. We have developed close relationships with DEP personnel and appreciate them keeping an open ear to community concerns, but the process by which these plans were developed, explained and discussed with the larger community before being submitted and approved by NYSDEC was lackluster. Outreach to community boards; elected officials (such as yourselves), waterfront residents and other community organizations that are not already heavily involved in following wastewater infrastructure planning should have more involvement in plans impacting the city for decades to come. Additionally, the LTCP only allows for comments during the initial meetings and not during the most critical time frame which is when the actual plans (usually hundreds of pages long) have been developed and released but before they are approved by NYSDEC. We ask our city representatives to work with their counterparts in Albany to improve these systems going forward so that communities can have opportunity to thoroughly understand the projects and weigh in; especially once they have been submitted for approval.

Enable and Expand: In closing; we would like to encourage the exploration and expansion of ideas and projects that can prevent the release of untreated sewage into our waterways. You may hear about many of these from other speakers today, but it is worth reiterating. Here are some places we can begin to tackle these issues and enable DEP to do more in protecting our environment:

- Drastically improve incentives for expanding green roofs on privately owned buildings.
- Require Green Infrastructure (GI) on all new buildings.
- Require GI on all roadway redesign projects.
- Better funding for DEP, other agencies and organizations to maintain GI.
- Allow design-build to expedient GI projects that the city is already actively pursuing.
- Implement storm-water fees and structured rates to better finance stormwater infrastructure.
- Improve communication about CSO events as they occur as well as public outreach to promote less water use during rain events.
- Investment in R&D of permeable pavements.

I would like to thank you for the opportunity to testify on this serious issue and welcome any questions about Newtown Creek or issues raised.

Sincerely,

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Our previous comments on LTCP issues can be viewed here:
http://www.newtowncreekalliance.org/long-term-control-plan/

December 12, 2017

RE: City Council Hearing on Stormwater Infrastructure

The New York City Community Garden Coalition (NYCCGC) received CDBG-DR funding to undertake a Feasibility Study for stormwater capture best practices within the community gardens of the Lower East Side of Manhattan. The project – Gardens Rising completed a Feasibility Study that combines community planning participation with engineering expertise, developing a green infrastructure study and master plan to increase the permeability and stormwater capture within forty-seven (47) neighborhood/community gardens located in the Lower Manhattan NYRCR planning area. The majority of the gardens are located within an area that was severely flooded during Superstorm Sandy and many were impacted directly by the storm. The Feasibility Study was completed December 2016.

The Feasibility Study examines the feasibility, costs, benefits and impacts of proposed stormwater capture methods which would increase permeability and green space in the neighborhood gardens and would better absorb stormwater runoff. It identifies locations where green infrastructure and stormwater capture systems are to be implemented across the study area given priority to those areas who are prone to stormwater flooding or are in a flood zone. These green infrastructure solutions will increase absorptive surfaces and better outfit these gardens and neighborhoods to deal with stormwater runoff. This is an opportunity to develop resiliency, increase biodiversity, expand green space and beautifully reduce puddling and combined sewer overflows.

The Feasibility Study has multiple green infrastructure solutions such as rain gardens, water capture systems, landscape designs, vegetated swales, tree pits, and porous pavements. The priority is to begin the process of building bioswales. This will include geotechnical drilling and data information, permitting through multiple agencies and design of bioswales.

In the second Phase, the Gardens Rising project will include assessing the current drainage facilities and stormwater management practices in the Study Area (1) to determine a drainage and stormwater management baseline, and (2) to identify the improvement needs based on the current conditions. This will include becoming familiar with the current and proposed plans for improvements to the stormwater management systems surrounding each community garden.

As such NYCCGC has a stake in how stormwater issues as it relates to combined sewer outflows. We did our work with community engagement and strongly urge that the City Council do the same. We may not be experts but we and our many partners and colleagues know quite a lot about how to make the City more resilient and sustainable. As such going forward you must include all of us in these serious deliberations on Combined Sewer Overflow Long Term Control Plans before approving them in March of this year. We call on a transparent, collaborative effort by the City Council to ensure that NYC gets raw sewage out of our waterways.

Sincerely,
Aziz Dehkan
NYCCGC Executive Director

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Testimony of the Bronx River Alliance before the New York City Council, Environmental Protection Committee Wastewater Infrastructure Hearing,
December 13, 2017

Re: NYC Wastewater and Stormwater Infrastructure Plans for Water Quality Improvement in NYC Waterways

Thank you for allowing the Bronx River Alliance to testify today. The Bronx River Alliance serves as a coordinated voice for the river and works in harmonious partnership with more than 100 organizations and agencies to protect, restore, and improve the Bronx River as an ecological, recreational, educational, and economic resource for the communities through which the river flows. Each year through our diverse programming, we engage over 1500 paddlers, 2000 students and educators, and thousands of volunteers who come in contact with the river, some for the first time. We are deeply concerned about the impact of combined sewer overflows (CSOs) and polluted storm water on the river's health and on the impact to human health for everyone who uses it as an educational and recreational resource.

There has been a tremendous amount of investment in the Bronx River over the past few years, including working with the New York City Parks Department and the Wildlife Conservation Society to monitor American eel populations and installing a fish ladder and an eel passage at the 182nd Street dam to connect migratory fish species to upstream freshwater habitat. An experimental oyster reef has been installed at the mouth of the river, with promising results for the reestablishment of native oysters. This year for the first time in a decade we restocked river herring, helping create a self-sustaining population of fish that were once abundant in the Bronx River, but whose populations declined due to overfishing and poor water quality. To protect these extensive investments and the progress we have achieved, the Long Term Control Plan (LTCP) for the Bronx River should reduce fecal pathogens, maintain dissolved oxygen at levels that support aquatic life, and control floatable trash. Following review of the Bronx River LTCP, we submit the following comments. Many of our concerns are similar to concerns submitted by the Stormwater Infrastructure Matters (SWIM) Coalition, with whom we work closely on these issues.

Capture, don't divert CSOs. In the Bronx River, the plan calls for diverting some of the overflows to the East River, which will only result in further contaminating the New York Harbor and Long Island Sound. Based on modeling numbers within the LTCP, total CSO volume entering the Bronx River will be approximately 285 million gallons per year, a 63% decrease from the current volumes of 455 million gallons per year (MGY). The estimated 170 million gallon reduction will be redirected into the East River, decreasing water quality in the receiving waterbody, and yet there will still remain an estimated 31 annual overflow events directly into the Bronx River. Dilution and redistribution are not solutions to pollution, particularly in the tidal estuary that receives water directly from the East River. Fecal pathogens and nutrient loading create conditions for algal blooms, which in turn cause dissolved oxygen levels in the river to plummet, threatening our wildlife. **We therefore urge DEP to reduce combined sewage overflow volume as much as possible.**

More robust green infrastructure management and incentives for participation. The Bronx community has been an early advocate of green infrastructure from the beginning of DEP's program, supporting the benefits it provides for the entire watershed. Expanding green infrastructure into upstream areas

covered by MS4 permits will provide additional water quality benefits, along with co-benefits for the community such as cooling, air quality improvements, and pollinator habitat creation. However, the City hasn't met its first major milestone under a State-mandated Green Infrastructure Plan and there is no clear strategy to make up for lost ground, let alone meet the next milestone by 2020. We want to see a more robust green infrastructure plan, with more adaptable designs for public property and real incentives for private property owners with short-term and long-term goals that do not require a decade to achieve. Of particular concern in the Bronx River LTCP is the high level of GI proposed to mitigate stormwater (14% of a one-inch rain event) that was used to model the selected gray infrastructure alternative that costs $150 million. According to current data from the DEP, only 1.1% of impervious areas in the Bronx River watershed have been managed to date. Given that stormwater management levels fall far short of model inputs, the predicted number of annual overflow events (31) and actual volume of CSO discharges (285 MGY) could be significantly higher than the modelling predicts.

Improve transparency and take public input seriously. Much of the public has not being informed about development of the LTCPs, or given real opportunities to weigh in on the plans before they are approved. In the Bronx River, we did not receive the third public meeting and were informed that the citywide meeting held in Queens last month would meet the DEP's requirement. Even the most basic information about risks to water users – when sewage overflows are occurring – is not being communicated effectively. Going forward, the DEP and DEC must engage in depth with local stakeholders, even if the plans have already been approved. Particularly when plans are controversial, they should be reopened based on public input. **Waterway stewards must be provided ample opportunity to engage with both technical experts at DEP and decision makers at DEP and the Mayor's office about the plans that are going to impact their neighborhoods and waterways over the next two decades, and they must have confidence that their concerns will be heard and addressed.**

Water quality standards that protect human health. The current standards used by the State and City agencies have been outdated since 1986 and are not as effective as national standards to protect swimmers, kayakers, educators and students, and others who come into contact with the water. We have a robust watershed-wide water quality monitoring program that documents location and severity of fecal pathogen levels using Enterococci, the national standard, as do many other watershed organizations throughout the city. With thousands of our program participants who come in contact with the water through scientific inquiry, educational monitoring, and on-water recreation, these individuals are put at risk if water quality improvements are not prioritized. **We call on the NYC City Council Committee for Environmental Protection to adopt a resolution in support of updating the standards and holding DEP and the City accountable for meeting them to protect human health.**

We are encouraged to see the DEC and DEP commit resources to reduce CSO volumes in the Bronx River, and that previous proposed alternatives were re-examined and excluded in the approved LTCP, specifically, the elimination of chlorination as a preferred treatment option. We agree with the DEP that chlorination is a poor investment of resources in such an important and highly utilized resource as the Bronx River and look forward to our continued dialogue in the years ahead.

We thank the City Council for Environmental Protection for holding this public hearing today and providing the invaluable opportunity for the voices of waterway stakeholders from around the City to be heard. We look forward to a healthy public discourse on the concerns people have raised here today.

NEW YORK CITY WATER TRAIL ASSOCIATION

December 13, 2017

Good morning and thank you for the opportunity to testify.

The New York City Water Trail Association is an umbrella group that aims to represent the common interests of the harbor's human-powered boating community, which now includes more than two dozen organized paddling and rowing groups as well as many independent paddlers. Our mission is to support the safe use of the New York City Water Trail, founded by the Department of Parks and Recreation in 2008, to expand access to the public waterways, and to promote the environmental stewardship of the harbor and the estuary. Our Steering Committee includes representatives from the Gowanus Dredgers, the North Brooklyn Boat Club, the Sebago Canoe Club, the Brooklyn Bridge Park Boathouse, the Village Community Boathouse, and New York Kayak Polo.

One of our key initiatives is the Citizens Water Quality Testing Program, which we began along with our partners at The River Project back in 2011. Every Thursday from May to October, at more than 50 sites around the harbor, our volunteers sample for sewage-indicating bacteria called Enterococcus—the same bacteria the Department of Health tests for at the city's bathing beaches. Our results are published every Friday in a clear and simple format, so that boaters and other recreational users of the harbor can make informed decisions about likely water quality at their preferred launch site.

We're here today to testify to two things: first, the rapid growth of human-powered boating, sailing and swimming in the Upper Harbor, which more and more New Yorkers correctly see as a invaluable recreational resource, and second, the need for a more aggressive and creative strategy to control and reduce the city's sewage and stormwater discharges. While we appreciate the hard work and good intentions behind the current round of Long Term Control Plans, we're concerned that with the changes that are projected to come—in precipitation, sea level and population growth—the city will be hard-pressed to maintain, let alone improve, water quality in the harbor.

Therefore, in addition to the proposals advanced by our partners at the S.W.I.M. Coalition and Riverkeeper, with which we wholeheartedly concur, we ask the Committee and the City Council to consider these four steps:

1) Urge the DEC to require the division of the last and biggest Long Term Control Plan ("East River and Open Waters") into 'sub-assessments' that directly address issues at specific sites, rather than lumping all of the harbor together in one bucket

2) Urge the DEP to do more testing for sewage-indicating bacteria at the near-shore locations that recreational boaters and swimmers now use

3) Require the DEC and DEP to develop better and more detailed monitoring and notification strategies, so that all city residents are promptly informed of the precise locations and amounts of sewage and stormwater releases

4) Fund the design and construction of an Upper Harbor bathing beach

Thanks very much for listening today. We understand that a clean harbor is a complicated and expensive challenge--and also a very long-term commitment--and we salute you for having the foresight and resolve to take it on.

Rob Buchanan, Steering Committee
New York City Water Trail Association

Gowanus Canal
CONSERVANCY

Testimony for Public Hearing
Committee on Environmental Protection
December 13, 2017

T2017-6938
The City's Wastewater Infrastructure – Current Condition and Future Plans

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Gowanus Canal Conservancy is the community based environmental steward for the Gowanus Canal Watershed. We are dedicated to facilitating the development of a resilient, vibrant, open space network centered on the Gowanus Canal through activating and empowering community stewardship of the Gowanus Watershed.

We want to commend the Department of Environmental Protection (DEP) on the major steps they have taken to achieve better water quality in the Canal, from fixing the Flushing Tunnel to constructing the High Level Sewer System, but also want to highlight the following issues and concerns with DEP methodology, plans and wastewater infrastructure in the Gowanus Watershed.

Gowanus Water Quality Testing

DEP's water quality sampling protocol skews the data to paint the Canal as cleaner than it is. Samples are collected from the center of the Canal, where flow is the fastest, as opposed to the banks, where water stagnates and human contact is more likely. DEP water quality tests show the Gowanus Canal as fishable and swimmable, though citizen science tests (and common sense) contradict these results.

Gowanus Canal Long Term Control Plan

The Long Term Control Plan (LTCP) for Gowanus, based on the previously mentioned faulty data, does not strive to improve water quality beyond what has already been mandated by the EPA Superfund process. The LTCP is a separate process that should provide additional measures for addressing the 100 million gallons of untreated sewage that will still overflow into the canal every year after the Superfund is complete.

The LTCP also does not take into account the rezoning process currently underway in Gowanus by the Department of City Planning, which will likely add significant load to the sewage system. As the Mayor and the City aim to add more residential units and toilets to the Gowanus Watershed, we need to see a comprehensive plan to mitigate all additional wastewater this will add to the system. This plan should include both stringent

infrastructure requirements for new development and residential conversions, including incentives for grey and blackwater systems, as well as more capital investment in grey and green infrastructure.

Green Infrastructure in the Gowanus Watershed

There is strong community interest and support for green infrastructure in the Gowanus watershed. We urge DEP to better leverage this support to improve water quality in Gowanus Canal in the following ways:

- **Prioritize Consistent Maintenance** - While many Watershed residents applauded the installation of right-of-way green infrastructure, lack of regular maintenance is eroding this good will. We understand that the contractor guarantee period is an impediment, but we urge DEP to start weekly maintenance visits as soon as right-of-way installations are in the ground, and to engage neighbors as adopters or stewards to extend the efficacy and popularity of these critical assets.
- **Enable Private Property Installations** - There is enormous interest and potential for green infrastructure on private property in the Gowanus Watershed, but DEP has not yet provided the tools. A revised, user friendly green infrastructure grant program, for both large and small properties, is an essential step towards making a cleaner Canal.
- **Embrace Innovative Design** - DEP's 2nd Street Sponge Park, a street end GI installation on the Gowanus waterfront, is an example of maximizing potential stormwater management with innovative design. However, the park is currently managing a fifth of design capacity, because the interagency team did not resolve how to get water across street intersections. We urge DEP to continue to push bureaucratic impediments in order to build innovative installations that maximize stormwater management and adapt to site constraints.

Equity in sewage infrastructure siting

The 4,500 public housing residents at the head end of the Gowanus Canal are disproportionately impacted by the inadequate sewer system in Gowanus, experiencing regular sewage backups in first floor apartments and foul odors whenever it rains. DEP plans to build an 8 million gallon sewage tank to help manage this CSO-shed - however, this facility will be located right near the public housing, and will still not eliminate overflow. We urge DEP to look at investing in additional green or grey infrastructure in upland areas of this CSO-shed to reduce the continued impact on the Gowanus public housing community.

Finally, GCC joins city-wide partners in recommending that NYC adopt an equitable restructured water rate that calculates a separate stormwater fee based on the impervious area of a property. All New Yorkers deserve clean waterways, and we need a comprehensive and fair method of paying for it.

Billion Oyster Project

City Council Wastewater Infrastructure Hearing
Wednesday December 13, 2017 - 10am
City Hall, NYC

Good morning, my name is Blyss Buitrago and I'm testifying on behalf of the Billion Oyster Project. Thank you Mayor de Blasio, City Council Speaker Melissa Viverito, Councilman Constantinides, Commissioner Sapienza and Commissioner Seggos for your time and attention this morning.

New York Harbor was once a robust estuary teeming with over 220,000 acres of oysters. Thanks to measures such as the Clean Water Act and progressive city waterfront plans, the Billion Oyster Project has been working in partnership with the New York Harbor School to restore our native oysters to NY waterways. For the first time in centuries, oysters are surviving and building the foundation for future populations, biodiversity is increasing and whales have returned to NYC. Despite their size, oysters contribute towards improved water quality, build habitat for many of our marine critters, and help protect our shoreline from major storms surges like Super Storm Sandy. Through Billion Oyster Project alone, 25 million oysters have been restored to NY Harbor and reefs are taking hold.

The thousands of students we work with are passionate about the harbor they're creating and the harbor they want to see protected. As are the hundreds of college students, teachers, environmental educators, academic institutions, restaurants, and other organizations across the city, working tirelessly alongside our team to restore and steward our natural environment.

Our dedicated constituents have worked to improve their local waters and every raw sewage overflow reverses that progress. In particular, the communities of Coney Island Creek, Flushing Bay and Creek, and Newtown Creek are burdened by an extreme volume of sewage overflows impacting the quality of life and health of their families. Despite this public health challenge each of these communities tirelessly advocate for their local waterfront to create a healthy ecosystem with abundant access for community goers to enjoy. Through our educational programs many individuals and youth have the opportunity to view their waterfront for the first time. Witnessing that moment of pure curiosity and joy fuels the need for our work to ensure every young New Yorker has this opportunity.

We have a unique moment to further progress towards a swimmable and fishable New York Harbor for future generations to enjoy. The Billion Oyster Project and our constituents will continue to work towards the New York Harbor we envision and we hope you join us on this journey.

New York - New Jersey
Harbor & Estuary Program
www.harborestuary.org

Statement of Robert Pirani
Program Director
RE: Oversight: The City's Wastewater Infrastructure-Current Condition and Future Plans
December 13, 2017

Thank you for your interest in the water quality of the estuary and the City's plans for addressing current impairments.

The New York – New Jersey Harbor Estuary - the tidal waters from the Tappan Zee Bridge south to Sandy Hook, NJ, including the lower reaches of the Passaic, Hackensack, and Raritan rivers - is the biggest public space in the nation's largest and most densely developed metropolitan area. These waters - whether they are used for swimming, boating, fishing, or just enjoying the spectacular views – are an amenity that improves quality of life and drives spending and investments by residents, visitors, and businesses.

The New York – New Jersey Harbor & Estuary Program (HEP) serves to bring the benefits of cleaner waters to people and wildlife. One of the Nation's 28 Estuaries of National Significance, HEP was created by the U.S. Environmental Protection Agency (EPA) at the request of the governors of New York and New Jersey in 1988 under the Clean Water Act as an ongoing effort to develop and implement a consensus driven plan to protect, conserve and restore the estuary. HEP decisions and activities are carried out by staff and partners organized through the committees and work groups convened by the Program. Core partners include agencies like the EPA, New York City Department of Environmental Protection, and the New York State Department of Environmental Conservation as well as civic organizations like the New York City Soil and Water Conservation District and the Hudson Riverkeeper.

HEP is in the process of updating our Five Year Action Agenda. The current draft, available at http://www.hudsonriver.org/download/HRF_draft_agenda_final.pdf, defines our shared set of priorities. These are the collective steps that HEP and its partners will advance progress towards HEP's long term goals.

As the Council considers future plans for the City's water protection efforts, these consensus priorities offer some useful steps forward.

Water quality affects everything that HEP and our partners strive for. It is key to healthy habitats and biodiversity, safe public recreation, sustainable sediment management, and long-lasting public stewardship. Thanks to committed public leadership and billions of dollars in investments, the region has made great strides in attaining the goals of the Clean Water Act. But many challenges lie ahead if this progress is to be sustained. Primary issues include pathogen

contamination, excessive levels of nutrients and low dissolved oxygen, legacy toxic pollution, floatable debris, and microplastics and other contaminants that are of emerging concern. In addition, the likely effect of climate change on future water quality, especially impacts of higher temperatures, sea level rise and shifting precipitation patterns, is unknown.

Over the next five years, HEP seeks to make substantial progress on achieving the visionary goal of the Clean Water Act. Some key objectives and actions are highlighted below. Additional details can be found in the Action Agenda.

Water Quality Objective A: Improve coordination and begin to establish consensus amongst regulatory agencies on science, standards and design conditions in shared waters

Water quality management in the Estuary is complicated by the distinct political jurisdictions of New York and New Jersey, which dictate regulatory approaches and can hinder communications. For example, water quality standards may differ between states and thus determining what constitutes "achievement" for a shared waterbody may be unclear. Defining the end goals is crucial for measuring success. Continued dialogue across agencies is therefore a key element in meeting the fishable/swimmable goal of the Clean Water Act. HEP and its Water Quality Work Group (WQWG), and in particular the regulatory agency partners, will work together to support the states and EPA in their development of consistent (where possible) water quality standards that are both scientifically defensible and protective of appropriate highest attainable uses in shared waters.

Water Quality Objective B: Accelerate creation, adoption and implementation of Long Term Control Plans and MS4 Permits

Billions of dollars are being invested in crucial projects to improve water quality in both NY and NJ. Stakeholders, including ratepayers and local government officials, are often unaware of what work is currently underway and what improvements will mean for their communities. Stakeholders, including ratepayers and local government officials, are often unaware of what work is currently underway and what improvements will mean for their communities. Moreover, the combined effects of controls and permits on NY and NJ's shared waters are uncertain. HEP will advance the creation of a unified modeling framework that will predict the expected outcomes of combined LTCP/CSO implementation on shared waterbody. We will advance communication tools and CSO notifications to better inform communities about water quality challenges and improvements. We will advance the use of green infrastructure to help improve water quality and make such work visible to the public.

Water Quality Objective C: Address monitoring gaps and lack of information for key locations, parameters and state and local track-down programs

While there has been significant overall improvement in pathogen levels in the estuary over the past 20 years, water quality in many near-shore areas remains unknown. Routine agency sampling is typically conducted mid-channel via boat, while recreational season shoreline sampling only occurs at designated beaches. Many residents and visitors boat and swim in areas

that are either being monitored infrequently or not at all. There are also key monitoring gaps for dissolved oxygen, essential for all aspects of an aquatic organism's lifecycle, and the impact of known and emerging contaminants, in particular microplastics. HEP will continue and expand its work with the Interstate Environmental Commission, EPA, state agencies, and NGOs involved in citizen science efforts to develop a systematic approach for determining pathogen levels for near shore areas in reference to contact recreation. Our forthcoming Environmental Monitoring Report will provide a web-based portal for community members, public agencies, and decision makers to locate the best data on conditions. We will also continue to support research on the impacts of low dissolved oxygen and contaminants to the health of the Harbor.

Water Quality Objective E: Assess the potential impacts of climate change on water quality

It is certain that climate change will affect water quality in the Harbor Estuary but specific impacts and the magnitude, duration and frequency of these impacts, are not well understood. HEP will support and share research to assess climate change impacts on nutrient input, eutrophication, availability of dissolved oxygen, and harmful algal blooms (HABs).

Thank you for this opportunity to share the report and our findings. We are happy to address any questions you might have.

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12-13-2017

(PLEASE PRINT)

Name: Jaime Stein

Address: _____

I represent: S.W.I.M. Coalition

Address: 121 Ave. of Americas, 5th Fl.

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Alexandra Herzan

Address: 300 Central Park West

I represent: Guardians of Flushing Bay

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Carter Strickland

Address: 666 Bway

I represent: Trust for Public Land

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

IN FAVOR OF ☐ in favor ☐ in opposition

HEALTHY PUBLIC HEALTH *Date:* 12/13/17

(PLEASE PRINT)

Name: MR. HARVEY L. SIMON, MPA

Address: 51-01 39TH AVE. APT. F-4U SUNNYSIDE, N.Y. 11104

I represent: INTERESTED NEIGHBOR & CITIZEN

Address: SUNNYSIDE, N.Y. 11104

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Matt Malinca

Address: 410 East 6th Street

I represent: NYC H2O

Address: NY 10009

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Michelle Luebke

Address: ~~1 Bro~~ michelle.luebke@bronxriver.org

I represent: Bronx River Alliance

Address: 1 Bronx River Parkway, Bronx NY 10462

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12.13.17

(PLEASE PRINT)

Name: WILLIS ELKINS

Address: 62 greenpoint ave BK NY 11222

I represent: NEWTOWN CREEK ALLIANCE

Address: 115-18 Sklllman Ave Sunnyside NY 11104

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Aziz DEHKAN

Address: 429 EAST 10TH ST

I represent: HYCLGC

Address: 232 E 11TH ST

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12.13.17

(PLEASE PRINT)

Name: Rob Craudenueff

Address: 483 10th Ave Ste 325 New York, 10018

I represent: Craudenueff & Associates

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12.13.17

(PLEASE PRINT)

Name: Michele Langa

Address: 30 Washington St Matawan NJ

I represent: NY/NJ Baykeeper

Address:

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Laura Spalter

Address: 5480 Mosholu Ave. Bx 10471

I represent: Bronx Community Board 8

Address:

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12-13-2017

(PLEASE PRINT)

Name: Karen Argenti

Address: 3400 Paul Ave, Bx 10463

I represent: Bronx Council for Environmental Quality

Address: same

Please complete this card and return to the Sergeant-at-Arms

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THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/2017

(PLEASE PRINT)

Name: Michael Higgins Jr

Address: 358 Atlantic Avenue BK NY 11217

I represent: FUREE / Turning the Tide (T3)

Address: 621 Degraw Street BK, NY 11217

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Andrea Parker

Address: 543 Union St BKNY 11215

I represent: GOWANUS CANAL CONSERVANCY

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Amel Hernandez

Address: 322 Irving Ave

I represent: NYC Environmental Justice Alliance

Address: 166a 22nd street

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Eleanor Rae

Address: 7 Leeward Lane, Bronx 10464

I represent: Hutchinson River Restoration Project

Address: 7 Leeward Lane

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. Wastewater Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Sean Dixon

Address: Ossining NY

I represent: Riverkeeper

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: TRACY BROWN

Address: _____

I represent: SAVE THE SOUND

Address: 545 TOMPKINS, MAMARONECK, NY, 0543

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THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

WASTE WATER INFRASTRUCTURE

Date: 12/13/17

(PLEASE PRINT)

Name: Lisa Bloodgood

Address: 98 Roebling St 11211

I represent: Neighbors Allied for Good Growth (NAG)

Address: 110 Kent Ave 11211

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Catherine Mulay Hughes

Address: _____

I represent: SSWG = Storm Surge Working Group

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. 1?

☐ in favor ☐ in opposition

Date: 12/13/2017

(PLEASE PRINT)

Name: Judith Weis, PhD PhD

Address: 170 WEA Apt 12N

I represent: Rutgers University (Scientist)

Address: _____

Please complete this card and return to the Sergeant-at-Arms

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THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Robby Lee Cohen

Address: 310 E. 12th St., 10003

I represent: Cafeteria Culture

Address: 121 Ave of the Americas, NYC 10013

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☒ in opposition

Date: _____

(PLEASE PRINT)

Name: Carmen Melian

Address: East 7th St. NY, NY

I represent: Empire Dragon Boat Team

Address: First Ave, NY, NY

Paddle on Flushing Bay

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Jose Sergeant

Address: 375 Brooklyn Ave. Bklyn NY

I represent: Waterfront Alliance

Address: 212 Water Street, NY NY

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Laurence Levine

Address: 40 W 20th St NY, NY 10011

I represent: Natural Resources Defense Council

Address: same

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/2017

(PLEASE PRINT)

Name: GREG O'MULLAN

Address: 95 Jefferson St Garden City NY

I represent: ~~CUNY scientist myself~~ - scientist

Address: Queens College - CUNY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Rob Buchanan

Address: _____

I represent: NYC WATER TRAIL ASSOC

Address: 251 Clermont BK 11205

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Dr. Tim Eaton

Address: 14801 60th Ave, Flushing, NY

I represent: Queens College Earth + Env. Sciences

Address: 65-30 Kissena Blvd, Flushing, NY

THE COUNCIL Students
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Angelina Sanchez

Address: PS 15K

I represent: PS15K

Address: Sullivan St, Brooklyn

THE COUNCIL Students
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Sharon Li

Address: PS15K, Sullivan St.

I represent: PS15K

Address: Sullivan St, Red Hook, Brooklyn

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Students

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Ronan Battis

Address: PS15K

I represent: PS15K,

Address: Sullivan St., Red Hook, Brooklyn

THE COUNCIL
THE CITY OF NEW YORK

Students

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Kayla Delgado

Address: PS15K

I represent: PS15K

Address: Sullivan St., Red Hook, Brooklyn

THE COUNCIL
THE CITY OF NEW YORK

Students

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Imran Elzoghby

Address: PS15K

I represent: PS15K

Address: Sullivan St. Red Hook Brooklyn

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL Students
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Bluss Buitrago

Address: _____

I represent: Billion Oyster Project / NY Harbor School

Address: 10 South St, New York, NY

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THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: Liam Daretany

Address: 432 Lincoln Avenue

I represent: New York Harbor School/Billion Oyster project

Address: 10 south Street

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Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: _____

Address: _____

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12 13 17

(PLEASE PRINT)

Name: Angela Licata

Address: _____

I represent: DEP

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12/13/17

(PLEASE PRINT)

Name: James Mueller

Address: _____

I represent: DEP

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 12 13 17

(PLEASE PRINT)

Name: Mikelle Adgate

Address: _____

I represent: DEP

Address: _____

Please complete this card and return to the Sergeant-at-Arms