THE ASSEMBLY
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FOR THE RECORD

MARGARET M. MARKEY
Assemblywoman 30TH District

Room 654
Legislative Office Building
Albany, New York 12248
(518) 455-4755

55-19 69TH Street
Maspeth, NY 11378
(718) 651-3185

CHAIR
House Operations

COMMITTEES
Agriculture
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September 21, 2007

New York City Council
250 Broadway
New York, NY 10007

Dear Council Members:

As the representative of the 30th Assembly District which takes in Maspeth, Middle Village, Woodside, and Astoria, all heavily impacted by the August 8, 2007 storm, I would like to bring to your attention the current situation my constituents are facing.

As I am sure you are already aware, the August 8th storm led to severe flooding in many parts of the 30th AD. A number of homeowners were inundated with water and sewage in their basements, destroying personal belongings, flooring and costly household equipment such as water boilers and heaters.

The Department of Environmental Protection has been in communication with my office and working with my staff to find out locations which were affected by the storm. While these are the necessary steps to move forward after this disaster, we must also look to see what can be done to prevent these types of incidents from happening in the future.

In addition to overdevelopment and lack of open space, one clear cause of the flooding was the poor maintenance of the catch basins in the surrounding area. It appears that the city's lack of repairs and upkeep to the infrastructure could be directly related to the flooding.

I have already written to Mayor Bloomberg and Comptroller Thompson regarding this issue. It is time that the city takes responsibility and investigates this ongoing problem and determine what can be done to address the situation and assure that it does not happen again.

Sincerely,

Margaret Markey

Margaret Markey
Member of Assembly

Testimony Before The New York City
Council Environmental Protection Committee

Assembly Member Rory Lancman

Twenty-Fifth District, Queens
September 24, 2007

Thank you Mr. Chairman for conducting this hearing into the widespread failure of our sewer system during the summer storms. My district in Northeast Queens was particularly hard-hit, and I am grateful for this opportunity to offer testimony today.

As you are my Councilman, Mr. Chairman, I know how hard you have worked in our community to assist those whose homes, businesses and property were damaged by the storms, and on behalf of our entire community let me publically thank you for your leadership on this issue.

There is a saying that "everyone complains about the weather, but no one ever does anything about it." While it's true we can't do anything about the weather, we can and must do something about the weather's affect on our sewer system, and I am confident that this Committee has the experience and determination to offer concrete plans for doing just that.

There are at least four areas which I believe deserve this Committee's attention, but before I enumerate them let me make sure we all understand what we are talking about here: homeowners waking up to raw sewage in their basements (mine included – a more disgusting experience I have never known); cars submerged in flooded streets; commuters stranded as heavy rains freeze the main subway lines in Queens. Not what you would expect living in the self-proclaimed capital of the world.

First, I look forward to the testimony the Committee elicits on planned improvements to our basic sewer system infrastructure. Our current combined sewer system is clearly inadequate to meet our current needs. More shocking, the City's growth planning seems to pretend our sewer system doesn't need to grow as well. As you and I know from our work opposing the Jamaica Rezoning Plan, Mr. Chairman, the City plans massive development along Hillside Avenue in our overlapping districts even though the catch basins along Hillside Avenue don't connect to any drainage system.

The second area of interest is how the system we have is maintained. On Friday, for example, a constituent showed me a catch basin that is still full of water from rains which occurred weeks ago. A system driven by ad hoc citizen complaints which guarantees that catch basins are cleaned only at least once every three years is no system at all.

Third, while I urge the Committee to not miss the forest for the trees in search of systemic answers, please don't forget the trees – the individual homeowners, not-for-profits and businesses who have suffered real losses. Many of my constituents have filed a notice of claim with the City for property damages suffered as a result of the City's failure to plan for and adequately maintain its sewer system, and I am very interested in hearing the City's views on compensating individuals for their losses.

In that vein, I also want to bring to the Committee's attention legislation which Senator Toby Stavisky and I will be introducing to provide homeowners and non-profits tax credits to enable them to install sewer line "check valves," a device which would prevent sewage from flowing back into one's basement when the sewer system is over capacity. Also, New York City will have the opportunity to apply for disaster mitigation funds from FEMA, and we urge the City to apply for funding to help homeowners pay for the installation of check valves to prevent future disasters.

Fourth, I think a frank discussion is in order on whether our water and sewer taxes are really being spent to develop and maintain our sewer system. As you know, as the City's obligations to the sewer system's original bondholders get paid off, more and more of our water and sewer taxes are going into the City's general fund, and not toward developing and maintaining our sewer system. This is unacceptable.

Finally, let me say that I have found the Department of Environmental Protection staff to be responsive my concerns and questions, and they were at my office to meet with civic leaders and answer questions within days of being asked. The problem is not the people at DEP, as far as I can see, but the system itself, including its original design, its funding, and the City's lack of planning.

Mr. Chairman, thank you for the opportunity to testify and rest assured that as a member of the Assembly Standing Committee on Cities, I am available to work with you in any way I can to support your conclusions for averting future disasters such as the one experienced by my constituents this summer.

– end –

TESTIMONY OF QUEENS BOROUGH PRESIDENT HELEN MARSHALL

SEPTEMBER 24TH, 2007 BEFORE THE NEW YORK CITY COUNCIL COMMITTEE ON ENVIRONMENTAL PROTECTION

GOOD MORNING. I WANT TO THANK THE CITY COUNCIL AND CHAIR GENARRO FOR HOLDING THIS HEARING TODAY. IT PRESENTS AN IMPORTANT OPPORTUNITY TO ADDRESS A CRITICAL ISSUE FOR QUEENS.

THE BOROUGH OF QUEENS HAS UNDERGONE SEVERAL MAJOR PERIODS OF DEVELOPMENT OVER THE PAST EIGHTY OR SO YEARS. PERHAPS

THE LARGEST TOOK PLACE IN THE DECADE IMMEDIATELY FOLLOWING WORLD WAR II.

DURING THIS PERIOD OF BURGEONING NEIGHBORHOODS AND THE CONSTRUCTION OF AFFORDABLE HOMES FOR RETURNING VETERANS, MANY OF THE SEWERS WE HAVE TODAY, IN SOUTHEAST QUEENS PARTICULARLY, WERE INSTALLED TO TAKE CARE OF PRIMARILY THE SANITARY NEEDS, NOT STORM, FOR THE INCREASED POPULATION.

DUE IN LARGE PART TO THE VERY INEQUITABLE SYSTEM IN PLACE AT THAT PERIOD

OF TIME, THE SEWER SYSTEMS WERE FUNDED UNDER A LOCAL ASSESSMENT METHOD WHICH UNFAIRLY PENALIZED ADJACENT HOMEOWNERS ON ANY STREET IN WHICH A LARGE STORM SEWER WAS CONSTRUCTED. IF A HOMEOWNER HAD NO SEWER THEY WERE NOT ASSESSED.

IN MUCH OF SOUTHEAST QUEENS, IN ORDER TO ADDRESS THE SEVERE SHORTAGE OF HOUSING IN THE POST WORLD WAR II ERA, IT WAS DECIDED THAT THE STORM SEWERS COULD WAIT, AS THERE WERE PLENTY OF VACANT LAND AND CREEKS TO MITIGATE EXCESS FLOOD WATERS- TODAY THERE ISN'T.

GRADE WAIVERS ALLOWED THE CONSTRUCTION OF HOUSING AT EXISTING GRADES WAIVING THE REQUIREMENT TO BUILD TO LEGALLY ESTABLISHED STREET GRADES IN AFFECTED AREAS. THESE CONCESSIONS CONTRIBUTED TO MANY OF THE FLOODING PROBLEMS WE ENCOUNTER TODAY IN MUCH OF SOUTHEAST QUEENS.

TODAY WE FIND OURSELVES CONFRONTED WITH SEVERAL MAJOR PROBLEMS IN MANY AREAS OF QUEENS – PROBLEMS NOT SO EASILY DISMISSED AS THEY MAY HAVE BEEN DECADES AGO!

THE LEGACY OF NOT BUILDING THE APPROPRIATE STORM SEWER SYSTEMS DURING THE POST-WAR PERIOD LEAVES US WITH NEIGHBORHOODS CONSTANTLY PLAGUED BY MAJOR FLOODING, NOT ONLY ON THE STREETS, BUT IN BASEMENTS OR AFFECTING ENTIRE LOW-LYING PROPERTIES. CONVENTIONAL STORM SEWERS ARE DIRELY NEEDED TO COMPLEMENT THE EXISTING SANITARY SYSTEMS WHICH, INCIDENTALLY, ARE ALSO REACHING THE POINT WHERE MANY SHOULD BE REPLACED.

MUCH OF SOUTHEAST QUEENS, MORE THAN 5,000 ACRES, FEEDS INTO TO THE SEWER TRUNKS ON SPRINGFIELD BOULEVARD. THIS SYSTEM IS COMPRISED OF VARIOUS LARGE SIZE STORM SEWERS CULMINATING IN FOUR LARGE SEWERS THAT DISCHARGE TO THURSTON BASIN IN JAMAICA BAY.

THE CITY HAS INVESTED MORE THAN 120 MILLION DOLLARS OVER THE PAST 15 YEARS TO BUILD THE MISSING PIECES OF THIS MAJOR TRUNK SYSTEM. THE TIME IS NOW TO CONTINUE THE BUILD OUT OF THE REQUIRED LATERAL SEWERS WHICH WILL PROVIDE ADEQUATE

DRAINAGE FOR THE COMMUNITIES EAST AND WEST OF SPRINGFIELD BOULEVARD.

THESE LATERAL SEWER SYSTEMS WILL ALSO REQUIRE, IN MANY INSTANCES, CHANGES IN STREET GRADES. EFFECTIVELY, THIS MEANS THAT A DOT STREET PROJECT WILL HAVE TO BE DONE IN CONJUNCTION WITH THE DEP SEWER AND WATER PROJECT. THE FUNDING OF THESE CAPITAL PROJECTS, ALTHOUGH ALL VERY CLOSELY RELATED, BECOMES SOMEWHAT PROBLEMATIC SINCE THE FUNDING SOURCES ARE FROM TWO VERY DISTINCT AND VASTLY DIFFERENT SOURCES; DEP RELIES ON SEWER-WATER BOND AUTHORITY FUNDS AND DOT RELIES

ON NYC CAPITAL FUNDS. THERE MUST, HOWEVER, BE A WAY TO ADDRESS THESE FUNDING REQUIREMENTS IN A METHODICAL AND EFFECTIVE MANNER.

EVEN IF MUCH OF THE REQUIRED FUNDING WAS MADE IMMEDIATELY AVAILABLE, IT WOULD TAKE MANY YEARS TO BUILD OUT THE REQUIRED SEWERS IN ALL OF THE AFFECTED AREAS. IN A PRACTICAL SENSE, DEP SHOULD BE ADDRESSING THE MOST SEVERELY AFFECTED AREAS INITIALLY AS THE GRADE REQUIREMENTS DICTATE.

MANY YEARS AGO, A DECISION WAS REACHED WITH OMB WHICH ALLOWED THE USE OF CAPITAL FUNDS TO CONSTRUCT SEEPAGE BASINS IN MANY

PARTS OF SOUTHEAST QUEENS. THESE SEEPAGE BASINS WERE MEANT TO PROVIDE INTERIM RELIEF FROM LOCAL FLOODING BY ALLOWING FLOOD WATERS TO DRAIN THROUGH THE SEEPAGE WELLS INTO THE GROUND, WHEREVER APPROPRIATE SOIL CONDITIONS PERMITTED. MOST OF THESE SEEPAGE BASINS ALLEVIATED PONDING AND MITIGATED FLOODING PROBLEMS OVER THE YEARS. THE PROBLEM WITH THE SEEPAGE BASINS (MORE THAN SEVERAL HUNDRED HAD BEEN INSTALLED) IS THAT THEY HAVE A USEFUL SERVICE LIFE OF SOMEWHERE BETWEEN EIGHT AND TWENTY YEARS.

MANY OF THE BASINS ARE AT THE END OF THEIR USEFUL LIVES AND ARE NOW FAILING AND THE FLOODING THEY TEMPORARILY ALLEVIATED IS RETURNING.

IN FAIRNESS TO LITERALLY THOUSANDS OF QUEENS RESIDENTS, THE CLEANING, REFURBISHMENT OR RECONSTRUCTION, WHERE REQUIRED, OF THESE FAILING SEEPAGE BASINS WHICH WERE, AFTER ALL, AN INTERIM MEASURE, SHOULD BE GIVEN CONSIDERATION.

AS WE ARE ALL AWARE, EXPENSE FUNDS ARE ALWAYS MUCH MORE DIFFICULT FOR CITY AGENCY'S TO COME BY WITH THE MANY

COMPETING NEEDS AND REQUIREMENTS. I AM, THEREFORE, REQUESTING THAT DEP ONCE AGAIN BE PERMITTED TO UTILIZE CAPITAL FUNDS FOR THE REHABILITATION, CLEANING OR RECONSTRUCTION OF THESE FAILING SEEPAGE WELLS SINCE THEY HAVE BECOME AN INTEGRAL COMPONENT OF THE EXISTING SYSTEM.

WE REALIZE THAT THE CLEANING OF THESE SEEPAGE BASINS IS VERY PROBLEMATIC AND SUBJECT TO STRICT OSHA REGULATIONS AND PROCEDURES, HOWEVER, IT WOULD BE GROSSLY UNFAIR TO SOUTHEAST QUEENS RESIDENTS TO IGNORE THESE STRUCTURES AND PERMIT THE

RECURRENCE OF EVEN MORE SEVERE FLOODING AS THEY ULTIMATELY COMPLETELY FAIL.

TODAY, I AM CALLING ON DEP TO ACCELERATE AND EXPAND ITS INVESTIGATIONS INTO ADDITIONAL NON-DRINKING USES FOR EXCESS GROUNDWATER, INCLUDING ADDITIONAL DRAINAGE OPTIONS, TO HELP ALLEVIATE THE RISING WATER TABLE.

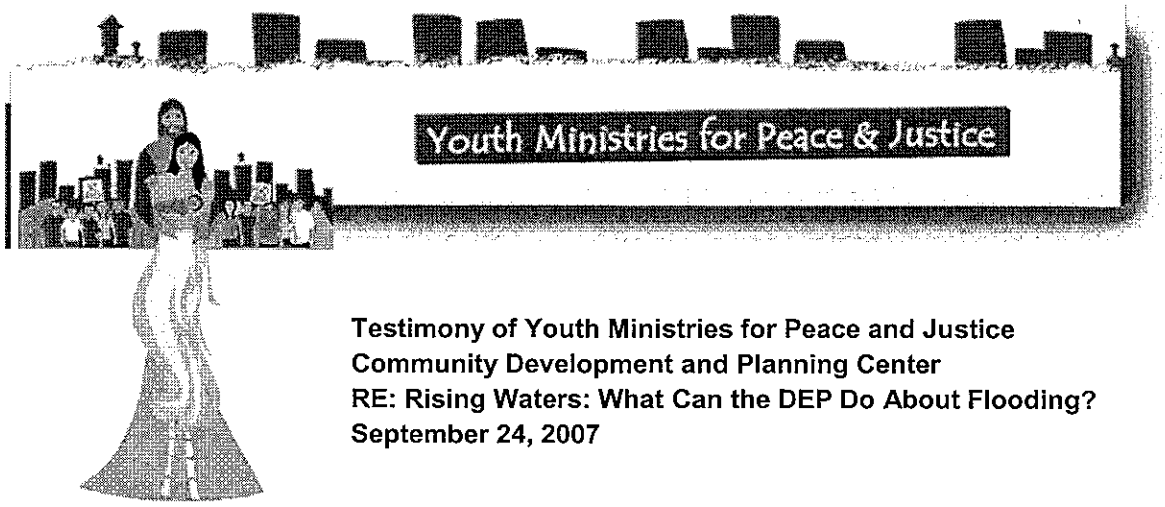
WE ARE ALL COGNIZANT OF THE MANY IMPORTANT PROBLEMS CURRENTLY FACING DEP. EACH OF THESE PROBLEMS COMPETING FOR THE LIMITED AMOUNT OF AVAILABLE FUNDS – FUNDS FOR THE NEW THIRD WATER TUNNEL; FUNDS FOR LONG RANGE STUDIES ABOUT HOW TO DEAL WITH

THE RISING GROUNDWATER ISSUES IN SOUTH QUEENS; FUNDS FOR UPGRADING THE MANY SEWAGE TREATMENT PLANTS IN THE CITY.

I AM SIMPLY ASKING THAT WE, THE CITY, NOT FORGET ABOUT THE HUNDREDS OF THOUSANDS OF RESIDENTS OF SOUTHEAST QUEENS, JAMAICA, ROCKAWAY AND MANY OTHER QUEENS COMMUNITIES WHICH HAVE BEEN REGULARLY AND SEVERELY FLOODED OR OTHERWISE IMPACTED BY INADEQUATE OR NON-EXISTENT STORM SEWER SYSTEMS.

THE POSSIBILITY OF ACQUIRING STATE AND FEDERAL FUNDS SPECIFICALLY FOR SEWER CONSTRUCTION SHOULD ALSO BE PURSUED – PARTICULARLY SINCE THE RISING GROUND WATERS ARE AFFECTING SUCH A LARGE AREA OF QUEENS AND HAVING AN ADDITIONAL IMPACT ON THE FUNCTIONING OF THE EXISTING SEWER SYSTEMS.

IN CLOSING, I THANK THIS COMMITTEE FOR HOLDING THIS HEARING AND LOOK FORWARD TO WORKING WITH YOU TO FINALLY SOLVE THESE MAJOR QUALITY OF LIFE PROBLEMS.



Testimony of Youth Ministries for Peace and Justice
Community Development and Planning Center
RE: Rising Waters: What Can the DEP Do About Flooding?
September 24, 2007

Youth Ministries for Peace and Justice (YMPJ) has as its goal the leadership development and formation of young people for a life of peace and justice. The Community Development and Planning Center is committed to developing the leadership of Bronx River residents to have greater power over the redevelopment of their neighborhood. It particularly seeks to engage the creativity and energy of young people and recognize their key role as community stakeholders whose growth is intertwined with the health of their environment. In accordance with the principles of environmental justice, CDAP works to improve the neighborhood's environment, increase the resources and amenities available to residents, and improve the quality and affordability of the housing stock to ensure that current residents are able to continue to enjoy the improvements they create.

Currently, YMPJ is working to implement stormwater management BMPs (source controls) in the Soundview neighborhood, located in the Hunts Point drainage area and more specifically within CSO-shed HP-009. Our overall goal is to reduce stormwater entering the sewer system to alleviate combined sewer overflow (CSO) in the Bronx River during wet weather, but we find that the techniques we have been working with offer multiple benefits including flood reduction. With the help of our youth program, this summer we installed a simple rain barrel this summer that diverted runoff from our garage and driveway and stored it for later use in watering out backyard. Since installing this device, the section of our basement that typically floods during heavy rainstorms has stayed dry through several summer storms.

At the present time, YMPJ staff is installing a rain garden – landscaped area of the backyard with very well-draining soil and wet-tolerant vegetation – to capture runoff from the roof of our main building. The garden will contain plants native to the Bronx River watershed, and will offer aesthetic and habitat amenities in addition to further flood control and CSO relief. On a small scale, these interventions offer very local benefits, but we plan to involve our youth in the outreach, installation and maintenance techniques needed to replicate our efforts throughout the neighborhood to achieve measurable results in water quality. Similar efforts in decentralized stormwater management in flood-prone areas would be able to delay the onset of floods and reduce their intensity, while offering the multiple benefits described above.

YMPJ is a member of the Storm Water Infrastructure Matters coalition. SWIM is a citywide group of advocates dedicated to ensuring swimmable waters around New York City through natural, sustainable storm water management practices in our neighborhoods. This approach is environmentally and fiscally responsible because it utilizes storm water, currently viewed as waste, as a resource. Our platform is viewable online at www.swimmablenyc.org

Kate Zidar
Environmental Planner
Youth Ministries for Peace and Justice
Center for Community Development and Planning
718-328-5622
kzidar@ympj.org

Testimony of Emily Lloyd
Commissioner
New York City Department of Environmental Protection
At a hearing of the New York City Council
Committee on Environmental Protection

Monday, September 24, 2007

Good morning Chairman Gennaro and members of this Committee. I am Emily Lloyd, Commissioner of the New York City Department of Environmental Protection (DEP). Thank you for the opportunity to testify today regarding flooding in New York City.

This morning I would like first to put our recent weather and the resulting flooding in the context of climate change as we currently understand it, and tell you how we are incorporating research on climate change into our planning. Then I will give a little background on New York City's drainage systems; how we currently analyze, assess and diagnose our existing systems; specific problems and issues in Queens and elsewhere in the City; what we are and will be doing to enhance and change our operations and infrastructure through PlaNYC implementation; how multiple City agencies are working together through a task force created by the Bloomberg Administration to create an action plan for addressing flood mitigation; how we think we can be helpful in response to homeowners' requests for assistance in preparing for possible future storms; how we are developing and implementing best management practices (BMPs) to meet current conditions as well as plan for new ones; and finally, highlights of what we expect to accomplish in the immediate, near, and long terms.

This hearing closely follows the extremely severe rainstorm of August 8th and the one on July 18th, but we also had a very wet summer overall. The weather records at Central Park for the most recent 39 years indicate a median total summer rainfall of approximately 12 inches. The total rainfall at that station for summer 2007 was 20.63 inches, which was the fourth wettest in the 39 year record. Before that, the Nor'easter of April 15th brought 7.57 inches of rain in Central Park, the second heaviest rainfall in 24 hours since recordkeeping began in 1869, and approximately 15 inches according to unofficial rain gauges in Staten Island, the borough where the effects of this storm were most dramatic. Historically flood-prone areas of

the City include parts of Queens, Staten Island, the Bronx and Brooklyn, but in recent years, flooding has affected a much broader range of communities than ever before.

New York City is not alone in facing the challenge of increased flooding. This summer, severe flooding has hit regions throughout the world. This August, while Hurricane Dean was affecting the Yucatan Peninsula and the Gulf of Mexico, and Tropical Storm Erin was affecting Oklahoma and Texas, a persistent storm hung over the Midwest for several days, causing repeated flash flooding in Illinois, Indiana, Iowa, Minnesota, Ohio and Wisconsin. In June and July of this year, widespread flooding occurred throughout the United Kingdom including Northern Ireland, East Yorkshire, the Midlands and South Wales. Rainfall across Britain was more than double the average at 5.5 inches for June, with some areas receiving a month's worth of precipitation in 24 hours. Climate scientists are predicting that such extreme weather events may become more frequent in the future.

To prepare for this possibility, and in accordance with PlaNYC, Mayor Bloomberg's plan for a sustainable city, DEP has begun to develop and implement programmatic adaptations that address global climate change and its projected impacts on New York City's drinking water delivery, stormwater management and wastewater treatment systems.

Modeling projections performed for DEP by the Columbia University Center for Climate Systems Research and the NASA Goddard Institute for Space Studies at Columbia University indicate that by the 2080s the most probable amounts of change in New York City and its watershed region are a 7.5° to 8.0° Fahrenheit increase in temperature, and a 7.5% to 10% increase in precipitation, and a 15.7 to 17.7 inch rise in sea level. These very long-term models help to show the trends, but now we are focused on trying to focus the modeling on a nearer time horizon and more precise geography. DEP anticipates releasing our initial climate adaptation report, "Taking Action: The New York City Department of Environmental Protection Climate Change Program," in October of this year.

On an agency-wide level, DEP will closely analyze climate change projections and consider them during the planning, engineering and design processes to develop adaptation strategies that increase the resiliency of the drainage system to existing flooding and future climate changes. There are several strategies that we will evaluate and utilize to do this; one of them

will be the implementation of sustainable, on-site storm water management systems to lessen the likely impacts on DEP infrastructure. One of the most pragmatic and sustainable is to use techniques called best management practices (BMPs) to reverse or compensate for some of the dramatic loss of green space to detain storm water.

Events like August 8th show us that we have to take action before climatic change predictions are as certain or precise as we would prefer. To put the August 8th storm in perspective, National Weather Service gauges in the metropolitan area measured up to 3.3 inches of rain within a two-hour period. DEP's rain gauge in Bay Ridge measured a peak 5-minute intensity of nearly 4.5 inches per hour. On July 18th, gauges in Northern Queens measured 2.67 inches total. Average rainfall in New York City has increased 9.9%, or over four inches per year, in the last one hundred years, but the more important issue is the potential for increasing frequency of intense storms that deliver tremendous amounts of rain in short periods of time.

Even so, events like August 8th are currently expected to remain still be highly unusual. This is why we are focusing on managing storm water as part of the solution, rather than building sewers to manage the worst storm. If transportation engineers built the roadways into and within Manhattan to accommodate the worst traffic days before the Christmas holidays, roads would use up the space for sidewalks and even buildings. Instead they design for the traffic expected on most days, trying to spread the daily peak and make special plans for traffic management on gridlock days. New York City's sewer system was similarly designed not to prevent all possible flooding, but to keep it infrequent. However, climate change is challenging old assumptions about what's required to keep disruption infrequent.

The City's drainage and sewer system consists of over 6,600 miles of pipes, the majority of which were laid before 1950. In areas of the City developed prior to 1960, such as much of Northern Queens, sewers were designed to handle up to 1.5 inches of rain per hour; in areas developed since 1960, sewers have been built to handle up to 1.75 inches of rain per hour, which is the current national design standard for sewers, intended to handle the so-called five-year storm. Engineers developed this standard based on precipitation records over the past hundred years. A five-year storm means a storm of a duration and intensity that is expected, based on probability, an

average of once every five years. But over the past 12 years, five-year storms have occurred on an average of every three years, so these designations are becoming less helpful.

Flooding happens in several ways. With very intense storms, rainwater "scours" the street like a fire hose, pushing every leaf, gum wrapper and restaurant menu down the street and on to the catch basin grates where the debris molds itself onto the grate like a mat. The debris can block the grate so successfully that water will not enter the storm sewers and instead starts to pond up around the basin, creating street flooding even before the sewer is full. When the sheer volume of stormwater and wastewater entering the system fills the sewers, excess water is unable to enter the sewer. This condition is described as the sewer being surcharged. A surcharged sewer will not accept additional flow so if a rainstorm continues after the point when the sewer becomes surcharged, that rainwater will remain above ground. Unless the excess water is absorbed by green spaces or channeled by curbs and conveyed overland to some body of water, the excess water creates street flooding that can flow off the street and into below-grade areas such as driveways, patios and basements.

Surcharged sewers can also cause sewer backups in homes and other buildings. Sewer backups occur when the level of sewer water is elevated to the level of below-grade fixtures. As the water seeks its own level, it will rise through the fixtures unless there are check valves in place. Finally, and fortunately rarely, when a surcharged combined sewer encounters a bottleneck or a counter-flow, the internal pressure in the sewer may become so great that it will push up through the catch basins and manholes.

In DEP's day-to-day operations, we seek to keep our system functioning and to improve its function in two ways: We clean and maintain our sewer and drainage systems to keep them in a state of good repair; and we plan and build both traditional infrastructure and BMPs for managing storm and waste water.

To maintain New York City's elaborate system of sewers, DEP relies on a workforce of laborers, supervisors and engineers who design and carry out a sewer maintenance program. Sewer maintenance includes a wide variety of tasks, such as: cleaning catch basins; performing high-powered flushing of sewers; degreasing; inspecting sewers in person or with cameras; removing sewer debris; and excavating streets to repair broken sewers. Often

problems are isolated situations that are readily solved with these methods. However, some problems, though seemingly localized, can indicate that a maintenance solution or a capital project to improve sewer infrastructure miles from the problem may be necessary. Solutions such as this may require analysis and study before correct solutions can be identified and implemented.

Some of our sewer maintenance activities are pro-active. For example, we have a program of thoroughly inspecting all of the City's 120,000 catch basins every three years. After the inspection, we clean the catch basin top to bottom and rebuild it -- or any piece of it -- as needed. Other sewer maintenance activities are responsive. For example, we also clean catch basins where citizens, via 311, tell us that a catch basin is clogged or dirty. Because of the size of our system, we are not able to physically inspect all of its segments as frequently as we would like. However the public and 311 allow us to pinpoint areas that need more frequent attention by reporting dirty catch basins or sewer backups. This complaint-driven process results in the inspection of nearly 80 miles of sewer lines annually by physical walkthrough and TV technology.

In addition, we have two major technological initiatives underway which we expect to greatly enhance our maintenance capabilities. First, we are currently overhauling our customer complaint and work order system so that it can provide more and better information to our field forces, making them more efficient. Second, we expect to complete a comprehensive sewer mapping project in the next 12 months. Taken together these two initiatives will improve our ability to clean and repair sewers; and, improve our ability to identify locations in the drainage system that require more extensive reconstruction or modification.

In view of the importance of New York City's drainage system, last spring the Bloomberg Administration proposed, and the City Council approved, an increase of approximately $500 million in the capital budget for the replacement or installation of sewers. In the 11-year period between FY07 and FY17, DEP projects spending $2.8 billion on building or re-building our sewer system.

I should remind Members that the entire capital budget for the water and sewer system is supported by fees paid by property owners for water and sewer service. Because 10% of property owners choose not to pay their

water and sewer bills, the revenue available to provide for sewer projects -- among other things -- is substantially reduced. This year, with no residential lien sale to back up our collections efforts, the shortfall has increased significantly.

Though flooding on August 8th occurred in sections throughout all boroughs of the City, and getting to work was difficult or impossible for many New Yorkers, Queens suffered the most widespread flooding and sewer backups. There are a number of factors that make parts of Queens more susceptible to flooding than other boroughs. These areas are mostly low lying or in neighborhoods with no storm sewers, features that create a vulnerability to flooding, which is now compounded by rainfall conditions that seem to be getting worse. Moreover, increased building has brought with it more pavement and less green space to absorb rain, so that stormwater runoff from low-density lots has increased by nearly 50% since 1950. Southeast Queens has suffered for years from increased flooding exacerbated by a rising water table.

Some of these flood-prone areas, such as Elmhurst, Springfield Gardens and Brookville, are also areas that have experienced 75% greater population increases than average for the City since 1950, when much of the sewer system was designed and the need for wastewater or stormwater capacity was much less.

Another issue that has arisen in Queens is the Jamaica rezoning. As residents know well, parts of the rezoning area are prone to residential and roadway flooding during heavy rains due to a rising water table and an incomplete drainage infrastructure. Jamaica is one of many communities in southeastern Queens experiencing similar difficulties. To improve drainage in the area, so that we can both reduce existing problems and allow new construction to occur, DEP accelerated the completion of a comprehensive drainage plan by moving it up on the design schedule and then making the construction necessary to serve this area a priority. Our goal is to complete the entire corridor from the Jamaica industrial area running south toward Baisley Pond in 10-20 years. In fact, completing the drainage infrastructure in southeastern Queens accounts for more than one-third of the Department's citywide 10-year capital plan for sewers. However, because of the size of the area being upgraded and the nature of the construction, this work will require decades to complete even with this significant expenditure.

Completing the drainage infrastructure in southeastern Queens is an important part of solving the problems of sewer backups and surface flooding. Drawing down the water table is also part of the solution. At one point, in the 1970's, the wells in southeastern Queens, owned by the Jamaica Water Supply Company, were pumping approximately 60 million gallons per day (mgd). By early 2000, DEP no longer utilized those wells. Pumping and treatment costs and the desire for water from the upstate reservoirs were the key factors behind the change. The ground water table has risen as much as 30 feet in some areas in south Jamaica. As the ground water table rises, it infiltrates our sewers, reducing capacity and flooding some basements of buildings in the area. This is a critical companion piece to the build-out of storm sewers and we consider it an equally high priority. Among other things, we plan to re-commence the Station 6 project. Station 6 is one of the wells of the old Jamaica Water Supply System and it is the location for a drinking water treatment plant that will produce 7 - 10 mgd of high quality drinking water from the ground water system. It will also have the effect of lowering the ground water table.

While DEP continues its long-term capital program to complete the drainage system serving southeastern Queens, we understand that the Jamaica community is concerned that near-term construction in the rezoned area will exacerbate existing deficiencies in the drainage system. However, safeguards have been put in place to protect existing neighborhoods and their residents. DEP and the Department of Buildings are jointly implementing a system whereby all new development in the rezoned area would need approval of drainage plans by DEP. This will enable DEP to require responsible and necessary storm water and wastewater management to minimize the impact of growth on the infrastructure while we continue to upgrade the drainage system. This would also allow DEP to monitor the exact distribution and nature of the growth in order to prioritize infrastructure needs most effectively.

More specifically, DEP is working with the Departments of City Planning and Buildings to identify sites within the project area that are likely to be built. In areas of projected growth, DEP is already undertaking a thorough analysis and inspection of the existing drainage infrastructure so that by the time builders apply to connect to our system we will be able to predict the ability of the system to handle additional flow. If DEP engineering staff members believe that a particular proposal to connect to our system would,

if approved, increase sewer backups or cause other service issues, DEP will direct the applicant to modify the proposal as necessary.

Development sites with existing impervious surfaces may also present an opportunity for implementation of BMPs as described in Mayor Bloomberg's PlaNYC. DEP is also exploring the application of BMPs for storm water management. Additionally, DEP Operations will continue to monitor conditions in the area and perform intensive cleaning of the sewer system to maintain maximum capacity. The August 8th storm brought severe flooding to areas that had not experienced flooding before, or only occasionally. The basic causes are the same, but the effect was different. Whereas water tends to pool in the flat parts of Southeast Queens, the swath of flooding farther to the north on August 8th brought large quantities of water into hilly areas where streets became conduits for fast moving flash floods, and low-lying areas became holding basins with no place to drain.

In recognition of the need for an immediate and coordinated response to worsening flooding, the Mayor's Office of Operations has convened a multi-agency Flood Mitigation Task Force for a period of six months. The Task Force, which met for the first time this past Friday, will develop a comprehensive, citywide plan to address flood mitigation, and propose and implement immediate and near and long-term recommendations.

The group includes, in addition to representatives from the Office of Operations and DEP, the Department of Transportation, the Department of Buildings, the Department of Parks and Recreation, the Department of Design and Construction, the Office of Emergency Management, the Community Assistance Unit, and the Office of Long-Term Planning and Sustainability. We will also be requesting participation from the Department of Sanitation and the Department of Information Technology, as 311 plays a critical role in identifying problem spots for immediate response, and in communicating with the public.

Among the first tasks of the Task Force will be to develop an emergency flood response plan, drawing on existing hurricane response plans, an outreach and education plan to highlight measures that would lessen the impact of flooding on individual homeowners, and development of a flooding "hotspot" mitigation plan, drawing on the resources and expertise of all task force agencies.

Within 30 days, the Task Force will develop draft plans for addressing the first two tasks, with final plans ready in 90 days. The "hot spots" draft plan will be ready in 90 days with a final plan in 120 days. The Task Force will focus its work on in depth investigation of the types of problems identified in Queens, and from that develop solutions that are applicable and effective throughout the city. It will also assist participating agencies in integrating practical solutions, such as discrete operational changes, such as street grading and street sweeping, with capital project priorities.

As the Task Force will be developing coordinated, citywide plans, DEP will continue to develop and implement its immediate, near, and long-term action plan. We will enhance our inspection program to include increased physical inspections in flood-prone areas and implement flow monitoring studies throughout the Queens sewer system. We will measure sewer flows for a year to better understand the causes of the problems and assess where infrastructure should be altered. We will also increase inspection of trunk sewers to minimize systemic problems that might contribute to localized flooding. Finally, our enhanced sewer and catch basin cleaning program will include more targeted cleanup of flood-prone locations and closer coordination with the Department of Sanitation on problem areas.

DEP with Task Force members will be organizing outreach events to disseminate this information. Home and building owners can help prevent sewer backups (SBUs) by installing check valves or ejector pumps (sump pumps) for basement plumbing fixtures. Many homeowners do not know that these are required under the Building Code to prevent sewer backups. Large buildings can suffer SBUs independent of the City's sewer system because they are fitted with combined sanitary and storm drains. These can be separated to prevent SBUs.

In addition to the above strategies, we will be analyzing the way wastewater and stormwater drain in order to determine where high-level storm sewers would effectively attenuate flooding. High level storm sewers are a way to alleviate pressure on the combined sewer system and limit CSO events. High level storm sewers are designed to capture 50% of the rainfall before it enters our combined pipes and divert it directly into the waterways through permitted outlets, thereby reducing the volume of flows that pass through the combined sewer system and the treatment plants. In addition, they alleviate street flooding in problematic areas. We will also install new catch basins where feasible to increase intake, and work with DOT to change street

grades, build up sidewalks or build berms to channel the flow of water on the street.

As mentioned before, in addition to continuing with our capital program of sewer infrastructure build-outs we will be developing and implementing best management practices (BMPs), which are techniques to reduce the amount of rainwater entering the sewer system during wet weather. BMPs can reduce pressure on the sewers by containing stormwater runoff or slowing its flow.

Where there is sufficient open space near naturally occurring watercourses in the City it is possible to implement an array of BMPs collectively known as Bluebelts, which drain built areas into undeveloped areas, thereby serving as natural storm drainage. The Bluebelt program is designed to utilize and leverage natural drainage corridors including streams, ponds, and other wetland areas to convey, treat, and detain stormwater prior to its release into the harbor.

Using the Bluebelt approach to enhance these natural functions, DEP has enhanced the natural environment to become a more effective holding tank; reengineering a wetland in the shape of a snake to slow down water flow; planting vegetation to absorb and filter impurities out of the water system; and positioning rocks so that the water bubbles over it, thereby adding air into the streams.

There are three locations in Queens where we will implement Bluebelt strategies. In Udalls' Cove and Brookville Boulevard West, we will install basins to catch storm water from the surrounding neighborhoods in Queens before it travels into Little Neck Bay and Jamaica Bay. We will dredge 3.5-acre Springfield Lake, located within Springfield Park in southeast Queens, and enhance it with new tidal marshes and other drainage-related improvements. This will solve ongoing flooding problems, while decreasing algae blooms in the lake and improving water quality in Jamaica Bay. At Baisley Pond, a 40-acre freshwater pond in south Jamaica, we will alleviate flooding problems and improve ground water conditions by incorporating natural water retention and filtering strategies.

Bluebelt techniques are difficult to implement in areas where there is a lack of available land in proximity to watercourses, but DEP is working with the Department of Parks and Recreation to identify possible locations.

Other types of BMPs are suited for densely built areas. In conjunction with the Gaia Institute and the Department of Parks and Recreation, DEP will be implementing a pilot of improved tree pit design, which will be monitored for effectiveness and wider application. New York City street trees are often planted in small confined pits that limit the amount of storm water that can be captured. Trees planted in cramped pits can either die or damage the sidewalk as they grow. Improving the design and size of the tree pit will confer the dual benefits of improving the chances for the tree's survival and retaining storm water. Installing underground storage areas and using structured soils will expand the volume of storm water captured by these redesigned pits. Structured soils have more air space and can be used in trenches between trees, under sidewalks or under porous pavement.

BMPs include a number of other strategies, such as vegetated swales and greening of parking lots. Vegetated ditches (called swales) are linear, dry ditches designed to receive runoff and slowly move rain to an outfall point along our waterways, absorbing water along the way. They are especially effective when located adjacent to parking lots, streets, parkways or highways or when used as a median. In addition to storing direct rainfall and reducing storm water volumes entering the combined sewer system, swales provide natural cleansing of runoff through the soil and vegetation.

The addition of trees and landscaping to parking lots offers a feasible and cost-effective means for the private sector to work with the City in curbing storm water runoff and potentially decreasing CSO events. Increased landscaping, along with storm water detention and retention, could slow down the rate at which water enters the sewer system; that will enable New York's combined sewer system to treat a higher percentage of storm water. Vegetated and gravel buffer strips along the edge of landscaped areas or surrounding detention infrastructure can also help filter pollutants from water.

BMP strategies that can be put in place by individual property owners include blue roofs and rain barrels that detain runoff until after sewer levels recede, and temporary or permanent berms, which can serve as street barriers to "walls of water" that would otherwise run onto private property.

Finally, I would like to give you an idea of what we expect to accomplish in the immediate, near and long terms. By the end of 2008, we expect to have accomplished the following tasks:

- Analyze catch basin placement and design to ensure optimal storm capture
- Implement flow monitoring study to measure sewer flows for a year to better understand cause of flooding problem and assess where infrastructure should be altered. Within 18 months, we should have a clearer sense of exactly how this flooding occurred and can begin evaluating long-term attenuation strategies
- Analyze the way wastewater and storm water drain, and determine in what areas of the high-level relief sewers would effectively attenuate flooding
- Begin the process of installing tide gates in Northwest Queens outfalls
- Complete the Phase II Drainage Plan for Southeast Queens
- Commence sewer projects in Southeast Queens: Brookville West, Springfield Gardens Phase D, Somerville and some small multi-location projects to solve localized flooding in CB's 12 and 13.
- Reinitiate Station 6 design
- Start up the Station 24 wells
- continue the mid-Island Bluebelt acquisition

Over the next three years, or by the end of 2010, our goal is to accomplish the following milestones

- Complete the tree pit pilot
- Commence construction of the Baisley Pond and Springfield Lake Bluebelts/drainage projects
- Complete acquisition of land for one or more of the Staten Island mid-Island Bluebelts
- Substantially complete the Coney Island sewer replacement program
- Implement an enhanced inspection program which will include:
    - Sewer mapping and modeling program to allow for more accurate and faster analysis.

    - Increased physical/staff inspection of sewers in flood prone areas
    - Increased inspection of trunk sewers to minimize systemic problems that might contribute to localized flooding
- Pilot (public and private) Best-Management Practices (BMPs) projects:
    - DEP will initiate design in 2008 and begin construction in 2008-2009
    - DEP will monitor effectiveness of pilots to guide further use of the strategies
    - City (public) Strategies:
        - Building vegetated street swales, permeable pavements and/or tree-pits to retain storm water and prevent it from entering sewers
    - Individual (private) strategies:
        - Implementing blue roofs and/or rain barrels: Systems for detaining water would keep run-off out of systems until after sewer levels had receded (needs testing)
        - Berms (Temporary or Permanent): These alterations of the street infrastructure would serve as barriers to potential "walls of water"

Finally, following are highlights of our post-2010 milestones:

- Complete the build-out of the Southeast Queens system
- Complete the construction of Station 6
- Complete construction of the mid-Island Bluebelts
- Build new capacity in existing systems where needed (e.g., Yellowstone Boulevard)
- Implement BMP's on a broader scale citywide
- Climate Change
    - Begin integrating climate change projections with engineering and design process to ensure all new infrastructure reflects climate change considerations.

With the comprehensive program I have outlined for you today, New York City will be better prepared to meet the current, unprecedented challenges.

Thank you for the opportunity to testify. I will be glad to answer any questions you may have.

FAIRVIEW OWNERS CORPORATION

61-20 Grand Central Parkway • Forest Hills, New York 11375
Office (718) 271-1378 Fax (718) 699-5618

Oversight - Rising Waters: What Can the DEP Do About Flooding?

September 24th 2007

Good day Chairperson Gennaro, Council Members and Council staff of the committee. I am Gregory J. Carlson, managing agent for the Fairview Owners Corp a 14 storied, 425 unit cooperative in Forest Hills Queens. The complex is located on the east side of the Long Island Expressway (Horace Harding Expressway) and the Grand Central Parkway service road. The building sits across from Flushing Meadow Park and various city playgrounds.

The rains of July 18 and August 8th devastated our complex especially the August 8th rain, where as of this date approximately $350,000.00 of damage occurred and we are still uncovering more. The rain flooded four occupied apartments, the management office, two lobby apartments and the plant equipment that provides hot water, air conditioning and elevator service. The street was closed and residents were captured in their apartments. I could go into the hardships this imposed but I am sure the committee will hear tales equal or much greater then mine.

Mine is a simple story. While others will testify that the capacity of the storm drain system were overwhelmed or the storm drain system is undersized, our area has no storm drainage system. We have what is known as only seepage basins. Once these basins are filled, they overflow into the street and into our building. In 1991 when learning about this problem, I along with ours in the area lobbied for a true storm drainage system. After many years and with the magnificent efforts of former council member Morty Povman, in 1998 the area was awarded to finally get a storm drainage system. (Capital Project SEQ002513/200328). We thought our prayers were answered.

What year is this??

It has been almost 10 years and the area is still without a drainage system. For ten years excuses after excuses were given. Five false start up dates given. What can I do but to be outraged with the agency which over sees this project. In the beginning DEP was great about seeing that our seepage basins were kept clean. We saw them cleaning on a regular basis. As time went on this practice became less and less even though the agency knew the area was prone to flooding. Numerous calls were made that Wednesday to DEP and an answer finally came over the weekend with a voice mail saying "You know we had a lot of rain".

After years of frustration and broken promises, the Fairview Owners Corp Board of Directors authorized the cooperative to commence a lawsuit against the City which has acknowledged a deficiency in our area of a storm drainage system. Finally I pose this question, why is the building paying for full sewer rates when it only is receiving half at best and the half does not work at full capacity. The systems are working so poorly that it is like not having any. For this reason our building has endure water logged apartments causing residents to abandon their homes, damaged building equipment needed to run the cooperative efficiently. We have waited long enough for something to be done so we do not have to cringe every time it rains.

Thank you.

Respectfully submitted,

Gregory J. Carlson
Managing Agent
Fairview Owners Corp

RIVERKEEPER®

Testimony of Craig Michaels, Investigator
Riverkeeper, Inc.
"Oversight-Rising Waters: What Can the DEP Do About Flooding"
Hearing Before the Council of the City of New York
Environmental Protection Committee
September 24, 2007

Riverkeeper is a non-profit environmental organization that works to protect the Hudson River and the New York City drinking water supply. We are also part of the SWIM coalition (Storm Water Infrastructure Matters), a broad coalition of environmental groups working to promote better stormwater management throughout the City.

Given the predictions from scientists around the globe that the frequency and severity of storms will increase as temperatures continue to rise, and given that the 5 boroughs of New York City continue to see increased development and an ever-increasing population, flooding in New York City is unfortunately not a problem that is about to go away. In order to properly deal with this problem, the Department of Environmental Protection (DEP) will need to work with all city agencies to take a fresh look at how the City manages stormwater. Ultimately, city agencies will need to implement an approach that controls stormwater at the source, not at the end of the pipe.

It takes only as little as one-twentieth of an inch of rain to overload the New York City sewage treatment system, which combines sewage from buildings with stormwater from our streets. Historically, DEP has focused its efforts primarily on expensive end-of-pipe controls, while more cost-effective source control approaches, which could keep stormwater out of the sewer systems in the first place, have been largely ignored. Indeed, there is a massive imbalance in terms of spending, with hundreds of millions of dollars spent on end of pipe solutions, and virtually no real budget for source control technologies.

In order to abate future flooding problems, DEP needs to concentrate on directing as much rainwater as possible away from the overflowing sewer systems, where it quickly overloads the lines and triggers not only flooding in the streets and homes of area residents, but leads to raw sewage overflows into our creeks and rivers, also know as Combined Sewer Overflows, or CSOs.

The overarching problem with the end-of-pipe approach is that floods happen at the source: where the rain hits the streets. So spending millions on end-of-pipe improvements is basically a band-aid solution, and it certainly will not help residents in areas that are prone to flooding. While it may be cost prohibitive to expand sewer lines, it may be cheaper and more effective to implement source control technologies like greenstreets.

Fortunately, source control technologies are beginning to get the attention they deserve. As part of Mayor Bloomberg's PlaNYC, an inter-agency Task Force will be focusing on how and where Best Management Practices (BMPs) can be implemented to reduce stormwater impacts throughout the City. BMPs are economically sound alternatives that can reduce the volume of stormwater entering the system. Examples of BMPs include: street trees, greenstreets (smaller vegetated areas on streets); green roofs to

capture and/or detain run-off from buildings; tree pits designed to retain water for absorption by trees; and the use of porous pavement in area parking lots. Any excess stormwater that is not captured by source controls then enters the sewage system for eventual treatment.

Source control systems work and the EPA endorses the effectiveness of source control. Cities across the country, including Chicago, Milwaukee, Pittsburgh, Portland, Seattle, and Washington D.C. have recognized the effectiveness of source control and have implemented programs in an effort to control CSOs.

In addition to implementing source controls, the City needs to ensure that new developments planned for the 5 boroughs are required to implement "no-net stormwater runoff" designs. Our streets and buildings can and should be greener, and the City should be investing in more environmentally sustainable designs. The City is working towards this and what the citizens of New York City need right now from our elected officials is strong political support behind source control. Although source control will not eliminate flooding, certainly not from a severe storm like the one we witnessed in August 2007, it does have the possibility to reduce the intensity of flooding or perhaps delay the onset of floods during storm events, much more so than any end-of-pipe solution.

The leaders of this City owe it to the local residents to start thinking differently about stormwater. Indeed, the report issued by MTA last week recommends a broad systematic approach in order to avoid future flooding problems, which specifically includes source control methods such as greenstreets and green roofs. *See* MTA Report at 25. The report notes that many of these changes will "require a change in the institutional culture to include a range of professions and stakeholders involved in the planning and decision process." *Id.* Moreover, the report urges that costs and benefits be analyzed "not only monetary terms, but also in terms of environmental and community sustainability." *Id.*

It is time for the leaders of this City to rise to the challenge, to listen to the needs of local residents, to look at the most cost-effective and environmentally sound ways to address the stormwater problems we face, and to implement long-term solutions that employ new and greener technologies.

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Riverkeeper is a non-profit environmental organization dedicated to protecting and restoring the Hudson River Estuary, New York City's upstate drinking water reservoirs, and the rights of all New Yorkers to clean communities and a clean environment. Since 1965, we have brought hundreds of environmental lawbreakers to justice, forcing more than $1 billion in fines and remediation projects.

Contact:
Craig Michaels, Riverkeeper, Inc., 914-478-4501 x230, cmichaels@riverkeeper.org

Resources:

Sustainable Raindrops: http://riverkeeper.org/special/Sustainable_Raindrops_FINAL_2007-03-15.pdf

SWIM Coalition: http://bronxriver.org/swimmableNYC.cfm

MTA August 8, 2007 Storm Report: http://www.mta.info/mta/pdf/storm_report_2007.pdf

PlaNYC: A Greener, Greater New York: http://www.nyc.gov/html/planyc2030/html/home/home.shtml