



# PROGRESS REPORT 2013

A GREENER, GREATER NEW YORK



The City of New York  
Mayor Michael R. Bloomberg

This page left blank intentionally



# PROGRESS REPORT 2013

<b>Foreword from the Mayor</b>	2
<b>Introduction</b>	3
<b>Housing and Neighborhoods</b>	10
<b>Parks and Public Space</b>	14
<b>Brownfields</b>	17
<b>Waterways</b>	20
<b>Water Supply</b>	24
<b>Transportation</b>	28
<b>Energy</b>	31
<b>Air Quality</b>	37
<b>Solid Waste</b>	40
<b>Climate Change</b>	44
<b>Emerging Policy Area: Food</b>	49
<b>Conclusion</b>	52
<b>Sustainability Indicators</b>	54
<b>Implementation</b>	56

**A GREENER, GREATER NEW YORK**

# Foreword by Michael R. Bloomberg Mayor of New York City

Seven years ago, we created a division of sustainability in the Mayor's Office. From that tiny seed, the vision of a "greener, greater" city took root. In PlaNYC, we sought to address numerous challenges to the city's growth: How would we enable up to one million new residents live, work, and play in a city that was already congested and brimming with activity, while, at the same time, in a city with over 520 miles of coastline, adapt to and mitigate the growing risks of climate change.

We've come a long way since we launched PlaNYC six years ago. The air that New Yorkers breathe is cleaner than it's been in decades, and will become cleaner still as we end the burning of heavy fuel oil in buildings. New York Harbor and its tributaries are healthier than they've been in a century, and they'll become cleaner still thanks to our investments in innovative, stormwater-absorbing bluebelts and green infrastructure. We've set our sights on doubling New York's recycling rate over the next four years, and just last month we made it possible for New Yorkers to start recycling all rigid plastics—the largest expansion of recycling in almost 25 years. We have passed the 750,000 mark in our campaign to plant a million new trees. We are implementing the most ambitious "green buildings" laws in the nation. And we're more than halfway to our goal of shrinking the city's carbon footprint 30% by 2030.

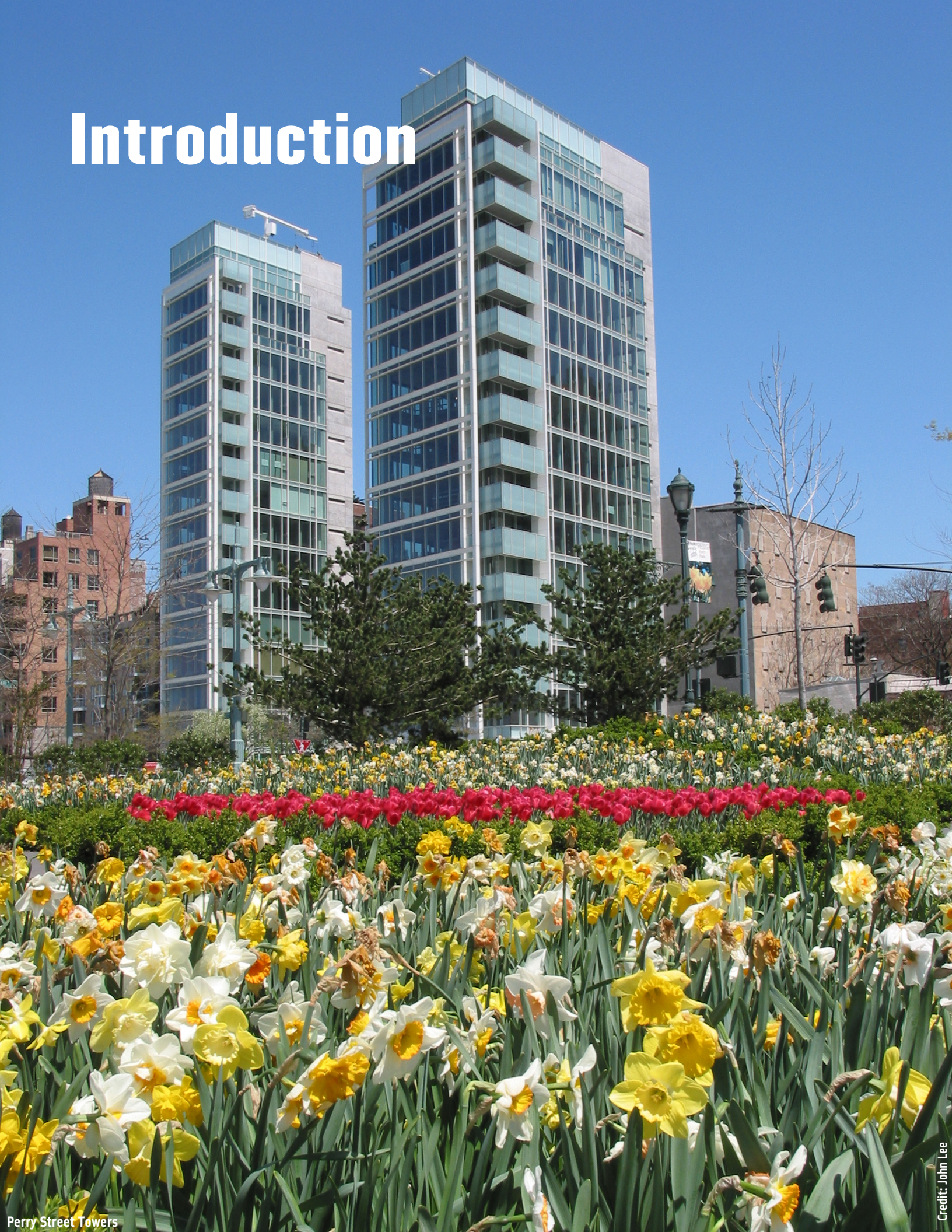
None of these achievements would have been possible without the efforts of hundreds of people at more than a dozen City agencies to make sustainability part of the DNA of the City's operations. Using rigorous data and analysis and the best science we have focused on cost-effective investments made in partnership with communities and the private sector. The results are policies—like new stormwater management standards that will drive green infrastructure investment; and public-private partnerships like Clean Heat that have overwhelming public support.

Our city faces renewed challenges today as we recover from the damage and disruption caused by Hurricane Sandy. Despite years of learning and preparation, we are sobered by the "new normal" that climate change is producing in our city, including more frequent and intense summer heat waves and more destructive coastal storms like Hurricane Sandy. We can't know that the future will not repeat the past, so we must prepare on all fronts. However, we can say this with confidence: we will mobilize the same spirit, ingenuity, and accountability to make New York a greener, greater, more resilient city.



Michael R. Bloomberg, Mayor

# Introduction



In 2007, Mayor Michael R. Bloomberg launched PlaNYC, an unprecedented and ambitious agenda to create a greener, greater New York. Since then, we have made remarkable progress toward achieving PlaNYC's goals, yet numerous opportunities remain to build on PlaNYC's successes and to ensure the continuity of our efforts. PlaNYC's 2011 update contained 132 initiatives to improve New York City's environment, provide more housing and public space, enhance New Yorkers' quality of life, improve the City's infrastructure, and increase the city's resilience to climate change. PlaNYC has changed New York City dramatically since 2007, and we reached major milestones over the last year as we continued to accelerate our efforts.

In the last six years, we have implemented numerous innovative initiatives, including the City's Greener Greater Buildings Plan, Clean Heat program, climate resilience initiatives, Million Trees program, Green Infrastructure Plan, and more. During this time the city's annual greenhouse gas (GHG) emissions have dropped 16%—more than halfway to our goal of a 30% reduction by 2030.

In just the last year, we reopened the McCarren Park Pool, developed updated climate impact projections, expanded the Select Bus Service, planted more than 65,000 trees, passed our Zone Green Zoning Text amendment, broke ground on the High Bridge, and implemented many new programs.

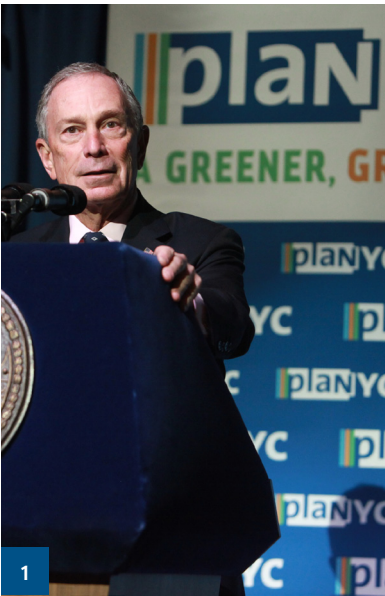
The transformative changes brought by PlaNYC are the product of contributions of many, both within and outside of City government. When we launched PlaNYC, we envisioned a City government that integrated sustainability into all of its agencies and their operations—since 2007, many City agencies have institutionalized PlaNYC through the establishment of agency sustainability divisions and the appointment of senior staff members responsible for more than seeing PlaNYC's initiatives. PlaNYC guides the work of many agencies and is a driving force for many elements of the City's budget. We now spend 10% of our annual energy budget—approximately \$80 million—on funding energy efficiency measures in City government buildings.

We have based PlaNYC's initiatives on robust data and analysis, incorporating the best available science and focusing on cost-effective actions—we

cannot manage what we do not measure. Partnerships with the city's real estate, business, not-for-profit sectors, and other levels of government have increased coordination and expedited the achievement of the plan's goals. PlaNYC has evolved since its inception, and its ongoing success will require continued and additional coordination and innovation—the ability to adapt PlaNYC and its implementation strategies is paramount.

Since 2007, we have implemented initiatives that have put us on track to achieve all of PlaNYC's goals. We have created and preserved more than 92,000 units of housing and planted more than 730,000 trees. We have launched the country's first municipal brownfields cleanup program and an innovative green infrastructure program. We have invested billions of dollars to protect our water supply and have installed 300 miles of bike lanes. We launched the country's most ambitious suite of policies to reduce energy use in large buildings, passed regulations to phase out highly polluting fuel oil, and expanded our recycling program. We have achieved more than half of our greenhouse gas emissions reduction goal and have taken critical steps to increase our city's resilience to the effects of climate change. Over just the last year, we have accelerated the implementation of many of PlaNYC's initiatives, making marked progress toward achieving our goals.

PlaNYC is the world's standard for municipal sustainability plans and cities throughout the world are emulating our work. While almost all of PlaNYC's initiatives are now underway and we are well on our way to achieving most of our goals, it is critical to remember that this is a long-term plan, one designed to be implemented overtime as our city's population grows and we adapt to accommodate more New Yorkers. As such, it is imperative that we continue to revise our plan and learn from our experience over the last six years. We must recognize those efforts that did not achieve success to learn where we could amend our approach. We need to evaluate our initiatives to determine which are still relevant, and what new initiatives might be worth pursuing. Most importantly, PlaNYC must continue to drive innovation and inspire creative solutions to make New York City a greener, greater city as new leadership guides us closer toward our 2030 targets.



1



5



10



17



6



11



18



2



7



16



19



3



8



12



15



4



9



13



14

## 2007

1 PlanNYC released 2 Birdie launched MillionTreesNYC 3 Finalized Rehabilitation of Croton Reservoir 4 Opened 1st public pedestrian plaza in Dumbo 5 Launched GreenNYC 6 Planted 1st tree of the Million Trees program 7 Signed Executive Order 109 by Mayor Bloomberg, requires City to invest 10% of its energy bill to fund GHG reduction projects 8 Broke ground of No. 7 subway line 9 69<sup>th</sup> schoolyard opened as playground 10 Mayor announces that the City will use biofuel to heat City buildings 11 NYC Universities joined Mayoral Challenge to reduce greenhouse gas emissions 30% in ten years 12 City Council passes Jamaica rezoning 13 City Council passed LL 55 to codify greenhouse gas emissions reduction targets 14 TLC passed taxi regulations requiring all new yellow cabs to be fuel-efficient

## 2008

5 Broke ground on Croton filtration plant 6 Opened pier at Manhattan Ave., Brooklyn 7 Launched Greener, Greater Buildings Plan 8 Broke ground on expansion of the Number 7 subway at 11th Ave 9 Mayor Bloomberg addressed UN on climate change 10 Opened the New York City Office of Environmental Remediation 11 Launched the New York City Community Air Survey 12 Approved 21 transit-oriented rezonings 13 Launched the Green Codes Task Force 14 Started Select Bus Service 15 Released the Sustainable Stormwater Management Plan 16 Signed legislation requiring ULS diesel fuel in City owned ferries 17 Broke ground on Catskill Delaware UV Disinfection Facility 18 Convened NYC Panel on Climate Change and the Climate Adaptation Task force 19 Expanded Mayor's Carbon Challenge to hospitals

## 2009

10 Launched NYC's first commercial net-metered solar electric generating system in Brooklyn 11 Opened Times Square pedestrian plaza 12 Launched Summer Streets Program 13 Continued construction of No. 3 Water Tunnel 14 25 Broadway theaters switched to energy efficient bulbs 15 DPR engaged with students to create a design for a new playground at PS 69 16 91<sup>st</sup> schoolyard opened as playground 17 Launched the Greener, Greater Buildings Plan 18 The NPCC released the city's climate projections 19 Installed more than 80 miles of bicycle lanes 20 "Greened" 15% of city taxi fleet 21 Achieved halfway goal of affordable housing development - 82,500<sup>th</sup> unit 22 Construction commenced on CSO detention holding tanks 23 "Green Light for Midtown," launched 24 Installed Automatic Meter Reading devices for drinking water



20



28



34



22



21



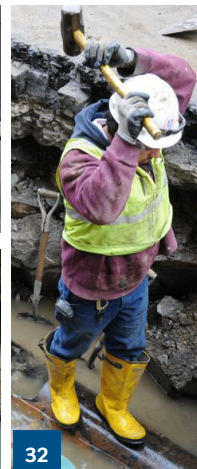
23



26



27



32



33



31



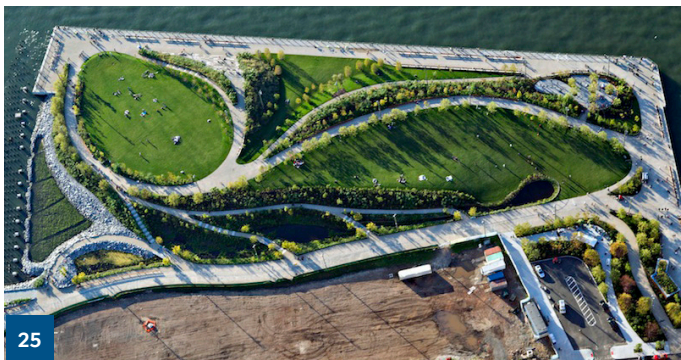
24



29



35



25



30



36

## 2010

17 Acquired new land in the Delaware watershed to protect drinking water supply 18 President Clinton and Mayor Bloomberg speak at the UN 19 NYC Service expanded volunteer opportunities 20 Promoted recycling in Times Square to help reach 30% diversion goal 21 Launched New York City Brownfield Cleanup Program 22 113<sup>th</sup> schoolyard opened as a playground 23 High Line open to pedestrians 24 Coated 1,000,000<sup>th</sup> square foot of “cool” roofs □ Released NYC Green Infrastructure Plan □ Released Green Codes Task Force recommendations □ Enacted a clean air law for school buses □ “Greened” 25% of city taxi fleet □ Implemented Staten Island Bluebelt Project □ Constructed 53 Greenstreets □ Mayor Bloomberg addressed Climate Change in Keynote Address at C40 Climate Leadership Summit in Hong Kong

## 2011

25 Opened Pier 1 at Brooklyn Bridge Park 26 Launched Taxi of tomorrow 27 Launched Bike share pilot program 28 29 Built or preserved more than 115,000 affordable housing units to date 30 Planted 500,000<sup>th</sup> tree of the NYC Million Trees Program 31 200<sup>th</sup> schoolyard opened as a playground □ Released PlaNYC update □ Expanded the Bluebelt □ Enacted NYC regulations to phase out heavy heating oils □ Issued 500 new Green Carts permits □ Launched NYC Energy Efficiency Corporation (NYCEEC) □ Launched two “Sustainable Communities” planning studies □ Completed the Alley Creek and Paerdegat CSO detention facilities □ Introduced first 20 mph neighborhood slow zone □ Announced goal to divert 75% of the solid waste from landfills □ Launched the East River Ferry

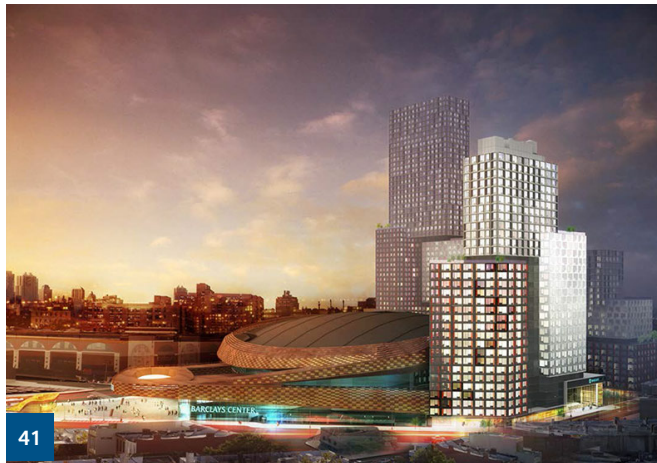
## 2012

32 Construction continued on the 2<sup>nd</sup> Ave subway Line 33 Completed second stage of No. 3 Water Tunnel 34 Completed first remediation under NYC Brownfield Cleanup Program in the Bronx 35 Mayor Bloomberg and Secretary Salazar joined forces to manage 10,000 acres in and around Jamaica Bay 36 Planted seeds at the groundbreaking of the final section of the High Line □ Launched Clean Soil Bank □ Passed Zone Green Zoning Text amendment □ Launched Five Borough Taxi Plan □ Expanded NYC Clean Heat program and announced financing resources for building owners □ Surpassed halfway point for goal of 30% reduction in greenhouse gas emissions by 2030 □ Launched Special Initiative for Rebuilding and Resiliency (SIRR)





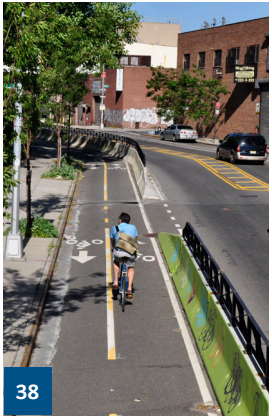
37



41



43



38



42



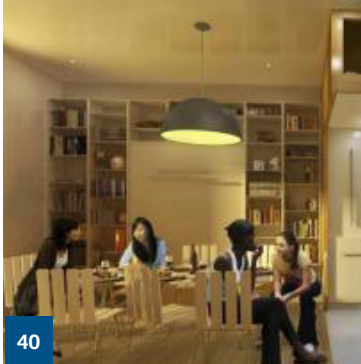
44



39



45



40



47



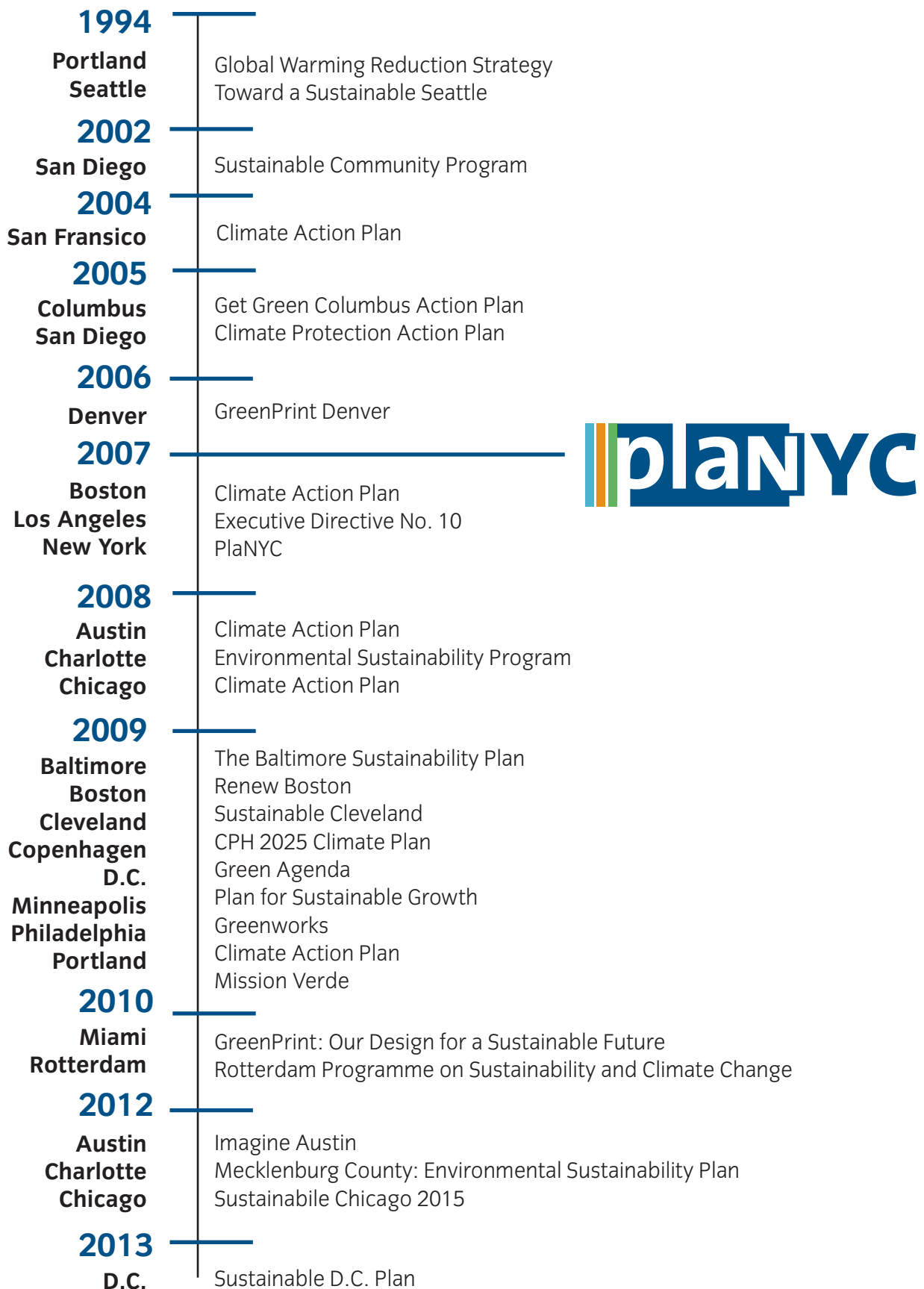
46

# 2013

37 Opened McCarren Pool 38 Opened 300 miles of bike lanes since 2007 39 Expanded Mayor's Carbon Challenge to Commercial Offices 40 Announced Winner of adaAPT NYC, micro-units housing pilot 41 Opened Barclays Arena in Atlantic Yards 42 Planted 129 new community gardens 43 Mayor Bloomberg signed bill to increase the use of native plant species in NYC parks 44 Launched Food Waste Challenge 45 Achieved half-way point to NYC Clean Heat air quality goal 46 Opened all city beaches after extensive Post-Sandy Restoration Work 47 Launched CitiBike bike share program

- Expanded recycling to include all rigid plastics
- Broke ground on Hunter's Point South
- 750,000 trees planted as part of Million Trees NYC
- 229<sup>th</sup> schoolyard opened as a playground
- Broke ground on High Bridge park
- Added 300 new acres of parkland
- Coated 3.5 million square feet of cool roofs
- Launched program to reduce carbon emissions 80% by 2050

# Timeline of Municipal Sustainability Plans



# Progress

## Our goals for achieving a greener, greater New York



### Housing and Neighborhoods

Create homes for almost a million more New Yorkers while making housing and neighborhoods more affordable and sustainable



### Parks and Public Space

Ensure all New Yorkers live within a 10-minute walk of a park



### Brownfields

Clean up all contaminated land in New York City



### Waterways

Improve the quality of our waterways to increase opportunities for recreation and restore coastal ecosystems



### Water Supply

Ensure the high quality and reliability of our water supply system



### Transportation

Expand sustainable transportation choices and ensure the reliability and high quality of our transportation network



### Energy

Reduce energy consumption and make our energy systems cleaner and more reliable



### Air Quality

Achieve the cleanest air quality of any big U.S. city



### Solid Waste

Divert 75% of our solid waste from landfills



### Climate Change

Reduce greenhouse gas emissions by over 30%

Increase the resilience of our communities, natural systems, and infrastructure to climate risks



## Housing and Neighborhoods

New York City's population is projected to grow to nine million people in the decades to come and we must preserve and expand housing availability in our land-constrained, densely developed city to accommodate this growth. Prior to PlaNYC's release, we were already facing a housing crunch and we had begun to take steps to address this. The New Housing Marketplace Plan of 2003 set out to create or preserve 165,000 units of affordable housing by the end of 2014, and a comprehensive program of neighborhood rezonings was also underway. However, we recognized the need for an even greater supply of affordable, sustainable housing and so PlaNYC set a goal to create housing for up to a million new residents by 2030.

Shortly after the release of PlaNYC, the financial crisis of 2008 caused turmoil in the local and national real estate markets, dampened economic activity, and sharply curtailed the availability of real estate financing. Despite these conditions, the City made significant progress using a combination of high-impact strategies. These include guiding housing development to transit-accessible areas; redeveloping vacant, underutilized and brownfield sites to create housing; preserving government assisted housing, and creating incentives to harness the private sector's ability to produce affordable units.

Since 2007, the City has added more than 92,000 housing units and completed 55 neighborhood rezonings. Overall since 2002, the City has completed 119 rezonings, representing more than 11,000 blocks and 36% of the city's total built area. Our efforts to foster transit-oriented development over the last six years have also paid off. From 2007 to 2011, 87% of all new building permits were located within ½ mile of transit, and in 2012, this number reached 94%. We are ensuring that the city's growth provides residents with more sustainable transportation options by rezoning to focus new housing opportunities in neighborhoods with existing transit access.

We have completed several major rezonings to foster economic development. We rezoned the 125<sup>th</sup> Street corridor in Harlem, Coney Island in Brooklyn, Jamaica

in Queens, the Lower Concourse in the Bronx, and St. George in Staten Island. These initiatives were crafted to accommodate the city's growing population by providing expanded housing options and job opportunities in areas that are proximate to transit and other key infrastructure.

We continue to advance transit-oriented rezonings to direct new housing opportunities to key transit corridors, with appropriate height and bulk limits to support neighborhood character. Neighborhood rezonings completed since 2007 include the East Village/Lower East Side of Manhattan; Bedford-Stuyvesant South, Brooklyn; Williamsbridge/Baychester in the Bronx; and Sunnyside/Woodside, Queens. Each rezoning was crafted carefully and with close community involvement to meet the evolving needs of these dynamic neighborhoods.

Many new housing development projects are setting new standards for sustainable housing, spurred by our green building policy for City-financed affordable housing. The Via Verde project in the South Bronx was completed in 2011, providing 202 affordable residential units and retail and community spaces, and incorporating innovative sustainable design elements that are a model for future affordable housing. A series of gardens running from the courtyard up to a series of green roofs dissipates heat, captures stormwater, enhances insulation, and provides opportunities for vegetable cultivation and social gathering. The development is also estimated to be 30% more energy efficient than conventional housing, utilized 20% recycled material in its construction, and recycled 80% of its construction and demolition waste.

Arbor House, a 124-unit property in the Bronx that was developed by the New York City Housing Authority for low-income households, has received the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Platinum certification and the National Green Building Standard Emerald Rating for its sustainable design and energy efficient attributes. The American Cancer Society recognized Arbor House as a "Healthy High-Rise" in honor of its



100% smoke-free policy. The building utilized local and recyclable materials throughout, as well as low- and zero-VOC paints, adhesives, finishes, and sealants. The building meets NYC Active Design Guidelines to promote physical fitness and reduce obesity through providing indoor and outdoor fitness areas and by encouraging stair use. The facility also produces fresh produce on a hydroponic rooftop farm. This produce can be purchased through a Community Supported Agriculture (CSA) arrangement in which residents can purchase shares of what is grown, and 40% of the produce will be available to the community through local outreach to schools, hospitals, and markets.

The City is also creating new housing models to accommodate changing demographics in New York. New York City currently has 1.8 million one- and two-person households, but only one million studios and one-bedroom apartments. In January 2013, we announced the winner of the adAPT NYC Competition, launched in July 2012 to create a new model of housing to accommodate the growth in one- and two-person households. The 55 “micro-units” created through this pilot program are designed to optimize space in a small footprint while providing a sense of

openness. The building constructed from these units for this pilot will be one of the first multi-unit buildings in Manhattan built using modular construction, with modules prefabricated in the Brooklyn Navy Yard.

We have also undertaken several citywide policy initiatives to enhance the ways in which our neighborhoods provide for a range of services and amenities that are accessible to residents. Our Food Retail Expansion to Support Health, or FRESH initiative, provides zoning incentives to encourage grocery stores to locate in underserved neighborhoods. We issued Vision 2020: New York City’s Comprehensive Waterfront Plan in 2011, culminating a yearlong participatory planning process that involved multiple agencies and extensive public input. The Plan sets forth a new long-range vision for the city’s 520 miles of the waterfront by identifying key opportunities for improvements and outlining strategies for implementation of new citywide policies and site-specific recommendations.

To help shift the balance from private cars to mass transit and to reduce congestion we have adjusted zoning requirements in key parts of the city. In 2010, we enacted the Car Share Zoning Text Amendment,

## CASE STUDY Hunter's Point South

In March 2013, the first two residential buildings of the Hunter's Point South development broke ground at the Queens waterfront, the first phase of what will be the largest new affordable housing complex to be built in New York City since the 1970s. Hunter's Point South is the largest affordable housing development in the City's New Housing Marketplace Plan.

All 925 apartments in the two buildings that broke ground will permanently house low-, moderate- and middle-income families. We anticipate that the buildings will be ready for occupancy in 2014 with construction fully completed in 2015. When completed, the development is expected to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating.

The development of Hunter's Point South will also advance the goals of the Waterfront Vision and Enhancement Strategy, a citywide initiative launched in 2010 by Mayor Bloomberg and City Council Speaker Christine Quinn to create a new sustainable blueprint for more than 500



Hunters Point South Skyline Rendering

Credit: Hunter's Point South

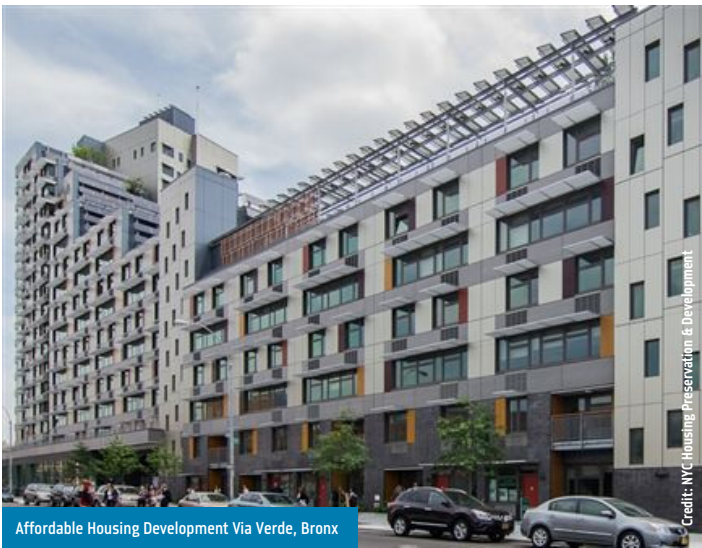
miles of city shoreline. The initiative focuses on open space, recreation, working waterfronts, housing and economic development, natural habitats, climate resilience, and waterborne transportation.

allowing car sharing vehicles to park in public parking and other accessory facilities, clearing the way for the emergence of car sharing businesses that give New Yorkers more economical transportation choices without the need to own a car. In December 2012, the City Planning Commission approved the Downtown Brooklyn Parking zoning text amendment, which reduces parking requirements in an area well served by mass transit and eliminates parking requirements for affordable units. In addition, in March 2013, the City Planning Commission approved the Manhattan Core Parking text amendment, which improves off-street parking regulations in support of sustainability objectives.

In the past year, we have reached a number of important milestones to increase the supply, affordability, and transit orientation of housing. We approved neighborhood rezonings for Bedford-Stuyvesant North in Brooklyn and West Harlem in Manhattan in 2012, and are initiating the land use review process for the Crown Heights West Rezoning in Brooklyn in 2013. These initiatives promote historic preservation, direct growth to transit corridors, and incentivize affordable housing through the Inclusionary Housing Program.

We have also advanced two major new mixed-use developments. In March 2013, we started construction of 925 permanently affordable housing units in Hunter's Point South in Queens. We released the Request for Proposals (RFP) for Seward Park in January 2013. The development of nine parcels in the Lower East Side will include 1,000 units of new housing, including 500 units that will be permanently affordable.

Through our work under a U.S. Department of Housing and Urban Development (HUD) Sustainable Communities Regional Planning Grant, we advanced studies around eight existing and proposed Bronx Metro-North station areas. The project will identify opportunities for transit-oriented development and enhanced public access to regional rail stations to better connect Bronx residents to housing and job opportunities in the borough and throughout the region. We will continue to work in close collaboration with local communities, City agencies, and the Metropolitan Transit Authority to implement recommendations generated under this project. In addition, the Sustainable East New York study has



engaged community members and local organizations to identify opportunities for land use, transportation, and other sustainability improvements in portions of East New York and Cypress Hills.

Ongoing and planned initiatives will continue to advance PlaNYC objectives for housing. Our proposed East Midtown rezoning will be the first rezoning to require an energy efficiency standard that outperforms the energy code as a prerequisite for earning additional floor area bonuses, ensuring that new buildings in this district will be on the leading edge of energy efficiency for this building type. Planned rezonings, including East Elmhurst and Ozone Park in Queens, East Fordham Road in the Bronx, and East New York in Brooklyn, will balance the creation of new housing opportunities near transit and the preservation of neighborhood character.

Increasing the climate resilience of the city's housing, especially in the process of rebuilding after Hurricane Sandy, will require foresight and coordinated interagency effort. The City has already enacted emergency changes to the Building Code and an Executive Order to facilitate the rebuilding and retrofitting of damaged buildings and construction of new flood resilient buildings. An ongoing study will create an inventory of coastal protection strategies and their potential applicability to New York City's diverse 520 miles of waterfront. Additional zoning text amendments to enable flood resilient construction will be introduced in spring 2013. We also will complete an Open Industrial Uses Study to identify cost-effective pollution prevention controls for unenclosed industrial sites and to recommend regulatory



changes and financial incentives to prevent pollution and hazards from storm surge events.

We are also seeking innovative ideas for designing more resilient and sustainable housing. In March, we launched FAR ROC (For A Resilient ROCKaway), a two-part ideas competition that will explore best practices and innovative strategies for the planning, design, and construction of resilient and sustainable developments in waterfront areas. The competition will help provide the basis of a master plan for the sensitive development of Arverne East, an 80+ acre site located in a FEMA Special Flood Hazard Area Zone A section of the Rockaways that experienced significant storm surge inundation during Hurricane Sandy.

Since 2007, we have created and preserved much needed housing while guiding new development toward existing transit corridors. As New York City's economy continues to recover and as we rebuild from the impacts of Hurricane Sandy, we must redouble efforts to ensure that we can adequately address demand for housing in our dense and dynamic city, and ensure that it is resilient to climate change as well as future economic fluctuations.



Children play at McCarren Pool, Brooklyn

Credit: NYC Parks & Recreation



## Parks and Public Space

Since the mid-19th century, New York City's planners emphasized the importance of providing ample outdoor space for recreation and nature, as evidenced by the foresighted decisions to preserve vast areas throughout the city as open space. Visionary landscape architect Frederick Law Olmsted and his partner Calvert Vaux heralded in the first great age of park development with the completion of Central Park. The two went on to create more than 1,900 acres of New York City parkland, convincing a skeptical populace that common space must be equally accessible to all citizens. Since then, the city's population has expanded dramatically, and today demand for open space significantly exceeds the available supply. With our population projected to grow to almost nine million people by 2030, we recognized the need to undertake innovative strategies to create more open space and set an overarching goal to enable all New Yorkers to live within a 10-minute walk of a park or playground.

Since 2007, the city's parks and public spaces have undergone radical changes. The City had already added more than 300 acres of parkland in the five years prior to the release of PlaNYC, but the release of the plan put into place a comprehensive set of initiatives that have transformed the city. City agencies, federal government partners, and community groups have come together to plant trees, build new regional parks, and develop creative solutions to make open space more accessible to New Yorkers to improve public health and quality of life.

The goal of a 10-minute walk to a park has served as an overarching framework to ensure all New Yorkers have a nearby place to escape to read a book on a bench or play a game of basketball. In a city with little undeveloped land, a focus of the plan is on maximizing the use of existing assets like schoolyards or large parks cut off from the surrounding communities. The City identified schoolyards as an incredible opportunity for turning existing, underused spaces into vital community resources and it has opened 229 of these spaces with input from the communities that now use them when school is not in session. The gates to the High Bridge over the Harlem River





Rockaway Park in Queens was renovated in July 2012

Credit: NYC Department of Parks & Recreation



Since 2007, the City has transformed 229 asphalt schoolyards into community playgrounds

Credit: NYC Department of Parks & Recreation

and McCarren Pool in Brooklyn had been locked for decades prior to PlaNYC as well. Now, McCarren Pool is open as a year-round recreation center and New Yorkers will be able to take in the sweeping city views from the High Bridge when it opens in 2014 as a pedestrian link between the Bronx and Manhattan.

In addition to the physical transformation of parks and playgrounds, PlaNYC catalyzed collaboration between City agencies and private partners to develop a coordinated vision for sustainability. For example, the Greenstreets program began in 1996 as a partnership between the New York City Department of Parks and Recreation (DPR) and the New York City Department of Transportation (DOT) to change unused road areas into green spaces that beautify neighborhoods, improve air quality, reduce air temperatures, and calm traffic. In 2010, the Greenstreets program became the Green Infrastructure Unit and in partnership with the Department of Environmental Protection (DEP), it took on a new mandate of helping to reduce combined sewer more overflows (CSO) and improve water quality by capturing and treating stormwater onsite.

PlaNYC also launched innovative partnerships with other levels of government. The ambitious goal to plant one million trees led to a research partnership with the U.S. Forest Service to study the environmental and social impacts of these trees. The City is developing a cohesive vision for Jamaica Bay with its federal government partners that will assemble fragments of parkland into the greatest maritime nature and recreation complex in the city.

The engagement of New Yorkers in the plan's goals will help to ensure its success and legacy. One of the hallmarks of many parks and public space initiatives revolved around extensive outreach to local constituencies and the involvement of not-for-profit partners. For example, the design of the playgrounds for the Schoolyards to Playgrounds initiative was led by the Trust for Public Land (TPL), which had been renovating playgrounds in the city for years through a participatory design process. TPL has also helped create programming and promote stewardship of these spaces at workshops.

In the past year, the City has continued to transform parkland on a historic scale not seen since the 1930s. The improvements continue to bring us closer to meeting our PlaNYC goal of having all New Yorkers live within a 10-minute walk of a park by 2030. From neighborhood playgrounds to destination parks and facilities like the Ocean Breeze Track and Field Center, the City is improving public spaces for play and relaxation in areas most in need of parkland. The impacts of Hurricane Sandy have highlighted the importance of open space and natural areas such as coastal wetlands for climate resilience. In the past year, the City has embarked on new partnerships to further protect and strengthen natural landscapes.

The City brought an additional 61,000 New Yorkers within a ten-minute walk of a park in 2012, largely by opening 19 more community playgrounds through the Schoolyards to Playgrounds program. In total, 229 new community playgrounds have opened since 2007 citywide, transforming schoolyard spaces from

## CASE STUDY

### High Bridge Park

In January 2013, Mayor Bloomberg broke ground on the restoration of the High Bridge, one of the eight regional parks being transformed under PlaNYC. The \$61 million rehabilitation of the High Bridge will reopen it for pedestrians and bicyclists in 2014 and will provide a crucial link between Manhattan and the Bronx over the Harlem River, giving Bronx residents access to the Highbridge Pool and Recreation Center and Manhattan residents access to the Bronx Harlem River waterfront.

The High Bridge is the oldest remaining bridge in New York City, spanning the Harlem River to connect the neighborhoods of Highbridge in the Bronx and Washington Heights in Manhattan. First opened in 1848 as part of the Old Croton Aqueduct, the 1,200-foot-long, 116-foot-tall High Bridge walkway first brought fresh water to New York City from Westchester County and fueled the city's northward expansion. It was closed to regular public use around 1970. Planned improvements will make the bridge more accessible and safe. The rehabilitation will follow historic preservation principles to restore the architectural details of this landmarked structure for public enjoyment.



Regional parks address the need for open space for New York City's growing population. There are currently 6.2 million New Yorkers who live within a ten-minute walk of a park or playground, an increase of 500,000 since PlaNYC launched in 2007.

underutilized asphalt lots to vibrant play areas open to the public after school and on weekends. These spaces meet New Yorkers' needs for neighborhood parks within a quick walk of their homes.

While Schoolyards to Playgrounds is about creating new public spaces, the City made significant progress in expanding recreational opportunities at existing parks. We completed the 26<sup>th</sup> asphalt lot to turf field conversion and added field lighting at 16 sites, extending usage hours and allowing for a greater variety of recreational activities. Larger "flagship parks" in every borough were upgraded. McCarren Pool in Brooklyn—closed since 1984—opened to the public in June 2012 for year-round use as a pool and brand new recreation center. We also completed new fields, sports courts, a skate park, and a climbing wall at Rockaway Park in Queens and finished the first phase of construction at Calvert Vaux Park in Brooklyn. Construction launched on the renovation and re-opening of the High Bridge and on improvements to Soundview Park in the Bronx and Fort Washington Park in Northern Manhattan.

These new parks and renovations to existing parks will provide enhanced recreational opportunities for a growing and changing city population, but it is critical to connect parks citywide to create a cohesive network. One of the challenges to achieving this is the fact that 40% of New York City's 52,000 acres of parkland are owned by other entities, mostly state and federal government. That is why we continued to work toward the re-envisioning of the 10,000 acres of public lands around Jamaica Bay in south Queens and Brooklyn. In July 2012, Mayor Bloomberg and former Secretary of the Interior Ken Salazar signed a historic agreement between the National Park Service and the City outlining how the two entities will create a seamless and interconnected network of parklands to promote visitation, education programs, scientific research, and recreational opportunities.

In addition to our focus on Jamaica Bay, we launched the Natural Areas Conservancy (NAC) to advance conservation and management of other important natural landscapes, which comprise one-third of our 30,000 acres of parkland. These areas are increasingly vital to sustaining air quality and the natural channel-

ing of storm water, as well as to the formation of neighborhood identity, increased property values, recreational opportunities, and a climate resilient city. The NAC is tasked with supporting the protection, management, and restoration of 10,000 acres of New York City forests, wetlands, and grasslands.

This conversancy will apply the lessons learned from Hurricane Sandy to further the City's climate resilience efforts. One of those emerging lessons is the importance of green infrastructure systems to complement traditional "grey" infrastructure. In the last year, we have created more street gardens known as greenstreets and bioswales to intercept rainfall from streets and sidewalks, reducing the stress on wastewater treatment facilities and helping to keep pollution from entering our waterways. Other green infrastructure systems such as coastal wetlands and sand dunes were found to minimize damage in sections of the city during Sandy and will be prioritized further in our rebuilding efforts.

Trees are also a form of green infrastructure that can reduce air pollution, improve water quality, and reduce the effects of urban heat. The MillionTreesNYC program made significant progress in 2012 and continues to advance ahead of schedule. We planted 21,650 street trees and more than 50,000 trees on parkland to restore forests. Volunteers are a critical component of MillionTreesNYC, helping to plant and care for the newly planted trees and enhancing and building awareness of the importance of ongoing tree care. Researchers at the NYC Urban Field Station continue to examine the environmental and social impacts of the campaign, while educators citywide integrate tree stewardship into existing curricula for elementary, middle, and high school students. Young street trees and reforestation trees require care in their first critical years of establishment, and with proper treatment, our urban forest can provide a multitude of benefits to New Yorkers.

PlaNYC's call to action in 2007 launched a historic transformation of parks and public spaces to address climate change and accommodate a growing city population. Over the last six years, we have planted more than 750,000 trees, opened neighborhood and regional recreation spaces, and taken steps to protect natural areas

on a historic scale. PlaNYC initiatives have brought more than 500,000 New Yorkers within a ten-minute walk of a park since 2007. However, PlaNYC is a 30-year plan and work remains to fulfill our goal of ensuring all New Yorkers live within a 10-minute walk of a park.

Maintenance and stewardship are key priorities going forward. We must also seek to increase the resilience of our parks and landscapes to the impacts of climate change, particularly as we rebuild and reinvest in them following Hurricane Sandy. The cultivation of local constituencies and community engagement around each PlaNYC initiative will also be critical to ensure the long-term success of PlaNYC. Parks are some of New Yorkers' most cherished assets. Frederick Law Olmsted, the father of landscape architecture in this country, called them "The Great [American] Experiment...a form of government in which all men are declared to be equal, in which there are no privileged orders; no ruling class." PlaNYC has helped renew Olmsted's vision in the 21<sup>st</sup> century through its focus on expanding access in an equitable and sustainable way for a growing city population.



## **Brownfields**

Prior to PlaNYC's release in 2007, no government oversight or liability protection was available for cleanup of New York City brownfield properties with low to moderate levels of contamination. This greatly limited development of brownfields, as potential developers were wary of the risk of government enforcement, project delay, and unexpected costs. As a result, these brownfields remained vacant and blighted, presenting safety and economic hardship in the communities where they were located.

PlaNYC laid out a goal to achieve the cleanup of all contaminated land in New York City and established an innovative brownfields strategy that blended economic development and community brownfield planning.



Measure of Economic Impact from NYC Brownfield Cleanup Program	
NYC BCP projects approved	97
Tax Lots cleaned up	203
New private investment	\$3.0 billion
Total new development	8.3 million square feet
New job creation – Permanent	3,100 permanent new jobs
New job creation – Construction	7,600 construction jobs
Affordable housing constructed	1,400 unit
Average vacancy of properties	18 years

The City established the Office of Environmental Remediation (OER) in 2008, and in 2009, the NYC Brownfield Law gave the City the authority to establish its own programs. A landmark agreement with the New York State Department of Environmental Conservation in 2010 provided state liability protection for developers performing cleanups under City oversight. In 2011, the New York City Brownfield Cleanup Program (BCP) was established and became the first municipally run cleanup program in the nation. To accelerate brownfield redevelopment, the City also established a series of incentives and resources including the Brownfield Incentive Grant (BIG) program; the NYC Green Property Certification program (a LEED-like certification for land cleanup); and an online environmental research engine and mapping tool, the Searchable Property Environmental E-Database (SPEED).

New York City has made enormous progress toward achieving PlaNYC’s brownfields goal since 2007, and the last year has seen particular success. The Brownfield Cleanup Program has now enrolled more than 95 projects on more than 200 individual tax lots, which

will result in cleanups that comply with New York State’s strict cleanup standards. These cleanups will enable new development that will provide nearly \$3 billion in new private investment in more than 8 million square feet of development, creating more than 3,100 permanent jobs and more than 7,600 construction jobs while providing more than 1,400 new units of affordable housing. Perhaps most informative of the value of the BCP is that these properties have been vacant, on average, for almost 20 years and almost 70% of these projects are in historically disadvantaged communities.

In parallel with oversight of cleanup and redevelopment, the City’s BIG program provides financial incentives to encourage landowners and developers to clean up brownfield sites. Thus far, the City has earmarked \$7.4 million in BIG funds for more than 95 cleanup projects, and awarded \$320,000 in BIG funds to support community brownfield planning activities. The City has also received competitive grant funding to be used for brownfield cleanup efforts, including a \$500,000 New York State Regional Economic Development Council grant in December 2012. This grant will be used to provide \$25,000

## CASE STUDY NYC Clean Soil Bank

Environmental remediation was complete at a new development in Woodside, Queens. The vacant, former brownfield would become a new nine-story, mixed-use residential and commercial building. Contamination at the site was found only in the top four feet of soil and after properly disposing of this material, only clean native soil remained. However, the developer needed to remove an additional eight feet of this clean soil to make room for development of the building's basement. At the same time the Woodside project needed to dispose of clean soil, a City project in Sunset Park in Brooklyn was seeking a source of low cost, clean soil for the development of the new Bush Terminal Park.

The New York City Clean Soil Bank has been established to facilitate exactly this type of soil recycling. The City saved \$150,000 when 3,200 tons—roughly 100 truckloads—of clean soil were trucked a short distance and donated to the public facility. The developer of the project was also able to benefit, saving approximately \$60,000 in soil disposal fees. The soil exchange between these two projects also significantly reduced the amount of miles driven to disposal facilities outside of the city and lowered truck traffic and associated exhaust emissions. The NYC Clean Soil Bank enables the recycling of valuable clean soil, saves money, and reduces the environmental impact of construction projects across the city.

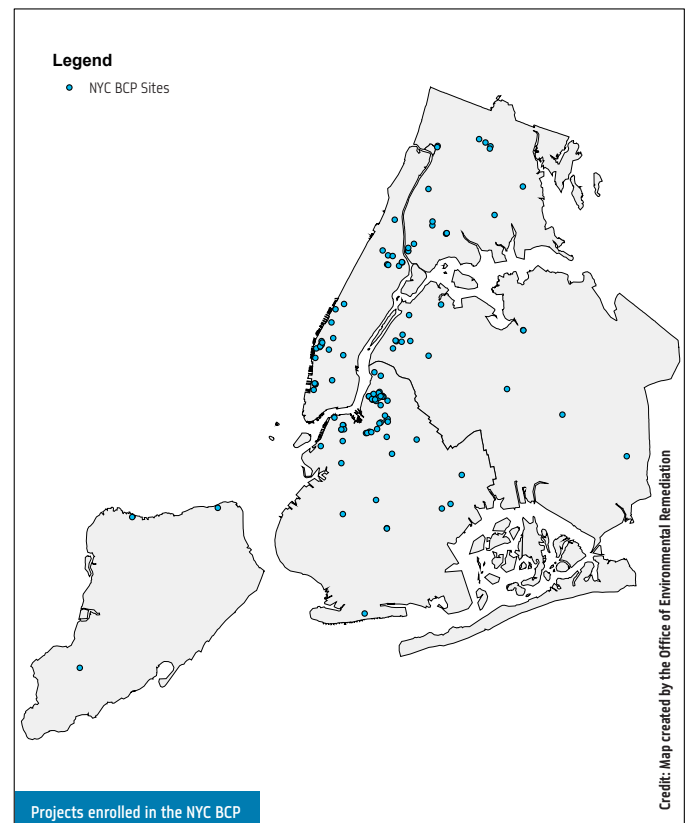


NYC Clean Soil Bank recycling site in Williamsburg, Brooklyn

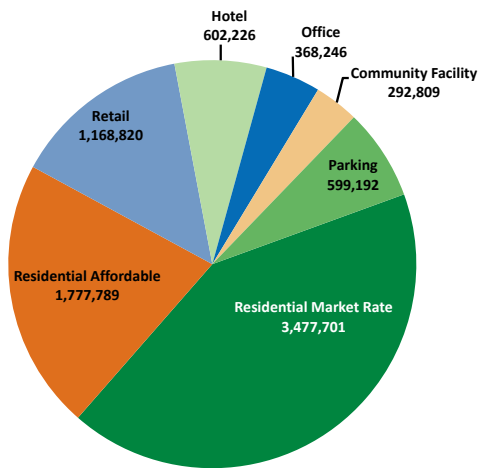
bonus grants for cleanups that are enrolled in the program and smaller bonus cleanup grants for projects that comply with local community brownfield plans and those that accelerate cleanup in tidal flood zones. Using a \$1.3 million grant from the New York State Department of State for community brownfield planning, we are establishing up to 12 new Brownfield Opportunity Area (BOA) community brownfield planning areas in NYC. The City will also develop and provide online tools and technical assistance to community brownfield planners working to implement cleanup and development plans to revitalize their neighborhoods.

The City has demonstrated innovation and leadership in establishing the nation's first municipal brownfield program. However, many additional opportunities exist to continue to work toward PlaNYC's brownfields goal. A new initiative launched this year is the New York City Clean Soil Bank, an innovative program to encourage the reuse of clean soil from deep excavations at remediated brownfield sites on other properties that need clean soil, such as City construction proj-

### New York City Brownfield Cleanup Program Sites



**New York City Brownfield Cleanup Program**  
 New Development in Square Feet, as of April 2013  
 TOTAL: 8.3M SQUARE FEET



Source: NYC Mayor's Office of Environmental Remediation

ects. There is no charge for disposal or acquisition of soil, and the program is projected to save developers and the City approximately \$5 million each year while also lowering soil transport distances and associated truck traffic and exhaust emissions.

Stabilizing and redeveloping brownfield sites will support the City's overall climate resilience efforts. New City-funded grants will be used to accelerate BCP cleanups in tidal flood zones to increase the resilience of contaminated properties that are at risk from flooding. As part of these grants, City contractors will provide guidance to developers in the form of "Brownfield Climate Change Resilience Audits." Additionally, a new section in all BCP cleanup plans will foster increased preparedness of brownfields prior to extreme storm events, and improved cleanup standards will protect communities from storm surge erosion of industrial brownfield sites along the coast.

The City has already achieved significant success in implementing the BCP, and has set in place new initiatives to achieve its goals. However, challenges remain that must be addressed to ensure continued success of the cleanup program. The City must continue to pursue statewide statutory liability release for projects completing the BCP and a state statutory waiver of hazardous waste disposal fees that are currently a powerful disincentive to cleanup of brownfield sites in the BCP. The City also continues to encourage Congress to reestablish the IRS Section 198 Brownfield Tax Deduction for cleanup of brownfield sites; this deduction expired in December 2011. By continuing to support and incentivize cleanup of the city's contaminated properties, we will realize PlaNYC's goal of cleaning up all of the brownfields in New York City.



Mayor awards first certified NYC BCP cleanup project

Credit: NYC Mayor's Office

 **Waterways**

New York City's waterways are central to our commercial, cultural, and natural heritage and are a unique feature of our world-class city. Over the course of the city's first several centuries, rapid growth and a lack of wastewater treatment left our harbor severely polluted, degrading this essential resource and creating risks to public health. By the beginning of the twentieth century, the city's once vibrant coastal ecosystems were no longer able to support wildlife, and bacteria in the water forced the City to ban bathing at area beaches. To address this public health issue, the City built its first wastewater treatment plants at Coney Island, 26th Ward, and Jamaica. These plants relied on simple mechanical processes—screening and settling—to remove solid waste from a fraction of the City's total wastewater flow. Since then, the city has invested billions of dollars over the last century to protect our waterways. As the population of the city increases and more people use the city's waterways for recreation, we will continue to develop and implement strategies set forth in PlaNYC in 2007 to achieve the highest possible water quality with the most cost-effective investments.

Today, New York Harbor is the cleanest it has been in over a century of tracking water quality data because over the past decade the City has invested more than \$10 billion in water quality initiatives, including new sewers and wastewater treatment plant upgrades. All 14 of the City's wastewater treatment plants now exceed federal standards for secondary wastewater



treatment and average harbor-wide harmful bacteria levels meet swimming standards. We have invested \$1.1 billion to remove nitrogen that can lead to algae blooms and low oxygen levels in summer and thus harm aquatic life. In 2012, we substantially completed plant upgrades at the Bowery Bay and Hunts Point wastewater treatment plants and in early 2013, we will complete upgrades at the 26<sup>th</sup> Ward and Wards Island wastewater treatment plants.

To address our greatest challenge—the city’s centuries-old network of combined sewers that lead to overflows during rainstorms—we have built a network of cost-effective infrastructure to store wastewater temporarily until the treatment plants can handle the flows. The Flushing Bay Combined Sewer Overflow (CSO) Retention Facility stores 43 million gallons of combined flow during storms and was opened in 2009, and the Alley Creek and Paerdegat Basin Facilities, with a capacity of five and fifty million gallons, respectively, were opened in 2011. Other traditional approaches to improving water quality include the Shellbank Basin Destratification Facility (2012), the Bronx River Floatables Control Facility (2012), and, this year, the Newtown Creek-Enhanced Aeration Facility in Lower English Kills and the Avenue V Pump Station.

Because additional storage facilities would have cost much more on a per gallon basis, we restructured our approach to implement innovative strategies that absorb rain before it can enter our sewers, and in the process creating corridors of greenery that shade and beautify the city. In September 2010, Mayor Bloomberg launched the NYC Green Infrastructure Plan, a comprehensive, 20-year effort to meet water quality standards and in March 2012, the plan was incorporated into a consent order with the state that will eliminate or defer \$3.4 billion in traditional investments.

Implementation of the City’s Green Infrastructure Plan continued over the last year, as we built and developed standard designs for bioswales that were approved by the Public Design Commission, and worked with DPR, DOT, and the Department of Design and Construction (DDC) to build 43 right-of-way bioswales and begin construction of 76 more. Design codes is another effective way to incorporate sustainable source controls and other forms of stormwater management within our built environment. In July 2012, we adopted a new stormwater performance standard (or “stormwater rule”) for new development and redevelopment. By slowing the flow of stormwater to the sewers, the rule allows



us to manage runoff more effectively, maximizing the capacity of the city's combined sewer systems.

We are also able to enlist partners to build green infrastructure on existing buildings and lots, which helps to beautify neighborhoods while improving water quality. In early 2011, we launched the Green Infrastructure Grant Program to fund efforts by private property owners, businesses, and not-for-profit organizations to install stormwater source controls within combined sewer drainage areas. Over the first two years of the program, we have committed more than \$6.2 million in grants and leveraged an additional \$4.2 million in matching funds from private property owners.

In 2012, we launched the Long Term Control Plan (LTCP) process to develop watershed-based plans to control combined sewer overflows. We actively involved stakeholders in the decision making process, both through traditional outreach and through a dedicated website. The City will release the LTCP for Alley Creek in June 2013, and will release ten additional LTCPs through December 2017.

We are also implementing innovative methods to generate revenue to support stormwater related expenses. In 2011, the City piloted sewer charges for stand-alone parking lots with no water service, and in 2012, the City billed more than 360 accounts. This charge targets existing private development, in conjunction with the City's stormwater performance standard. In 2012, the City used updated data to capture additional stand-alone parking lots not originally charged in 2011, and will begin billing these additional accounts in 2013. We continue to explore



other potential stormwater charges and reforms to incentivize green infrastructure further.

In 2009, the New York City Panel on Climate Change concluded that climate change would cause an increase in precipitation over the next six decades, underscoring the need to invest in sewer infrastructure. Since 2002, the City has invested \$2.2 billion to repair deteriorated or failing systems, enhancing system capacity to meet new demands from development, and expanding sewer lines into previously unsewered areas. In 2011, the City finished inspecting all 136 miles of interceptor sewers and in 2012, completed the first two-year cycle of interceptor cleaning, which will result in a reduction of combined sewer overflows of 100 million gallons per year. Last year, the City also began numerous projects to construct or repair sewers and water mains, and completed the inspection and repair of all 584 tide gates, cleaned approximately 700 miles of sewer, and substantially reduced the catch basin repair backlog.

The Staten Island Bluebelt provides ecologically sound, cost-effective stormwater management for approximately one-third of Staten Island's land area by preserving streams, ponds, and other wetland areas. Bluebelts are natural drainage corridors that convey, store, and filter stormwater. In July 2011, the City expanded the Bluebelt program to Queens at Oakland Lake Park. This \$2.5 million project includes restoration and repair of the park's perimeters, lake shoreline, ravines, and side slopes; planting of thousands of new trees; new recreational opportunities; and installation of storm sewers in streets near the park to better control stormwater runoff and avoid



## CASE STUDY

### Brooklyn Navy Yard Rooftop Farm

In August 2012, construction was completed on a rooftop farm installation at the Brooklyn Navy Yard, the result of a \$592,730 green infrastructure grant provided by the Department of Environmental Protection (DEP) and a \$300,000 contribution from Brooklyn Grange. The 43,000 square foot rooftop farm atop Building 3 in the Brooklyn Navy Yard will prevent more than one million gallons of stormwater from entering the New York City sewer system each year and will help reduce CSOs to the East River.

Brooklyn Grange, which will manage the rooftop farm, is a commercial urban farming business founded in 2010, and now has more than two acres of rooftop under cultivation on two separate rooftops. The Navy Yard farm includes two flocks of egg-laying hens and a commercial apiary consisting of more than 30 beehives. The farm's 12-inch deep growing beds are comprised of a soil medium blended specifically for rooftop farming use. Brooklyn Grange expects an annual yield of



20,000 pounds of fresh produce. The farm is productive between April and November, and more crops are planted in the winter to prevent soil erosion and replenish vital nutrients.

The farm will also provide several co-benefits to the Navy Yard itself, including increased ecological activity, local food production, and job creation. Brooklyn Grange

will also use the rooftop farm for community engagement by providing school groups, families, and volunteers with opportunities to learn about the local food supply and participate in urban farming activities.

erosion. In 2012, we also completed construction of the first Bluebelt in the Bronx at the New York Botanical Garden, continued development in Queens and in South Richmond, Staten Island, and advanced planning and design for the Mid-Island Bluebelt with an anticipated construction data of late 2013..

Wetland ecosystems improve water quality by naturally filtering pollutants. In 2012, we unveiled a city-wide Wetlands Strategy that built on close to a decade of research and policy development. This work began in 2005 with the formation of the Wetlands Transfer Task Force to address the future of City-owned wetlands. In 2007, the task force recommended 82 parcels for transfer to the Department of Parks and Recreation and it has since completed review of an additional 11 parcels. Later in January of 2009, the City issued an assessment of the vulnerabilities of existing wetlands and identified additional policies to protect and manage them, finding gaps in federal and state regulations. Completion of the Wetlands strategy in March of 2012 then led to the release of a Request for Proposals to develop the City's first wetlands mitigation bank.

The City continues to work as a local cost-sharing partner with the U.S. Army Corps of Engineers to restore eroded salt marsh islands in Jamaica Bay, which is a diverse ecological resource and national treasure. In 2012, contractors began construction on the 42-acre Yellow Bar project with the placement of sand and planting of low marsh vegetation, and placed sand on Black Wall and Ruler's Bar marshes. To date, 76 acres of eroded salt marsh have been restored. We are continuing to restore wetlands habitat in and around Jamaica Bay through a variety of pilots, including programs to increase oyster and ribbed mussel populations.

Some of New York City's waterways contain contaminated sediments caused by past industrial use. In 2010, the U.S. EPA designated the Gowanus Canal and Newtown Creek as Superfund sites. We are assisting the EPA and DEC in investigating the contamination and study of potentially feasible remedies. The City has worked to identify additional parties that may have contributed to the contamination, and we will continue to work with EPA and DEC to define our next steps as we work together to improve the water quality of both Superfund-designated sites.



City Water Tunnel No.3

Credit: NYC Department of Environmental Protection

Since 2002, we have invested more than \$10 billion to improve our waterways, expand recreational activities, and promote an active and working waterfront. Nearly all of this spending resulted from federal mandates, but we have undertaken innovative approaches like the Green Infrastructure Plan to get the most out of our investments and to achieve environmental co-benefits. Today, all New Yorkers can enjoy cleaner water quality because of these initiatives and we will continue to make cost-effective and science-based investments to improve our waterways for decades to come.

## Water Supply

New York City's development has depended on a clean, adequate supply of water. Since the first Dutch settlers arrived in the 17<sup>th</sup> century, New York City has continued to find new sources and methods to deliver high-quality drinking water to millions of New Yorkers. Prior to PlaNYC's release, we were continuing to make investments to protect our watershed and improve

our water supply system—efforts that we expanded in 2007 to ensure we are able to continue to supply the world's best quality drinking water for millions of New Yorkers now and in the future.

New York City has invested more than \$10 billion in its water supply and distribution system over the past decade to secure clean and abundant water for more than nine million New Yorkers. The 2,000 square mile watershed includes 19 reservoirs and 3 controlled lakes and is home to some of the most pristine natural areas in the country. The City has invested more than \$1.5 billion since 2002 to purchase forests and other lands surrounding our reservoirs and on other watershed protection programs that reduce pollution from farms and villages. The City also has an extensive monitoring program and performs more than 500,000 water quality tests each year to ensure that our drinking water meets federal drinking water quality standards.

In 1993, EPA issued New York City a Filtration Avoidance Determination (FAD) for the Catskill and Delaware watersheds, making New York one of just five major cities in the country permitted to supply unfiltered

## CASE STUDY

### Watershed Protection Program

During 2012, the City continued to implement its comprehensive Watershed Protection Program, which includes working with upstate partners to protect and maintain the quality of the City's water supply in a manner that is compatible with local economic development. Considering that 90% of the City's water comes from the unfiltered Catskill/Delaware Watershed System, where much of the rural land base is comprised of family farms and forestlands, one of the City's primary partnerships is with the locally based Watershed Agricultural Council (WAC).

More than 350 dairy, beef, and produce farms in the Catskill/Delaware watersheds are engaged voluntarily with WAC to develop and implement Whole Farm Plans that protect water quality from agricultural pollutants and these products often times make their way into the city's Greenmarkets so that fresh, locally grown food is available to City water consumers. Strengthening this upstate/downstate water and food connection is one of the primary goals behind WAC's Pure Catskills Buy Local Campaign that actively promotes more than 170 farms, 31 stores, 156 farmers markets, and 69 restaurants in the Catskills Region with a broader goal of supporting the local food system. Through the efforts of WAC and other partners, the City is able to support economic opportunities for rural watershed residents who make their livelihoods from working the lands that produce clean water and fresh food.

Another way in which the City protects its watershed while contributing to the local economy is by continuing to open up new watershed lands for outdoor recreation. For many years, the City has allowed hiking, fishing, hunting, and trapping on more than 115,000 acres of City-owned land throughout the year. In recent years, these opportunities have expanded to include recreational boating on certain reservoirs, and now canoes, kayaks, sculls, rowboats, and small sailboats have access to more 12,500 acres of water in the Cannonsville, Neversink, Pepacton, and Schoharie reservoirs. A December 2012 economic impact study found that recreation in the Catskills attracts roughly 1.7 million visitors every year, yielding an estimated economic impact of \$114 million. The study cited the City's recreation lands, boating program, and other watershed investments as contributing factors to the robust tourism economy of the Catskills.



A Watershed Protection Program, Loomis Farm, participant



West Branch of the Delaware River

drinking water. In 2007, EPA granted the City a ten-year FAD renewal based on the City's strong record of watershed protection programs. In December 2011, DEP submitted its long-term FAD plan to the New York State Departments of Health and Environmental Conservation, which includes program proposals for 2012-2017. Throughout 2012, the City continued discussions with our regulators to finalize the next FAD update, and \$286 million in funding for FAD programs has been included in the 10-Year Capital Plan.

To protect our watershed for the next century, the City continues to advocate for strong protections against hydrofracking near our water supply infrastructure. In 2009, the City commissioned an independent scientific assessment that concluded that hydrofracking could lead to a level of industrialization that would threaten drinking water quality for nine million New Yorkers, and based on current science and technology cannot safely be conducted in the City's watershed. In 2011, DEC proposed regulations that would ban hydrofracking in the watershed but would allow drilling activities in the vicinity of our tunnels, dams, and other water supply infrastructure. In 2012, the City continued to advocate strongly against hydrofracking within the watershed and near associated water supply infrastructure.

Despite our long track record of protecting public health, under the Safe Water Drinking Act the federal government has mandated that the City complete two major water treatment facilities, the Catskill/Delaware Ultraviolet Disinfection Facility and the Croton Water Filtration Plant. In 2008, the City began construction on the \$1.6 billion Catskill/Delaware Ultravi-



oilet Disinfection Facility to comply with a federal mandate that requires treatment of surface-level drinking water supplies with two sources of disinfection—in our case, chlorine and now ultraviolet light. In October 2012, the City began treating all tap water at the largest ultraviolet disinfection facility in the world and will complete construction in 2013.

The Croton Watershed was first tapped to supply drinking water in 1840. Today this watershed is highly developed, and although the water supply meets all health-based water quality standards, water from the Croton watershed has led to seasonal complaints about color, odor, and taste. In 2007, the City began construction on the \$3.2 billion Croton Water Filtration Plant in the Bronx. In February 2011, the City completed two water tunnels linking the plant to the New Croton Aqueduct and the City expects to begin operating the plant by the end of 2013.

The City has also invested in infrastructure to deliver more than one billion gallons of water a day from the watershed to nine million New Yorkers. Since December 2008, when the City took the Croton water supply off-line, the City has relied on water from the Catskill and Delaware watersheds. Due to steep slopes and fine soils left from glacial lakes, runoff

from the Catskill watershed can sometimes cause the waters in Ashokan Reservoir to become turbid, or less clear, from an increase in the amount of matter suspended in the water. In 2012, the City bid a contract to connect the Delaware and Catskill Aqueducts in Ulster County, which would allow the City to convey up to 300 million gallons per day of cleaner Delaware water through the Catskill Aqueduct. This \$164 million project started in March 2013 and will be complete in 2015.

The greatest challenge our water supply system faces is a substantial leak in the 45-mile long Rondout-West Branch Tunnel of the Delaware Aqueduct. Since 2002, the City has invested \$186 million to investigate the leak and to develop Water for the Future, the City's long-term plan to repair the leak and ensure reliable water for decades to come. Our capital plan allocates \$1.4 billion over the next ten years to repair the tunnel and augment water supplies during construction, and the City will break ground on the shafts in 2013, complete construction in 2014, and begin tunnel construction in 2015.

The City continues to implement a multi-year capital program to upgrade our dams and spillways, starting with its oldest dams in the East-of-Hudson water-

sheds. Since 2002, the City has invested more than \$507 million to upgrade dams and related upstate assets and plans to commit another \$283 million until 2021 to complete the dam reconstruction program.

Deep below the five boroughs, City Water Tunnels Nos. 1, 2, and portions of City Water Tunnel No. 3 distribute one billion gallons of water through nearly 7,000 miles of water mains. Since 2002, the City has invested more than \$1.6 billion to modernize the in-city water distribution network. These modernization projects will support planned development throughout the City and provide critical redundancy so that we can inspect and maintain our infrastructure to ensure a reliable delivery system into the future.

City Water Tunnel No. 3 is one of the longest running civil works projects in the city's history—construction began in 1970 but stalled due to fiscal constraints shortly thereafter. Under Mayor Bloomberg, the City has invested \$372 million to expedite the completion of the Manhattan leg of City Water Tunnel No. 3. When complete, this \$4.7 billion project will improve the reliability of the City's water supply and enable us to inspect City Water Tunnel No. 1 for the first time since 1917. In 2012, the City began construction on the final four critical water main projects, and is on schedule to activate the Manhattan section of the tunnel in 2013. In addition to these large-scale water distribution projects, the City has invested \$1.1 billion in water main construction since 2002 to meet expected demand increases from planned and anticipated development, and plans to spend \$1.6 billion on water main construction over the next ten years.

Since 2007, the City has invested \$205 million to improve the efficiency of the water supply system. In 2009, the City invested \$230 million to install Automated Meter Reading (AMR) devices, providing accurate, wireless water meter readings to the City, eliminating the need to estimate water bills and providing precise daily water consumption information to our customers. In 2011, the City launched the Leak Notification Program to proactively notify large building owners of potential leaks and enable the owners and managers to quickly respond to and fix them before

they become a costly problem. In 2013, the City began full-scale testing of a next-generation forecasting tool, the Operations Support Tool (OST), to ensure the optimal use of the entire reservoir system for New Yorkers, enabling us to forecast weather events and hydrologic conditions and their impacts on water quantity and quality, and supply the highest quality water to the city.

Although New York currently has an abundant water supply, widespread droughts throughout the country have underscored the importance of conservation whenever possible. Since peaking in the 1980s, water consumption has decreased more than 50% despite an increase of more than a million residents to 8.3 million today. To further conserve water, in 2013 the City launched the Toilet Replacement Program to incentivize owners of residential buildings to replace older toilets with high-efficiency models that use 1.28 gallons per flush or less, and is installing high-efficiency water fixtures at more than 500 City schools. Together, these programs are expected to reduce water consumption by 34 million gallons per day by 2020. The City is also exploring opportunities to partner with local industries to reduce water consumption, including the hotel and hospitality industry.

Over the past six years, we have made significant investments to protect the quality of our drinking water and to maintain and upgrade the infrastructure that delivers it. In the future, we must continue to devote necessary funding to ensure we are able to provide the best-quality drinking water to New Yorkers. We will continue to plan for the potential impacts of climate change to our water supply, including increased turbidity due to greater and more intense precipitation and drought. Accommodating these effects and protecting our water supply accordingly is essential to ensuring the long-term health of our city.



Nissan LEAF taxi

Credit: NYC Taxi and Limousine Commission

## Transportation

New York is dependent on its transportation network to transport its residents, visitors, commuters, and goods. Our vast systems of streets, bridges, tunnels, subways, commuter rail, pedestrian and bicycle routes, and the people and vehicles that use them move our city and drive our economy. The comprehensive, citywide context of PlaNYC expanded the breadth of initiatives and goals already underway at the time of PlaNYC's release, such as an increased focus on safety, planning for pedestrians and bikes, achieving a state of good repair of our city's transportation infrastructure, and implementing a bus rapid transit program.

We continue to make progress toward achieving PlaNYC's transportation goal to provide safe and sustainable transportation options while ensuring the reliability and high quality of our transportation network. Since PlaNYC's release in 2007, we have greatly expanded our program to increase the sustainability of the transportation assets under direct City control, such as bridges and streets, and strengthen the

quality and attractiveness of transit, pedestrian, and bike networks while also reducing congestion. In addition, the City's Department of Transportation interwove PlaNYC's goals throughout its own strategic plan in 2008, further institutionalizing PlaNYC.

In six years, we have made remarkable progress toward achieving our transportation goals. We have installed more than 300 miles of bike lanes in all five boroughs, and we are now preparing to launch the city's first bike share program, a new transportation system that will increase cycling opportunities throughout the city. Since 2007, we have more than doubled the number of people who commute by bicycle, and we have created new connections between cycling networks, increasing the safety and convenience of cycling. In the last six years, we have built more than 20 miles of protected bike lanes throughout the city and just in the last year, we installed eight on-street bike corrals and 110 bike racks near 52 subway stations—these racks make multi-modal connections easier and safer. In addition to this infrastructure, in 2012, we identified bike share locations through a groundbreaking community engagement process, and the Citi Bike bike share

## CASE STUDY Citi Bike Bike Share

During the last six years, we have made tremendous strides making our streets more sustainable. We have installed more than 300 miles of bike lanes throughout the city and New Yorkers have responded—bicycle commuting has more than doubled since 2007. During 2012, we worked hard to build on these successes by planning for the launch of Citi Bike, which will be the largest and most ambitious bike share program in the nation.

The Citi Bike system was designed by New Yorkers. Since 2011, we held hundreds of meetings with stakeholders and all community boards in the program area to get their input, and hosted 31 meetings with business improvement districts, and other neighborhood and civic groups to gather feedback on station locations. Between January and May 2012, we hosted 14 community planning workshops where New Yorkers could give additional feedback on which station locations would be most useful and why. We also received more than 10,000 station suggestions and more than 55,000 “supports” for



Resident considers newly operational Williamsburg South 11<sup>th</sup> Street Bike Share

Credit: NYC Department of Transportation

these suggestions through an interactive Web portal launched to solicit inputs from New Yorkers.

This spring, we began to roll out the first phase of the program, which will consist of 330 station locations and 6,000 bicycles. When memberships went on sale, more than

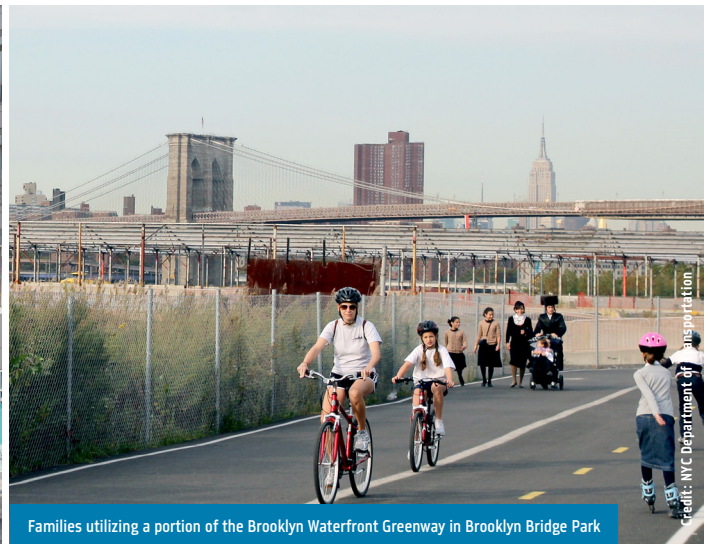
5,000 annual memberships were sold in less than 36 hours. Not only will Citi Bike offer an affordable and convenient way for New Yorkers to get around the city, but the entire system is supported without taxpayer subsidy and is expected to create 170 jobs that will generate an estimated \$36 million for the City's economy each year.

system will launch in 2013 in Manhattan, Queens, and Brooklyn. The first phase of the Citi Bike system will include 330 stations and 6,000 bikes and will give New Yorkers an additional transportation option.

Most importantly, over the last six years, our streets have been safer than any point in the past 100 years. We have launched the Safe Streets for Seniors program and implemented 12 Safe Routes to School projects, with additional projects currently in the planning phase. We have installed countdown pedestrian signals at 1,500 intersections. We redesigned high-crash corridors including Fourth Avenue in Sunset Park, Brooklyn; and Delancey Street and Adam Clayton Powell Boulevard in Manhattan. We also continue to implement Safe Routes to Transit projects and Bus Stops Under Els, providing safer access for pedestrians walking to public transit stations. In 2012, we launched the Neighborhood Slow Zone program, which is a community-based program that reduces the speed limit from 30 miles per hour to 20 miles per hour and adds safety measures to residential areas. We also launched the “You the Man” campaign, a widespread public awareness campaign to encourage designated driving, and released the landmark New

York City Pedestrian Safety and Action Plan, which was the largest study of its kind ever undertaken by a U.S. city. Implementing its recommendations is helping to make our streets safer for all users.

We have also worked throughout the city during the last six years to address congestion and mobility. Our Green Light for Midtown and Midtown in Motion projects have reduced congestion in Manhattan. In Queens, we worked with community partners to implement the recommendations in the Downtown Flushing Mobility and Safety Project, which have improved bus and vehicle travel times on Main Street. In Jackson Heights, we worked hand-in-hand with the community to develop the Jackson Heights Neighborhood Transportation Study's recommendations, which have improved transit connections, reduced congestion, and improved safety. In Chinatown, the community and the City developed a set of recommendations that make it easier for people to walk in the neighborhood, for businesses to receive deliveries, and for motorists to find parking. Our PARK Smart programs have reduced double parking and circling for parking. The off-hour delivery and delivery windows projects have made it easier for businesses to receive deliveries and reduced neighborhood congestion.



We have also created numerous new open spaces in cooperation with other City agencies, the private sector, and community partners. Times Square is now one of the world's most famous pedestrian plazas, providing recreational space for thousands of New Yorkers and visitors each day and improving the economy of the neighborhood's businesses. We have installed other pedestrian plazas throughout the city, using existing streets and sidewalks to provide valuable open space in areas in need of new passive recreation options. We have also beautified public plazas, fences, barriers, footbridges, and sidewalks throughout the five boroughs through our Urban Art Initiatives, which since being launched in 2008 have installed more than 100 projects, making our streets and neighborhoods more attractive.

As with many of PlaNYC's initiatives, progress toward increasing the sustainability of the city's transportation system has accelerated over the last 12 months. We developed and implemented the Select Bus Service (SBS) program in partnership with the Metropolitan Transportation Authority (MTA), providing new transit opportunities for commuters in areas underserved by the subway. This service makes riding the bus more like riding the subway, with improved bus speed and reliability and increased passenger comfort and convenience. We have expanded SBS by launching the S79, the Hylan Boulevard SBS, resulting in significantly reduced travel times for Staten Islander commuters, and we are finalizing the design for the Webster Avenue SBS, Nostrand Avenue SBS, and LaGuardia SBS—SBS can reduce transit times on these lines by up to 20% and these projects will make it easier for New Yorkers to get around all five bor-

oughs. We have also begun to install Traffic Signal Priority systems on SBS and other heavily traveled bus routes, which will reduce delays by giving buses additional green signal time.

The MTA has also made progress on three major subway and commuter rail expansion projects in the last year, continuing to expand the city's public transit service. The first phase of the Second Avenue Subway project is on track to be completed by 2016, and construction of the Number 7 subway line extension continued on schedule, bringing this line to the new Hudson Yards development in 2013. Major components of the East Side Access project were started, paving the way for Long Island Rail Road access to Grand Central Terminal.

2012 also saw a large expansion in public spaces. We completed nine temporary plazas throughout the city and will open an additional ten temporary plazas and begin capital construction on nine other plazas. In 2012, we continued to work with neighborhood businesses to operate three Street Seats sites, areas that are open to the public and provide extra free seating. We partnered with 19 community groups throughout the city to hold Weekend Walks. We installed 370 new benches as part of the City Bench program, which make it easier and more convenient for pedestrians to find a place to sit—with more than 100 more scheduled to be installed by the end of 2013. Finally, since 2008 almost 1,000,000 people have taken part in our Summer Streets program, where Park Avenue is closed to traffic to allow unhindered pedestrian access.

To ensure we provide high quality transportation infrastructure, we continue to make major investments in our bridges and in 2012, all of our bridges



were in a state of good repair. Most notably, the Brooklyn Bridge project continued throughout 2012 and we are rehabilitating the bridge's ramps and approaches on both the Manhattan and Brooklyn sides. We also are continuing to replace the Manhattan Bridge's suspenders, rewrap the main cable, replace and upgrade the necklace lighting, and install maintenance platforms, with all work scheduled to be completed this year. Our streets are also in better condition. In 2012, the average condition for our streets was 73%, which is up from 66% in 2008 and is the result of resurfacing up to 1,000 miles annually over the last four years.

New York's 13,237 yellow taxis operate 24 hours a day, seven days a week, cumulatively driving more than two million miles each day. Electrifying these taxis would reduce GHG emissions by more than 250,000 tons each year. We are now conducting a one-year pilot of six electric taxis that will operate as single shift taxis, picking up street hails and helping to determine if electric cars can stand up to the rigors of hard urban driving and the needs of passengers, owners, and drivers.

This will be one of the first tests of electric taxis in the United States outside of specific airport centered routes. Because taxis in New York City drive so many miles in each 12-hour shift (each taxi drives passengers more than 50 miles per shift, plus additional mileage cruising for fares and traveling to and from home or a fleet garage) it will undoubtedly be the most challenging. The Nissan LEAFs used in the pilot are not custom-built for full-time taxi operation (and they are not as spacious for passengers or drivers as the Taxi of Tomorrow), but the test will provide valuable information on vehicle range, driver behavior, and charging needs. The data and lessons learned from the pilot will help determine the drivers and modes of operation for which the technology works best. In conjunction with this real world test, we have also created a task force to achieve one-third electrification of the taxi fleet by 2020. We will release the task force's findings in the summer of 2013.

We have made great progress toward achieving PlaNYC's initial transportation goals while also

expanding sustainable transportation choices for all New Yorkers. We have expanded our commitment to sustainable transportation policies and we will continue to explore new strategies to increase the sustainability of our transportation systems. We will launch our Bike Share program and will continue to support and expand our bicycle network, and we will continue to expand the SBS network and invest in our bridge and street infrastructure. Ensuring the safety of pedestrians, motorists, and cyclists is our highest priority, and we will continue to focus on safety initiatives around schools and at high crash corridors and intersections. We will provide new public spaces through the creative use of streets and sidewalks, providing more New Yorkers with recreation space. Together, these initiatives and new, innovative efforts will bring us closer to our ambitious transportation goal.

However, significant challenges remain. We must continue to advance our transportation agenda to ensure we achieve our transportation goal. We need to work diligently to ensure the reliability of our transportation network by making critical investments in our road, bridge, and transit infrastructure, securing dedicated long-term funding to support this infrastructure in the future.

## Energy

PlaNYC's energy strategy was developed to ensure clean, reliable, and affordable energy today and for the New Yorkers of 2030. We recognized the need to lessen the strain on our already burdened energy infrastructure and took action. Our efforts will save money, decrease emissions, and create jobs.

We have unified the City's energy planning resources, integrating our regulatory and technical expertise with our energy efficiency and climate change planning functions. This structural alignment allows us to represent the city's needs seamlessly as we work to further the goals of these interrelated issues.



Since 2007, we have made great strides in measuring energy and water use in large buildings, greening our building codes, retrofitting our municipal buildings, and advancing energy and GHG emissions reductions in the private sector. Keeping total energy use flat despite increased economic activity, an influx of more residents, and continued growth in our building stock, we have demonstrated that sustainable growth and energy efficiency are simultaneously possible.

Energy use in buildings contributes 74% of citywide GHG emissions through the use of heating fuel, natural gas, electricity, and steam. Energy expenses cost up to \$15 billion per year; therefore, our initiatives strategically use incentives, mandates, and challenges to help specific building sectors use energy efficiently and sustainably. Each initiative has made significant progress from development to implementation.

Launched in 2009, the Greener, Greater Buildings Plan (GGBP) requires the city's largest buildings to benchmark, or measure and report, their energy and water use annually, to complete energy audits and retro-commissioning of building systems, and to upgrade lighting. These properties constitute only 2%

of the city's building stock but comprise approximately 50% of the total built area. Compliance with the GGBP laws will result in a 5% GHG emissions reduction citywide by 2030, a net savings of \$7 billion, and the creation of 17,800 jobs.

New York City has completed the first comprehensive assessment of energy use in the city's largest buildings by capturing benchmarking data for 1.8 billion square feet of space, equivalent to the built area of San Francisco and Boston combined. Together with other cities, we have contributed our data to a national data-sharing platform, and we are now collaborating with academic institutions to expand our analytics.

Another component of GGBP requires buildings to undergo energy audits and to perform retro-commissioning on their base building systems. By the end of this year, more than 2,000 properties will be required to file an energy efficiency report with the City using a data collection tool developed in collaboration with NYSERDA.

The lighting and sub-metering piece of GGBP requires buildings to upgrade their lighting by 2025, but many

## CASE STUDY Solar Photovoltaic

Solar photovoltaic (PV) power is the most readily accessible and beneficial distributed renewable source for New York City today. High retail electricity rates bring distributed PV generation closer to competitiveness with bulk electricity. Approximately 1.6 billion square feet of rooftop space on more than 1 million buildings in New York City presents an ample technical potential to generate local renewable energy.

The city has witnessed a sharp rise in solar penetration with capacity growing from under 1 MW in 2007 to approximately 14 MW at the end of 2012, and the number of installers increasing from 5 to more than 200 during the same period. This maturation of the local PV industry is the result of several factors: reduced hardware costs due to both technological advances in manufacturing as well as firming supply chains; and streamlined local permitting and inter-connection processes reducing average installation times from over one year in 2007 to currently under six months (and as fast as one month for some projects).

Policy support has played a crucial role in the growth of the PV industry in New York City. In 2008, the City implemented a property tax abatement to offset the higher costs seen in the five boroughs; the result was a decrease in the premium in installed costs over Westchester, from 30% to less than 10%. Also, working with the state, the city saw an increase in PV incentives in the downstate area funded through NYSERDA; this occurred both in 2011 and again in 2012.



people are not familiar with the new codes or new technologies. To overcome these barriers, we are launching Green Light New York, a lighting resource center where building professionals take classes and see lighting strategies demonstrated. Construction will begin in late 2013.

While GGBP focused on increasing the energy efficiency of large buildings, we can further reduce GHG emissions through energy efficiency measures in buildings under 50,000 square feet, which collectively constitute about half of the city's floor area. To achieve these potential reductions, we launched two GreenNYC (PlaNYC's consumer engagement program) marketing campaigns: In 2009, we promoted efficient use of residential air conditioners, and in 2010, we advocated for energy-efficient light bulbs in homes.

We are continuing to implement the recommendations of the New York City Green Codes Task Force (GCTF), convened by the Urban Green Council at the request of Mayor Bloomberg and City Council Speaker Christine Quinn to increase efficiencies in building energy use and ensure sustainable construction methods. Since the recommendations were finalized in 2008, 39 out of 111 GCTF proposals have been enacted. Moving forward, a number of GCTF recommendations are headed to legislation, and with a greater urgency for proposals addressing building resiliency after Hurricane Sandy.

The New York City Energy Efficiency Corporation (NYCEEC) continues to pioneer new energy efficiency financing solutions. Since its launch in 2011, NYCEEC has completed seven innovative financing transactions, providing capital for dozens of clean energy projects. NYCEEC leverages public capital by attracting private sector resources from commercial and mortgage lenders to help solve the barriers to affordable energy efficiency and clean energy financing. Taking on the most challenging building segments, NYCEEC is financing projects in the affordable and market-rate multifamily, commercial, and hospitality sectors. Last year, NYCEEC credit enhanced more than \$47 million in loans to finance conversions from heavy fuel oil to natural gas, energy efficiency retrofits in multifamily residential buildings, and cogeneration projects.



Arthur Kill pipeline installation in Staten Island

Credit: Spectra Energy Corporation



134th Street meter station model

Credit: Mayor's Office for Long Term Planning & Sustainability

To lead by example, we have committed to reduce City government GHG emissions by 30% by 2017. We have invested 10% of our annual energy budget—approximately \$80 million each year—on projects to reduce energy use and increase renewable generation. We benchmark more than 2,800 of our buildings annually to prioritize them for audits, retrofits, and retro-commissioning projects. Since 2008, we have completed 174 building efficiency retrofits, reducing emissions by more than 24,000 metric tons and energy costs by \$6.4 million annually. In 2012, we installed 453 kilowatt (kW) of solar generation at 10 government buildings throughout the city, and by the end of 2013, we will install 1,855 kW of additional solar through our first ever power purchase agreement. Though we will achieve the greatest energy savings from our buildings retrofit program, we have reduced the GHG emissions of our vehicle fleet and retrofitted more than 2,700 streetlights with LED technology. We will have 4,000 LED streetlights installed by the end of 2013, reducing energy and maintenance costs. We have also screened more than 350 sites to identify which City-owned buildings were prime candidates for distributed generation, and are currently pursuing a 15 megawatt (MW) cogeneration plant at Rikers Island, a 100 kW fuel cell system at City Hall, and a cogeneration plant at the North River wastewater treatment plant.

In 2007, the City launched the Mayor's Carbon Challenge, inviting 17 local universities to match City government's GHG reduction target of 30% over ten years, and in 2009 the 11 largest hospital systems, composed of more than 50 individual hospitals, joined the Challenge. Together, these participants

occupy 120 million square feet and account for 3.5% of the city's emissions. The university and hospital participants have achieved impressive results: five Challenge participants already reached their target—reducing annual citywide emissions by more than 86,000 metric tons and saving roughly \$20 million in annual energy costs. In April 2013, ten global corporations joined the Challenge, representing 20 million square feet of space and employing 70,000 people. We are now identifying leaders among co-ops and condominiums to join the Challenge.

The City has also reduced barriers to private investment in distributed generation (DG). In 2010, the Department of Buildings published a guide to installing cogeneration systems, the associated permits and inspections, and the relevant incentives available. Because of the City's efforts, in 2011, the Public Service Commission (PSC) ordered Con Edison to develop a "campus interconnection tariff," allowing for more seamless interconnection of DG systems serving multiple buildings. In 2012, the City also formed the Distributed Generation Collaborative to address regulatory, tariff, financial, and market barriers to investment. The group membership consists of utilities, NYSERDA, the PSC, developers, non-profit organizations, and private stakeholders interested in increasing DG market penetration.

As the largest energy customer of the New York Power Authority (NYPA), the City has worked with NYPA over the past several years to enhance the efficiency and environmental profile of the power supply. For example, in 2011 we entered into a contractual arrangement with NYPA that supported the develop-



Upgrades to the Bowers Bay Wastewater Treatment Plant in Queens will enable it to reuse methane gas as a fuel source.

Credit: NYC Department of Citywide Administrative Services

ment of the 500 MW Astoria Energy (AE II) power plant, which has directly improved air quality in the region. The City also supported the retirement of the former Poletti power plant in Astoria, which was retired in 2010 and replaced by NYPA's new 500 MW unit. This modern facility has significant lower emissions, and operates more efficiently, than the now-retired Poletti plant.

The City has also encouraged private investment in merchant power plants that are not supported by long-term contracts. The most recent example is the Bayonne Energy Center, a 512 MW New Jersey-based plant that exclusively serves the New York City market via a submarine cable connection to Con Edison's Gowanus substation in Brooklyn. We strongly supported a transmission permit from the PSC for the operation of the cable connection. This highly efficient power plant became operational in June 2012, enhancing grid reliability and providing increased diversity of power sources for the City.

While roughly half of the electricity serving the city is generated here, we also remain dependent on long-distance transmission to meet the City's ever-growing energy needs. For this reason, the City has been working to ensure that adequate transmission links

are built—and to seek renewable energy sources for the energy to be transmitted wherever possible. The City has supported the issuance of a state permit to allow construction of the Champlain-Hudson Power Express transmission line, which would bring 1,000 MW of hydropower and wind-based energy over a 330-mile route from Quebec, Canada directly to New York City. This underground and underwater line would traverse Lake Champlain and the bed of the Hudson River for most of its length, thus minimizing its environmental impact.

The City has also advocated for other needed transmission links to serve our residential and business energy consumers. One of these projects is already in operation: the Con Edison M-29 line, a 345 kV facility that carries power from Yonkers in Westchester County to the company's newly constructed Academy substation in upper Manhattan. This line, which went into full service in early 2011, will assist in addressing increased power needs in the City, and the new Academy substation has been designed to serve the city's present and future energy requirements. To meet the need for natural gas, the City has been heavily involved in the siting of two new interstate pipelines from New

Jersey into New York City. The Spectra Pipeline is now under construction and should be in service later in 2013. The Williams Pipeline should receive regulatory approvals this year and be constructed in 2014. Each of these projects increases the supply of the system and supports long-term growth, and meets or exceeds safety standards.

More recently, the City supported the Hudson Transmission Partners (HTP) project that connects Ridgefield, New Jersey to the Con Edison distribution system via a submarine cable. This transmission line will increase the diversity of the City's supply of electricity and add a new source of supply in Manhattan.

Another innovative concept that combines generation and transmission resources to serve the city is a proposal to lease federal underwater lands outside of Lower New York Bay to support development of offshore wind generation. The project offers the prospect of up to 700 MW of renewable energy located less than 20 miles from the Battery. We are cooperating with NYPA and Con Edison to advance this concept, which resulted in a 2011 lease application submitted to the U.S. Department of Interior. If a lease is obtained, NYPA will likely seek bids from wind power developers.

The City is a vigorous advocate for state policies designed to encourage wider use of renewable energy. We have been successful in our advocacy for a New York State renewable energy funding source specifically directed toward the greater New York metropolitan area. Largely at the urging of the City, the Public Service Commission in 2010 created a Geographic Balancing Program that directed \$150 million to be spent to advance renewable power projects solely in the downstate area. While New York State has been a leader in providing financial support from utility customers for development of renewable power, historically little of the project funding provided by Con Edison ratepayers has flowed back to the City. The PSC in recognizing this imbalance created the downstate program that will offer enhanced renewable power funding opportunities in New York City and the surrounding region.

The City has developed its own far-reaching regula-

tory measures intended to promote environmental goals, such as the NYC Clean Heat program to reduce the use of highly polluting fuel oil in buildings. Also, the City has advanced a state legislative and regulatory agenda intended to implement a number of energy-related PlaNYC goals, including a recent proposal to encourage solar development by broadening the terms under which solar arrays can feed unused power back to the electric grid. We have also advocated that regulatory measures be implemented to ensure that in the event of a blackout, the most critical in-city power plants retain the ability to restart themselves without the need for any external power sources. Such "black start" capability is necessary to permit a rapid and orderly restoration of electric service following a regional power outage.

Almost 60% of the power plants in the City are now more than forty years old. In addition to being greater sources of air pollution, antiquated generation is less reliable and less efficient than newer plants. For this reason, the City has urged that New York State's wholesale energy market be redesigned to provide adequate incentives for repowering of existing generation sites. In addition to enhancing efficiency and improving air quality, repowered plants eliminate the need for new construction sites.





View of Lower Manhattan taken from Governor's Island

Credit: NYC Department of Buildings

## Air Quality

The air we breathe is our most vital natural resource, but clean air cannot be taken for granted, especially in a city like ours. New York City's dense and transit-friendly built environment makes for a vibrant place that brings millions of residents, commuters, and visitors together. At the same time, the city's urban form also brings people into close contact with sources of air pollution like fuel combustion for transportation, energy, heating, and cooking. In fact, New York City has the highest density of fine particles ( $PM_{2.5}$ ), or soot pollution, per square mile of any large U.S. city. More than half of this pollution originates from sources outside of the city, complicating efforts to improve local air quality.

Air pollution is one of the most serious public health threats faced by New Yorkers, especially children, seniors, and those with chronic heart or lung problems. While federal and state regulations helped to improve local air quality in recent decades, the city's air still did not meet a number of federal standards when PlaNYC was launched in 2007. To create a safer environment for

up to one million new residents by 2030, PlaNYC set the goal of achieving the cleanest air of any major U.S. city and outlined an ambitious set of strategies to reduce emissions from sources that were within the City's control, including buildings, on-road vehicles and other transportation sources. In addition, PlaNYC launched other initiatives that did not have air quality as a primary goal but that would contribute to cleaner air, such as cleaning our energy supply, fostering transit friendly development, promoting bicycling and other sustainable transit modes, and expanding the urban forest.

Before we could effectively target local emissions, we needed to overcome an enormous data gap that made it challenging to understand the scope of our air quality problem. In 2008, we launched the New York City Community Air Survey (NYCCAS), the largest urban neighborhood air monitoring study in the country. The City designed and installed low-cost modular air quality monitoring units at more than 100 neighborhood locations around the City to document sources of local air pollution and track emission sources over time. To date we have completed over four years of monitoring and the City is now seen as a leader in measuring and monitoring of air quality and developing policies through data.

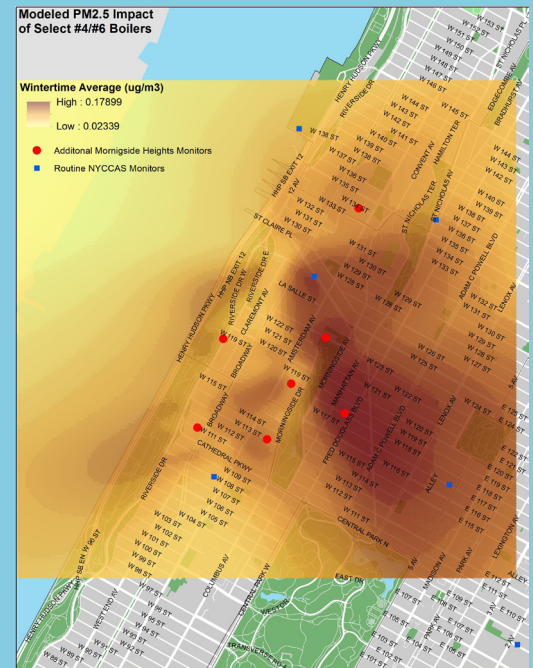
## Case Study New York City Community Air Survey

Since 2008, the New York City Department of Health and Mental Hygiene has been conducting a comprehensive street-level air quality survey each season, the largest program of urban air pollution monitoring in the country. The New York City Community Air Survey (NYCCAS) has focused common “criteria” pollutants that have the greatest public health impacts in NYC and are the focus of major federal, state and local emission control measures: fine particles (PM<sub>2.5</sub>), oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), and ozone (O<sub>3</sub>). NYCCAS has for the first time provided systematic data on how concentrations of these pollutants vary across our neighborhoods and identified important sources contributing to poor neighborhood air quality. NYCCAS data have consistently shown that: neighborhood air pollution concentrations vary widely during winter and summer; boilers burning #4 and #6 fuel oil are major sources of air pollution, especially neighborhoods with many large buildings; and traffic emissions contribute to higher pollution levels in some

neighborhoods and near busy roadways.

The results of NYCCAS monitoring were used to spur the NYC Clean Heat program’s laws and regulations that require the phase out of #4 and #6 fuel oil use in buildings. These data also provide a baseline from which we can track air quality improvements over time, and will allow us to target future policies most effectively.

The City is now conducting additional focused monitoring in Morningside Heights in upper Manhattan to assess the impacts of heating oil conversions that have already taken place, with baseline measurements captured in 2011-2012 and Year 2 monitoring currently underway. This monitoring provides the opportunity to measure chemical changes in air quality while assessing the impacts of the City’s policies, and is a prime example of City efforts to use data rigorous analysis to develop and implement its policies.



One of the most significant early findings from NYCCAS was the outsized impact of emissions from the 10,000 buildings that still utilized residual heating oil (No. 6 and No. 4). Neighborhoods with concentrations of buildings using heavy oil exhibited 30% higher levels of fine particulate matter (PM<sub>2.5</sub>) emissions, on average, compared to other neighborhoods. This key piece of evidence helped to spur support for City regulations to phase-out the use of heavy oil by 2015 and require the transition to the cleanest fuels by 2030. The findings also precipitated passage of a local law to create a low-sulfur standard for No. 4 oil and 2% renewable biodiesel requirement for all heating oil sold in New York City, as well as passage of state-level mandate to eliminate 99% of the sulfur content in No. 2 heating oil.

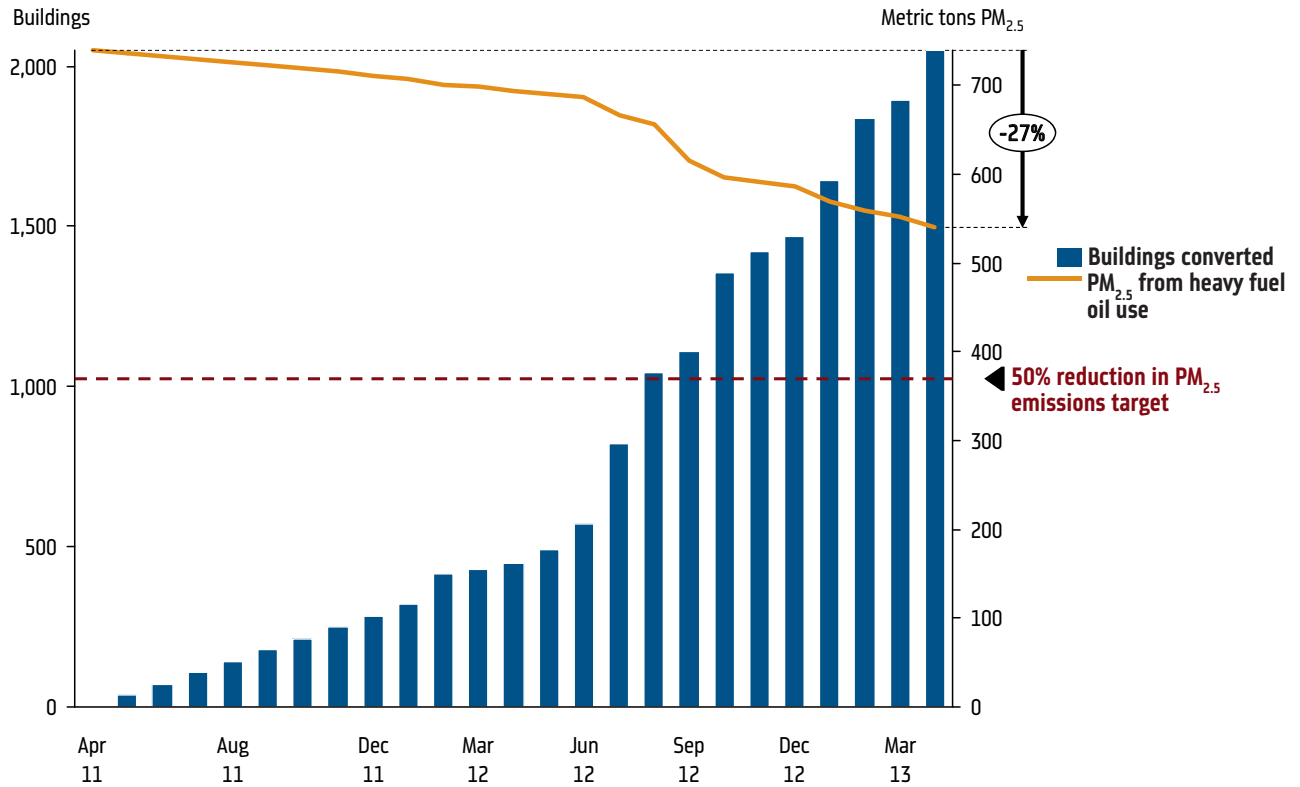
To accelerate the transition to the cleanest fuels, the City partnered with the Environmental Defense Fund to launch the NYC Clean Heat program, with the goal of reducing PM<sub>2.5</sub> emissions from heavy oil by 50% by 2014. The NYC Clean Heat program was premised on the belief that regulation is not enough to solve the City’s most serious air quality problems. Instead building owners needed information, technical assistance,

and help accessing financing and incentives. To assist building owners, the City and leading banks committed \$100 million in financing in June 2012 for clean heat conversions. To date, nearly 1,900 buildings have already converted their boilers to the cleanest fuels (natural gas, Ultra Low Sulfur No. 2, biofuel, or steam), resulting in a 25% reduction in heavy oil PM<sub>2.5</sub> emissions—more than halfway to our goal. Achieving the Clean Heat goal is expected to save more than 120 lives per year and prevent close to 300 emergency room visits and hospitalizations for respiratory and cardiovascular conditions.

Reducing emissions from on-road transportation sources is also a critical component of our air quality strategy, and we have taken numerous steps over the last six years to further this objective. We have reduced school bus emissions, converted a significant portion of the taxi fleet to hybrids, installed electric vehicle charging stations at public garages, and improved compliance with anti-idling laws, in part through a GreeNYC campaign to inform New Yorkers about the health impacts and economic costs of idling. We have created the greenest municipal fleet in the nation with more than 5,000 hybrids and close to 500 electric vehi-



## Clean Heat Conversions and PM<sub>2.5</sub> Reductions



Source: NYC Mayor's Office

cles. All of the City's on-road diesel fleet uses ultra-low sulfur diesel fuel with at least a 5% biodiesel blend, and 93% of that fleet is equipped with an emission reduction device that further reduces the emission of pollutants including PM<sub>2.5</sub> and NO<sub>x</sub>. We have also made biking safer and more convenient, reduced truck traffic on city streets, created transit oriented zoning areas, and installed new public plazas, which help to separate pedestrians from traffic emissions.

Reducing off-road emissions is also a key component of our strategy. We have retrofitted our ferries to reduce emissions and we are using cleaner fuel for their operations. We have installed infrastructure to allow cruise ships to connect to the electric grid at the Brooklyn Cruise Terminal, and we are working with the Port Authority of New York and New Jersey to implement their ambitious Clean Air Strategy. We are also working to update the NYC air code by the end of 2013, which will improve standards for indoor air pollution, cooking emissions, and other significant sources.

In 2011, we conducted the first-ever study of the public health impacts of air pollution in New York City neighborhoods. The study found that PM<sub>2.5</sub> air pollution between 2005 and 2007 contributed to more than

3,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 6,000 emergency department visits for asthma in children and adults each year. The greatest impacts were in neighborhoods with the most vulnerable populations. These methods, along with monitoring data from NYCCAS, will make it possible to prioritize future air quality initiatives. The science of assessing health effects from air pollution is not standing still and we are contributing to the progress. With federal research grants, City and academic researchers are applying NYCCAS air pollution data to examine the effects of air pollution on cardiovascular disease and birth outcomes.

Since 2007, the City has reduced citywide PM<sub>2.5</sub> emissions by almost 25% through a combination of local actions and the benefits accrued through state and federal programs as well as the cleaning of the power sector. However, much important work remains. As building-related emissions decline, the City must increasingly attend to on-road vehicles and congestion, which is a major contributor to NO<sub>x</sub> pollution. The City's air almost certainly will not meet a new, lower standard for NO<sub>x</sub> concentrations. While some emissions reductions will occur from cleaner vehicles required by



Duane Reade 100% electric truck

Credit: Asaf Selinger



Community enjoying pedestrian plaza, Corona Plaza, Queens

Credit: NYC Department of Transportation

tighter federal emission standards, more rapid improvements can come from continuing to shift commuters from cars to public transportation, cycling, and walking.

Ozone pollution is another clean air challenge we need to face. Unlike other pollution, ozone concentrations have not fallen in recent years and the city continues to experience summertime air quality health advisories each year. High temperatures promote ozone formation and the hotter summers that are predicted in the coming decades will make it more difficult to reduce ozone pollution. Because ozone in New York City's air is formed largely from upwind emissions of  $\text{NO}_x$  and VOCs outside the city, progress will require continued federal action and regional cooperation to reduce emissions from transportation and other sources.

In the coming years New York City will have even more residents, workers, and visitors. Among them will be many who are especially vulnerable to health harm from air pollution, including young children and our growing population of seniors. To ensure that the air they breathe is cleaner than in any other major U.S. City we need to build on the progress of the last six years. We will complete the phase-out of heavy oil and the transition to the cleanest heating fuels through NYC Clean Heat. We will expand our efforts to green the municipal fleet and private taxis, and to foster transportation improvements that reduce congestion and encourage mass-transit, walking, and biking. Finally, we will expand our air quality monitoring efforts and foster partnerships to use these data more effectively to improve public health.



## Solid Waste

Every year, New York City generates more than 14 million tons of waste and recyclables. The Department of Sanitation (DSNY) collects approximately a quarter of this load, servicing residential homes and not-for-profit organizations with a fleet of 2,000 trucks, while 4,000 private trucks haul the remainder from businesses, office buildings, and construction sites. In addition to costing City taxpayers more than \$300 million for residential waste disposal alone, the solid waste system generates substantial greenhouse gas and air quality impacts. All told, the collection, processing, disposal, and decomposition of New York City's solid waste generates approximately 2.2 million metric tons  $\text{CO}_2\text{e}$  each year, or 4% of the citywide total. For these and other reasons, PlaNYC added solid waste as a key focal area in 2011 and introduced a robust target of diverting 75% of solid waste from landfills by 2030.

Over the past two years, we have made remarkable progress toward achieving our goal to divert 75% of the city's solid waste from landfills by 2030. We have laid the groundwork for implementation of a three-part Waste Reduction Plan that will increase recycling through investment in new infrastructure; expand programs to encourage diversion through reuse, recycling, and composting; and engage the public in new campaigns to increase waste diversion. This plan builds on the City's Comprehensive Solid Waste Management Plan (SWMP), approved by the City Council in 2006.



GreenNYC "Stop Junk Mail" Campaign

Credits: GreenNYC

Over the past decade, a lack of sufficient local processing infrastructure has limited New York City's ability to diversify its recycling program. To overcome this challenge, the City is currently constructing a state-of-the-art recycling facility at the South Brooklyn Marine Terminal in partnership with Sims Metal Management. The Sims facility will process metal, glass, and an expanded variety of plastics, which will allow the City to expand its curbside recycling program for the first time in more than 20 years. The facility will help to eliminate more than 260,000 miles of in-city truck travel by shifting transportation primarily to barges; it will also create 100 new jobs.

The City announced in April of 2013 that it will allow recycling of all rigid plastics and deploy more than 1,000 new recycling containers in the public realm by the end of the year. New Yorkers will no longer have to sort through their rigid plastics to determine whether they are the correct number to be recycled. The City's expanded recycling program ends an era of confusion about recycling and it should vastly increase diversion over the coming years.

Organic waste makes up about 35% of the city's waste stream, with discarded food accounting for 1.2 million

tons of organic waste landfilled by the City each year. With more than one million students, teachers, and administrators, New York City schools produce hundreds of thousands of tons of solid waste every year, much of it discarded food. In September 2012, DSNY began a pilot program in 68 schools to separate organic waste for composting, and are planning to expand this program to all city schools. To date, the program has led to a diversion rate of 34% from Manhattan schools and 38% from Brooklyn schools participating in the pilot. The weekly collection through this program of more than 20 tons of organic waste will soon be processed into sludge at a Waste Management-operated facility on Varick Street, and co-digested with city wastewater at Newtown Creek wastewater treatment plant. This is part of a pilot anaerobic digestion program, in conjunction with the Newtown Creek wastewater treatment plant (WWTP).

The Newtown Creek WWTP has excess capacity to codigest pre-processed organic waste. The pilot underway is treating roughly 60 tons of bioslurry from the Varick Street facility per week, with plans to scale up to 250 tons per day over a three-year period. The original plan was to test for a year before scaling up, but the pilot is likely to accelerate the scaling process,

and begin increasing intake once the three-month testing period finishes this summer. Eventually, the Varick Street facility may be able to take as many as 500 tons per day, with other city WWTPs potentially utilizing their excess capacity to accept the bioslurry, though the permitting process for the Varick Street scale-up has just commenced. As of now, there is not adequate tonnage being fed into the Newtown Creek WWTP to quantify the possible increased costs and additional gas production associated with the codigestion, but there are plans to take these measurements eventually. If and when the Varick Street facility augments its operations, commercial waste haulers would find their options for locally tipping source separated organic waste widen, and could bring down the cost and processing obstacles of organic waste currently hindering more robust organics collection in the commercial waste sector.

In addition to these pilots, the city has been steadily increasing the greenmarket collection of organic waste from New York City residents, and will soon pilot curbside collection in select city single-family homes. Currently greenmarket collection stands at roughly two tons per week, but is expected to expand once additional markets start offering the service. For the curbside pilot, starting in May, roughly 3,500 homes will begin disposing of their



## CASE STUDY

### School Food Waste Composting Pilot

Organics suitable for source-separated composting make up almost 30% of the city's residential and institutional waste stream. This includes food scraps, compostable paper (tissues, napkins, soiled paper, paper plates, etc.), and other materials suitable for industrial-scale composting. By collecting this material, we can reduce the amount of materials sent to landfills and waste-to-energy facilities, reducing expensive export costs and GHG emissions, while generating a valuable material that can be used as fertilizer in the city's parks and gardens.

The Departments of Sanitation and Education launched a pilot program in 2012 to collect food waste for composting from New York City public schools. Students and kitchen staff collect organic waste from the cafeteria and kitchen using a dedicated food waste bin and the bins are set out for DSNY collection. The collected material is brought to a DSNY processing facility where it is either composted or used to generate alternative energy.

DSNY is also running the program in public agencies and institutions throughout the city. The program has enjoyed success to date and DSNY plans to expand it. The goal is to implement the source separated organics program in all City agencies and schools within the next few years.

# food waste

**(no plastic, no Styrofoam)**

napkins & paper boats	grains	fruit	vegetables	meat & dairy
 napkin  paper boat 	    	   	     	   

NYC Department of Sanitation  
SCP-FWP Food Waste Poster 10/12

[nyc.gov/wasteloss/compostpilot](http://nyc.gov/wasteloss/compostpilot)  
School Food Waste Compost Program



source separated organic waste at the curb, using specially designed bins provided by DSNY. This is expected to yield about 20 tons per week of additional organic waste.

New York City restaurants generate the largest single stream of commercial food waste, generating roughly 320,000 tons per year, representing the greatest opportunity to reduce the volume of New York City's landfilled food waste. The Mayor's Food Waste Challenge is a voluntary challenge to groups within the private sector to match City government's goal to reduce the amount of food waste we landfill and achieve 75% diversion of waste overall from landfills by 2030. Participants in the Food Waste Challenge must reduce the amount of their food waste that goes to landfill by 50% from their base year, of which no more than 10% can come from documented non-organic waste reduction or diversion.

Textiles make up 8% of our residential and institutional waste stream. In spring 2011, the city launched the re-fashionNYC program that provides residential buildings of 10 or more units with separate containers for textiles, removing these materials from our landfilled waste and providing donated clothing and other textiles to Housing Works, a not-for-profit organization supporting homeless and low-income New Yorkers living with HIV/AIDS. By the spring 2013, more than 1,000,000 pounds of clothing have been collected through this program.

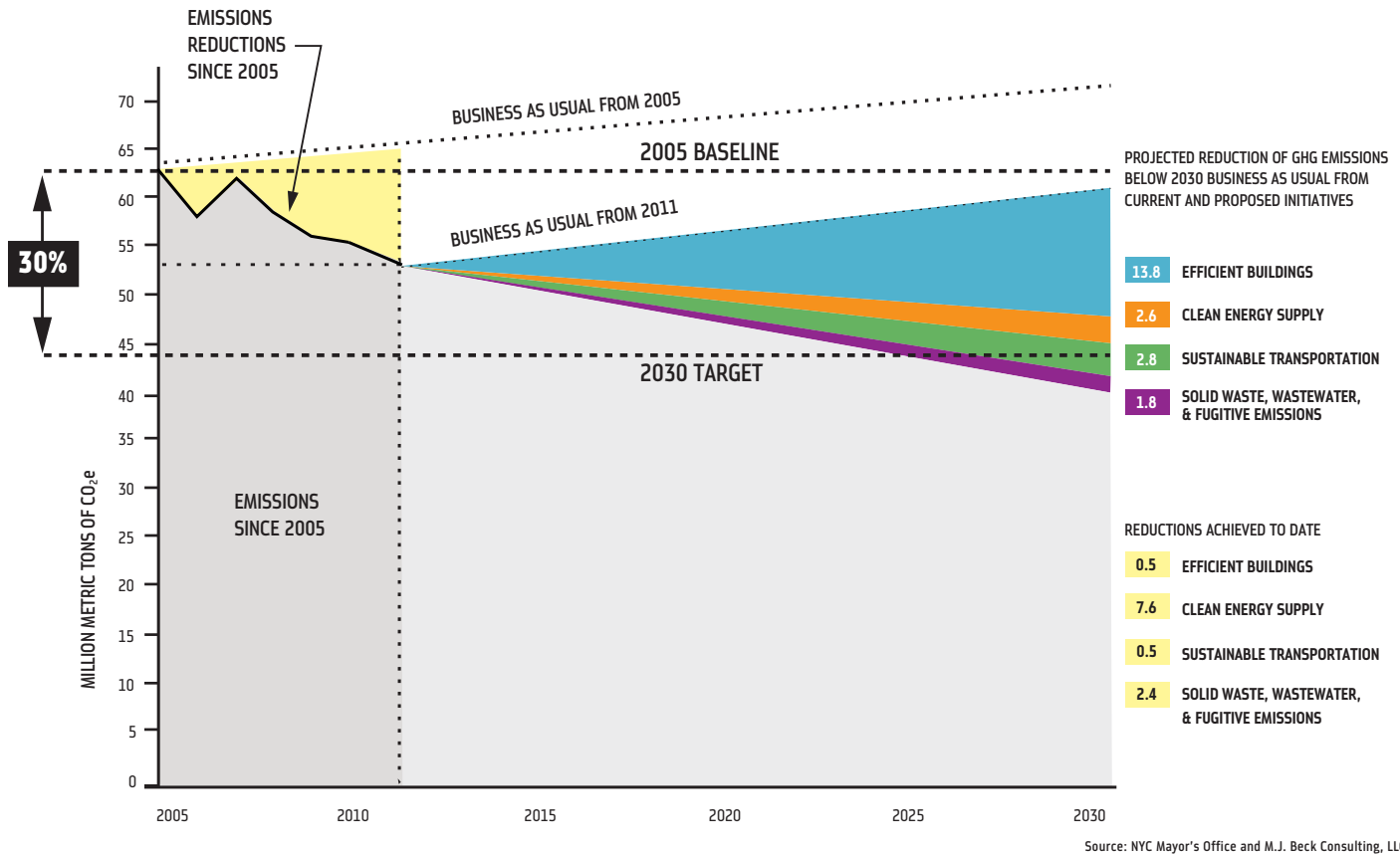
Electronics make up the largest and fastest growing component of hazardous materials entering our waste stream. In summer 2013, the e-cycleNYC program will launch, providing the city's residential buildings of 10 or more units with options for a free

and convenient service to remove electronics. E-cycleNYC is a partnership between the City of New York and Electronic Recyclers International and receives funding from various electronics manufacturers. All electronics are processed domestically and recycled using the strictest industry and environmental standards available.

As part of the Comprehensive Solid Waste Management Plan, the City is also exploring options for deploying an emerging waste management technology at a site in or near the city. The City views localized processing capacity, particularly anaerobic digestion of organic waste, as a critical way both to save taxpayer money and increase sustainability in the solid waste sector. Likewise, testing an innovative treatment technique ahead of other U.S. cities will give New York an edge in advanced, sustainable waste management and planning.

The pursuit of sustainable solid waste management in New York City is a long-term and complicated effort. We must pursue several strategies—increase the recycling capture rate, get residents and businesses to divert organic material from landfills, overcome permitting obstacles to introduce waste-to-energy and other innovative technologies, improve the quality of service in the commercial waste hauling industry, and strengthen the demand for recyclable materials—while also balancing the needs of local communities. Success will require continued commitment as well as creative thinking and better coordination between different levels of government. We know the critical metrics behind sustainable solid waste management, our task now is to delay no longer to reach these goals.

## Projected Impacts of our Greenhouse Gas Reduction Strategies



## Climate Change

The effects of climate change pose threats to New York today and in the future, and New Yorkers were again reminded of these threats following Hurricane Sandy and other extreme weather events from the past two years. In 2011, Tropical Storms Irene and Lee flooded the region and caused high-levels of turbidity in the City's upstate water supply system. The record-breaking heat wave of July 2011 strained the power grid and caused the highest peak in energy use seen to date. Hurricane Sandy's devastating storm surge and winds in October of 2012 left more than 800,000 customers without power, damaged tens of thousands of homes and businesses, and killed 43 city residents.

Extreme weather events like those seen over the past two years will become more frequent and severe as the climate changes. By mid-century, we expect as many 90 degree days as Atlanta, Georgia experiences today, and may see up to 2½ feet of sea level rise, significantly increasing the probability of another devastating storm surge. Fortunately, New York City has

taken aggressive action to mitigate and adapt to climate change since the launch of PlaNYC in 2007. However, Hurricane Sandy brought into focus widespread risks to the City's infrastructure and built environment that must be addressed to increase our resilience. The City must also accelerate efforts to reduce its greenhouse gas (GHG) emissions to help stave off the worst potential impacts of climate change in this century.

### Greenhouse Gas Mitigation

PlaNYC set an ambitious goal to reduce citywide GHG emissions by 30% below 2005 levels by 2030 (30 by 30). In just six years, we have reduced citywide GHG emissions by 16% and we are now more than halfway toward meeting the 30 by 30 goal. Our electricity supply today is more than 30% cleaner than it was in 2005 thanks to new, highly efficient power plants coming online and less polluting natural gas displacing generation by coal and oil. In 2005, approximately 30% of in-city power was generated using residual fuel oil, but today that number is below 2%. The City has also seen more than a 10-fold increase in installed solar photovoltaic capacity, from 1 MW in 2007 to more than 14 MW today. Together these



improvements in our energy supply changes were the primary driver of GHG emissions reductions.

The City is also becoming more energy efficient. Since 2005, total energy use has remained flat while our economy, population, and built floor area all grew substantially. These efficiency gains will increase as more buildings comply with the Greener, Greater Buildings Plan and as the code proposals of the New York City Green Codes Task Force are fully enacted. In total, these energy efficiency efforts could yield more than a 10% GHG reduction by 2030. The City's NYC Clean Heat program, which seeks to accelerate the transition from heavy heating oil to cleaner fuels—including natural gas and biodiesel—could also yield an additional 1.3 million metric tons of reductions or 2% of citywide emissions.

We are also making progress to reduce City government GHG emissions 30% below fiscal year 2006 levels by 2017 (30 by 17)—another PlaNYC milestone. Since 2008, we have dedicated 10% of the City's annual energy budget, roughly \$80 million per year, to fund energy and emission reduction projects. The City now works with more than 25 electri-

cal, HVAC, and plumbing firms to implement 80 energy audits and 50 comprehensive building retrofits each year. The City also signed an innovative power purchase agreement to install 1.85 MW of solar photovoltaics on four large City facilities that will significantly increase our share of renewable energy. These efforts, as well as the City's investment in cleaner power generation in partnership with the New York Power Authority, have reduced City government emissions by 12% since 2005.

Leaders in the institutional and private sector have also rapidly reduced their emissions. Beginning in 2008, close to 30 of the City's largest universities and hospitals joined the "Mayor's Carbon Challenge" by matching the City's aggressive target of reducing GHG emissions 30% in just ten years. In April of 2013, Mayor Bloomberg announced that five of these institutions successfully reached the 30% reduction target in less than half of the time allotted, and expanded the Challenge to commercial office buildings by welcoming ten leading corporations that committed to reduce emissions 30% in ten years. The Carbon Challenge has proven the high impact role that voluntary action can play in reducing greenhouse gas emissions.

Extreme heat kills more Americans each year on average than all other natural disasters combined, yet it receives relatively little public attention. These impacts are generally more concentrated in urban areas like New York City, where 46 people died of heat stroke during severe heat waves in 2006, and 31 people died of heat stroke in 2011. Seniors, those with chronic disease, and those without access to air conditioning (AC) at home are especially vulnerable. Future heat waves are projected to be longer, more intense, and more frequent, increasing risks to New Yorkers.

Still, many people have misconceptions about their risk of heat illness and death, and may not know how to stay safe during heat waves. Air conditioning is common in New York City homes, but many vulnerable New Yorkers are older or in poor health and do not own AC or use it regularly during hot weather. The Department of Health and Mental Hygiene's Climate-Ready Cities and States Initiative has conducted health risk assessments of several climate hazards, including extreme heat, and

Health Outcomes	Estimated # of Events above Baseline*
Natural Cause Mortality	110-260
Cardiovascular Hospitalizations	80-200

Source: NYC Department of Health and Mental Hygiene.  
\*Based on lower and upper central range projections in 2009 NYC Panel on Climate Change report, rounded to 2 significant figures.

found that there could be 110-260 additional heat-related deaths and an estimated 80-200 heat-related cardiovascular hospitalizations each year in New York City as a result of increasing temperatures during the 2020s.

Deaths from extreme heat are preventable, and our research is informing current programs and future planning. It is critical that

we foster extreme heat resilience by increasing access to AC for vulnerable people to reduce heat stress and ozone exposure; by making the electricity grid more resilient; and by expanding urban heat island mitigation and electricity conservation efforts. At the same time, encouraging the public to check on vulnerable relatives, neighbors, and friends during heat waves will also be important as extreme heat events become more common.

Despite this progress, there is still significant work ahead. The Intergovernmental Panel on Climate Change (IPCC)—a body of leading scientists from around the world—advocates a global reduction in emissions by up to 80% by 2050 (80 by 50) to avoid the most serious effects of climate change. New York City will need to do its part to achieve deeper reductions. We are working with the New York State Energy Research and Development Authority (NYSERDA) and a range of stakeholders to develop a roadmap to 80 by 50 that is based on rigorous cost-benefit and sectoral analysis. The resulting report, to be issued later this spring, will articulate a set of near- and longer-term policy measures and actions that could put us on the pathway to achieving 80 by 50. However, the City cannot achieve such deep reductions on its own—federal action is needed to create an overarching framework that will unlock private investment and innovation.

## Climate Resilience

Since 2007, we have significantly increased our understanding of climate risks and taken actions to increase the city's resilience to extreme weather.

These efforts made us better informed and prepared for Hurricane Sandy, but also revealed the extent of our vulnerabilities. Today, as the City continues to recover and rebuild, while also preparing for this summer's storm season, we are redoubling efforts to understand risks and take actions to increase the city's resilience to extreme weather.

Before taking action we needed to develop a clear scientific understanding of the risks of climate change and potential impacts to the city's infrastructure, built environment, and population. In August of 2008, Mayor Bloomberg convened a panel of leading scientists and risk management experts, known as the New York City Panel on Climate Change (NPCC), to create the first ever set of climate change projections for New York City. The Panel found that by mid-century, the New York could experience up to 2.5 feet of sea-level rise, nearly as many 90 degree days as Atlanta, Georgia today, and double to triple the probability of today's 100-year flood. The Mayor then convened more than 40 public and private infrastructure operators as part of a Climate Change Adaptation Task Force to develop an inventory of risks to the city's critical systems, which it completed in 2010.





Following these initial efforts to evaluate the risks of climate change, the City launched a number of initiatives to increase the resilience of the built environment. To better manage rainfall and reduce the impacts of combined sewer overflows, the City created a \$2.4 billion Green Infrastructure Plan. To protect new waterfront development, we required that all projects undergoing environmental review address future sea level rise and coastal risks in their designs. To help cool the city, we launched the NYC°Cool Roofs Program, which has coated nearly four million square feet of rooftops with highly reflective material to minimize heat gain, and now require cool roofs for all new buildings and major renovations. Finally, we passed new zoning amendments that would enhance protection of building systems.

In the months leading up to Hurricane Sandy, we were taking key steps to increase our knowledge base about climate risks. In February 2012, we reengaged the Climate Adaptation Task Force to undertake a rigorous probabilistic assessment of the risks to critical infrastructure located in three pilot areas. Each of these areas—the Far Rockaways, the Astoria and Hunts Point waterfronts, and Lower Manhattan—were among the most severely impacted by Hurricane Sandy, and the Task Force’s planning work likely enhanced preparedness for the storm. It also provided a theoretical baseline against which actual impacts could be evaluated.

In 2010, we began working with the Federal Emergency Management Agency (FEMA) to update their Flood Insurance Rate Maps (FIRMs) for New York City, which had not been significantly revised since 1983.

The FIRMs indicate coastal flood risk and determine whether buildings must obtain flood insurance and meet flood protection standards in the City’s Building Code. Finally, just a month before Hurricane Sandy, we called upon the U.S. Army Corps of Engineers to conduct a comprehensive study of coastal protection strategies, and with City Council support, Mayor Bloomberg enacted a local law to institutionalize the NPCC and Climate Adaptation Task Force.

Though much progress was made since the launch of PlaNYC in 2007, Hurricane Sandy demonstrated that we need to expand and expedite our climate resilience efforts significantly. The storm caused unprecedented and cascading impacts to the city’s power system, telecommunications infrastructure, mass-transit network, housing, and other critical infrastructure, totaling \$19 billion in damages. However, the storm also revealed what had worked. For example, projects such as Brooklyn Bridge Park, which were designed to manage sea level rise and coastal flooding, suffered little damage and were able to recover quickly following Sandy. These projects suggest a template for rebuilding.

Ad hoc efforts to recover and rebuild would leave the city no better off than it was prior to the storm. For this reason, in December 2012, Mayor Bloomberg created the Special Initiative for Rebuilding and Resiliency (SIRR), an effort to rebuild communities that were hit hardest by Hurricane Sandy and increase the resilience of the built environment and critical infrastructure to the effects of climate change. In late spring, the City will issue a report that will set performance standards for critical infrastruc-

ture systems, call for policy and regulatory improvements, identify funding, and provide a plan for implementing a comprehensive set of resilience measures.

The City has also accelerated efforts to update information tools about coastal risks. Although FEMA was only partway through the process of updating its Flood Insurance Rate Maps, City advocacy and oversight enabled the release of “advisory” maps that could be used in the interim to guide the post-hurricane rebuilding efforts. These maps, which were issued in January and February of 2013, revealed a dramatically expanded floodplain with 70% more residents, and up to 400,000 New Yorkers, now located in the 100-year flood plain. The City is continuing its coordination with FEMA to accelerate their release of the next phase of updated flood maps, which will ultimately be finalized after a period of public input. These maps are planned for public release later this spring and will become effective FIRMs in early 2015. In early 2013, we also reconvened the NPCC to update our climate projections, and are now in the process of working with the NPCC and federal partners to develop “future flood maps” that will incorporate sea level rise and allow us to make informed planning decisions based on projected conditions.

Hurricane Sandy also revealed that more must be done to protect New Yorkers from the impacts of extreme weather, particularly vulnerable populations. Power outages throughout the City left some elderly and homebound individuals with limited access to food, water, and medication. The Nor’easter that followed one week after the hurricane unexpectedly added hypothermia to the list of health threats that needed to be managed. In the future, climate change will also lead to more extreme heat waves, like the July 2006 heat wave that resulted in 140 deaths in New York City alone. More must be done to mitigate the impacts of extreme heat to people as well as to our electricity grid, whose reliability is critical to ensuring that New Yorkers are able to stay cool using air conditioning. Working with academic institutions, health experts, and non-governmental organizations we will conclude a systematic assessment of climate hazards to the City’s most vulnerable populations and develop an aggressive risk-reduction plan.

Over the past six years, we have taken aggressive action to reduce our greenhouse gas emissions and increase our understanding of and resilience to climate change. Much work lies ahead. We must continue the City’s commitment in an era of fiscal austerity to investing in energy efficiency and carbon reduction. These investments are essential to meet our PlaNYC goals but will also pay dividends in energy savings and economic growth. We must also begin to orient toward much deeper emissions reductions that will be required by mid-century to help stave off the worst impacts of climate change. Meanwhile we must rebuild our coastline and invest effectively to reduce both our near and longer-term risks from storm surge and other climate hazards. Our key areas of focus will include implementing the forthcoming recommendations of the Special Initiative on Rebuilding and Resiliency; continuing oversight of FEMA’s update to New York City’s flood maps; creating a comprehensive program to retrofit existing buildings in coastal areas; partnering with the Army Corps of Engineers to conduct a rigorous and economically realistic coastal protection study; and charting a path forward on flood insurance reform that communicates risks to homeowners while addressing affordability challenges. These efforts, along with a continued and ongoing commitment of necessary resources, will allow us to continue to progress toward our carbon mitigation and climate resilience goals.



Like many cities, New York has long played an important role in the food its residents eat—through health policies and education, administration of food support programs, its role in market development, and the food served by City agencies through their programs. The position of Food Policy Coordinator was established by Mayor Bloomberg in partnership with City Council Speaker Christine Quinn. Executive Order 122 of 2008 charged the Coordinator with developing and coordinating initiatives to promote the City’s goal of healthy food access for all New Yorkers.

The challenges facing our food system have been well documented—from the obesity crisis that kills more than 5,000 New Yorkers per year to the disparities in access to healthy foods that have plagued communities across the country—and it is these challenges that have guided the City’s food policy agenda. For example, the City launched innovative healthy food retail access programs—like the Food Retail Expansion to Support Health (“FRESH”) initiative and the Green Carts program—as well as initiatives to make programs that support food security, such as the Supplemental Nutrition Assistance Program (“SNAP,” formerly known as food stamps) and school meals, more accessible. The City has also been a leader in implementing policies like calorie labeling and the trans fat restriction in restaurants, to help make healthful eating easier for everyone.

The scope of the City’s food policy agenda has continued to evolve in recent years, with increasing focus on the impact that food policy has on health as well as the environment and economy. This broadened scope requires that more City agencies recognize that food and the food system is either a critical issue for the populations they serve or is influenced by their work. In response, the City’s Food Policy Task Force, which is convened by the Food Policy Coordinator, has expanded from three City agencies, the Office of the City Council Speaker, and GrowNYC, to now include more than ten City agencies and offices.

PlaNYC’s 2011 update included more than a dozen food-related milestones within six different chapters of the report. These milestones were tracked to all stages of the food cycle—production, distribution, consumption, and disposal—thus addressing topics from agriculture to healthy food retail to food transport to food waste. Since 2011, the City has made significant progress towards these goals.



## Production

The City has continued to be at the forefront of the urban agriculture movement, with growth in our community gardening programs as well as rooftop agriculture, including the City's first-of-its kind request for proposals for a multi-acre rooftop farm in the Bronx. In the spring of 2013, we launched the Gardens for Healthy Communities project, making 20 City sites covering approximately 9 acres available to the public for urban agriculture projects in underserved neighborhoods. The number of schools registered with Grow to Learn NYC: The Citywide School Garden Initiative has far exceeded the initial target of increasing by more than 25 schools per year, growing from 70 registered schools at the time of the 2011 PlaNYC update to a total of 341 schools today, reaching more than 70,000 students. This initiative goes hand-in-hand with the City's expanding Garden to Café program, which connects school gardens to their cafeterias and increases students' knowledge of healthy food, farming, and the local food system. Our public housing system's Garden and Greening Program has planted 129 new gardens since 2011 and launched one urban farm. The Zone Green Text Amendment removes zoning impediments to the creation of rooftop greenhouses. Finally, the City continued its commitment to best agriculture practices in our watershed, allocating more than \$2.6 million dollars in FY 2012 to upstate farmers that adopt practices to reduce agricultural pollution and protect water quality.

## Distribution

We are also working toward a better understanding of the City's food distribution pathways and have continued to explore how we can promote urban and rural linkages. We have undertaken a regional food distribution assessment that analyzes the potential market demand for regional food in New York City, describes the supply chains for how regional food currently reaches city consumers, and identifies the present barriers to expanded regional food distribution and sales. In July 2012, the City released a set of guidelines encouraging City agencies to purchase foods grown, produced, or harvested in New York State, becoming one of the first major cities with a specific local food procurement initiative. These guidelines complement the City's Agency Food Standards for Meals Purchased and Served, which sets ambitious nutrition standards for the approximately 270 million meals and snacks per year served by all City agency programs. These standards were updated in 2011 to incorporate sustainability recommendations.



NYC Green Carts

Credit: Office of the Mayor



NYC Green Carts

Credit: Office of the Mayor

## Access and Consumption

Promoting healthy food access and consumption is part of our strategy to create more sustainable neighborhoods. Since 2011, we have worked with 340 bodegas and supermarkets in high-need areas through the Shop Healthy program to improve neighborhood food environments. The number of farmers' markets has also increased from 79 in 2006 to 135 during 2012. In 2012, we eliminated daily permit fees for farmers' markets operating in low-income areas and expanded the City's innovative Health Bucks program to all farmers' markets across the five boroughs. Health Bucks, which is the largest farmers' market incentive program in the country, provides \$2 coupons to SNAP recipients that can be used to buy fresh fruit and vegetables at NYC farmers' markets for every \$5 in SNAP spent at the market. Additionally, in conjunction with partners, the City is on track to create five new farmers' markets at community garden sites by this summer. Broad initiatives and campaigns have also focused on reducing sugary beverage consumption and promoting the consumption of tap water.

Through our business incubators, we have facilitated food retail and production opportunities on City-owned spaces by serving more than 40 clients. In addition, since 2011, the City's FRESH program, designed to attract supermarket development to underserved neighborhoods, has approved incentives for 11 supermarkets. We have also expanded the areas eligible for FRESH incentives.

## Disposal

Food disposal and waste remains one of the City's most significant opportunities to improve sustainability, with organics currently making up 35% of the City's waste stream. The City is supporting a new composting initiative to divert waste from landfill, and launched a curbside organics collection pilot program in Staten Island in May. The City is also expanding a pilot program in 68 schools to separate organic waste for composting to all public schools, and continues to increase GrowNYC's Greenmarket program to collect organic waste from NYC residents. In addition, we are engaging more than 100 restaurants in this effort through the Food Waste Challenge, which asks participants to measure and reduce their organics waste stream. These initiatives will help increase awareness of the importance of preventing waste and understanding that wasted food is not only costly in terms of disposal, but also represents wasted water, energy, and money that went into growing, transporting, and purchasing the food.

Our experience demonstrates that, while our food system is governed by many factors beyond the City's sphere—including federal and state policy as well as private sector action—we can successfully advance our food policy goals through coordinated and strategic efforts at the municipal level. Taking a holistic approach to NYC's food policies will allow us to continue to promote access to affordable, healthy, and sustainably produced foods—thus improving the long-term health of City residents while reducing the environmental impacts of the food supply chain.



# Conclusion

Looking North from Little Italy toward the Empire State Building

Credit: Patrick Casim/AMTA

In the last six years, New York City has developed and implemented the most comprehensive and progressive sustainability agenda of any city in the world. We have demonstrated that ambitious goals are essential and achievable, and that bold, innovative solutions are critical to solve complex problems. Mayor Bloomberg's commitment to creating a more sustainable city has driven PlaNYC's success, a commitment that must remain during the next and future City administrations.

When PlaNYC was launched, the city had yet to experience the imminent recession. When the economy declined, we developed creative solutions to maintain our progress during challenging fiscal times, proving the importance of making cost-effective decisions to realize our goals. We made a commitment to invest in energy efficiency projects in our own City buildings—committing 10% of our energy budget to fund such measures each year, resulting in annual investment of about \$80 million that is beginning to pay off. We negotiated with regulators to avoid paying for unnecessary water supply and wastewater treatment infrastructure, developing innovative solutions to protect our environment while using scarce funding most effectively.

We have become pioneers in the use of sustainability data, from measuring and tracking air pollution to identifying the factors driving changes in our carbon emissions. We have proven the power of developing performance-based strategies, and shown how true it is that you cannot manage what you do not measure. The Office of Long-Term Planning and Sustainability conducts rigorous research and analysis as it develops and implements the City's sustainability policies, setting the standard for municipal governments globally.

Since 2007, sustainability has been integrated into all functions of City government. We are retrofitting City buildings to be more energy efficient, investing in green infrastructure to reduce stormwater discharge, building new parks and turning schoolyards to playgrounds to provide recreational space, developing

new scientific information to increase the city's resilience to the effects of climate change, rezoning neighborhoods to encourage sustainable and transit-oriented development, and much, much more.

Our policies have driven massive change in the private sector as well, through mandates and public engagement. We have developed strong partnerships with New York's many and varied constituencies, building relationships crucial to our plan's success. PlaNYC has transformed our city and fundamentally changed how we build, operate, and maintain New York. The success of our efforts is recognized worldwide, and cities of all sizes and at all stages of economic development are following our lead.

We have made incredible progress toward achieving the sustainability goals we set forth in April 2007, yet our work is far from complete. PlaNYC is a long-term plan built on a solid foundation, yet it is dynamic and designed to change over time. Our goals, and the principals they represent, are considered by many to be incontrovertible, but the mechanisms for their achievement will vary as our city evolves. We designed our plan to improve and enhance New Yorkers' quality of life—to ensure that our city would provide clean water and air, ample public space and transportation, affordable housing, secure and clean energy, and measures to protect our city from the effects of a changing climate. As new leadership assumes responsibility for continuing to make New York City the greenest, greatest city in the world, it is imperative that the City continues what we have begun. PlaNYC is the world's standard. It is now being passed to new stewards and the next generation of New Yorkers.

# Sustainability Indicators

We track 30 Sustainability Indicators to monitor current conditions and relate them to our long-term goals. These indicators are designed to provide quantifiable metrics for each PlaNYC goal, so that one can tell if we are achieving one part of a goal but not another. The Indicators, part of our on-going commitment to transparency and accountability, help us assess whether changes to the plan are needed.



CATEGORY	METRIC	2030 TARGET	FIGURE FOR MOST RECENT YEAR	TREND SINCE BASE YEAR
HOUSING AND NEIGHBORHOODS	<b>Create homes for almost a million more New Yorkers while making housing and neighborhoods more affordable and sustainable</b>			
	Increase in new housing units since January, 2007	314,000	125,837 <sub>1</sub>	↗
	Total units of housing in NYC	INCREASE	3,415,500 <sub>1</sub>	↗
	% of housing affordable to median-income NYC household	INCREASE	60.0% <sub>3</sub>	↘
	Vacancy rate of least expensive rental apartments	INCREASE	1.0% <sub>2</sub>	↗
	% of new units within a 1/2 mile of transit	> 70%	93.9% <sub>1</sub>	↗
	Residential building energy use per capita (source MMBTU) (3 yr rolling avg)	DECREASE	47.28 <sub>2</sub>	↘
PARKS AND PUBLIC SPACE	<b>Ensure all New Yorkers live within a 10-minute walk of a park</b>			
	% of New Yorkers that live within a 1/4 mile of a park	85%	76.3% <sub>1</sub>	↗
BROWNFIELDS	<b>Clean up all contaminated land in New York City</b>			
	Number of vacant tax lots presumed to be contaminated	DECREASE	1,500 – 2,000 <sub>1</sub>	NEUTRAL
	Number of tax lots remediated in NYC annually through the Brownfield Cleanup Program	INCREASE	11 <sub>1</sub>	↗
WATERWAYS	<b>Improve the quality of our waterways to increase opportunities for recreation and restore coastal ecosystems</b>			
	Fecal coliform rates in New York Harbor (Cells/100mL) (5 yr rolling avg)	Decrease	42.97 <sub>1</sub>	↗
	Dissolved oxygen rates in New York Harbor (mg/L) (5 yr rolling avg)	INCREASE	6.5 <sub>1</sub>	NEUTRAL
WATER SUPPLY	<b>Ensure the high quality and reliability of our water supply system</b>			
	Number of drinking water analyses below maximum contaminant level	100%	99.9% <sub>1</sub>	↗
	Water usage per capita (gallons per day) (3 yr rolling avg)	DECREASE	124.46 <sub>1</sub>	↘
TRANSPORTATION	<b>Expand sustainable transportation choices and ensure the reliability and high quality of our transportation network</b>			
	Sustainable transportation mode share (Manhattan CBD bound commute)	INCREASE	74% <sub>2</sub>	↗
	Change in transit volume minus change in auto traffic volume since 2007	POSITIVE	0.9% <sub>4</sub>	↗
	Vehicle revenue miles (Miles transit vehicles travel in revenue service)	INCREASE	915,096,265 <sub>2</sub>	↗
	% of bridges meeting a state of good repair (FY)	100%	41.4% <sub>1</sub>	NEUTRAL
	% of roads meeting a state of good repair (FY)	100%	73% <sub>1</sub>	↗
	% of transit station components meeting a state of good repair	100%	71% <sub>1</sub>	↗
ENERGY	<b>Reduce energy consumption and make our energy systems cleaner and more reliable</b>			
	Greenhouse gas emissions per unit of electrical power (lbs CO <sub>2</sub> e/MWh)	DECREASE	657.69 <sub>2</sub>	↘
	System reliability: CAIDI (Customer Average Interruption Duration Index)	DECREASE	2.39 <sub>1</sub>	↗
	System reliability: SAIFI (System Average Interruption Frequency Index)	DECREASE	104 <sub>1</sub>	↘
	Energy use per capita (source MMBTU) (3 yr rolling avg)	DECREASE	123.20 <sub>2</sub>	↘
AIR QUALITY	<b>Achieve the cleanest air quality of any big U.S. city</b>			
	City ranking in average PM <sub>2.5</sub> (3 yr rolling avg)	#1 (LEAST)	5.67 <sub>2</sub>	↘
	Change in average PM <sub>2.5</sub> (year-on-year % change in 3 yr rolling avg)	DECREASE	-9.4% <sub>2</sub>	↘
SOLID WASTE	<b>Divert 75% of our solid waste from landfills</b>			
	Percentage of waste diverted from landfills (includes fill)	75%	54% <sub>2</sub>	↘
CLIMATE CHANGE	<b>Reduce greenhouse gas emissions by over 30%</b>			
	<b>Increase the resilience of our communities, natural systems, and infrastructure to climate risks</b>			
	Greenhouse gas emissions (MTCO <sub>2</sub> e)	DECREASE 30%	53,358,868 <sub>2</sub>	↘
	Greenhouse gas emissions (100% = 2005 GHG emissions)	70%	84% <sub>2</sub>	↘
	Greenhouse gas emissions (MTCO <sub>2</sub> e) per GCP (\$M)	DECREASE	93.82 <sub>2</sub>	↘
Greenhouse gas emissions (MTCO <sub>2</sub> e) per capita	DECREASE 30%	6.47 <sub>2</sub>	↘	

- Results are for FY or CY 2011
- Results are for FY or CY 2010; data is only available with a lag
- Data updated every three years
- Updated data not available

# Implementation

While PlaNYC addresses long-term challenges, there are many things we need to do today to create a greener, greater New York. Each of the 132 initiatives in PlaNYC has multiple milestones to be achieved by December 31, 2013, which will put us on a pathway to achieve our long-term goals. This combination of long-term vision and short-term action is critical to our success. Implementing PlaNYC requires the collective

involvement of multiple City agencies and the City Council, plus cooperation and resources from state and federal agencies, regional authorities, private businesses, community organizations, and individual New Yorkers. The following pages outline the responsibilities and actions—collectively termed “Milestones”—that we committed to achieve in 2012 and our progress toward meeting our goals.

	PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>HOUSING AND NEIGHBORHOODS</b>	<b>CREATE CAPACITY FOR NEW HOUSING</b>		
	<b>1 Continue transit-oriented rezonings</b>		
	In 2012, the City approved rezonings for Bedford-Stuyvesant in Brooklyn and West Harlem in Manhattan, promoting neighborhood preservation while directing growth opportunities near transit corridors. Both initiatives incentivize affordable housing through the Inclusionary Housing Program. In 2013, the City certified into ULURP the Crown Heights West Rezoning, which reinforces the neighborhood's historic character, directs growth to transit corridors and provides opportunities for affordable housing through Inclusionary zoning incentives.	Continue to create opportunities for denser development in transit-accessible areas, in large rezonings including Sunnyside/Woodside, Bedford-Stuyvesant North, West Harlem, West Clinton, and East Fordham Road	In progress
		Continue to apply Inclusionary Housing Program in re-zonings that encourage substantial new housing development	In progress
	<b>2 Explore additional areas for new development</b>		
	The City released the RFP for the Seward Park RFP in Jan 2013 for the development of nine parcels in the Lower East Side. The development will include 1,000 housing units, half of which will be permanently affordable.	Advance development and open space plans for the Staten Island North Shore	In progress
		Identify additional potential infill opportunities on NYCHA grounds citywide	In progress
		Explore opportunities for the use of underutilized MTA properties to create housing, economic development, open space, or other opportunities to enhance surrounding communities	In progress
		Implement improvements in Hudson Yards to catalyze development	In progress
		Unlock development potential of underutilized Seward Park sites	Completed
		Reduce City government leased or owned space by 1.2M square feet	In progress
	<b>3 Enable new and expanded housing models to serve evolving population needs</b>		
	The City launched the adAPT NYC Competition, a pilot program to develop a new micro unit housing model in the city-owned E 27th St. site for the City's growing small-household population, in July 2012 and chose a winner in January of 2013. The winning development team will begin to construct 55 new modular units with 40% of the units being slated for low and middle-income families. Winner of adAPT was selected in Jan 2013.	Explore regulatory and legislative changes to allow the creation of safe and legal additional units in existing housing	In progress
		Explore new housing models to promote smart growth and serve smaller households	Completed
	<b>FINANCE AND FACILITATE NEW HOUSING</b>		
	<b>4 Develop new neighborhoods on underutilized sites</b>		
	The first phase of the Hunters Point South project closed in February 2013. The RFP for the future phase (Phase C) will be released in the summer of 2013. The City is in contract to acquire more than 95% of land in the Phase 1 area of the Willets Point District, which will facilitate District development. Infrastructure work will be completed this year (Spring/Summer 2013) with remediation work to follow.	Begin construction on 900 units of housing in Hunter's Point South, Queens	In progress
		Begin infrastructure construction and remediation for Willets Point Phase I, a mixed-use development including 400 housing units	In progress
		Complete construction on 1,300 units and begin construction on 900 units in Arvene, Queens; Complete construction on 400 units and start construction on 80 units in Gateway, Brooklyn	In progress
	<b>5 Create new units in existing neighborhoods</b>		
	Started construction of 2,644 new units under the New Housing Marketplace Plan in FY12.	Develop 20,000 new units by 2014 under the New Housing Marketplace Plan	In progress
Complete construction of more than 3,000 units in Melrose Commons Urban Renewal Area		In progress	
Complete construction on 1,640 units and begin and finish construction on 1,800 affordable units in NYCHA sites		In progress	
Explore modification of parking requirements for affordable housing to lower construction costs and facilitate housing creation		In progress	
<b>6 Develop new housing units in existing City properties</b>			
Analyzing potential housing opportunities in other city-owned sites, such as the former Spofford juvenile detention center	Start construction of housing units in the former PS 109 in East Harlem	In progress	
	Start construction of affordable housing on underutilized DSNY facility on West 20th Street in Manhattan	Not started	
<b>ENCOURAGE SUSTAINABLE NEIGHBORHOODS</b>			
<b>7 Foster the creation of Greener, Greater Communities</b>			
MillionTrees NYC has strengthened the network of citizens who are actively caring for trees by offering advanced workshops and community organizing tools. Our goal is to ensure that volunteers continue to help us care for the trees we've planted on an on-going basis. The City hosted more than 170 MillionTreesNYC events. We engaged more than 2,700 volunteers in tree care, surpassing our goal of 1,000 volunteers. Tree stewards cared for more than 3,700 trees, surpassing our goal of 2,500 trees. We hosted the 2nd annual "Grow Our Grassroots" summit in March 2013, which helped to empower green-minded New Yorkers to implement PlaNYC at the block level.	Launch Greener, Greater Communities pilot	Completed	
	Conduct Sustainable East New York study, incorporating community sustainability in addition to land use objectives	In progress	

PROGRESS SINCE APRIL 2012		MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
HOUSING AND NEIGHBORHOODS	<b>8 Increase the sustainability of City-financed and public housing</b>		
	<p>The Office of Green Infrastructure continues to partner with NYCHA to develop green infrastructure projects at public housing properties within priority CSO tributary areas. The City has completed design on two projects, and is nearing completion of a third. We are also identifying additional NYCHA properties for green infrastructure retrofits. We began the certification process on 30 green buildings in FY12, including 25 Enterprise Green Communities certifications and 5 LEED Silver or better. Conducted 12 Green Owners Nights, and launched a social media platform for the NYC Green House education initiative. Provided financing for more than 2,000 units with energy efficiency requirements in FY12. NYCHA has continued to conduct outreach to increase the number of Green Teams, finalized six Green Physical Needs Assessment pilot projects and is reassessing the Energy Performance Contracting Program with HUD. NYCHA also completed a storm water pilot project at the Bronx River Houses. Continues ongoing efforts focused on Green Infrastructure</p>	Certify 40 affordable housing projects with Enterprise Green Communities every year	In progress
		Provide financing for more than 30,000 units with energy efficiency and sustainability requirements by 2014	In progress
		Promote and expand NYC Green House education initiative to encourage multifamily building owners to retrofit their buildings	In progress
		Conduct six Green Owners Nights annually for small and medium-sized building owners on best practices on green energy, water, materials, and community issues	In progress
		Create multi-phase Energy Performance Contracting Program to scale up energy efficiency measures	In progress
		Perform a pilot Green Physical Needs Assessment on a NYCHA property	Completed
		Increase the amount of NYCHA Resident Green Teams from 37 to 43 and better connect them with surrounding communities	In progress
		Explore incorporating more stormwater retention efforts into NYCHA sites	Completed
	<b>9 Promote walkable destinations for retail and other services</b>		
	<p>NYCEDC has announced plans to launch a program to attract new retail to Downtown Staten Island. NYCEDC plans to launch the competition in the spring of 2013. The City worked with 340 bodegas and supermarkets through the Shop Healthy program to create additional healthy food options in underserved neighborhoods. Since 2011, the City's FRESH program has approved incentives for 11 supermarkets and expanded the areas eligible for FRESH incentives.</p>	Promote neighborhood shopping districts	In progress
Facilitate the creation of 300 more healthy food retail options in targeted underserved neighborhoods		In progress	
Identify additional amendments to zoning to facilitate grocery stores in communities with food access needs		In progress	
Facilitate food retail and production opportunities on City-owned spaces in underserved areas by serving a total of 40 clients in La Marqueta and more than 100 clients in E-Space		Completed	
<b>10 Preserve and upgrade existing affordable housing</b>			
<p>Preserved 14,298 units under the New Housing Marketplace Plan in FY 2012.</p>	Preserve 34,000 affordable units by 2014 under the New Housing Marketplace Plan	In progress	
	Perform 148 capital rehabilitations in 189 NYCHA developments	In progress	
	Provide legal advice and counsel to more than 2,000 New Yorkers and assist 1,800 individuals in getting mortgage modifications in order to avoid foreclosure of their homes through CNYCN	In progress	
<b>11 Proactively protect the quality of neighborhoods and housing</b>			
<p>In 2012, the City surveyed 518 buildings particularly at risk of distress or decline.</p>	Proactively conduct field studies in 1,000 buildings at risk for distress or decline	In progress	
<b>TARGET HIGH IMPACT PROJECTS IN NEIGHBORHOODS UNDERSERVED BY PARKS</b>			
<b>1 Create tools to identify parks and public space priority areas</b>			
<p>Began and completed a project to pilot the use of a multi-variable matrix based on scorecard information, demographic data, environmental factors, physical condition and community need and support to identify high priority areas. The project takes into account funding needs for ongoing maintenance and seeks to increase partnership with local community groups for stewardship. The scorecard is operational on the agency intranet.</p>	Develop matrix assessment and mapping tools to assist in targeting high priority areas	Completed	
<b>2 Open underutilized spaces as playgrounds or part-time public spaces</b>			
<p>The City has completed 229 schoolyards. We anticipate completing construction of 243 schoolyards by the end of CY2013. In 2012 the City held Summer Streets on August 4, 11 and 18. Approximately 250,000 people took part in Summer Streets.</p>	Complete construction and open for community use an additional 60 schoolyards to playgrounds sites, bringing the total number open for public use to 234	In progress	
	Conduct Summer Streets for three Saturdays each year	Completed	
	Conduct Weekend Walks at 20 locations annually	Completed	
	Expand the number of schools with access to Play Streets by 40	In progress	
	Conduct 15 Community Play Streets each year	In progress	
<b>3 Facilitate urban agriculture and community gardening</b>			
<p>To include: "GreenThumb added a total of 17 new community gardens in 2012 and, under the direction of the Mayor's Office of the Food Policy Coordinator (OFPC), developed a more streamlined application process for new community garden sites. To date in 2013, OFPC and GreenThumb identified more than 25 new sites on more than 9 acres of city-owned land that is available for long term use as community gardens; the majority of these new community gardens will be in underserved communities. Grow to Learn – the citywide school gardening initiative – more than doubled the goal of creating 25 new gardens in 2012. Currently, there are 341 schools registered with Grow to Learn that reach more than 70,000 students. In 2012, Grow to Learn distributed \$311,000 in mini-grants to 175 schools; \$143,000 of those mini grants awarded to schools in underserved communities.</p>	Launch study to identify potential urban agriculture or community garden sites on City-owned properties unsuitable for other development	In progress	
	Plant 129 new community gardens on NYCHA sites	In progress	
	Create one urban farm on a NYCHA site	In progress	

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
	Establish five additional farmers markets at community garden sites	In progress
	Increase number of community volunteers registered with GreenThumb by 25%	In progress
	Expand support for community gardens into new underserved neighborhoods	In progress
	Register 25 new school gardens with Grow to Learn NYC per year, and retain at least 75% of registered school gardens year to year	In progress
	Reduce impediments to agriculture in relevant laws and regulations	Completed
<b>4 Continue to expand usable hours at existing sites</b>		
Completed construction on the 26th multi-purpose field and 16 new lighting installations.	Complete 26 multi-purpose fields	Completed
	Complete 19 new lighting installations	In progress
<b>CREATE DESTINATION-LEVEL SPACES FOR ALL TYPES OF RECREATION</b>		
<b>5 Create and upgrade flagship parks</b>		
<p>Completed construction at Transmitter Park. Remediation at Bush Terminal is approximately 95% complete. Park construction approximately is 50% complete. All construction is expected to be completed in 2013. Significant portion of construction is completed in East River Park Esplanade, Maiden Lane restaurant pavilion will open in June 2013 and Pier 15 cafe pavilion is scheduled to open in August 2013. The City completed acquisition and is starting design phase, as well as remediation work, on Section 3 of the High Line. In Brooklyn Bridge Park, Pier 5 was opened and we issued an RFP for Empire Stores. In June 2012, we completed renovation of the historic McCarren Pool and Play Center, the first of the eight PlaNYC regional parks projects. We also broke ground on the High Bridge, New York City's oldest bridge and what will be a vital pedestrian link between the Bronx and Manhattan. Construction was completed at Calvert Vaux and Rockaway Parks. Highland Park Phase 1 is planned to open this summer. We have made construction progress on Ocean Breeze, whose construction is being managed by DDC, and with the building now erected we are looking for track &amp; field events to begin in Fall 2014. We broke ground on Soundview Park in June 2012 and construction on the track &amp; field is over 50% completed. Construction also began on Fort Washington Park and is in progress. Transmitter Park opened to the public in August 2012 and we are currently completing pier work and installation of pier railing, with construction anticipated for completion in mid-March 2013. Hunter's Point Queen's five acre park is expected to complete construction in summer 2013. Steeplechase Park construction has been delayed by Superstorm Sandy, construction is anticipated to start by summer 2013. Remediation is 95% complete and park construction is 50% complete of Bush Terminal. NYCEDC construction project is expected to complete Phase I in Spring/Early Summer 2013.</p>	Highland Park: Complete renovations including reservoir perimeter lighting, path restoration, and new entry points	In progress
	McCarren Park: Complete construction of pool and year-round recreation center	Completed
	Ocean Breeze Park: Complete 2,500-seat field house	In progress
	Highbridge Park: Restore bridge and access paths within park to improve connectivity between Northern Manhattan and the Bronx	In progress
	The High Line: Construct Section 2 (20th to 30th streets) and pursue acquisition of Section 3	Completed
	Dreier-Offerman Park (Calvert Vaux Park): Construct new sports fields, lighting, and pedestrian paths as part of Phase 1 construction	Completed
	Fort Washington Park: Complete phase I construction	In progress
	Soundview Park: Complete construction of Metcalf Playground, Rosedale Amphitheater, and Metcalf Track & Field	In progress
	Rockaway Park: Complete construction of phase I	Completed
	Brooklyn Bridge Park: Complete Pier 5, reopen Empire Fulton Ferry Park and Squibb Bridge	In progress
	Transmitter Park: Construct 1.5-acre site, including a playground, benches, and trees	Completed
	East River Park Esplanade: Substantially complete park elements	In progress
	East River Park: Complete reconstruction of seawall and esplanade	In progress
	Governors Island: Commence parkland and infrastructure development	In progress
	Hunter's Point, Queens: Complete construction of a new five-acre park	In progress
	Bushwick Inlet Park: Continue phased acquisition, remediation, and development of parks	In progress
	Stapleton: Begin construction of six-acre waterfront esplanade	In progress
	Steeplechase Park: Complete construction of Steeplechase plaza and restoration of carousel	In progress
	Orchard Beach: Replenish with clean sand, and expand the South Jetty	Completed
	Long Island City, Queens: Complete design and reconstruction of pier in the Anable Basin	In progress
Hudson River Park: Construct an upland esplanade in Tribeca, reconstruct Pier 97	In progress	
Bush Terminal: Complete remediation of open space and advance phase I of park	In progress	

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>6 Convert former landfills into public space and parkland</b>		
North Park Wetland Restoration is in the construction phase. The New Springville Greenway has received all approvals and is in the bid process.	Freshkills Park: Develop the first public access areas more than looking Main Creek and continue capping and closing of east and west mounds	In progress
	Pelham Landfill: Open to the public	In progress
	Ferry Point Park: Complete Community Park	Completed
<b>7 Increase opportunities for water-based recreation</b>		
In 2012, the City opened two new boat launch sites and anticipates opening an additional five sites in 2013. In 2012, the Public Access Interagency Working Group developed Best Practices for Promoting Safe Public Access to Human-Powered Boating in New York City. This guidance document is anticipated for release before the start of the 2013 boating season. Vessel mooring field, dinghy dock, and boat launch ramp will open in spring 2013. Marina pile driving work is scheduled for fall 2013. Marina floating dock installation is scheduled for spring 2014. Community eco-dock funding has been received with the anticipated construction and installation to begin in 2015.	Develop multi-agency task force to assess opportunities for expanding the blue network across the city for water-based recreation	Completed
	Complete expansion of launch platform at Hunts Point-Riverside Park	In progress
	Complete repair and replacement of floating docks at Dyckman Street Marina	In progress
	Activate West Harlem Piers Park's excursion boat pier and ferry barge	In progress
<b>RE-IMAGINE THE PUBLIC REALM</b>		
<b>8 Activate the streetscape</b>		
In 2012, the city installed 9 temporary plazas. An additional 10 temporary plazas will be completed in 2013. In 2013, 3 capital construction plaza projects will begin and construction on 6 other plazas will also begin. The pop up café program is now called the Street Seat program. In 2012, 3 Street Seats were in operation in summer 2012 and all will reopen in 2013.	Complete construction of 13 plazas	In progress
	Install 500 benches throughout the city	In progress
	Approve the urbanSHED Design Competition winning design and work with City agencies, buildings owners, contractors, and professionals on adoption of the new design	Completed
	Release recommendations to further streamline the permitting process for sidewalk cafés	In progress
	Amend zoning to facilitate revitalization of underutilized arcades in Lower Manhattan with new active uses	Completed
	Open four new pop-up cafés	In progress
<b>9 Improve collaboration between City, state, and federal partners</b>		
Research partnerships continue to be developed at the NYC Urban Field Station between government agencies. Current projects include evaluating the long-term forest restoration outcomes at Pelham Bay Park, a pilot project on developing stress indices for street trees. Projects in the planning stages are a new i-Tree Eco study and a citywide ecological assessment.	Conduct five joint research projects via the NYC Urban Field Station	In progress
	Align pathways, hours of operation, and bicycling rules on neighboring park sites	In progress
<b>10 Create a network of green corridors</b>		
Brooklyn Waterfront Greenway master plan was completed in summer 2012. Three of the Phase I South Bronx Greenway projects are complete (Lafayette Avenue, Hunts Point Avenue and Hunts Point Landing); two projects will be in construction in 2013 (Food Center Drive and Randall's Island Connector). Queens East River Greenway and the Staten Island South Shore Greenway will open in 2013. The City is working to advance the Brooklyn Waterfront Greenway. East River Waterfront Esplanade South, in Lower Manhattan will open a new esplanade and continuous bikeway which will be completed from the Battery Maritime Building up to Old Slip in March 2013. The portion of the bike lane from Old Slip North to Robert Wagner Place will be part of the reconstruction of South Street which is expected to begin work in spring 2013. Chapters on landscape and permeable materials will be updated by end of 2013 in Street Design Manual.	Continue to build and expand greenway waterfront network including Brooklyn Waterfront Trail, Queens East River Trail, Soundview Greenway, South Bronx Greenway, Staten Island South Shore Greenway, and Manhattan Waterfront Greenway	In progress
	Release update to Streets Design Manual that contains guidance on landscaping and the use of other sustainable elements	Completed
<b>PROMOTE AND PROTECT NATURE</b>		
<b>11 Plant one million trees</b>		
Planted 21,650 street trees and 57,907 containerized trees in forest restoration plots, bringing the total number of trees planted to more than 730,000. Million TreesNYC is ahead of schedule and looks forward to completing 750,000 trees by 2013. The City continues to collect data on NYC's urban forest. Projects include an ongoing study of street tree planting survival over the long-term, and a pilot project to prune recently planted street trees to improve tree growth structure and vigor.	Plant a total of 650,000 trees	Completed
	Explore methods to ensure long-term survival of existing urban forest	In progress
<b>12 Conserve natural areas</b>		
The Natural Areas Conservancy launched in 2012 and is working to advance conservation and management of NYC's natural areas in partnership with DPR.	Explore the establishment of a natural area conservancy to preserve the city's remaining wild lands	Completed
<b>13 Support ecological connectivity</b>		
The City completed 63 greenstreets in 2012. We are collecting data on 10 green roofs and investigating funding options to conduct a best practices study on green roofs. In addition, we are preparing capital contracts and specifications for green roofs in the Bronx River Sewershed as part of storm water capture work with DEP. In addition, we are exploring the feasibility of populating entire neighborhoods, and in particular neighborhoods within DEP priority sewersheds, with green infrastructure as a means to manage storm water and flooding and increase ecological connectivity and address urban heat island effect. We determined project scope and priorities for the parkway improvement program and have used the Sustainable Urban Site Design Manual to inform site development and renovation of City projects. The former Greenstreets program is now DPR's Green Infrastructure Unit. DPR will also manage green infrastructure design and construction projects for Right of Way bioswales and storm water greenstreets.	Complete 80 greenstreets per year	In progress
	Conduct a study to determine best practices for promoting biodiversity in green roof design and construction	In progress
	Restore parkway landscapes to improve landscape connectivity	In progress
	Develop a framework to comprehensively address landscape issues on buildings sites in City codes and regulations	In progress

PROGRESS SINCE APRIL 2012		MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
PARKS AND PUBLIC SPACE		Create green standards for City government building site development and renovations	In progress
	<b>ENSURE THE LONG-TERM HEALTH OF PARKS AND PUBLIC SPACE</b>		
	<b>14 Support and encourage stewardship</b>		
	MillionTreesNYC has strengthened the network of citizens who are actively caring for trees by offering advanced workshops and community organizing tools. Our goal is to ensure that volunteers continue to help us care for the trees we've planted on an on-going basis. The City hosted more than 170 MillionTreesNYC events. We engaged more than 2,700 volunteers in tree care, surpassing our goal of 1,000 volunteers. Tree stewards cared for more than 3,700 trees, surpassing our goal of 2,500 trees.	Expand access to free tree care workshops and tool kits to stewardship groups across the five boroughs	In progress
		Institute DPR's network meetings for four parks in every borough	Completed
		Increase training activities and networking forums at catalyst parks	In progress
		Increase attendance at programming to more than 15,000 across all catalyst parks annually	In progress
	<b>15 Incorporate sustainability through the design and maintenance of all public space</b>		
	The City highlights the sustainable design features of every new parks capital project at community board meetings such as the percent increase in permeable surfaces. 78% of milestones from the Sustainable Parks Plan, which includes the sustainable design and maintenance of public parks, were completed or in progress as of the plan's 2012 Progress Update.	Develop digital library tracking system for cataloging sustainable aspects of capital projects	Completed
		Develop sustainable design checklist to be used with all DPR capital projects that complies with national Sustainable Sites standards	Completed
Develop indicators to measure existing and new sustainability initiatives at DPR related to water, material resources, energy, fuel, and partnerships		Completed	
Release first version of the Sustainable Parks Plan to promote accomplishments, train and educate DPR staff in best practices, and improve sustainability initiatives across the agency		Completed	
<b>DEVELOP PROGRAMS TO ACCELERATE BROWNFIELD CLEANUP AND REDEVELOPMENT</b>			
<b>1 Increase participation in the NYC Brownfield Cleanup Program by partnering with lenders and insurers</b>			
We have worked with the environmental insurance industry to develop Pollution Liability policies tailored to the needs of New York City projects enrolled in the BCP. We have included financial escrow analysis and environmental insurance premiums as reimbursable items under the NYC BIG Program. We have established a program for delivery of comfort letters to lenders on behalf of developers enrolled in the BCP.	Establish programs for financial institutions to increase lending for properties in the BCP	Completed	
	Establish programs with the insurance industry to deliver preferred insurance policies for properties in the BCP	Completed	
<b>2 Increase the capacity of small businesses and small- and mid-size developers to conduct brownfield cleanup and redevelopment</b>			
Pro Bono Assistance program assists its first three small business and leads to approval of its first cleanup plan in the BCP in August 2012. Working with the NYC Brownfield Partnership to increase industry awareness of environmental hardship claims and engaged the first environmental attorney specialist on environmental hardship claims to join the NYC Brownfield Partnership and join the Pro Bono Environmental Assistance program to deliver advice on filing hardship relief for costs for environmental cleanup for projects in the BCP.	Establish a brownfield <i>pro bono</i> referral program to provide inexperienced developers with advice on how to conduct investigations and cleanups	Completed	
<b>3 Enable the identification, cleanup, and redevelopment of brownfields</b>			
Established Look Back Mode for enrollment in the BCP and approved cleanup plan for the first project. Established the Stand-Still Mode for enrollment in the BCP and approved cleanup plan for the first project. We launched our Brownfield Turbo Training workshops to continue to ensure that the environmental industry is prepared to effectively navigate the BCP, and we are engaging industry experts via the Brownfields Industry Task Force to continue to improve our programs. We have institutionalized exit interviews with parties completing cleanup projects in the BCP and have used the feedback to improve developer experience. The e-government interface EPIC (Environmental Project Information Center) is in development and is targeted for launch in Fall 2013. We published the "Streamlining Site Cleanup in NYC" report illustrating the use of Triad approaches on BCP projects.	Establish flexible BCP provisions to allow for land preparation for resale	Completed	
	Perform market outreach to improve the SPEED real estate search engine to promote brownfield cleanup and redevelopment	Completed	
	Collaborate with community development corporations to advance the cleanup and redevelopment of property across the city	Completed	
	Establish a web-based application that automates and streamlines the navigation of City cleanup programs	In progress	
	In partnership with the EPA, implement approaches and improve Triad tools to accelerate property investigation and cleanup	Completed	
	Encourage cleanup and redevelopment of waterfront sites by proposing amendments to the Zoning Resolution that would allow greater flexibility for non-residential uses and floor area	In progress	
<b>4 Build upon existing state and federal collaborations to improve the City's brownfield programs</b>			
We have extended the Memorandum of Agreement between New York State and the City for operation of the BCP and liability protection until 2016. The City obtained State approval of the NYC Clean Soil Bank. We introduced a bill in the State legislature to provide statewide full liability release for NYC BCP cleanups, and we continue to lobby NYS regulators for statutory liability protection and for a waiver of the hazardous waste disposal surcharge for BCP projects. We have established a program for case by case management of environmental and tax liens with city OMB and NYS Office of the State Comptroller and we are currently advancing the first three projects in a State and City funded collaboration to cleanup a Brooklyn property in preparation for auction. We have also developed regulations to enable the City to perform environmental investigations and real estate appraisals on tax lien properties.	Develop stronger liability protection at the state level	Completed	
	Develop stronger liability protection at the federal level	Completed	
	Develop a pilot program for environmental lien forgiveness	Completed	
<b>STRENGTHEN INCENTIVES FOR BROWNFIELD CLEANUP AND REDEVELOPMENT</b>			
<b>5 Study the economic value of brownfield redevelopment in New York City</b>			
We have completed the financial analysis of the first 90 BCP cleanup projects to assess the amount of affordable housing created, job creation, leveraging of private investment and tax revenue generation projected to result from the revitalization of these brownfields. We have expanded the scope of research and are currently pursuing funding to support a research collaboration with local universities that will evaluate the societal and Environmental Justice benefits of brownfield cleanup and redevelopment in low income and disadvantaged communities in NYC.	Assess the fiscal and employment benefits of brownfield redevelopment in New York City	Completed	

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>6 Leverage the NYC Brownfield Cleanup Program to establish funding and other incentives for cleanup and redevelopment</b>		
<p>We launched the Brownfield Certification program in collaboration with NYS DEC to enable small businesses to claim Federal IRS tax deductions for brownfield cleanup costs incurred under the BCP under IRS Tax Code Section 198(a) and we are currently advocating in Congress for reauthorization of the Section 198(a) tax deduction which expired in 2011. The City was awarded \$650,000 by USEPA for the development of a revolving loan fund and for grant-making and \$500,000 by the NYS Regional Economic Development Council for grant-making to fund cleanup of BCP projects in disadvantaged communities. We are also working with the NYC Brownfield Partnership to increase industry awareness of environmental hardship claims and have successfully engaged the first environmental attorney specialist to join the NYC Brownfield Partnership to provide advice on filing hardship relief claims for the costs for environmental cleanup for projects in the BCP under the Pro Bono Environmental Assistance program.</p>	Develop programs that align incentives for neighborhood housing or infrastructure revitalization with brownfield incentives	Completed
	Establish brownfield redevelopment financial counseling program	Completed
	Develop a web-based, brownfield financial assistance search tool	In progress
<b>DEEPEN OUR COMMITMENT TO COMMUNITIES FOR COMMUNITY BROWNFIELD PLANNING, EDUCATION, AND SERVICE</b>		
<b>7 Support community-led planning efforts</b>		
<p>Twenty-five Community Brownfield Planning Districts have been designated that will have increased eligibility for City assistance programs, including eligibility for up to \$50k to BOA and CBPD community brownfield planners. We are working to establish special benefits for brownfield sites that are targeted for study for rezoning in the East New York study area. We have extended funding for BIG Program grants to support community brownfield planning through 2013. We have selected a contractor to perform brownfield financial and real estate counseling and provide advisory services for community based organizations under the BOA program and we have selected a contractor to identify 8-12 new BOA projects in neighborhoods disproportionately impacted by clusters of brownfields, both projects use NYS grant funds.</p>	Establish 25 NYC Community Brownfield Planning Districts (CBPDs)	Completed
	Provide focused City assistance and services to designated CBPDs for brownfield and sustainability planning	Completed
	Pilot incorporation of brownfield planning into early stages of redevelopment planning with East New York Sustainable Communities project	Completed
	Identify 8-12 new Brownfield Opportunity Area (BOA) projects in neighborhoods disproportionately impacted by clusters of brownfields	Completed
<b>8 Support local and area-wide community brownfield planning efforts</b>		
<p>We have established a capacity building and Turbo Training program for community brownfield planners to share best management practices for brownfield planning, working with city agencies and navigating the BCP. We have completed our real estate advisory study for community brownfield planners and will publish a report in spring 2013.</p>	Conduct a study to identify best management practices for community planners undertaking community brownfield planning efforts	Completed
	Establish training and other programs to build the capacity of community-based organizations in brownfield redevelopment, planning, and implementation	Completed
	Develop online community planning portal to provide cutting edge tools to community	In progress
	Support pilot program established by New York State Department of State for area-wide community brownfield planning and cross-government collaboration	Not Started
<b>9 Increase the transparency and accessibility of brownfield cleanup plans</b>		
<p>We established an MOU with New York Public Library for the dissemination of OER project information and educational information. A contact list has been developed for each BCP project and we publish three fact sheets for public notice at different stages during the course of cleanup.</p>	Establish an online document repository for BCP project information	Completed
	Establish advanced methods for the communication of brownfield project information to New York City communities	Completed
	Develop web-based educational tools to help all stakeholders understand brownfield cleanup and redevelopment processes	Completed
	Expand the NYC BrownfieldWORKS! training program	In progress
<b>EXPAND THE USE OF GREEN REMEDIATION</b>		
<b>10 Promote green remediation in the NYC Brownfield Cleanup Program</b>		
<p>We established the NYC Clean Soil Bank to promote recycling of clean soil from BCP redevelopments for reuse on City capital construction projects and recycled concrete aggregate (RCA) is routinely recycled and used for backfill on BCP projects. We established the Climate Resiliency and Green Remediation Audit Program to ensure that BCP cleanups are prepared for the impacts of climate change as well as to minimize the environmental footprint of these cleanups. More than 50 trees will be planted as part of final development on BCP projects approved in the first two years of operation. Green infrastructure and phytoremediation is being encouraged on sites where appropriate under the Climate Resiliency and Green Remediation Audit Program.</p>	Establish the Sustainability Statement in all cleanup plans	Completed
	Accelerate adoption of green remediation practices by establishing a program for green remediation audits of cleanup plans under the BCP	Completed
	Encourage the use of recycled concrete aggregate (RCA) as substitute for conventional backfill material	Completed
	Develop tree-based phytoremediation approach for end-of-cleanup polishing, also promoting the MillionTreesNYC program	Completed
	Establish green remediation stormwater management approaches on remedial sites and expand green infrastructure implementation as part of redevelopment	In progress
<b>11 Promote green space on remediated brownfield properties</b>		
<p>We have identified five pocket parks in the Bronx, Brooklyn, and Staten Island and performed Phase 1 investigations on all sites and additional Phase 2 investigation where appropriate. A cleanup plan has been established and implemented for one of the sites. We have established a design for state-of-the-art community gardens on lightly contaminated brownfield sites. We have established EPA grants and NYC BIG Program grants to prepare properties for community garden use and the Clean Soil Bank will provide clean soil to these projects.</p>	Create three Pocket Parks in collaboration with community planning organizations	Completed
	Create design for state-of-the-art community gardens on remediated brownfields	Completed
<b>CONTINUE IMPLEMENTING GREY INFRASTRUCTURE UPGRADES</b>		
<b>1 Upgrade wastewater treatment plants to achieve secondary treatment standards</b>		
<p>In May 2011, the City certified that the Newtown Creek Wastewater Treatment Plant meets federal Clean Water Act (CWA) standards for secondary treatment two years ahead of schedule. All 14 of the City's wastewater treatment plants now meet CWA secondary treatment standards.</p>	Certify that the Newtown Creek Wastewater Treatment Plant meets secondary treatment standards	Completed
<b>2 Upgrade treatment plants to reduce nitrogen discharges</b>		
<p>Substantially completed plant upgrades at the Bowery Bay and Hunts Point Wastewater Treatment Plants in 2012 and will complete upgrades at the 26th Ward and Wards Island Wastewater Treatment Plants in early 2013. Work continues at the Jamaica and Tallman Island Wastewater Treatment Plants with construction completion expected in mid-2015 and late 2014, respectively. Despite the impact from ongoing construction activities, the projects are routinely able to meet or exceed limits for nitrogen discharges into New York water bodies needed to comply with the Clean Water Act standards. In September 2012, the New York State Department of Environmental Conservation (DEC) certified completion of the Stable High Ammonia Removal Over Nitrite process at the Wards Island Wastewater Treatment Plant. The City in consultation with DEC, terminated the Ammonia Removal Process contract in favor of construction of a glycerol facility at the Jamaica Bay Wastewater Treatment Plant. This alternative will meet requirements of the Jamaica Bay Agreement, and will remove 3,000 pounds of ammonia per day from the effluent discharged into Jamaica Bay.</p>	Complete upgrades at the Wards Island WWTP	Completed
	Complete upgrades at the Tallman Island WWTP	In progress
	Complete upgrades at the Bowery Bay WWTP	Completed



PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>3 Complete cost-effective grey infrastructure projects to reduce CSOs and improve water quality</b>		
Under the CSO grey infrastructure program, DEP completed construction of the Shellbank Basin Destratification Facility, the Avenue V Pump Station, and the Bronx River Floatables Control Facility, as well as force main upgrades in 2012. DEP continues to construct construction of the Newtown Creek-Enhanced Aeration Facility in Lower English Kills, which will be completed in 2013.	Complete Paerdegat Basin CSO Facility	Completed
	Complete Alley Creek CSO Facility	Completed
	Complete Avenue V Pumping Station	In progress
	Complete upgrades to the Gowanus Canal Pumping Station	In progress
	Complete upgrades to the Gowanus Canal Flushing Tunnel	In progress
	Construct an aeration system for Lower English Kills in Newtown Creek	Not Started
	Complete a destratification facility at Shellbank Creek	Completed
<b>4 Expand the sewer network</b>		
In 2012, the City began a \$69 million project in Springfield Gardens, which includes construction of 2.8 miles of sewer lines and nearly three miles of water mains as well as drainage improvements to Springfield Lake. Also completed three projects in Staten Island and five projects in Queens at a cost of more than \$40 million, including a \$14 million project in Middle Village. Designs for sewer projects in Staten Island at Sheldon Avenue and Halpin Avenue are underway, and we expect designs for Twin Ponds in the Laurelton section of Queens to be completed in 2013. DEP has included \$2.4 billion for sewer construction in the 10 Year Capital Plan.	Completed more than 60 miles of new or reconstructed sewers from FY08 to FY12	Completed
<b>5 Optimize the existing sewer system</b>		
In 2010, through implementation of more efficient work practices, the City expanded sewer cleaning operations using in-house staff. In 2011, the City finished inspecting all 138 miles of interceptor sewers and in 2012, we completed the first two-year cycle of interceptor cleaning. In total, we removed 30 million gallons of material, freeing up storage capacity of 3.06 million gallons. Collectively, this translates into a reduction of combined sewer more than flows of 100 million gallons per year. In addition, in 2012 the City inspected the remaining 219 tide gates and repaired or replaced those deemed necessary. Reported sewer backups continued to decline last year for the sixth year in a row. In 2012, the City cleaned approximately 700 miles of sewers and continues to expand several programs to address sewer backups, including programmatic degreasing and improved sewer backup response practices. In addition, we launched a pilot to evaluate sewer manhole sensors. These sensors measure the elevation of wastewater in the sewer and wirelessly transmit that information to DEP's computer systems, allowing DEP to dispatch crews promptly and fix the problem before it results in a sewer backup. In November, the city released the State of the Sewers 2012, which includes key performance indicators for sewer maintenance and construction for each borough. In 2012, the City substantially reduced the catch basin repair backlog. Today, fewer than 750 catch basins have open work orders – only 0.5% of all catch basins citywide. Every time field crews inspect or clean a catch basin, they also determine if it requires structural repairs to keep working properly. Those that need work are placed into our computerized maintenance management system. During 2012, the City evaluated the performance of mobile technology in the field and expanded wireless internet connectivity, ensuring that the mobile units can be used inside and outside the vehicles. This has made the mobile technology tools more reliable for our field staff, even in areas of the city that may have weaker connections to the network and provides a cost-effective way for our field staff to access GIS data. In 2012, the City formed a dedicated modeling group to quickly analyze issues and evaluate alternatives to solve them, leading to faster solutions. In addition, we expanded drainage plan development capabilities through the addition of dedicated contract resources. The City continues to develop the asset management program for sewer-related investments that will allow the agency to make more strategic decisions.	As part of our standard operating procedures, we'll continue to inspect each tide gate once per month.	Completed
	Clean 138 miles of interceptor sewers	Completed
<b>USE GREEN INFRASTRUCTURE TO MANAGE STORMWATER</b>		
<b>6 Expand the Bluebelt program</b>		
In July 2011, the City completed a \$2.5 million Bluebelt project to restore the 46-acre Oakland Lake Park in Bayside, Queens. The City also completed drainage plans for the Mid-Island portion of the Staten Island Bluebelt and published a Draft Environmental Impact Statement.	Expand Bluebelt system into Queens	Completed
<b>7 Build public green infrastructure projects</b>		
In March 2012, the City signed an agreement with DEC to achieve the NYC Green Infrastructure goal of managing one inch of rain on 10 percent of impervious surfaces in combined sewer drainage areas by 2030. In the past year we have built 10 right of way bioswales and five other green infrastructure installations. We also developed a maintenance protocol and interagency agreement to ensure effective implementation.	28 GI sites have been completed, with an additional 5 substantially completed.	In progress
	Capture the first inch of runoff from 70 additional acres of impervious surface	In progress
<b>8 Engage and enlist community stakeholders in sustainable stormwater management</b>		
In 2012, the City awarded more than \$3.4 million to private property owners to design and construct green infrastructure in the second cycle of the Green Infrastructure Grant Program. The City also convened four formal meetings of the Green Infrastructure Steering Committee and several working group meetings on implementation related topics such as green jobs, education and engagement, and technical advice and research. DEP continues to update neighborhoods about the green infrastructure program through presentations to Community Boards, City Council Members, and local community organizations as well as targeted mailings.	Implement a green infrastructure grant program	Completed
	Seek input through the Green Infrastructure Citizens Group	In progress
<b>9 Modify codes to increase the capture of stormwater</b>		
Storm water performance standard (or "storm water rule") took effect in July 2012. By slowing the flow of storm water to the sewers, the storm water rule allows the city to manage storm water runoff from new development and redevelopment more effectively and maximize, to the greatest extent possible, the capacity of the city's combined sewer systems. In conjunction with the new storm water rule, the City published a companion document, Guidelines for the Design and Construction of Storm Water Management Systems, to assist the development community and licensed professionals in the selection, planning, design and construction of onsite source controls that comply with the new rule.	Require greater on-site detention and infiltration for new development and redevelopment	Completed
	Require greater stormwater runoff controls from construction sites	In progress
	Study potential code changes to incorporate blue roofs on existing buildings	In progress
	Develop new design standards for sidewalks	Not started
	Study improved regulation of open industrial uses to reduce runoff	In progress
<b>10 Provide incentives for green infrastructure</b>		
During 2012, the city worked with environmental advocates and green roof designers to extend the NYC Green Roof Tax Abatement which is currently set to expire in March 2013. The extender proposal would need to be adopted by the State Legislature to be effective the following year. Under the 2011 pilot, DEP billed 364 accounts for a total of \$188,000 in 2012. The charge continues to generate revenue for important storm water related expenditures and targets existing private development, in conjunction with the storm water performance standard.	Evaluate the feasibility of using price signals to reduce stormwater runoff	Completed
	Evaluate the efficacy of the green roof tax abatement	Not Started

WATERWAYS

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<p>In 2012, the City used updated data to capture additional stand-alone parking lots not originally charged in 2011, and will begin billing these additional accounts in 2013. The City continues to explore other potential storm water charges and reforms to further incentivize green infrastructure.</p>		
<b>REMOVE INDUSTRIAL POLLUTION FROM WATERWAYS</b>		
<b>11 Actively participate in waterway clean-up efforts</b>		
<p>The City continued to provide information to EPA that illustrates the degree and sources of contamination in these waterbodies and best supports cleanup. In October 2011, the City completed a \$13 million dredging of Hendrix Creek, a tributary of Jamaica Bay in southern Brooklyn, to remove accumulated CSO sediment and reduce odor in the surrounding community.</p>	Participate in the Superfund investigation and feasibility study in the Gowanus Canal	In progress
	Participate in the Superfund investigation in Newtown Creek	In progress
	Submit application to dredge CSO mounds for Gowanus Canal and Fresh Creek	In progress
	Begin CSO dredging in Paerdegat Basin	Not started
	Complete dredging in Hendrix Creek	Completed
<b>PROTECT AND RESTORE WETLANDS, AQUATIC SYSTEMS, AND ECOLOGICAL HABITAT</b>		
<b>12 Enhance wetlands protection</b>		
<p>In April 2012, released the New York City Wetlands Strategy to establish a goal to achieve no net loss of wetlands and maximize the ecological functions of the city's remaining wetlands. Incorporating the one foot digital elevation model into the ongoing wetlands protection strategy analysis. In March 2012, the City released drafts for public comment for updates to the Waterfront Revitalization Program, which will designate additional sites of ecological importance and offer them greater regulatory protection. In October 2011, the City transferred 62 parcels to the Bluebelt Program as recommended by the Wetland Transfer Task Force. In Fall 2011, the City installed Surface Elevation Tables at Pelham Bay Park in the Bronx and at Spring Creek in Queens to measure wetland accretion levels and monitor long-term trends such as the impacts from sea level rise.</p>	Transfer at least five City-owned wetlands to DPR	Completed
	Work with state and federal partners to update wetlands maps	In progress
	Modify the Waterfront Revitalization Program to designate additional sites of ecological importance	In progress
	Evaluate the vulnerability of salt marshes through additional monitoring	In progress
	Develop a comprehensive strategy for wetlands	In progress
<b>13 Restore and create wetlands</b>		
<p>The City continues to work as a local cost sharing partner with the US Army Corps of Engineers to restore eroded salt marsh islands in Jamaica Bay. In 2012, contractors began construction on the 42 acre Yellow Bar project with the placement of sand and planting of low marsh vegetation, and placed sand on Black Wall (22 acres) and Ruler's Bar (12 acres) marshes. To date, 76 acres of eroded salt marsh have been restored. The City expects to complete restoration of the Paerdegat Basin wetlands by June 2013. Jamaica Bay marsh island restoration continues with planting of Yellow Bar, Black Wall and Rulers Bar expected in late spring 2013.</p>	Complete Paerdegat Basin restoration	In progress
	Complete Pugsley Creek Park restoration	In progress
	Complete Soundview Park restoration	In progress
	Complete Bronx River restoration	In progress
	Complete Randall's Island shoreline restoration	In progress
	Complete Drier Offerman Park restoration	In progress
	Complete Meadow Lake restoration	In progress
	Complete Freshkills North Park restoration construction by 2013 summer	In progress
	Invest \$15 million in wetlands restoration in Jamaica Bay	In progress
<b>14 Improve wetlands mitigation</b>		
<p>The City is working with EDC to review RFP submittals for developing the City's first wetland mitigation bank. Proposals are currently being reviewed and consultant selection is expected in March 2013.</p>	Establish a wetland mitigation banking or in-lieu fee program	In progress
<b>15 Improve habitat for aquatic species</b>		
<p>The City continues to restore wetland habitats in and around Jamaica Bay through a variety of pilots, including programs to increase oyster and ribbed mussel populations. Oyster size has continued to increase and laboratory testing of oyster tissue samples indicates that the oysters are growing and healthy. The ribbed mussel biofiltration pilot has shown a successful natural colonization after a full year of monitoring, and we expect the mussels to grow to a similar size as natural growing mussels in the surrounding area. Preliminary data from eelgrass meadows in Jamaica Bay indicates that the eelgrass did not survive the significant environmental and physical stressors present at that location, including blue mussel colonization and strong sediment movement (sand waves), which buried many of the tender shoots. The potential causes of low survival rate for eelgrass at all pilot sites will undergo further assessment, and we will continue to collect and analyze the data to determine the long term efficacy of this particular restoration method.</p>	Expand oyster pilot project and conduct additional research	In progress
	Develop a strategy to advance restoration efforts	In progress
	Complete ribbed mussel bed pilot	In progress
	Complete eel grass pilot	Completed

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>ENSURE THE QUALITY OF OUR DRINKING WATER</b>		
<b>1 Continue the Watershed Protection Program</b>		
<p>In December 2011, the City submitted its long term Filtration Avoidance Determination (FAD) plan to the New York State Departments of Health and Environmental Conservation, which includes program proposals for 2012-2017. Throughout 2012, we continued discussions with our regulators to finalize the next FAD update. Funding for FAD programs has been included in the 10-Year Capital Plan. In 2012, the City solicited approximately 63,000 acres of land in the watershed and closed on 7,087 acres in fee or easement, including Watershed Agricultural Farm Easements, to meet the requirements of the Land Acquisition Program, a mandated component of the Filtration Avoidance Determination. Since the inception of this program, the City has protected more than 128,000 acres of watershed land—including more than 83,000 since 2002—in the Catskill/Delaware and Croton watersheds.</p>	Maintain the city's Filtration Avoidance Determination (FAD)	In progress
	Seek to acquire land by contacting the owners of at least 50,000 acres of land every year	Completed
<b>2 Protect the water supply from hydrofracking for natural gas</b>		
<p>In 2012, the City continued to advocate for strong protections for the water supply infrastructure. In early November, DEC applied for and received a 90 day extension on the draft regulations for high-volume hydrofracking and on November 30, 2012 released revised regulations. The City submitted comments on January 7, 2013 strongly advocating for regulatory protections for the water supply infrastructure. The State recently announced another postponement while a review of the health impacts continues.</p>	Work with the State to secure the prohibition of hydrofracking within the city's watersheds	Completed
<b>3 Complete the Catskill/Delaware Ultraviolet (UV) Disinfection Facility</b>		
<p>In 2012, the City completed 90% of the construction of the \$1.6 billion Catskill/Delaware Ultraviolet Disinfection Facility, the largest facility of its kind in the world. Since mid-October, the City has been treating all New York City tap water with ultraviolet disinfection.</p>	Complete construction	In progress
<b>4 Complete the Croton Water Filtration Plant</b>		
<p>In 2012, the City continued construction of the \$3.2 billion Croton Water Filtration Plant, and began field testing of system process equipment. In June 2012, construction of a plug in the New Croton Aqueduct to separate raw and treated water was completed. In 2013, we will complete and begin operating the plant.</p>	Complete construction	In progress
<b>MAINTAIN AND ENHANCE THE INFRASTRUCTURE THAT DELIVERS WATER TO NEW YORK CITY</b>		
<b>5 Repair the Delaware Aqueduct</b>		
<p>Through the Water For the Future program, the City will repair leaking sections of the Delaware Aqueduct, ensuring reliable water for decades to come. A RFP has been released for the construction of the shafts in Newburgh and Wappinger in April 2012 and registered the contract in December 2012. Site preparation and construction on the two shafts will begin in January 2013. The construction of the bypass tunnel and repair of the leaking section in Wawarsing is being designed and should be complete by September 2014. The City expects to begin tunnel construction in 2015. After a detailed analysis, we determined that there is almost no risk of liner failure while the existing tunnel is dewatered, and water inflows during construction will be manageable. The combination of these findings means that construction of a plug in the existing tunnel is not required and the work can be phased. This results in a shorter shutdown period and less of a need for augmentation of water supplies. Consequently, the total program cost has been reduced by \$400 million, to \$1.7 billion.</p>	Break ground on the aqueduct bypass	In progress
	Complete upgrades to the Cross River Pumping Station	Completed
	Complete design for the upgrades to the Croton Falls Pumping Station	Completed
	Complete rehabilitation of the New Croton Aqueduct	In progress
	Begin design for the upgrades to the Jamaica groundwater system	In progress
<b>6 Connect the Delaware and Catskill Aqueducts</b>		
<p>In 2012, the City bid the contract to connect the Delaware and Catskill Aqueducts at Shaft 4. The contract will register in March 2013, and we expect to complete the project in 2015.</p>	Start construction	Not started
<b>7 Pressurize the Catskill Aqueduct</b>		
<p>In 2012, the City revisited plans to pressurize the Catskill Aqueduct. In 2013, the City will analyze various options to pressurize the aqueduct, including no action, baseline pressurization, enhanced pressurization, construction of pump stations, and new tunnel construction. RFP will be released for geotechnical boring work scheduled for 2014.</p>	Complete Facility Planning and Basis of Design Report	In progress
<b>8 Maintain and upgrade dams</b>		
<p>In 2012, the City continues to implement the Dam Safety Inspection Program, performed post-incident inspections immediately after Hurricane Sandy, and conducted and submitted Engineering Assessment Reports indicating more than satisfactory conditions of structural integrity of the dams to the New York State Department of Environmental Conservation. Reconstruction of Gilboa Dam is 46% complete, with substantial completion expected in September 2014, nearly two years ahead of the contractual completion requirement. The reconstruction contract for New Croton Dam is scheduled to begin in January 2013, with anticipated substantial completion in January 2016 at a cost of \$13.5 million. The New Croton Dam is last of the planned major dam reconstruction projects in the Croton Watershed.</p>	Begin rehabilitation of the Gilboa Dam	Completed
	Begin engineering assessments for dams as required by the State	Completed
<b>MODERNIZE IN-CITY DISTRIBUTION</b>		
<b>9 Complete City Water Tunnel No. 3</b>		
<p>In 2012, construction commenced on the final four critical water main projects and is on schedule to activate City Water Tunnel No. 3 in 2013.</p>	Activate Stage 2 in Manhattan	In progress
<b>10 Build a backup tunnel to Staten Island</b>		
<p>In 2012, in partnership with the Port Authority of New York and New Jersey and the New York City Economic Development Corporation, the City launched tunneling operations for construction of the Staten Island Siphon. During Hurricane Sandy, the Staten Island shaft site was inundated with water and the tunnel boring machine was damaged, delaying the project for approximately one year.</p>	Begin construction	In progress
<b>11 Upgrade water main infrastructure</b>		
<p>The City continues to make substantial progress on key water supply projects in targeted areas, including Coney Island where construction is planned for the first half of 2013, Pelham Parkway where water main work is already under construction, and the Rockaways, where we will complete more than \$10 million in water distribution upgrades over the next three years. In 2012, a water main construction near Atlantic Yards to meet expected demand increases and support the opening of the Barclay's Center was completed. Work has begun to support the development of Hudson Yards on the west side of Manhattan. In 2012, more than 5,300 inspections of the City's 500 water pressure regulators were performed, which resulted in a 23% reduction in water main breaks compared to 2011. The City averaged less than six breaks per 100 miles of pipe, well below the accepted industry average of 24 breaks per 100 miles annually.</p>	Replace 80 miles of water mains	Completed

WATER SUPPLY

PROGRESS SINCE APRIL 2012		MILESTONES TO COMPLETE BY DECEMBER 31, 2013		STATUS
WATER SUPPLY	<b>IMPROVE THE EFFICIENCY OF THE WATER SUPPLY SYSTEM</b>			
	<b>12 Increase operational efficiency with new technology</b>			
	As of February 2013, the City has installed Automated Meter Reading (AMR) devices for 96 percent of our customers. The AMR installation project is now substantially complete. In February 2012, the City expanded the Leak Notification Program to proactively notify large building owners of potential leaks and enable the owners and managers to quickly respond to and fix them before they become a costly problem. Since starting the program in March 2011, more than 35,000 customers have saved an estimated \$29 million in otherwise wasted water or damaging leaks. In January 2012, the large meter replacement project was included as a part of OpX initiative, and DEP staff have replaced more than 800 underperforming meters.	Complete the installation of AMR devices citywide	Completed	
		Replace 10,000 large water meters	In progress	
		Optimize delivery by integrating forecasting models into operations	Completed	
	<b>13 Increase water conservation</b>			
	The City launched the Municipal Water Efficiency Program and completed pilot projects at four sites: spray shower retrofits at Maple and Glendale Playgrounds and fixture retrofits at Bayside and Hillcrest High Schools. The more thanall program will target municipal buildings for water savings of nine million gallons per day and cost \$60 million by 2017. The City completed analysis of costs and benefits of widespread replacements of inefficient toilets and developed a strategy to achieve an optimal flow. On August 8, 2012, Mayor Bloomberg signed Local Law 41 of 2012, the Plumbing Code Revisions Bill (Intro 807A) into law. The new law incorporates greywater reuse standards into NYC Plumbing Code by bringing it up to date with the 2009 edition of the International Plumbing Code and making amendments to the Code that reflect the unique character and needs of the City. This local law will become effective on the same effective date as amendments the NYC Building Code, Fuel Gas Code, Mechanical Code and the Administrative Provisions in Title 28 which will be proposed to City Council in May 2013.	Release a design manual for water conservation in buildings	Completed	
		Pilot advanced strategies for water conservation in City buildings	In progress	
		Launch a process to replace all old, inefficient toilets in City buildings	In progress	
		Analyze the costs and benefits of widespread replacements of inefficient toilets and develop a strategy to achieve an optimal flow	In progress	
Develop comprehensive greywater reuse standards		In progress		
TRANSPORTATION	<b>IMPROVE AND EXPAND SUSTAINABLE TRANSPORTATION INFRASTRUCTURE AND OPTIONS</b>			
	<b>1 Improve and expand bus service throughout the city</b>			
	The City is designing an SBS Corridor project on Webster Avenue in the Bronx. In 2012, the City set up TSP infrastructure at the traffic management center and with NYCT began to install TSP equipment on buses. In 2012, MTA installed bus time on the B61 bus route, the M34 and M34A bus routes, and all routes in the Bronx.	Launch Nostrand Ave., Brooklyn SBS Corridor	In progress	
		Launch LaGuardia, Queens SBS Corridor	Completed	
		Launch 34th Street, Manhattan SBS Corridor	Completed	
		Launch Hylan Blvd., Staten Island SBS Corridor	Completed	
		Launch initial Woodhaven Blvd. SBS Corridor	Completed	
		Implement bus operations improvements on all routes, with transit signal prioritization, on eleven routes in five boroughs	In progress	
		Install Bus Time on all 31 bus routes in Staten Island and B63 in Brooklyn	Completed	
		Improve bus priority of Ed Koch Queensboro Bridge and approaches	Completed	
	<b>2 Improve and expand subway and commuter rail service</b>			
	MTA completed a second tunnel-boring run on the Second Avenue Subway; the first phase of the project is on track for a 2016 launch. On the East Side Access project, interlocking tunnel structure and Plaza Substation construction was started in Queens and early fit-out construction work began on a portion of the new LIRR concourse in the lower level of Grand Central Terminal. Construction of the 7 Line extension continued and is on schedule for a 2013 completion.	Complete construction of 7 Line extension to the Hudson Yards area of far west Midtown	In progress	
		Continue construction of first phase of Second Avenue Subway (2015)	In progress	
		Continue construction of East Side Access, the LIRR's direct service to Grand Central Terminal	In progress	
		Complete analysis for North Shore Transportation Improvements, Staten Island	Completed	
	<b>3 Expand for-hire vehicle service throughout our neighborhoods</b>			
	The TLC passed rules in April 2012 to implement the street hail livery plan. However, industry members filed several lawsuits challenging the State law, and a district court judge issued an injunction against the program. The City has appealed the case, and it will be heard before the New York Court of Appeals in April. A decision is expected later this year.	Allow livery vehicles to accept street hails outside of Manhattan	Completed	
	<b>4 Promote car-sharing</b>			
	The City has completed its approximately 500 vehicle fleet reduction, accomplishing this reduction partially through a 350 vehicle fleet share program, the largest in the nation. The City uses at least 5% biodiesel, and will expand the number of agencies using B20 to include DoT, DEP, Parks and DSNY. The City has more than 500 electric vehicles in its fleet and has stated that it will add at least 50 more this year. Finally, the implementation of real time fuel tracking at internal City fueling sites will allow the City to better manage usage and consumption.	Assess car-sharing potential for City fleet vehicles	Completed	
<b>5 Expand and improve ferry service</b>				
The City launched a three-year East River Ferry pilot in June 2011.	Launch East River service pilot to support the continued redevelopment of the East River waterfronts	Completed		
<b>6 Make bicycling safer and more convenient</b>				
The City bike share system is scheduled to begin in May 2013. The City installed 110 bike racks near 52 subway stations and installed 8 on-street bike corrals throughout the city in 2012.	Double bike commuting from 2007 levels	Completed		
	Launch pilot bike-sharing program	Completed		
	Install bike racks near 15 subway stations	Completed		

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>7 Enhance pedestrian access and safety</b>		
<p>4 Bus Stops under the Els will start construction in 2013. Remaining 5 are in the final stages of design. 12 Safe Routes to School projects are complete and 3 are in design. In 2012, a wayfinding system pilot program will launch in Long Island City, Chinatown, Midtown Manhattan, and Prospect Heights. Wayfinding maps will also be included on each Citi Bike station.</p>	Install countdown pedestrian signals at 1,500 intersections	Completed
	Adopt new guidelines for public parking garages that promote pedestrian safety	Not started
	Continue to implement Safe Routes to Transit projects, including nine "Bus Stops Under the Els"	In progress
	Implement 32 Safe Routes to School projects	In progress
	Design a standardized, consistent pedestrian wayfinding system	Not started
<b>REDUCE CONGESTION ON OUR ROADS, BRIDGES, AND AT OUR AIRPORTS</b>		
<b>8 Pilot technology and pricing-based mechanisms to reduce traffic congestion</b>		
<p>The City will launch Jackson Heights PARK Smart launches in winter 2013 and the Atlantic Avenue PARK Smart is slated to start in Spring 2013. The City implemented a series of comprehensive parking improvements in Chinatown in winter 2013. The city has transferred from single space meters to Muni-Meters</p>	Expand ParkSmart program to three new neighborhoods	In progress
	Install 4,500 Muni-Meters	Completed
	Install Intelligent Transportation Systems (ITS) approach to reducing congestion in selected areas	Completed
<b>9 Modify parking regulations to balance the needs of neighborhoods</b>		
<p>In 2012, Paid commercial parking in Chinatown and Jackson Heights commenced. In 2012, the City worked on an interagency TIGER II funded study that investigated connections between the Sheridan Corridor, the Cross Bronx Expressway, and the surrounding neighborhoods with a focus on improving pedestrian and vehicular access between the food distribution center and the neighborhoods. In 2012, the City also undertook a second study to determine what short-term improvements could be implemented to improve access.</p>	Explore modifications to Manhattan Core parking regulations	In progress
	Explore revisions to off-street parking requirements in areas close to the Manhattan Core	In progress
<b>10 Reduce truck congestion on city streets</b>		
<p>In 2012, NYC DOT installed commercial delivery windows in Washington Heights, Chinatown, and Jackson Heights. NYC DOT also implemented paid commercial parking in Chinatown and Jackson Heights.</p>	Implement new peak and off-peak delivery windows in congested areas	In progress
	Implement commercial paid parking at high-demand loading zones citywide	In progress
	Improve landside access to the New York Container Terminal	In progress
<b>11 Improve freight movement</b>		
<p>First vessel at South Brooklyn Marine Terminal in 4Q 2012.</p>	Study the Sheridan Corridor in the Bronx	In progress
	Launch a study of New York City's food distribution pathways	In progress
	Accommodate more inbound freight trains at Hunts Point	In progress
	Establish new rail transfer hubs in Brooklyn and Staten Island	In progress
	Increase rail and waterborne freight deliveries to the South Brooklyn Marine Terminal	Completed
<b>12 Improve our gateways to the nation and the world</b>		
<p>The FAA reauthorization bill was passed by Congress in 2012 and it included policy language that called for focusing investments for implementing the improved Next Generation Air Traffic Control system in locations where capacity is the most constrained and delays are the greatest. The JFK air cargo study was completed and released in February 2013. One of its key recommendations is to improve truck access to JFK. NYCEDC is proceeding with implementing those recommendations, first by conducting a study that examines truck volumes and routing and corresponding public safety and infrastructure requirements for large trucks.</p>	Advocate for federal investment in NE Corridor passenger rail and improved aviation traffic control	In progress
	Launch study of JFK air cargo industry	Completed
	Improve truck access to JFK Airport	In progress
<b>MAINTAIN AND IMPROVE THE PHYSICAL CONDITION OF OUR ROADS AND TRANSIT SYSTEM</b>		
<b>13 Seek funding to maintain and improve our mass transit network</b>		
<p>We will continue to work with the MTA, State, and regional jurisdictions that rely on commuter rail to identify stable funding for transit operations, maintenance and expansion in the metropolitan area</p>	Fund MTA Capital Program beyond 2011	In progress
<b>14 Maintain and improve our roads and bridges</b>		
<p>Brooklyn Bridge: Painting is on-going, as of November 2012, 63% of the Main Bridge had been painted. Rehabilitation of the ramps and approaches in Manhattan and Brooklyn is on-going and will continue through 2013. Manhattan Bridge: Contract #14, which includes total replacement of the bridge suspenders, main cable re-wrapping, replacement and upgrading necklace lighting, and installing maintenance platforms, is scheduled to be completed in June 2013</p>	Seek opportunities to improve bridge conditions	In progress
	Seek opportunities to improve the state of repair of the city's streets	In progress
	Seek legislation for joint bidding of public works projects	In progress

TRANSPORTATION

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>IMPROVE ENERGY PLANNING</b>		
<b>1 Increase planning and coordination to promote clean, reliable, and affordable energy</b>		
The City is investing in clean cogeneration at North River Wastewater Treatment Plant using renewable digester gas as the primary fuel and natural gas as a supplemental fuel, all but eliminating the need for fuel oil. The City is also considering this technology at Wards Island Wastewater Treatment Plant. The City is leading efforts to bring natural gas to Wards Island in support of the Clean Heat Program	Work with multiple energy stakeholders to encourage clean energy supply investments, effective incentive programs, shared data collection and management, and coordinated energy forecasting	In progress
<b>INCREASE OUR ENERGY EFFICIENCY</b>		
<b>2 Implement the Greener, Greater Buildings Plan</b>		
The Technical Rule for LL87 of 2009 - Energy Audits and Retro commissioning was promulgated in September of 2012. The first submissions required for compliance with LL87 are due for covered buildings residing on tax blocks ending in the number '3' by 12/31/2013. The first Benchmarking submissions from private buildings were received in 2012 for the 2011 Calendar Year and submissions were received from approximately 75% of the 13,258 buildings required to file.	Complete the development of rules and guidelines and fully enforce the Greener, Greater Buildings Plan	In progress
	Complete an annual analysis and report on benchmarking results	Completed
<b>3 Improve our codes and regulations to increase the sustainability of our buildings</b>		
In late April 2012, City Council adopted the Zone Green Text Amendment, a set of Green Codes Task Force (GCTF) recommendations that includes provisions encouraging rooftop agriculture, energy-efficient building walls, sun control devices, solar energy, other sustainable rooftop equipment, efficient air conditioning condenser units, electric vehicle charging, and permeable pavement. Other enacted GCTF codes include: providing recycling areas in apartment buildings in December 2012, and increasing biodiversity in public landscapes in February 2013. Following the recovery efforts of Hurricane Sandy, the City requested Urban Green Council (New York Chapter of the U.S. Green Building Council) to convene the Building Resiliency Task Force to analyze the impact of climate change on buildings, and identify measures to increase building resiliency and mitigate climate change in coordination with the New York City Special Initiative for Rebuilding and Resiliency. Recommendations will be released in Summer 2013.	Complete the incorporation of the Green Codes Task Force proposals into law	In progress
	Propose amendments to the Zoning Resolution and City codes to remove the barriers to energy-efficient building envelopes and the siting of clean energy on buildings	Completed
	Work with the International Code Council and ASHRAE to bring New York City's codes and the model codes into greater alignment	In progress
<b>4 Improve compliance with the energy code and track green building improvements citywide</b>		
Postings are available for a new Energy Code Unit which will be responsible for conducting inspections on new buildings and major alterations to ensure that they are in compliance with the Energy Code.	Aim to achieve compliance by 2017	In progress
	Develop a "green report card" and an online tracking tool for green building improvements	In progress
<b>5 Improve energy efficiency in smaller buildings</b>		
The Mayor's Office has begun developing a strategy targeting energy efficiency in small residential buildings and will conduct policy research in mid-2013. This strategy is a key component of the City's 80x50 study, exploring opportunities to reduce citywide emissions by 80 percent by 2050.	Develop a strategy to increase the energy efficiency of smaller buildings	In progress
	Execute GreeNYC public education campaigns to encourage New Yorkers to reduce energy consumption at home	In progress
	Launch an energy efficiency competition between residential neighborhoods throughout the five boroughs	In progress
<b>6 Improve energy efficiency in historic buildings</b>		
In October 2012, the Municipal Art Society of New York and the Landmark Preservation Commission released The Green Rowhouse Manual, researched and developed by Terrapin Bright Green and COOKFOX Architects. The manual helps homeowners to improve the energy efficiency of historic rowhouses without impacting their character.	Work with historic preservation societies and energy code councils to reconcile the energy codes with preservation requirements	Not started
	Partner to create a handbook of energy efficiency strategies for historic buildings	Completed
<b>7 Provide energy efficiency financing and information</b>		
NYCEEC completed the following: credit enhancement for a \$10 million loan program with JPMorgan Chase & Co. and the Hess Corp. to finance multifamily building clean heat conversions in mid-2012; credit enhancement for a \$17.5 million Energy Retrofit Loan Program with the NYC Housing Development Corp., a loan to finance a \$7.4 million energy efficiency and co-gen project for a Roosevelt Island multifamily property, financing for a \$3.75 million co-gen project at the Millennium Hilton and a \$6.7 million co-gen project at the Millennium Broadway, and a \$2 million line of credit from Deutsche Bank to finance natural gas conversions in affordable multifamily buildings in late-2012.	Create a not-for-profit corporation, the New York City Energy Efficiency Corporation (NYCEEC), to provide energy efficiency financing	Completed
	Create an information center to provide comprehensive, updated information on energy efficiency funding and tax incentives	In progress
<b>8 Create a 21st century energy efficiency workforce</b>		
The technical rule for LL87/09 - Energy Audits and Retro commissioning expanded the universe of professions who are eligible to perform the work necessary to complete a LL87 filing. In addition to the law's requirement of a PE or RA to be on the Energy Audit or Retro commissioning team, persons holding the following nationally recognized certifications, who register with the department, will be eligible to perform the required work: Certified Energy Manager (CEM) or Certified Energy Auditor (CEA), certified by the Association of Energy Engineers (AEE); High-Performance Building Design Professional (HPBD) certified by ASHRAE; A Building Energy Assessment Professional (BEAP) certified by ASHRAE; Multi-family Building Analyst (MFBA), certified by the Building Performance Institute (BPI); Certified Commissioning Professional (CCP) certified by the Building Commissioning Association (BCA); Certified Building Commissioning Professional (CBCP), certified by the Association of Energy Engineers (AEE); Existing Building Commissioning Professional (EBCP) as certified by the AEE; A Commissioning Process Management Professional (CPMP) certified by ASHRAE Training for electricians on the Energy Code were also offered at Cooper Union in April of 2012.	Work with Amalgamated Green to ensure that we have a qualified workforce to implement our sustainability policy	In progress
	Partner to launch Green Light New York, an energy efficiency education center for building professionals	In progress
	Incorporate Energy Code training into licensing and continuing education requirements for electricians	Not started
	Adopt national standards for energy efficiency professionals	In progress
	Develop and implement a sustainable contractors designation program for electricians, plumbers, and general contractors	Completed
<b>9 Make New York City a knowledge center for energy efficiency and emerging energy strategies</b>		
The Mayor's Office has engaged with several local academic institutions to adopt the City's proposal for an energy efficiency and building sciences program, while researching similar existing models in other universities. Additionally, the Mayor's Office will explore further opportunities to collaborate with academic institutions to expand benchmarking analytics beyond the scope of the annual benchmarking reports. In March 2013, the City uploaded its 2010 and 2011 municipal building benchmarking data into the U.S. Department of Energy's national data sharing platform called the Building Performance Database.	Work with an academic partner to create a world-class energy efficiency engineering and building science program	In progress
	Partner with an academic institution to develop a standardized energy database and make this data widely available	In progress
	Partner with our cultural institutions to showcase the best new building strategies	Not started

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>10 Provide energy efficiency leadership in City government buildings and operations</b>		
<p>The City will begin to leverage the existing Innovation Review Board (IRB), comprised of members representing multi-agencies, as a vehicle to review new technologies and pilot them in City buildings.</p>	Pursue a variety of procurement mechanisms for 30 x 17, including Energy Savings Performance Contracting	In progress
	Incentivize City agencies to reduce energy consumption by improving operations and maintenance	In progress
	Create standards and a handbook for high performance, green renovations of typical space types	In progress
	Create a board to review new technologies and pilot them in City buildings	Not started
	Incorporate energy-aligned lease language in City government leases, and promote energy-aligned leases in the private sector	In progress
	New York City government to pilot a net-zero school, a Passive House project, and a deep energy retrofit project	In progress
<b>11 Expand the Mayor's Carbon Challenge to new sectors</b>		
<p>The Mayor's Office launched the new Mayor's Carbon Challenge to Commercial Offices in the spring of 2013, with ten global corporations signed on as partners. The Mayor's Office is on track to launch a second Mayor's Carbon Challenge to Residential Co-Ops and Condos in the fall of 2013. Four universities and one hospital met the 30% emissions reduction goal and will continue reducing emissions as part of the program. NYU announced a stretch emissions reduction target of 50% by the end of its Challenge in 2017.</p>	Continue to support the University and Hospital Challenges, and develop "stretch goals"	In progress
	Launch at least two new Mayor's Carbon Challenges	In progress
<b>PROVIDE CLEANER, MORE RELIABLE, AND AFFORDABLE ENERGY</b>		
<b>12 Support cost-effective repowering or replacement of our most inefficient and costly in-city power plants</b>		
<p>The City has advocated that the New York Independent System Operator, New York State's electricity grid manager, establish criteria that recognize the system benefits associated with repowered generation facilities. The City has also supported the repowering of Con Edison's steam plants at 59th St. and 74th St. in Manhattan, which is now taking place. Con Edison expects to cease burning fuel oil and to use clean-burning natural gas exclusively at these two plants by 2014.</p>	Advocate for a wholesale energy market design that does not discourage sensible repowering and new generation projects	In progress
<b>13 Encourage the development of clean distributed generation</b>		
<p>In October 2012, as a result of the City's petition to the Public Service Commission, Con Ed implemented the "campus interconnection" tariff, allowing CHP systems serving multiple adjacent buildings to interconnect more seamlessly. In February 2013, NYSERDA announced new incentives for CHP systems of pre-defined system configurations. The City has also been commenting since September 2012 on Con Ed's proposed Standard Interconnection Rules for distributed generation larger than 2 MW. In March 2013, the City completed the update to the Local Law 1 report, which requires the evaluation of City owned buildings for combined heat and power projects.</p>	Examine the feasibility of developing clean DG at various City-owned sites and assets	Completed
	Work with utilities and project developers to streamline permitting and interconnection processes and to improve coordination of electric and gas distribution planning	In progress
	Advocate for cost-effective ratepayer-funded incentives to catalyze clean DG development	In progress
<b>14 Foster the market for renewable energy in New York City</b>		
<p>In February 2012, the City submitted a final license to the Federal Energy Regulatory Commission for the development of a hydroelectric facility at the Cannonsville Reservoir (14 MW). The City plans to submit final license applications to FERC for two additional hydroelectric projects on upstate reservoirs. DEP is also undertaking a study to determine both traditional and novel hydroelectric potential throughout the water supply, distribution and wastewater treatment systems. A report will be complete in October 2013. In 2012, the City completed a power purchase agreement to install solar panels on four City buildings that will provide 1.7 MW of renewable power (1.1 MW will be at the Port Richmond WWTP. \$2 million was contributed to rehabilitate the roof and install the largest cool roof in City.) The panels will be installed in Fall 2013. The City is working with National Grid to clean up digester gas from the Newtown Creek WWTP to pipeline quality gas to produce renewable natural gas for sale to customers. Construction expected to begin before the end of 2013. The City is investing in clean CHP at North River WWTP. The City is evaluating the feasibility of developing cogeneration at the Wards Island WWTP. DEP has nearly \$500 million allocated in its capital improvement plan for 2013-2017 to increase the capture and beneficial use of digester gas from 38% to 58%. A collaboration between CUNY, NYSERDA, DOB, Con Ed, and EDC to develop a Solar Application Tracking web application began in 2012 and is on target to be made publically available in late 2013.</p>	Work with stakeholders to explore ways to pool consumer purchasing power and demand for locally produced renewable energy	Not started
	Work with Energy Service Companies to conduct greenhouse gas accounting for local purchases of Renewable Energy Credits	Not started
	Develop an online solar map and a solar PV performance monitoring network to promote market growth and improve integration with utility planning	In progress
	Work with Con Edison and other parties to explore the development of a one-stop, centralized website for permit application and tracking	In progress
	Install small-scale solar PV and solar thermal projects at City-owned sites	In progress
	Explore public-private partnerships to develop utility-scale solar energy projects at capped municipal landfills	In progress
	Work with state and federal regulators to support cost-effective proposals for both public and private offshore wind projects that will benefit New York City	In progress
	Explore the feasibility of developing small scale hydroelectric projects at upstate reservoirs and in water and wastewater distribution systems in a cost-effective and environmentally sensitive manner	In progress
	Undertake waste-gas-to-grid and cogeneration projects at City-owned buildings and infrastructure sites	In progress
	Reuse as an energy resource 60% of anaerobic digester gas produced in our wastewater system by 2017	In progress
<b>MODERNIZE OUR TRANSMISSION AND DISTRIBUTION SYSTEM</b>		
<b>15 Increase natural gas transmission and distribution capacity to improve reliability and encourage conversion from highly polluting fuels</b>		
<p>The City played key roles in the advancement of new gas transmission lines entering the city, including the BQI Rockaways Lateral and Spectra pipelines. The City also worked with the utilities to build out the distribution networks for future growth.</p>	Work with pipeline developers, regulators, and community stakeholders to facilitate the permitting and development of appropriately sited natural gas transmission lines	In progress
	Work with utilities, regulators, and stakeholders to accelerate natural gas distribution upgrades in the areas where they can have the most impact in reducing residual fuel usage and improving air quality	In progress
	Advocate for improved regulations and safety standards for natural gas production and transmission nationwide	In progress

	PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
ENERGY	<b>1.6 Ensure the reliability of New York City power delivery</b>		
	The City was an active participant in State negotiations on the Indian Point Energy Center. The City also was involved in the siting and construction of new bulk transmission lines into the city.	Support the continued safe operation and relicensing of the Indian Point Energy Center	In progress
		Explore more robust interconnection with neighboring power systems such as the Pennsylvania-New Jersey-Maryland (PJM) grid	In progress
		Continue to evaluate the costs, benefits, and feasibility of other transmission line proposals that could deliver cleaner energy to New York City	In progress
		Increase ability of City buildings to shed load during peak demand periods and emergency events to 50 MW	In progress
	<b>1.7 Develop a smarter and cleaner electric utility grid for New York City</b>		
	The City issued an RFP in the summer of 2012 to develop a smarter cleaner electric utility grid. The selected company will install smart meters at City facilities to provide real-time energy use and cost information. Data from smart meters will also help facilities manage energy use during periods of high electric demand, which will reduce costs and risks of electric grid failure. The City's wastewater treatment plants are part of this program.	Lay the foundation for a smarter grid by deploying an Energy Enterprise Metering System (EEMS) in thousands of City-owned buildings	In progress
		Explore opportunities to leverage city wireless communication assets to assist utilities in conducting automated meter reading for power and gas customers	In progress
		Partner with utilities, the private sector, and academic institutions to demonstrate the viability of "virtual generation" to allow buildings to sell energy curtailment services on wholesale electricity markets	In progress
		Support Con Edison's efforts to capitalize on lessons learned in smart-grid demonstration projects and to scale up cost-effective technologies that will help reduce consumption or improve grid reliability	In progress
Work with regulators, utilities, building owners, and energy companies to encourage deeper participation by commercial and industrial consumers in market-based programs to reduce peak demand		In progress	
<b>UNDERSTAND THE SCOPE OF THE CHALLENGE</b>			
<b>1 Monitor and model neighborhood-level air quality</b>			
The City has continued to monitor criteria pollutants at 100 sites around the city while completing measurements of additional pollutants including benzene and formaldehyde 60 sites. A 2012 city published study linked higher levels of benzene and formaldehyde to local traffic and other fuel combustion sources. In March 2013 the City completed measurements of air quality at seven additional sites in Morningside Heights before and after multiple buildings converted to cleaner heating fuels. A report on the findings will be released later in the year. The City has launched two federally funded research studies that use data from NYCCAS to evaluate the effects of neighborhood air pollution on birth outcomes and on cardiovascular disease.	Maintain a street-level air monitoring network to track neighborhood air quality differences over time	In progress	
	Expand the methods and pollutants measured to look more closely at specific types of emission sources and exposure settings	In progress	
<b>REDUCE TRANSPORTATION EMISSIONS</b>			
<b>2 Reduce, replace, retrofit, and refuel vehicles</b>			
The City announced intent to purchase of 50 new pure battery electric vehicles for its own fleet. These vehicles emit more than 75% less CO2 than conventional vehicles and lack tailpipe pollutants like NOx, which contributes to asthma, and Benzene, a carcinogen. The City has also completed a fleet reduction of approximately 500 light duty vehicles. This reduction, nearly 10% of the non-emergency light duty fleet, will reduce congestion and fleet capital and maintenance costs. For private vehicles, over the last year the Hunts Point Clean Truck Program has approved the replacement of approximately 154 old diesel trucks and is on its way to taking a minimum of 500 of the oldest, most polluting trucks out of the Bronx and off the City's streets. The City also The Citywide Private Fleet Alternative Fuel Programs, co-managed by NYSERDA, offers rebates of up to 80% of the increased cost of choosing an electric or alternative fuel vehicle over a conventional one. According to NYSERDA analysis, the private fleet program contributes the reduction of 2.4 million gallons of petroleum, 300 tons of Nitrogen Oxide, 360 tons of Carbon Monoxide, 25 tons of Hydrocarbons, and 2.2 tons of Particulate Matter over the vehicles' useful lives. The City also expanded its school bus retrofit program, adding diesel particulate filters to a total of more than 550 buses, reducing their PM emissions by at least 85%.	Reduce the City's fleet by at least 5%	In progress	
	Implement the Clean Fleet Transition Plan	In progress	
	Install more than 60 electric vehicle charging units at City-owned facilities and garages	Completed	
	Expand the use of biodiesel in the City's fleet	In progress	
	Complete upgrades of 400 vehicles through existing Congestion Mitigation and Air Quality (CMAQ) and other funding sources	In progress	
	Install Diesel Particulate Filters (DPFs) on 685 buses	In progress	
<b>3 Facilitate the adoption of electric vehicles</b>			
The City is introducing building codes to require that 20% of new build parking spots be electric vehicle ready. Additionally, with NYPA it is installing more than 30 chargers for the public in DoT owned garages. Finally, it is launching a 6 vehicle electric taxi pilot and has commissioned a study on getting to 1/3 electrification by 2020.	Work with Con Edison and auto manufacturers to streamline the installation process for home EV chargers	Completed	
	Work with parking garage owners, co-op boards, consumers, and Con Edison to ensure that each group understands the technical and consumer needs associated with EV chargers	In progress	
	Work with private and non-profit parties to inform New Yorkers about the benefits and use of EVs	In progress	
<b>4 Reduce emissions from taxis, black cars, and for-hire vehicles</b>			
The electric taxi project will launch in Spring 2013 in partnership with Nissan.	Work with Congress to pass legislation to explicitly allow state and local governments to incentivize fuel-efficient vehicles	In progress	
	Launch an electric vehicle taxi pilot program	In progress	
<b>5 Reduce illegal idling</b>			
The City continues to enforce anti-idling laws and seek opportunities to educate New Yorkers about the law and the public health impacts of idling.	Improve compliance of existing anti-idling laws through targeted enforcement and education	In progress	
<b>6 Retrofit ferries and promote the use of cleaner fuels</b>			
More than all, engine upgrades have been completed on 6 of the Staten Island Ferries. The two remaining boats (the Spirit and the Molinari) will have their engines upgraded in 2013. In 2012, the Diesel Oxidation Catalysts (DOCs) were installed. The repowering was delayed due to Hurricane Sandy but is on-track to be completed by the of June 2013.	Complete engine upgrades on four Staten Island ferries	Completed	
	Retrofit 20 private ferry boats with Diesel Oxidation Catalysts (DOCs) and repower nine additional vessels to improve fuel efficiency	In progress	



PROGRESS SINCE APRIL 2012		MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
AIR QUALITY		Work with the State to repeal the exemption on Petroleum Business Tax for bunker fuel	Not started
	<b>7 Work with the Port Authority to implement the Clean Air Strategy for the Port of New York and New Jersey</b>		
	The City signed an agreement with the Port Authority of New York and New Jersey, New York Power Authority, and Princess Cruises and Cunard Line that will allow cruise ships to plug into the city's electrical grid while in port at the Brooklyn Cruise Terminal, rather than generating on-board electricity by burning oil. Shore power capabilities at the Brooklyn Cruise Terminal will be completed in 2012.	Work with the Port Authority and other partners to implement the actions outlined in the Clean Air Strategy for the Port of New York and New Jersey	In progress
		Install shore-power capability at the Brooklyn Cruise Terminal	Completed
		Look for additional opportunities at other facilities to connect ships to the city's grid	Not started
	<b>REDUCE EMISSIONS FROM BUILDINGS</b>		
	<b>8 Promote the use of cleaner-burning heating fuels</b>		
	The City launched the NYC CleanHeat Program, which provides technical and financial assistance to property owners to convert to cleaner fuels at a faster pace than required by regulation. Based on these activities, we set a new goal to reduce fine particulate matter emissions (PM 2.5) from the use of heavy heating oil by 50 percent by the end of 2013. We also released a RFP for an energy performance contract for City schools and are finalizing five Energy Service Company (ESCO) contracts for K-12 schools. We completed conversion of boilers from Number 6 to Number 4 heating oil at 19 schools. Another 15 schools will be converted to cleaner fuels before the end of June 2012.	Launch a program to encourage and support the early phase-out of Numbers 4 and 6 heating oil	Completed
		Release Requests for Proposals to enter into energy performance contracts for City schools	Completed
		Complete boiler conversions at 15 schools	Completed
<b>UPDATE CODES AND STANDARDS</b>			
<b>9 Update our codes and regulations to improve indoor air quality</b>			
The City Council passed and the Mayor signed two bills to improve indoor air quality. Local Law 72 mandates minimum filtration requirements for mechanical ventilation systems in buildings. Local Law 2 will establish limits on volatile organic compounds in carpet and carpet cushion in the city. We also adopted changes to Title 15 of the NYC Rules to remove obstacles to asbestos removal.	Propose regulations to reduce exposure to toxins released by building materials	Completed	
<b>10 Update our air quality code</b>			
The City completed a draft update of the Air Code and engaged stakeholders to discuss the potential changes to the Code, which will be completed by the end of 2013.	Update the NYC Air Code	In progress	
SOLID WASTE	<b>REDUCE WASTE BY NOT GENERATING IT</b>		
	<b>1 Promote waste prevention opportunities</b>		
	The City will install a drinking fountain on the outside of all new and reconstructed comfort stations for 12 month use. Installed drinking fountains can be used to fill water bottles as part of all capital projects. The City will encourage our partners also to include drinking fountains in their work. The goal in 2014 is to explore the expense and feasibility of modifying stand alone drinking fountain options for 12 month use.	Install redesigned drinking fountains in public spaces and parks to encourage adoption of reusable water bottles	In progress
		Implement public education campaigns to reduce litter, encourage switching to reusable bags and reusable water bottles for tap water, and to encourage New Yorkers to reduce paper consumption	In progress
	<b>2 Increase the reuse of materials</b>		
	The City allocated funding for expansion of Stop N' Swap events from 20 per year to 59 per year by 2015, or approximately one in every community board, beginning in the spring of 2012.	Implement public education campaign and leverage online platforms to encourage and increase reuse of materials	Completed
		Encourage businesses, institutions, and individuals to reuse materials	Completed
	<b>INCREASE THE RECOVERY OF RESOURCES FROM THE WASTE STREAM</b>		
	<b>3 Incentivize recycling</b>		
	The City explored mechanisms to improve access to residential waste generation and diversion rate data in conjunction with launching community competitions. We also conducted research on incentives for businesses to recycle and use recyclable materials.	Encourage businesses to recycle, and use recyclable and recycled materials through corporate challenges, partnerships, or recognition programs	In progress
Improve access to residential waste generation and diversion rate data		Completed	
Implement new residential recycling penalties		In progress	
<b>4 Improve the convenience and ease of recycling</b>			
Int. 575-2011 was signed into law by the Mayor in December 2012, requiring newly constructed multi-family residences to provide adequate space to store and sort designated recyclable material beginning in January 2014. The City has increased the number of public space recycling bins to 1,087.	Increase recycling in public spaces and parks	Completed	
	Require new residential buildings to provide space for recycling	Completed	
	Expand recycling education programs	In progress	
<b>5 Revise City codes and regulations to reduce construction and demolition waste</b>			
Local Law 71 of 2011 is scheduled to go into effect on 1/1/2015. Into 603A – Requiring recycled aggregate in concrete, and Into 593A – Requirements for concrete exposed to deicing chemicals were brought to City Council in January 2013.	Require use of recycled content in building materials	In progress	
	Require recycling of building materials	In progress	

PROGRESS SINCE APRIL 2012		MILESTONES TO COMPLETE BY DECEMBER 31, 2013		STATUS
<b>SOLID WASTE</b>	<b>6 Create additional opportunities to recover organic material</b>			
	<p>The City is testing the feasibility of collecting and processing food waste from schools, fire houses, green markets, and multi-family residential buildings and then treating the resultant bioslurry in digester to produce methane gas for beneficial reuse. If this proves successful the City will look to scale up the pilot to include commercial food waste.</p> <p>The City is continually looking for opportunities to recover energy from its biosolids in a fiscally responsible manner. In 2011, the City awarded a contract to beneficially use approximately 1/3rd of its annual biosolids production. The biosolids are being lime stabilized and used as a soil amendment to reclaimed mine sites and as a compost material offsetting the carbon intensive production of more traditional materials. In 2013 a beneficial reuse biosolids contract for approximately 13% of the annual biosolids production will expire. The City will take this opportunity to evaluate additional contemporary beneficial uses for this material. Since the inception of the textile collection program 425 tons of textiles have been diverted from the solid waste stream. 220 buildings are currently participating in the textile collections program citywide. The City will conduct a pilot residential curbside organics collection program in certain areas of the city in the summer.</p>	Expand opportunities for communities to compost food waste	In progress	
		Expand leaf and yard waste composting	Not started	
		Complete the curbside organics feasibility study	In progress	
		Implement a public-private textiles recycling program in every borough	In progress	
		Encourage use of new technologies to increase recovery of commercial food waste	In progress	
		Pursue on-site food recovery facility at the Hunts Point Food Distribution Center	In progress	
		Encourage in-city opportunities to recover yellow grease and convert it to biofuel	In progress	
		Pursue opportunities to recover energy from biosolids	In progress	
	<b>7 Identify additional markets for recycled materials</b>			
	<p>The City anticipates processing of plastics to begin at the New South Brooklyn Marine Terminal Recycling processing facility in August 2013. The facility will process MGP, mixed paper and rigid plastics.</p>	Explore expansion of designated plastics	In progress	
		Promote beneficial use of dredge and road renovation spoils	In progress	
	<b>8 Pilot conversion technologies</b>			
	Proposals are being evaluated and negotiations with a selected vendor or vendors will begin shortly.	Solicit proposals to develop conversion technology facilities to dispose of waste	In progress	
	<b>IMPROVE THE EFFICIENCY OF THE WASTE MANAGEMENT SYSTEM</b>			
	<b>9 Reduce the impact of the waste system on communities</b>			
	<p>North Shore and Hamilton Avenue MTSs are expected to be complete in July 2013 and November 2013, respectively. Now fully permitted, construction bid documents were released for the E. 91st Street and Southwest Brooklyn MTSs. A construction contract was awarded for the E. 91st Street MTS and an award is pending for Southwest Brooklyn MTS. The Sims recycling facility at South Brooklyn Marine Terminal is now approximately 75% complete</p>	Achieve significant progress toward completion of the Hamilton (Brooklyn) and North Shore (Queens) Marine Transfer Stations	In progress	
		Open the Sims recycling facility	In progress	
		Promote export of commercial waste by barge and rail	Not started	
	<b>10 Improve commercial solid waste management data</b>			
	<p>The New York City Commercial Waste System Analysis and Study was completed in 2012. The study has informed improvements in required reporting by carters to BIC. Data analysis from the study is also being used to inform ongoing discussions between DSNY and BIC to improve commercial solid waste management data. Improvement of access to commercial carter information and disposal practices is on-going.</p>	Complete the Comprehensive Commercial Waste System Study and implement recommendations	Completed	
		Improve access to commercial carter information and disposal practices	In progress	
	<b>11 Remove toxic materials from the general waste stream</b>			
	<p>2013 events kick off begins March 30th in Queens. Followed by events in Brooklyn on April 7th, Staten Island on April 14th, the Bronx on April 20th and Manhattan on April 28th. The City will launch a new program called E-Cycle that will be available to apartment buildings in the city similar to the clothing/textile program. Apartment buildings that enroll will have their E-Waste removed by a selected vendor at no cost to the city or building.</p>	Expand Household Hazardous Waste collection program	In progress	
Enhance the public's access to information about and participation in the NYS e-waste program		In progress		
Promote product stewardship programs for high toxicity products		In progress		
<b>REDUCE THE CITY GOVERNMENT'S SOLID WASTE FOOTPRINT</b>				
<b>12 Revise City government procurement practices</b>				
<p>The City continues to research procurement best practices to reduce solid waste.</p>	Develop best practices that address solid waste reduction for procurement and incorporate into Environmentally Preferable Purchasing	In progress		
	Incentivize city vendors to recover and reuse products	In progress		
<b>13 Improve the City government's diversion rate</b>				
<p>The City is conducting a pilot organics collection program in public schools and hope to evolve other city agencies this summer.</p>	Improve quality of and access to City government solid waste generation data	Completed		
	Develop pilot at targeted City buildings to measure diversion rate	In progress		
	Ensure all DOE schools have sustainability plans (including recycling) and designate a sustainability coordinator	Completed		
	Sponsor packaging contest with design schools and corporate sponsors for products with high city agency consumption	Not started		

PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
<b>REDUCE AND TRACK GREENHOUSE GAS EMISSIONS</b>		
<b>1 Release an annual inventory of greenhouse gas emissions</b>		
In December 2012, the City released its sixth annual Inventory of New York City Greenhouse Gas Emissions, which reported a 3% reduction in GHG emissions more than the previous year and a 16% reduction since 2005. The 2013 update to the annual inventory will include detailed neighborhood-level and life cycle analysis and reporting.	Expand GHG inventory to include neighborhood level analysis and reporting	In progress
<b>2 Assess opportunities to further reduce greenhouse gas emissions by 80% by 2050</b>		
The City was awarded a \$1 million grant by the New York State Energy Research and Development Authority (NYSERDA) as part of NYSERDA's Cleaner, Greener Communities Regional Sustainability Planning Program. The grant was used to develop a roadmap to achieve an 80% reduction in GHG emissions by 2050, the results of which will be published in 2013.	Complete study to determine strategies to reduce citywide GHG emissions by 80% below 2005 levels by 2050	In progress
<b>ASSESS VULNERABILITIES AND RISKS FROM CLIMATE CHANGE</b>		
<b>3 Regularly assess climate change projections</b>		
The City continues to utilize the climate change projections developed by the NPCC in 2009, and work with scientists and academics to evaluate new and emerging information.	Institutionalize New York City Panel on Climate Change (NPCC) and establish process to regularly update its climate projections	In progress
<b>4 Partner with the Federal Emergency Management Agency (FEMA) to update Flood Insurance Rate Maps</b>		
Preliminary DFIRMs will be released for public review and appeals in the summer of 2013 and are anticipated to become Effective FIRM in early 2015.	Release draft updated Digital Flood Insurance Rate Maps (DFIRMs) for public comment	In progress
<b>5 Develop tools to measure the city's current and future climate exposure</b>		
The City is developing a climate risk assessment tool to quantify the current and future climate risks facing the city by hazard, sector, time slice, and geography. The model will allow us to better target efforts to increase the City's climate resilience, develop cost-benefit estimates for specific adaptation strategies, and monitor our progress. As part of the FEMA Digital Flood Insurance Rate Map (DFIRM) update process, an updated digital elevation model is being created that will have applications across many agencies. The City also began an effort to leverage information being developed as part of DFIRM update process to determine the future spatial extent of coastal flooding with sea level rise.	Develop a climate risk assessment tool	In progress
	Develop an updated digital elevation model using LIDAR data to promote more accurate sea level rise modeling	Completed
	Launch effort to develop publicly available projected flood maps that incorporate sea level rise projections for planning purposes	In progress
<b>INCREASE THE RESILIENCE OF THE CITY'S BUILT AND NATURAL ENVIRONMENT</b>		
<b>6 Update regulations to increase the resilience of buildings</b>		
The Mayor signed an Emergency Rule requiring property owners to build to better flood protection standards by increasing the minimum elevation requirements for buildings located in the current FEMA 100-year flood zone (on existing FIRM). New construction or buildings with substantial damage in need of repair must rebuild, at a minimum, to the base flood elevation (BFE) on FEMA's existing FIRM, plus the relevant amount of freeboard in the Building Code. The freeboard requirement is 2 feet for 1- and 2-family homes, and 1 foot for most other building types. FEMA released its Advisory Base Flood Elevation (ABFE) maps for portions of the city at the end of January 2013. The Mayor also signed an Executive Order (EO) allowing property owners to build to these generally higher FEMA-recommended standards. The EO suspends current zoning height limits for those rebuilding to any level between the ABFE and the ABFE plus the relevant amount of freeboard specified in the Building Code.	Conduct study of the urban design implications of enhanced flood protection for buildings	In progress
	Pursue amendments to freeboard requirements to require freeboard for wider range of buildings to account for climate change projections	In progress
	Incorporate consideration of climate change within the policies of the City's Waterfront Revitalization Program (WRP)	In progress
	Launch study of effects of rising water tables, inland flooding, wind, and extreme heat events on buildings	Not started
<b>7 Work with the insurance industry to develop strategies to encourage the use of flood protections in buildings</b>		
The Special Initiative on and Rebuilding and Resiliency (SIRR), established following Hurricane Sandy, is working with the insurance industry to develop strategies to encourage better coverage through the use of flood protection measures in buildings.	Explore measures to promote flood protection in areas that may be subject to flooding based on climate forecasts	In progress
<b>8 Protect New York City's critical infrastructure</b>		
The Special Initiative on and Rebuilding and Resiliency (SIRR), established following Hurricane Sandy, is working with members of the Climate Change Adaptation Task Force to develop coordinated strategies to increase the resilience of the city's infrastructure.	Complete Climate Change Adaptation Task Force assessment and report and begin to implement its recommendations	In progress
	Maintain the Climate Change Adaptation Task Force with an expanded focus on public health and safety services	In progress
	Assess the opportunities for the incorporation of climate change projections into design specifications and standards for critical infrastructure	In progress
<b>9 Identify and evaluate citywide coastal protective measures</b>		
Preliminary DFIRMs will be released for public review and appeals in the summer of 2013 and are anticipated to become Effective FIRM in early 2015.	Develop an inventory of best practices for enhancing climate resilience in coastal areas	In progress
	Coordinate with academic institutions, scientists, engineers, and designers to develop pilot projects to test potential strategies and evaluate their costs and benefits	In progress
<b>PROTECT PUBLIC HEALTH FROM THE EFFECTS OF CLIMATE CHANGE</b>		
<b>10 Mitigate the urban heat island effect</b>		
The NYC °CoolRoofs program encourages building owners to cool their rooftops with a white reflective coating resulting in reduced energy consumption, cooling costs, and carbon emissions. Utilizing the power of nearly 1,500 volunteers, the NYC °CoolRoofs program surpassed its goal for the third year and coated 1.2 million square feet on 128 buildings in the 2012 season. Of the 1.2 million square feet reported, 374,524 square feet was done by voluntarily by private residents, building owners, and contractors through the °Cool It Yourself Program. Since the launch of the program in 2010, approximately 3.7M square feet of rooftops have been coated on 416 buildings citywide. Additionally, Local Law 21 of 2011 went into effect January 1, 2012 to amend the 2008 NYC Building Code to strengthen its roof coating standards to require the use of more reflective and emissive materials.	Coat an additional two million square feet of cool roofs	Completed
	Pursue a cool roof requirement for existing buildings	Completed
	Work with neighborhoods most impacted by the urban heat island effect to develop and implement community-specific strategies	Not started

CLIMATE CHANGE

	PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
CLIMATE CHANGE	<b>11 Enhance our understanding of the impacts of climate change on public health</b>		
	The City is incorporating lessons learned from Hurricane Sandy into its analysis of potential health impacts of four major climate hazards in New York City – rising temperatures, increased summer ozone concentrations, increased frequency and severity of coastal storms/flooding, and increased likelihood of power outages. The results of the study will be released this year.	Complete study on the impact of climate change on public health	In progress
	<b>INCREASE CITY'S PREPAREDNESS FOR EXTREME CLIMATE EVENTS</b>		
	<b>12 Integrate climate change projections into emergency management and preparedness</b>		
	The City will launch a process to include climate change as a hazard under the 2014 Natural Hazard Mitigation Plan, when it begins updating the Plan next year.	Integrate climate change projections into the City's emergency management and preparedness plans and procedures	In progress
		Launch a process to include climate change as a hazard assessed under the Natural Hazard Mitigation Plan	Not started
<b>CREATE RESILIENT COMMUNITIES THROUGH PUBLIC INFORMATION AND OUTREACH</b>			
<b>13 Work with communities to increase their climate resilience</b>			
The City has entered all facilities located in the flood zone areas that store chemicals on a GIS mapping system and is helping them better prepare for the impacts of climate change.	Ensure that outreach efforts target appropriate communities and provide up-to-date climate risk information	In progress	
	Improve the access to publicly available data on the locations of hazardous material storage in flood zones throughout the city	In progress	

# Sustainable Stormwater Management Plan (SSMP)

Sustainable Storm water Management Plan (SSMP) is an interagency effort coordinated by the Office of Long-term Planning and Sustainability. The SSMP provides updates on long term milestones related to sustainable storm water. For example the plan monitors and reports on interagency progress on improving sidewalk standards, road reconstruction standards, and exploring maintenance options.

	PROGRESS SINCE APRIL 2012	MILESTONES TO COMPLETE BY DECEMBER 31, 2013	STATUS
SUSTAINABLE STORM WATER MANAGEMENT PLAN (SSMP)	<b>1 Flushing Bay and Gowanus BMP Grant Programs (NYC Department of Environmental Protection)</b>		
	DEP awarded \$2.6 million in July 2010 to implement five innovative green infrastructure projects that manage and capture stormwater runoff. Grant recipients included the applications most likely to succeed and be replicated on a large scale. The awards went to Manhattan College for the installation of a modular green roof project on New York Hospital; Columbia University; a Greenstreets stormwater capture system in Rego Park; Regional Plan Association for Sponge Park™ bioretention basins under the Long Island Expressway near the Van Wyck Expressway; Gowanus Canal Conservancy for the 6th Street Green Corridor Project that will build seven curbside swales; and Unisphere, Inc. for wetlands and rain gardens to treat stormwater entering Meadow Lake. Contracts for each of the grantees were developed and signed in spring 2011. Topographic surveys and soil boring investigations have been completed and designs for many of these efforts are nearly complete and several, including the modular green roof, the Sponge Park™, 6th Street Green Corridor, and Meadow lake wetlands project are expected to begin construction in late fall 2012. DOT participated in design review and provided guidance for including green infrastructure in the street right-of-way. The Greenstreets stormwater capture system design is underway and is expected to begin construction in spring 2013.	Monitoring and reporting to be completed in 2013	Completed
	<b>2 DPR Tree Pit Pilot Study (NYC Department of Parks and Recreation)</b>		
	Monitoring work has transitioned from the Gaia Institute to Drexel University, and combined with the efforts of the Enhanced Greenstreets Pilot Project. Drexel continues to collect data from this site.	NONE	Completed
<b>3 Enhanced Greenstreets Pilot Project (NYC Department of Parks and Recreation)</b>			
Data collection has continued at these sites, including performance data during Superstorm Sandy. Drexel has begun analysis of this data and has compiled performance over time to project total water captured per year. Drafts of this report have been reviewed by DPR and a jointly authored publication will be submitted for peer review journals this year	Publish findings, inform designs with data, to be completed by 2014.	Completed	

PROGRESS SINCE 2010	LONG TERM MILESTONE	STATUS
<b>4 Bronx Block Saturation Pilot Study (NYC Department of Environmental Protection)</b>		
Technical solutions to the high bedrock issue are still being evaluated. Alternative designs are currently being developed and will be reviewed by DEP for potential implementation. Construction will commence with approved designs.	Monitoring and reporting will start 2013 and continue through 2016	In progress
<b>5 Albert Road Area Reconstruction Pilot Project (NYC Department of Design and Construction and NYC Department of Transportation)</b>		
This project involves the installation of new storm sewers, stormwater greenstreets, water mains and the reconstruction of roadway over a wide area in the South Ozone park section of Queens. The green infrastructure portion of the project includes a pilot bioswale (5ft x 620ft) along Hawtree Street from Bristol Ave to Albert Road, and 10 right-of way standard right-of-way bioswales along various streets in the project area, installation of permeable gutter along Hawtree Street/Centerville Street and a green street at the corner of Cross Bay Blvd and 149th Ave. These features will significantly enhance the project's hydrologic performance. The estimated cost of the green infrastructure work is \$ 2 million. The projected construction start of the project is summer 2014 with 3 year total construction duration.	Monitoring and reporting to be completed in 2012	In progress
<b>6 East Houston Street Reconstruction Pilot Project (NYC Department of Design and Construction and NYC Department of Transportation)</b>		
The East Houston Street Reconstruction project will incorporate Green Street into the northwest quadrant of the intersection with Avenue A and with Avenue D. Various amenities includes benches, extensive plantings, granite curbs, enhanced treepits with structural soil and a raingarden style stormwater bioswale, bike lane markings, bike racks and pigmented sidewalk. Design is completed. Construction of the Green Street at Avenue D will start within the next two weeks and anticipated completion by fall 2013. We anticipate construction of the Green Street at Avenue A to start in summer 2013 and to complete in summer 2014.	Monitoring and reporting to be completed in 2012	In progress
<b>7 Astor Place/Cooper Square Reconstruction Pilot Project (NYC Department of Design and Construction and NYC Department of Transportation)</b>		
Under the Astor Place Reconstruction project, DDC will be constructing 10 bioswales to support the city's effort to decrease storm water flow in the existing sewer system. The work includes the construction of fenced infiltration planters of approximately 10 feet by 20 feet; composed of a planting bed over engineered soil, to maximize the infiltration. Each bioswale is estimated to cost approximately \$30,000. We anticipate starting construction activities in Mid June 2013 and complete the project work in about two years. Final design of Astor Place/Cooper Square was completed and approved by the design commission.	Monitoring and reporting to be completed in 2012	In progress
<b>8 Atlantic Avenue Reconstruction Pilot Project (NYC Department of Design and Construction and NYC Department of Transportation)</b>		
The project calls for the installation of Trunk & Distribution water mains in Atlantic Avenue from Carlton Avenue to Classon Avenue and Washington Avenue from Atlantic Avenue to Fulton Street including Sewer & Traffic Signal work and the reconstruction of the roadway. As part of the Green Infrastructure Program, right-of-way bioswales at the following locations were completed in December 2012 at an estimated cost of \$ 319,400. 1. Northeast corner of Carlton Avenue & Atlantic Avenue on Carlton Ave 2. Northwest and northeast corner of Clermont Avenue & Atlantic Ave on Clermont Avenue 3. Northwest and northeast corner of Vanderbilt Avenue & Atlantic Ave on Vanderbilt Avenue 4. Northwest corner of Waverly Avenue & Atlantic Avenue on Waverly Avenue	Monitoring and reporting to be completed in 2012	In progress
<b>9 Belt Parkway Bridges Roaside Swale (NYC Department of Environmental Protection)</b>		
Hurricane Sandy identified that additional measures are necessary to protect BMP. Those alternative measures are being developed by the design team. After these measures are implemented, planting of the BMP will take place. This is anticipated for late 2013 or spring 2014.	Monitoring and reporting to be completed in 2014	In progress
<b>10 Sidewalk standards (Mayor's Office of Long Term Planning and Sustainability, Department of Transportation, Department of Environmental Protection and Department of Parks and Recreation)</b>		
The Green Codes Task Force developed a standard sidewalk specification proposal for consideration by the City. The proposal would require a permeable strip along the outside edge of a sidewalk and require structural soil, and mandate more sustainable materials where appropriate. During this process, OLTPS convened multiple City agencies to discuss opportunities and challenges. The School Construction Authority has implemented new specifications for sidewalks and landscaping that include sustainability requirements. OLTPS and DDC are working on applicable standards for use in the city. DOT, DPR, DEP, and PDC-approved bioswale standards on DEP's website here: <a href="http://www.nyc.gov/html/dep/pdf/green_infrastructure/bioswales-standard-designs.pdf">www.nyc.gov/html/dep/pdf/green_infrastructure/bioswales-standard-designs.pdf</a> In September 2012 the School Construction Authority received "approval" for a Standard Permeable Paver Detail to be used by schools across the city meeting the ADOPTED zoning text amendment as of April 30, 2012 which allows schools to install permeable pavement in lieu of grass at certain school locations (low density residential). In August 2012, DEP released standard designs for the sidewalk Right of Way Bioswales.	Explore options for funding	Completed
<b>11 Road reconstructions (Mayor's Office of Long Term Planning and Sustainability, Department of Transportation, Department of Environmental Protection and Department of Parks and Recreation)</b>		
The City agencies responsible for policies or projects in the city's right of way have met on a regular basis to discuss opportunities to incorporate sustainable stormwater management source controls into road design and reconstruction projects. Agencies have met as part of the Street Design Manual Task Force, a group that exists specifically to address street design issues. OLTPS has also convened agencies specifically to examine funding and maintenance challenges. DOT has advanced several green infrastructure features in capital projects currently in design, including plazas and street reconstruction projects. DOT continues to develop innovative ways to include green infrastructure. DOT is advancing with a task order and two permeable pavement specific capital projects. To date, four stormwater	Explore options for funding	In progress
<b>12 Analysis on stormwater capture in separate sewer areas (NYC Department of Environmental Protection)</b>		
A full analysis of stormwater capture opportunities in separate sewer areas has not been completed. Since 2010 DEC and NYC DEP held a series of discussions regarding Municipal Separate Storm Sewer System (MS4) areas. DOT provided DEP with DOT facilities and construction projects identified within the MS4 areas in November 2011. During this time, the Mayor's Office of Operations formed an interagency working group which created an inventory of city-owned facilities and developed draft standard operating procedures for pollution prevention for municipal operations. Future discussions with DEC are anticipated to reconvene after federal stormwater rulemaking which is anticipated to start public review in June 2013. DOT provided DEP with DOT facilities and construction projects identified within the MS4 areas in November 2011. DOT will continue to coordinate with DEP in meeting any requirements set by DEC.		Completed

SUSTAINABLE STORM WATER MANAGEMENT PLAN (SSMP)

This page left blank intentionally

The development of PlaNYC, and the implementation of its initiatives, resulted from an enormous collaborative effort by government agencies, civic organizations, academic specialists, community groups, consultants, fellows, interns, photographers, organized labor and the private sector, elected officials, and thousands of New Yorkers. Although it is impossible to acknowledge each individually, we thank all of those who have contributed their ideas, their time, their expertise, and above all their passion for New York City.

The PlaNYC Progress Report is published pursuant to Local Law 17 of 2008.

For more information, please visit:  
[www.nyc.gov/planyc](http://www.nyc.gov/planyc)

**Mayor's Office of Long-Term  
Planning & Sustainability**  
City Hall  
New York, NY 10007  
[www.nyc.gov/planyc](http://www.nyc.gov/planyc)

