



PROGRESS REPORT 2010

A GREENER, GREATER NEW YORK



The City of New York
Mayor Michael R. Bloomberg



PROGRESS REPORT 2010

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*“For three years, PlaNYC has changed the way New Yorkers think about their city and the future. **We must continue to tackle the challenges we face and dream big.** Our city and future generations are depending on it.”*

Mayor Michael R. Bloomberg

Introduction

Today marks the fortieth anniversary of Earth Day, and the third anniversary of PlaNYC, A Greener, Greater New York. Since PlaNYC was released in 2007, we have been working hard toward its goals of improving our environment, building our economy, and enhancing the quality of life for all New Yorkers—even as we prepare for a city that will have one more million people in 2030 than it had in 2000.

Over the past three years, we've completed 19 rezonings that direct development to areas well-served by transit. We've created over 200 miles of bicycle lanes and enacted a bike access law to make cycling in the city easier. We've enacted a clean air law for school buses, which protects our children from harmful emissions and lowers the retirement age of school buses. We've acquired almost 29,000 acres of land to protect our upstate water supply. We've passed the Greener, Greater Buildings Plan—the most comprehensive green building legislation in the country and the single largest action we can take to reduce our greenhouse gas emissions. We've launched the city's first bus rapid transit route and successfully piloted pedestrian plazas in Times and Herald Squares. We've planted over 322,000 trees as part of our MillionTreesNYC effort, and we've completed 86 energy efficiency projects as part of our commitment to reduce City government greenhouse gas emissions 30 percent by 2017—which will result in over \$2.3 million in annual energy savings. We've greened 25 percent of our yellow taxi fleet, reducing emissions from some of our heaviest-used vehicles. And we've developed the city's first ever climate change projections.

These actions are having a direct impact on the lives of New Yorkers. Today, 84 percent of New Yorkers live within a 10-minute walk of a park, an 8 percent increase since 2007. At the same time, all new traffic into the city has been absorbed by mass transit, rather than private cars, and the number of New Yorkers who bike to work has doubled. After rising for years, per capita electricity use in New York is declining. And our greenhouse gas emissions are down, by more than just short-term changes in weather and the economy would suggest.



Bill signing for the Greener, Greater Buildings Plan

Credit: NYC Mayor's Office



Times Square - After Green Light for Midtown

Credit: NYC Department of Transportation



Mayor Bloomberg with Copenhagen Mayor Ritt Bjerregaard and Toronto Mayor David Miller at the UN Climate Change Conference in Copenhagen

Credit: NYC Mayor's Office



Children at their new playground at PS 205-K in Brooklyn

Credit: NYC Department of Parks and Recreation



New bike lane on 8th Avenue in Manhattan



Manhattan Avenue Plaza in Brooklyn

In some instances, we have encountered obstacles. Our efforts to maintain, improve, and expand the city's transit network have been impacted by the Metropolitan Transportation Authority's lack of a stable, sufficient, and rational funding source. The economy has forced us to stretch out our capital budget; some PlaNYC initiatives have encountered delays as a result. Several initiatives have been delayed by a lack of state or federal action. But this hasn't deterred us. For example, even though a federal judge invalidated our PlaNYC regulation requiring taxis to convert to hybrids, we've not only appealed that decision but also gone to Congress to seek a change to federal law to allow us to proceed.

While we have made great progress toward meeting the goals of PlaNYC, much work remains. We must continue to work to reduce congestion and commuting times in the city. We must continue to work to green the heating fuels used by schools and large buildings. We must continue to make smart investments that save us energy and money. We must continue to urge Congress to pass the Green Taxis Act so that we can require our taxis to be hybrid vehicles. And we must continue finding new ways to make our city more sustainable. In doing so, we continue to prove that being more sustainable isn't just the right thing to do, it's the smart thing.

This year, we'll not only continue to work toward realizing PlaNYC; we will also take the time to refresh PlaNYC. Local Law 17 of 2008 requires that PlaNYC be updated every four years. The first update is due a year from now, on Earth Day 2011.

In 2006, we heard from thousands of New Yorkers in town hall meetings, roundtables, one-on-one discussions, conversations with over 150 advocacy organizations, and through our website. Over the course of the next twelve months, we will hold town hall meetings in every borough, engage with community and civic leaders and organizations, work with elected officials, and in many other ways continue the conversation we began four years ago.

As we update PlaNYC, we must put the Plan in context. It is a 20-year strategic vision for our city that remains as relevant—and as urgent—as three years ago. The long-term goals it outlines can be achieved, but they will not be met overnight and we cannot mistake planning for achievement.

As we consider new areas to include in the Plan, we cannot focus only on what should be changed while ignoring what should be preserved. And, as we deal with the reality of today's budget constraints, we cannot forget that our long-term challenges will not wait for the next economic cycle.

This report helps reaffirm our shared commitment to a greener, greater New York. A safe, clean, healthy, and sustainable city is a goal that remains as important today as it was in 2007, and will be in 2030.

Michael R. Bloomberg

Mayor Michael R. Bloomberg

Reading This Report

The annual reporting of progress on PlaNYC initiatives was promised in PlaNYC itself, and mandated in 2008 by Local Law 17. This year, in addition to reporting on the specific progress achieved since Earth Day 2009, the annual report reflects on the longer-term progress PlaNYC is—or is not—having toward making New York a more sustainable city. This is particularly important, as all New Yorkers will be asked to think about how PlaNYC should be updated in 2011, in compliance with another provision of Local Law 17, which requires that the City update its long-term plan every four years.

Therefore, the purpose of this report is twofold: it is intended to demonstrate the progress being made toward achieving the goals of PlaNYC and to offer a reflection on that progress. Each chapter is organized into three sections. The **overall status** section provides an overview of the City's progress toward achieving the goal(s) for that chapter; the **key progress** section outlines more specifically the progress made on the individual PlaNYC initiatives over the last three years; and the **observations on progress** section evaluates the progress the City has made, reflects upon the challenges faced, and assesses potential areas of opportunity for future action.

At the end of each chapter is a matrix that provides a detailed description of the progress made on each of the 127 PlaNYC initiatives since 2007. The matrix also indicates whether the City achieved the December 2009 implementation milestones laid out in PlaNYC.

Milestones are counted as achieved, mostly achieved, not yet achieved, or reconsidered. Those initiatives with multiple milestones (such as “Construct 240 Greenstreets”) are considered mostly achieved if 75 percent or more of the milestones are achieved; however, completing multiple steps in a process is not considered mostly achieved. For those milestones that are not yet achieved, the matrix indicates if the delay was caused by cuts to the City budget or actions (or inaction) taken by other government entities, which were beyond the control of the City.

Each chapter also contains a series of new sustainability indicators, adding to those that were released last year. These indicators provide a new way to measure the City's overall progress toward achieving each of the ten goals laid out in PlaNYC, beyond the implementation of the 127 initiatives in the plan. While not all-encompassing, these indicators are designed to provide a quantifiable bellwether for each component of a PlaNYC goal—so one can tell, for example, if New York City is achieving one part of a goal but not another. The indicators should be helpful in assessing whether changes to the plan are needed and are part of the City's ongoing commitment to transparency and accountability.

These indicators are a subset of the New York City Department of Health and Mental Hygiene's Environmental Public Health Tracking Portal, which can be accessed at <https://gis.nyc.gov/doh/track/> and via the PlaNYC website <http://www.nyc.gov/planyc2030>.

Ten Goals

For Creating a Sustainable City



Housing

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



Open Space

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



Brownfields

Clean up all contaminated land in New York City



Water Quality

Open 90% of our waterways for recreation by reducing water pollution and preserving our natural areas



Water Network

Develop critical backup systems for our aging water network to ensure long-term reliability



Transportation

Improve travel times by adding transit capacity for millions more residents, visitors, and workers



Reach a full “state of good repair” on New York City’s roads, subways, and rails for the first time in history



Energy

Provide cleaner, more reliable power for every New Yorker by upgrading our energy infrastructure



Air Quality

Achieve the cleanest air quality of any big city in America



Climate Change

Reduce our global warming emissions by 30%

Top Achievements

Progress toward PlaNYC goals since April 2007



19 rezonings approved, focusing development in areas well-served by transit



100,000 affordable units created or preserved under the New Housing Marketplace Plan



322,497 trees planted and 113 schoolyards to playground sites opened



Office of Environmental Remediation created, becoming nation's first municipal brownfield office



All 14 wastewater treatment plants now able to meet the Clean Water Act's standard for pollutant removal harbor-wide



Over 28,600 acres of land acquired to protect our upstate water supply



200 miles of bicycle lanes installed and bike access law enacted



Times Square, Herald Square, and Madison Square transformed into pedestrian-friendly plazas



31 state-of-good repair projects begun, leveraging \$261 million in Federal stimulus funding



Greener, Greater Buildings Plan enacted into law, requiring energy efficiency upgrades in all large buildings



84 energy efficiency projects completed as part of plan to reduce City government energy use 30% by 2017



25% of the yellow taxi fleet converted to hybrid vehicles



Clean air school bus law enacted, requiring installation of interior air quality controls on entire fleet



9% decrease in citywide carbon emissions



Developed city's first official climate change projections

PROGRESS ON 2009 MILESTONES

51 milestones "Achieved"	40%
12 milestones "Mostly Achieved"	9%
5 milestones "Mostly Achieved (City Budget)"	4%
4 milestones "Mostly Achieved (State or Federal Inaction)"	3%
MILESTONES ACHIEVED OR MOSTLY ACHIEVED	56%
23 milestones "Not Yet Achieved"	19%
5 milestones "Not Yet Achieved (City Budget)"	4%
13 milestones "Not Yet Achieved (State or Federal Inaction)"	10%
MILESTONES NOT YET ACHIEVED	33%
7 milestones "Reconsidered"	6%
4 milestones "Reconsidered (State or Federal Inaction)"	3%
MILESTONES RECONSIDERED	9%
3 milestones "NA"	2%
INITIATIVES WITHOUT 2009 MILESTONES	2%

Initiatives are counted as "mostly achieved" if 75 percent or more of the milestone is achieved. For example, if the initiative is to complete 240 Greenstreets, then 75 percent or more of those Greenstreets must be complete for the milestone to be counted as "mostly achieved." Initiatives consisting of multiple steps in a process are not considered "mostly achieved" even if 75 percent or more of those steps are complete.

To better understand why a milestone is not fully achieved, information on the cause of the delay is provided. "Mostly achieved (City Budget)" means that issues related to the City Budget prevented full achievement of the milestone. "Mostly achieved (state or federal inaction)" means that full achievement of the milestone depended on state or federal action that did not happen.

Initiatives that did not meet their 2009 milestone are counted as "not yet achieved." These initiatives are further classified into "not yet achieved (City budget)," which means that issues related to the City Budget prevented achievement of the milestone, or "not yet achieved (state or federal inaction)," which means that achievement of the milestone depended on state or federal action that did not happen.

Several initiatives are also be counted as "reconsidered" or "reconsidered (state or federal inaction)." Initiatives are counted as "reconsidered" if the 2009 milestone is no longer relevant because efforts are being reconsidered to achieve a similar outcome. Initiatives listed as "reconsidered (state or federal inaction)," mean that the 2009 milestone is no longer relevant because state or federal inaction has led to efforts being reconsidered to achieve a similar outcome.



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

New York City's population is expected to grow from 8.4 million in 2009 to roughly 9.1 million in 2030. While this growth will offer benefits, including more jobs, it will also bring challenges—above all, to accommodate new residents while closing the gap between housing supply and demand that has made housing less affordable in recent decades. PlaNYC initiatives seek to close this gap and prepare the city for future growth by expanding the supply of affordable and sustainable housing and encouraging growth where appropriate by directing it toward neighborhoods with diverse transit options.

Continue publicly-initiated rezonings

- 1 Pursue transit-oriented development
- 2 Reclaim underutilized waterfronts
- 3 Increase transit options to spur development

Create new housing on public land

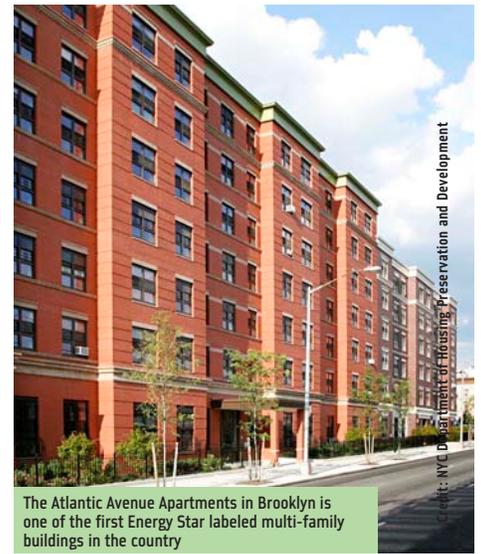
- 4 Expand co-locations with government agencies
- 5 Adapt outdated buildings to new uses

Explore additional areas of opportunity

- 6 Develop underused areas to knit neighborhoods together
- 7 Capture the potential of transportation infrastructure investments
- 8 Deck over railyards, rail lines, and highways

Expand targeted affordability programs

- 9 Develop new financing strategies
- 10 Expand inclusionary zoning
- 11 Encourage homeownership
- 12 Preserve the existing stock of affordable housing throughout New York City



The Atlantic Avenue Apartments in Brooklyn is one of the first Energy Star labeled multi-family buildings in the country

since 2003 as part of the New Housing Marketplace Plan (NHMP) and incorporating inclusionary zoning into 16 rezonings since the start of PlaNYC. However, vacancy rates for the lowest-priced apartments remain very low and housing options for median earners continued to shrink into 2008. According to the 2008 New York City Housing and Vacancy Survey (HVS), the vacancy rate for units renting for \$2,500 per month or more was 6.51 percent; for those renting for less than \$700 per month, it was 0.98 percent. Overall, the number of units that were affordable to a family earning the median household income decreased by 56,357 units between 2005 and 2008. However, these most recent data are from 2008, when market-rate housing prices were at their peak. Current economic and housing market conditions are likely to have complex effects on various segments of the housing market that are not reflected in the 2008 data. New data from the 2011 HVS will provide additional insight into how these conditions have affected housing affordability.

The City is making significant progress toward creating a more sustainable housing stock, particularly by encouraging growth in neighborhoods well-served by transit and preserving lower density in neighborhoods more dependent on cars. The result of strategies such as transit-oriented rezonings and redeveloping underutilized sites is that 87 percent of all housing units created since 2007 are within a half mile of transit. By comparison, approximately 69 percent of the city's housing units were near transit prior to 2007. Per capita residential energy consumption has been steady over the last three years, but prices have risen; in fact, the recent HVS revealed that between 2005 and 2008 rising utility costs contributed more to the total cost of living in New York than rising

Housing

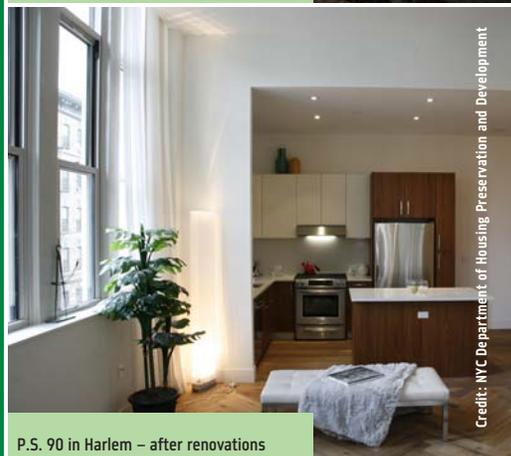
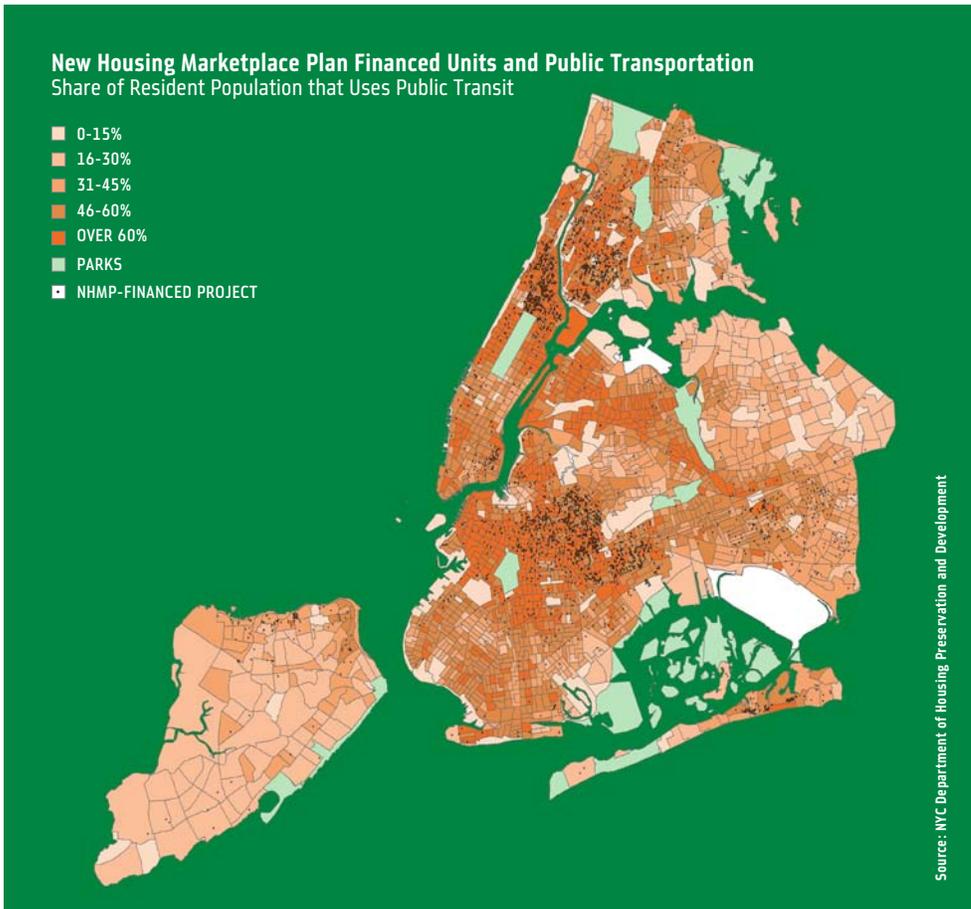
OVERALL STATUS

Created or preserved over 100,000 units of affordable housing through the New Housing Marketplace Plan and approved 19 transit-oriented rezonings

PlaNYC embraced three overall goals for housing: supply, affordability, and sustainability. Since the beginning of PlaNYC in 2007, the buoyant real estate market of the late 2000s created more than 72,000 housing units in new buildings, therefore achieving more than a quarter of the PlaNYC goal of creating the 265,000 housing units needed for nearly a million more New Yorkers by 2030. Over 30,000 new units were permitted in each of the four years leading up to 2008. The new units helped contribute to a substantial increase in the total housing stock

in the city from 3.26 million units in 2005 to 3.32 million units in 2008, a 2.1 percent increase. Going forward, growth will continue to follow the cyclical nature of the real estate industry.

Affordability, however, remains a challenge. The increase in overall supply, coupled with the economic downturn, has reduced average prices and rents for many units. The City has made significant progress on its affordable housing initiatives, including building or preserving more than 100,000 affordable units



rents. The rising cost of energy, which is largely out of the City's control, makes promoting energy efficiency all the more important. The City's efforts to encourage energy efficiency are covered in the Energy section of this document.

Key Progress

The City has worked to meet its housing goals through a variety of programs. The Inclusionary Housing program is an example of a publicly-initiated rezoning program that has had a successful impact by promoting affordable housing in conjunction with new housing development. The Inclusionary Housing program and other innovative programs are part of the New Housing Marketplace Plan.

Continue publicly initiated rezonings

Rezoning has been a powerful tool for the City both to promote the creation of additional housing and to steer those new units toward transit-oriented neighborhoods. By upzoning and allowing more density in neighborhoods well-served by transit while limiting growth in auto-dependent areas, the City can direct new development to areas of sustainable residential growth.

Since April 2007, 19 City-initiated rezonings to promote transit-oriented development have been adopted. Through these rezonings, the City has set the stage for the creation of 34,642 new housing units, including 4,725 affordable units when the real estate market returns. These rezonings took place in Queens, Brooklyn, Manhattan, and the Bronx. Many of these rezonings preserved the scale of most of the neighborhoods in which they occurred, while focusing growth along key corridors, such as Fulton Street in Bedford-Stuyvesant, that can best accommodate future growth. These rezonings are contributing to the creation of vibrant, mixed-used neighborhoods throughout the city.

Create new housing on public land and expand co-location with government agencies

Since the start of PlaNYC, the City has worked to adapt several City-owned sites to make better use of public properties and create affordable housing. The City issued and awarded an RFP at 1951 Park Avenue, a project that will include approximately 300 units on a former Human Resources Administration site in Manhattan. The City rehabilitated both 43 Herbert Street, a landmarked former police precinct in Brooklyn, to create 14 affordable condominium units, and P.S. 90, a former public school in Harlem, to create a mix of market-rate and affordable condominiums.

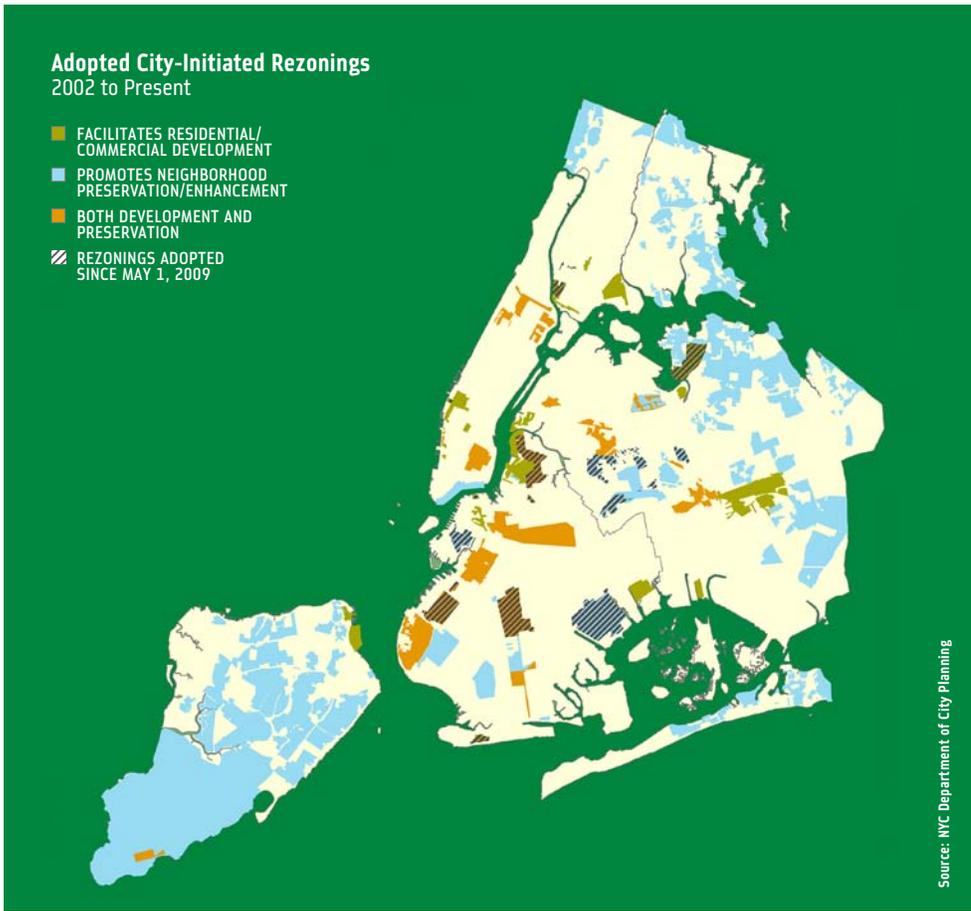
Explore additional areas of opportunity

Already the densest city in the nation, New York must be creative in finding opportunities to replenish the supply of buildable sites for housing as new development consumes previously available sites. The Department of City Planning (DCP) has continued to identify and capitalize on opportunities to utilize underused sites to create new neighborhoods and knit together those that were previously divided.

The City is moving forward on the Caemmerer Railyards, a project that will transform a 26-acre MTA/Long Island Rail Road train storage yard on the far west side of Manhattan into a high-density residential and commercial complex at the focal point of the Hudson Yards. The extension of the No. 7 subway line, which began in 2007 as part of the Hudson Yards redevelopment plan, will provide the new development with convenient public transportation. In 2009, development was approved for the western half of the yard, where eight towers will house a hotel or office building and approximately 5,000 apartments, 431 of which will rent at below-market rates. The project's developer made an agreement to preserve an additional 400 apartments in the neighborhood. At the same time, the City has

Adopted City-Initiated Rezoning 2002 to Present

- FACILITATES RESIDENTIAL/
COMMERCIAL DEVELOPMENT
- PROMOTES NEIGHBORHOOD
PRESERVATION/ENHANCEMENT
- BOTH DEVELOPMENT AND
PRESERVATION
- ▨ REZONINGS ADOPTED
SINCE MAY 1, 2009



Source: NYC Department of City Planning

New Housing Units Since 2007

PROJECT	BOROUGH	YEAR	PROJECTED UNITS
Hunters Point	Queens	2008	6,650
Willets Point	Queens	2008	5,500
125th Street Corridor	Manhattan	2008	3,858
Jamaica	Queens	2007	3,565
Lower Concourse	Bronx	2009	3,414
Coney Island Commons	Brooklyn	2009	2,408
Broadway Triangle	Brooklyn	2009	1,851
Dutch Kills	Queens	2008	1,547
East Village/Lower East Side	Manhattan	2008	1,383
East 125th Street Rezoning	Manhattan	2008	1,000
DUMBO	Brooklyn	2009	891
161st Street/River Avenue	Bronx	2009	594
Bedford Stuyvesant South	Brooklyn	2007	568
Ft. Greene/Clinton Hill	Brooklyn	2007	546
St. George Special District	Staten Island	2008	225
Upper West Side	Manhattan	2007	199
Coney Island	Brooklyn	2009	188
Flatbush	Brooklyn	2009	180
Sunset Park	Brooklyn	2009	75
NEW HOUSING UNITS PROJECTED			34,642
NEW AFFORDABLE HOUSING UNITS PROJECTED			4,725

Source: NYC Department of City Planning

NYC POPULATION GROWTH PROJECTIONS

Since the 1970s, when New York City faced fiscal insolvency, high crime rates, and disinvestment and experienced a net population loss of over 800,000 people, the City has rebuilt itself into a place where people want to live and work. As conditions improved in the 1980s, domestic population losses lessened and net international flows increased, which along with natural increase (more births than deaths) helped propel growth in the city's population. New York City continues to attract people from around the country and around the world. Since 2000, the city's population has grown as it has historically—in a dynamic manner, with a huge ebb and flow of people moving to and from the city. Between 2000 and 2009, New York City's population increased by more than 380,000 people through a process that involved net domestic outflow, net international in-

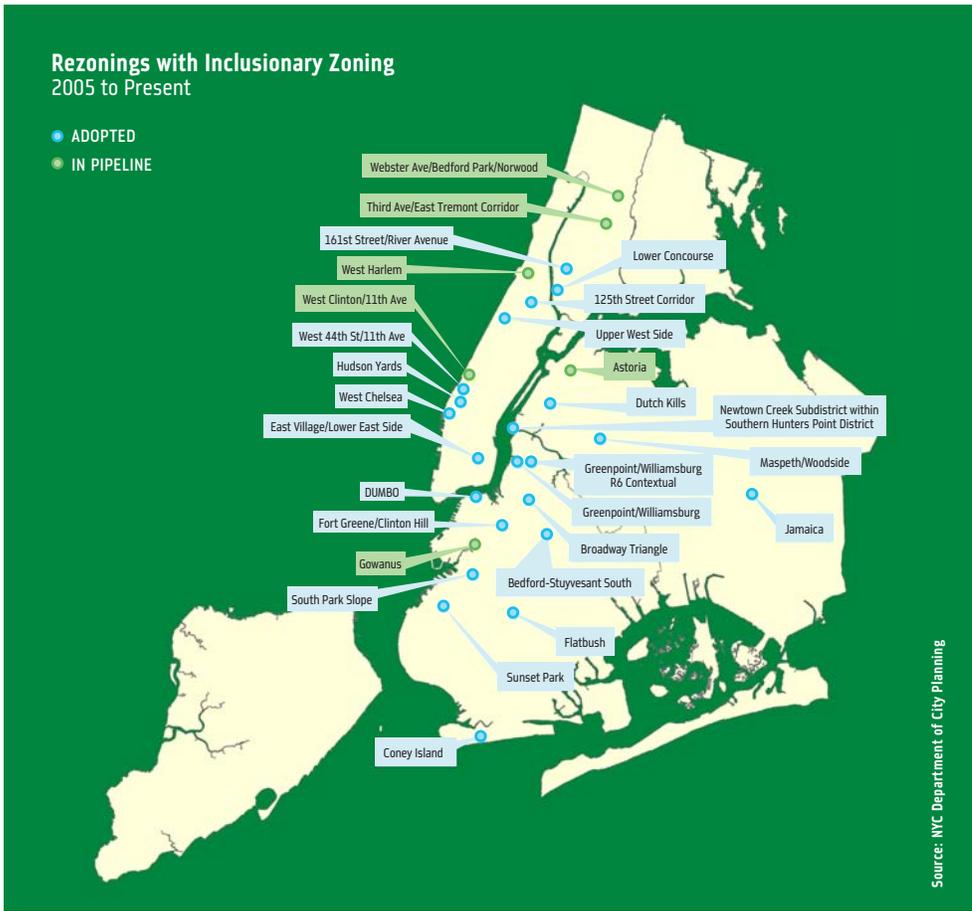
migration, and natural increase. Despite the current recession, the city's population reached an all-time high of approximately 8,391,881 in 2009. The increase in population despite job losses and economic difficulties speaks to New York City's vitality and continued ability to attract new people even as some move away. In the year that followed the attacks of September 11, 2001, jobs were lost in an economy that was already headed downward and increases in out-movement were apparent in and around Manhattan, but these proved to be short-lived. Population estimates indicate that New York City is still on track to add about a million new residents by 2030. A growing population means that achieving the PlaNYC goal of creating homes for these New Yorkers is still as important as ever.

agreed to build 320 affordable housing units on sites it owns in the neighborhood and will seek to acquire an additional 150 units in single-room occupancy hotels.

Expand Targeted Affordability Programs

When PlaNYC launched in 2007, it incorporated the Department of Housing Preservation and Development's (HPD) NHMP, an \$8.5 billion plan to build and preserve affordable housing for 500,000 New Yorkers by creating or preserving 165,000 units of affordable housing. To date, the NHMP has funded more than 100,000 units, achieving 60 percent of its goal, and is on track to be completed by 2014. Despite the recent economic challenges, HPD financed a total of 12,500 units in fiscal year 2009, demonstrating the City's ability to adapt to new opportunities and remain firm in its commitment to affordable housing.

The NHMP includes programs to help homeowners at risk of foreclosure, such as the Center for NYC Neighborhoods (CNYCN) that helps keep families in their homes by offering foreclosure prevention counseling, legal services, and community education. The NHMP also includes



HPD, HDC, and HUD in partnership reclaimed and preserved the Plaza Residences in Brooklyn

Credit: NYC Department of Housing, Preservation, and Development



HPD and NYCHA partnered to redevelop Markham Gardens

Credit: NYC Department of Housing, Preservation, and Development

programs to prevent neighborhood destabilization and blight such as the Housing Asset Renewal Program (HARP) that turns unsold or stalled market-rate units into affordable housing; the Neighborhood Stabilization Program through which foreclosed homes are rehabilitated and resold to new owners; and the New York City Acquisition Fund that uses cutting-edge private finance tools to help developers acquire sites for affordable housing.

Despite the downturn in the economy, HPD remains committed to increasing the supply of affordable housing through new construction projects, targeting areas where they will have the most immediate economic impact, and where there has been significant public investment. HPD has started work in neighborhoods such as the Melrose Commons Urban Renewal Area in the South Bronx and Arverne in Queens. In addition to affordable units, these large scale developments also include retail, community space, and infrastructure projects.

The current market is also spurring innovation in the preservation of affordable housing, including incentives to maintain the affordability of buildings like Mitchell Lamas, refining financial products to target over-leveraged buildings, and financing programs to target construction on vacant lots within otherwise vibrant communities.

Expanding upon the NHMP, the City also seeks to broaden use of the Inclusionary Housing program to promote the long-term production of affordable units. This program allows developers to build more units on a given lot than allowed as-of-right in exchange for setting aside a certain amount of those units as affordable to low, moderate, and middle-income New Yorkers. The City has continued to expand the application of the Inclusionary Housing program so that when the market recovers even more affordable units will be created. A total of 16 City-initiated rezonings since April 2007 have applied the Inclusionary Housing program to produce over 1,900 affordable units. In 2009, enhancements to the Inclusionary Housing program added a permanently affordable homeownership option.

Observations on Progress

Despite the downturn in the real estate market and the economy, nothing suggests that these conditions will affect the city's population growth projections (see case study). This population growth trend indicates that the long-term goals for increasing the city's housing remain as relevant as they were in 2007.

Unlike during the real estate booms of the 1990s, the most recent real estate boom created new housing in neighborhoods throughout the city, particularly outside Manhattan, that had not seen development in years. This increase in housing units will help the City reach its long-term goal of creating sufficient housing supply for the more than 9 million people anticipated to live in New York City in 2030. However, in the short term there is a mismatch between the housing that many New Yorkers, particularly low, moderate, and middle-income New Yorkers, need and can afford and the housing being constructed by the private market. Addressing this mismatch remains an enduring challenge for the City.



The Aurora in the South Bronx was redeveloped in partnership with HPD, HDC, and L&M Development Partners

Credit: NYC Department of Housing Preservation and Development



Park Lane at Sea View before renovations on the campus of the Sea View Hospital and Rehabilitation Center and Home in Staten Island

Credit: NYC Department of Housing Preservation and Development



Park Lane at Sea View after renovation consists of 104 mixed-income rental apartments for seniors

Credit: NYC Department of Housing Preservation and Development

Changes in the real estate market give the City new opportunities to meet the affordability challenge. The City has a renewed potential to work with developers to increase the stock of affordable housing because certain programs, including property tax incentives, low-interest refinancing, rehabilitation loans, and other subsidies that come with making long-term affordability commitments, are more attractive in the current economic climate than they were at the height of the market.

In order to ensure sustainable growth, the City has successfully directed new market-rate and affordable housing units into areas served by mass transit. The City is building on that success by creating more livable and walkable neighborhoods. Efforts toward this end include promoting mixed-use and mixed-income neighborhoods that offer a range of options for employment, shopping, and services accessible on foot or by transit; encouraging alternatives to auto ownership and use, such as walking, bicycling, and car sharing; and developing safe, lively, and pedestrian-friendly streets. These measures can

help improve quality of life, offer New Yorkers a wider range of economic choices, and foster strong social communities that contribute to overall well-being while improving air quality and reducing greenhouse gas emissions.

Next Steps

In the coming year, DCP plans to move forward with additional transit-oriented rezonings, including West Clinton/11th Avenue in Manhattan, Sunnyside/Woodside in Queens and the Third Avenue corridor in the Bronx. A zoning text amendment is also planned to promote car sharing, which offers economic benefits and improved mobility to users while contributing to a reduction in automobile ownership and use. This amendment will also have benefits for parking availability, congestion, air quality, and greenhouse gas emissions. The City is also preparing a new Comprehensive Waterfront Plan, which will establish a long-term vision for a 21st century waterfront. The plan, to be completed in 2010, will identify opportunities for future improvements to the waterfront, including opportunities to reclaim underutilized waterfront sites.

In parallel, HPD is integrating energy efficiency and sustainable elements into the units created by the NHMP. Beginning in fiscal year 2011, all new construction projects financed by HPD will be required to achieve Green Communities Certification, which provides affordable housing providers with cost-effective standards for creating healthy and energy-efficient homes. In addition, developers applying for preservation loans will be required to incorporate threshold energy efficiency elements into their rehabilitation scopes. These measures will help ensure the long-term viability of New York City's affordable housing supply and contribute to a cleaner, healthier environment.

Housing Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	PURSUE TRANSIT-ORIENTED DEVELOPMENT			
	Use upcoming rezonings to direct growth toward areas with strong transit access	Since April 2007, 19 rezonings adopted to spur transit-oriented development. Since April 2009, adopted rezonings include Lower Concourse and 161st St/River Avenue, the Bronx; DUMBO, Flatbush and Coney Island, Brooklyn. Flushing Commons, Queens was certified and referred for public review. Third Avenue/Tremont Avenue, Bronx will be referred in 2010.	Complete current Administration's agenda for rezonings and land use studies	Mostly Achieved
2	RECLAIM UNDERUTILIZED WATERFRONTS			
	Continue restoring underused or vacant waterfront land across the city	Hunters Point South and Willets Point rezonings, Queens adopted in 2008. Coney Island, Brooklyn and Lower Concourse and 161st St/River Ave, the Bronx rezoning adopted in 2009. Gowanus in Brooklyn is on hold pending additional review in light of EPA Superfund listing.	Complete current Administration's agenda for rezonings and land use studies	Mostly Achieved (State or Fed Inaction)
3	INCREASE TRANSIT OPTIONS TO SPUR DEVELOPMENT			
	Use transit extensions to spark growth as the subways did more than a century ago	34th Street BRT Phase I implemented by DOT in fall 2008. The PANYNJ's ARC project, which will ensure adequate transit capacity to support expected growth in midtown Manhattan, was adopted in July 2009. The extension of the 7 Line continued. In spring 2009, tunneling began along 11th Avenue in the direction of the current terminus of the 7 Line at 41st Street and Times Square.	Implement increased transit options including BRT to spur development	Achieved
4	EXPAND CO-LOCATIONS WITH GOVERNMENT AGENCIES			
	Pursue partnerships with City and State agencies throughout the city	Database not created; however, HPD identified opportunities for co-locations and partnered with other agencies to develop sites to provide both affordable housing and social services. The City issued and awarded 1951 Park Avenue RFP, a project of approximately 300 units on a former HRA site. Issued and awarded Melrose Commons RFP to redevelop 5 sites within the Melrose Commons Urban Renewal Area. Both projects will include space for ACS facilities.	Create database of City, State, and Federal land for co-location opportunities and housing	Not Yet Achieved
5	ADAPT OUTDATED BUILDINGS TO NEW USES			
	Seek to adapt unused schools, hospitals, and other outdated municipal sites for productive use as new housing	Database not created; however, HPD identified opportunities for co-locations and partnered with other agencies to develop sites to provide both affordable housing and social services. Closed 43 Herbert Street, a landmarked former police precinct that will be rehabilitated to create 14 affordable condominium units. In design phase for P.S. 90, an adaptive reuse of a former public school in East Harlem that will be rehabilitated to create 74 affordable units.	Use database to identify and execute on initial sites	Not Yet Achieved
6	DEVELOP UNDERUSED AREAS TO KNIT NEIGHBORHOODS TOGETHER			
	Continue to identify underutilized areas across the city that are well-served by transit and other infrastructure	The draft scope for the Gowanus, Brooklyn proposal was issued in February 2009, but Gowanus is on hold pending additional review in light of the EPA Superfund listing. Flushing Commons/Macedonia Plaza (Municipal Parking Lot 1 site) was certified and referred for public review.	Complete current Administration's agenda for rezonings and land use studies	Not Yet Achieved (State or Fed Inaction)
7	CAPTURE THE POTENTIAL OF TRANSPORTATION AND INFRASTRUCTURE INVESTMENTS			
	Examine the potential of major infrastructure expansions to spur growth in new neighborhoods	In 2009, the Western Rail Yards project, which will be served by expanding the 7 Line, advanced with the adoption of measures to ensure more affordable housing. Discussions on environmental, design, and zoning issues concerning the Moynihan Station area are underway; \$83 million in stimulus funds secured in February 2010.	Identify rezoning opportunities that emerge with the implementation of new transit projects ¹	Achieved
8	DECK OVER RAILYARDS, RAIL LINES, AND HIGHWAYS			
	Explore opportunities to create new land by constructing decks over transportation infrastructure	Completed inventory of railyards, rail lines, and highways with deck over potential and posted the report to DCP web site. Via Verde/Green Way, the Bronx rezoning adopted December 2008.	Identify railyards, rail lines, and highways that coincide with sustainable development and have the capacity for anticipated growth	Achieved
9	DEVELOP NEW FINANCING STRATEGIES			
	Continue to pursue creative financing strategies to reach new income brackets	The New Housing Marketplace Plan (NHMP), currently in its 6th year, is on track for completion by 2014. Almost 100,000 units were financed as of February 2010 under the NHMP. The New York City Acquisition Fund has created \$267 million in credit enhancement capacity to assist affordable housing developers. 25 developments have received over \$110 million in loans through the Fund.	Complete the Mayor's New Housing Marketplace Plan to build 165,000 units of affordable housing	Mostly Achieved
10	EXPAND INCLUSIONARY ZONING			
	Seek opportunities to expand the use of inclusionary zoning (IZ), harnessing the private market to create economically integrated communities	16 IZ rezonings adopted. In 2009, 280 affordable units in IZ areas were completed. Another 80 have been completed so far in 2010, while 1,436 are currently under construction or undergoing the completion process. IZ Text Amendment for homeownership option was adopted July 2009. W 44th St./11th Ave., Manhattan was approved January 2010 and Astoria, Queens was certified January 2010. Webster Ave. and Third Ave., the Bronx; West Harlem and West Clinton/11th Ave., Manhattan to be certified in 2010. Gowanus is on hold in light of the EPA Superfund listing.	Pursue inclusionary zoning in all appropriate rezonings initiated and reviewed by the City	Achieved
11	ENCOURAGE HOMEOWNERSHIP			
	Continue to develop programs to encourage home ownership, emphasizing affordable apartments over single-family homes	The NHMP is on track for completion by 2014. Opened the Center for New York City Neighborhoods (CNYCN), which provides legal services, housing counseling, and consumer education to residents in danger of foreclosure. CNYCN has raised \$7 million in commitments from public and private sources and awarded funds to over 30 non-profit service partners. More than 4,300 clients have obtained counseling from providers since July 2008. HPD and CNYCN launched a public service campaign to promote free services available through 311.	Complete the Mayor's New Housing Marketplace Plan to build 165,000 units of affordable housing	Mostly Achieved
12	PRESERVE THE EXISTING STOCK OF AFFORDABLE HOUSING THROUGHOUT NEW YORK CITY			
	Continue to develop programs to preserve affordable housing that so many New Yorkers depend upon today	In January 2010, New York City received an additional \$20 million in federal financing through the Neighborhood Stabilization Program to rehabilitate and resell foreclosed homes to prevent vacant foreclosed properties from becoming a blight on hard-hit neighborhoods. NHMP is a 10-year plan ending in 2014. It is currently in its 6th year, and HPD is on track to complete the plan by 2014.	Complete the Mayor's New Housing Marketplace Plan to build 165,000 units of affordable housing	Mostly Achieved

¹ 2015 milestone set—no 2009 milestone

Housing Sustainability Indicators

The housing goal of PlaNYC is to create homes for almost a million more New Yorkers, while making housing more affordable and sustainable. The goal has three components that require tracking: supply, affordability, and sustainability.

Supply

To track whether its supply targets are being met, the City is monitoring both how many new housing units have been created since the launch of PlaNYC in 2007 and the size of the total housing stock.

In order to keep an accurate record of how many new units are being created, the City is tracking the number of certificates of occupancy issued each year. Issued by the Department of Buildings, a certificate of occupancy indicates that a new building is ready for human habitation. By counting these certificates, the City can determine the number of housing units built in a given year. However, this metric does not account for the demolition of existing units, units created or lost through changes in use, such as loft conversions, or subdivisions or mergers of units. This makes it an incomplete measure of net additions to the total housing supply.

To get a more complete picture of how supply is changing, the City is also tracking the gross number of units and the net change in units over time, which includes the addition and subtraction of units not captured through data on new construction. However, this number is only available on a triennial basis from the U.S. Census Bureau's Housing and Vacancy Survey (HVS).

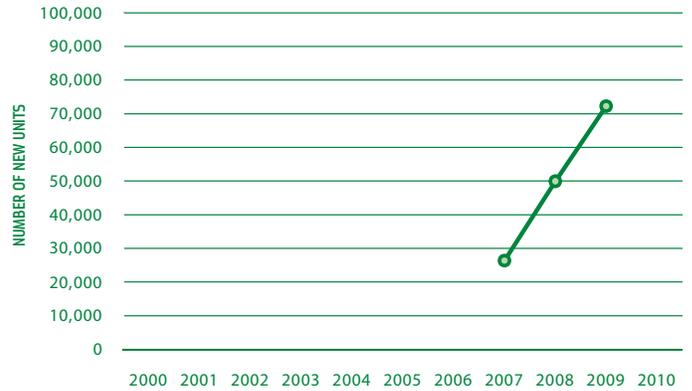
It is estimated that housing the nearly one million additional New Yorkers that are expected by 2030 will require 265,000 new units of housing. Since the start of PlaNYC, over 72,000 certificates of occupancy have been issued, reflecting the strength of the housing market during the end of the past decade. Data from the HVS reveals a similar picture; it shows that between 2005 and 2008, the city's total inventory of residential units increased by nearly 68,000 to 3.33 million.

Affordability

To track whether the City is meeting the affordability component of its housing goal, it is looking at two indicators: the degree to which homes are affordable to a New York City household earning the median income, and the vacancy rate of units across levels of asking rents.

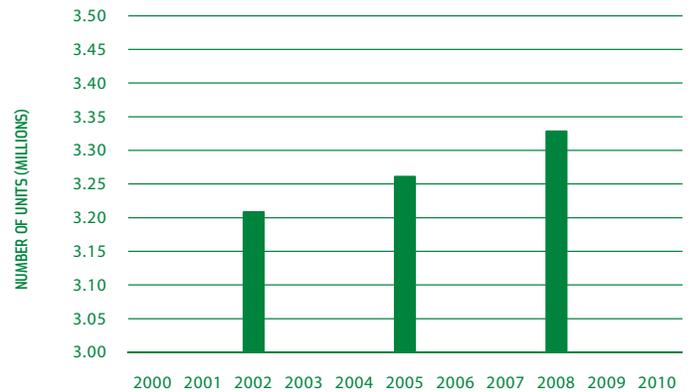
To measure the first indicator, the City is monitoring the total amount of rental housing and then determining what percentage of that stock is affordable to a household earning the median income. For housing to be affordable, a household must spend no more than 30 percent of its gross income on housing costs. This means, for example, that in 2008 when the median income of a household in New York City was \$45,000 (according to the HVS) that household would have had to spend no more than \$1,125 a month for their housing to be considered affordable. As median income increases, what is considered to be affordable housing costs also increase. Tracking this indicator over time provides information about the cost of housing and how changes in income relate to changes in the cost of housing.

Cumulative Number of New Housing Units Since PlaNYC Launch



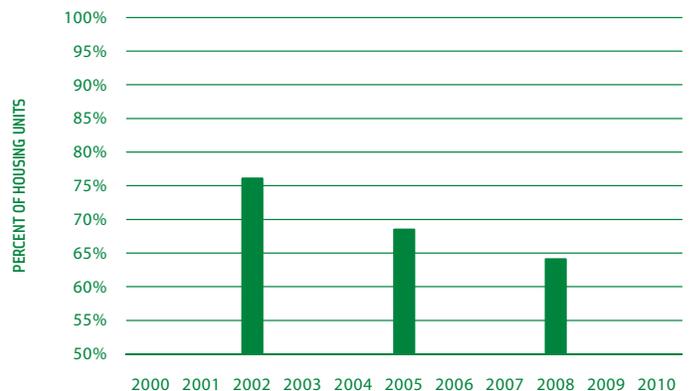
Source: NYC Department of City Planning

Total Existing Units of Housing Stock



Source: U.S. Census Bureau Housing Vacancy Survey

Percentage of Housing Affordable to a Median-Income New York City Household



Source: U.S. Census Bureau Housing and Vacancy Survey

The City is also tracking net rental vacancy rates across different price categories to measure affordability. In general, the vacancy rate reflects the relationship between supply and demand; vacancy rates below five percent indicate a housing emergency (very low supply and/or very high demand). Typically, vacancy rates for luxury apartments are higher than for less expensive apartments, indicating a relative shortage of affordable housing options. PlaNYC seeks to increase the amount of housing available which could be indicated by a higher vacancy rate for low rent apartments. Like the housing supply data, vacancy rates and income data are published every three years in the HVS.

The City's goal is to increase the amount of housing that is affordable to households earning the median income. From 2005 to 2008, the proportion of affordable housing in this category decreased from 68.5 to 64.1 percent. The vacancy rate for housing units with asking rents lower than \$700 per month decreased from 1.91 percent in 2005 to 0.98 percent in 2008. The vacancy rate of units with asking rents between \$700 and \$999 has also decreased from 2.74 percent in 2005 to 2.13 percent in 2008.

Sustainability

To track whether the City is meeting the sustainability component of its housing goal, it is looking at both access to transit and energy consumption, including the amount of energy used in residential buildings and the emissions intensity of that usage.

For the transit criteria, the City is monitoring the degree to which new housing units are being constructed within walking distance, defined as a half-mile, of a public transit station. To calculate this number, the Department of City Planning (DCP) maps the number of new units each year and calculates how many of these units have adequate access to transit.

For the energy criteria, the City is calculating the amount of metric tons of carbon dioxide equivalent (MTCO₂e) emitted from residential buildings divided by residential buildings square footage, in millions. This number reflects the carbon intensity of the city's housing stock. Emissions data are obtained from the Mayor's Office of Long-Term Planning and Sustainability, while residential buildings square footage is obtained from the Department of Finance and the Department of City Planning.

The City is also looking to reduce residential building GHG emissions per square foot. After declining due to mild weather in 2006, this metric increased back to 2005 levels and has remained steady. The City expects this number to decline in the coming years as the Greener, Greater Buildings legislation and other actions begin to take effect.

Vacancy Rates of Low-Rent Apartments



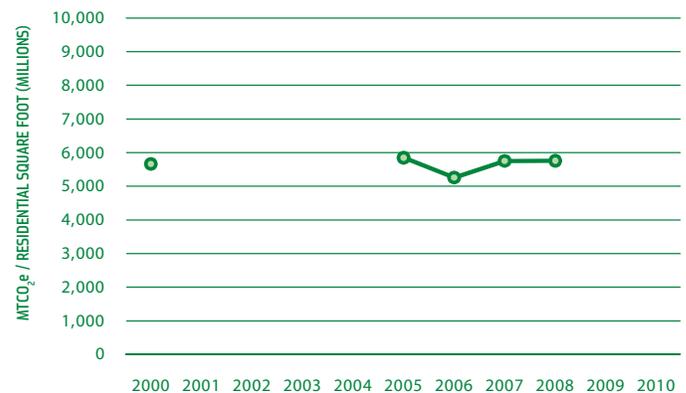
Source: U.S. Census Bureau Housing Vacancy Survey

Percentage of New Units Within a 1/2 Mile of Transit



Source: NYC Department of City Planning

Residential Building Greenhouse Gas Emissions* Per Square Foot



Source: NYC Mayor's Office of Long-Term Planning and Sustainability

* Metric tons of carbon dioxide equivalent



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

Since the launch of PlaNYC, the City has added nearly 182 acres of parkland—bringing the total to 571.7 acres added since 2002. However, adding land to the park system alone will not be enough to meet the city’s open space needs. That is why PlaNYC’s initiatives focus on making better use of existing open spaces—including schoolyards, streets, and parks—as publicly accessible areas for recreation. These efforts to create more usable open space not only improve the quality of life for all New Yorkers, but also make the city a more attractive place for tourists to visit and for businesses and workers to locate.

Make existing sites available to more New Yorkers

- 1 Open schoolyards across the city as public playgrounds
- 2 Increase options for competitive athletics
- 3 Complete underdeveloped destination parks

Expand usable hours at existing sites

- 4 Provide more multi-purpose fields
- 5 Install new lighting

Re-imagine the public realm

- 6 Create or enhance a public plaza in every community
- 7 Green the cityscape



Greenstreet at Kings Highway and Avenue R in Brooklyn

Credit: NYC Department of Parks and Recreation

Many of these sites have been concentrated in densely-built areas such as southern Brooklyn and southeastern Queens where there has been a shortage of space for active recreation.

Other initiatives will enhance access to existing parkland. Work at Calvert Vaux Park and McCarren Pool is well ahead of schedule. Once complete, the regional parks will serve as destinations for active and passive recreation.

The City is on track to exceed its goals for greening the cityscape through the Million-Trees program. While the City set out to plant 15,000 street trees every year, over the past three years it has actually planted an average of 19,000 each year. In partnership with the New York Restoration Project, the City has worked to bolster its urban forest by planting over 265,000 trees in parks, open spaces, and private backyards as part of extensive reforestation efforts. The completion of 224 Greenstreets has done more than just beautify the streetscape; DPR has employed innovative design techniques such as bioswales and pipe inlets to collect and recycle stormwater runoff at more than 40 Greenstreets. In partnership with four academic institutions in the region, DPR launched a study with state and federal funding to evaluate the use of Greenstreets for stormwater capture.

Make existing sites available to more New Yorkers

The Schoolyards to Playgrounds program has been one of the most effective strategies used by the City to bring active recreation space to neighborhoods underserved by parks. Since 2007, the City has opened 113 Schoolyards to Playgrounds sites, well ahead of the original goal of opening only those sixty-nine sites that required no capital improvements. Since

Open Space

OVERALL STATUS

Planted over 322,000 trees, opened 113 schoolyards to playgrounds sites, and began construction at Calvert Vaux Park and McCarren Park

The City has made great progress toward its goal of making all New Yorkers live within a 10-minute walk of a park. In 2007, 76 percent of New Yorkers lived within ¼ mile of a park; in 2010, 84 percent do. The City has achieved this success by harnessing the power of small targeted investments like those done under the Schoolyards to Playgrounds program, which can directly improve recreation options in the most “underparked” areas of the city, as well as the public plazas initiative, which can bring usable passive recreation space to areas with no space for new parks.

Other efforts also continue, although some have had their timelines lengthened due to budget constraints. To date, the City and its partners have planted over 322,000 trees, achieving nearly one-third of the goal of a million new trees by 2017—and 65,000 trees

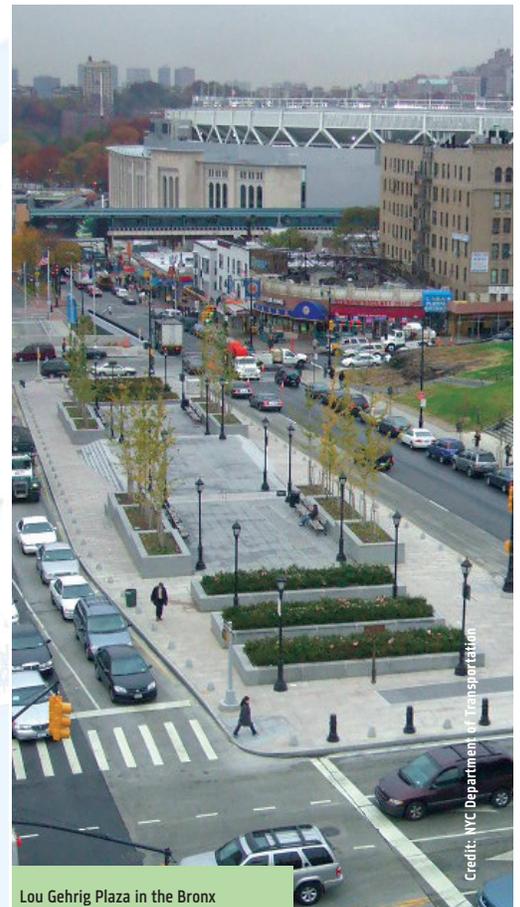
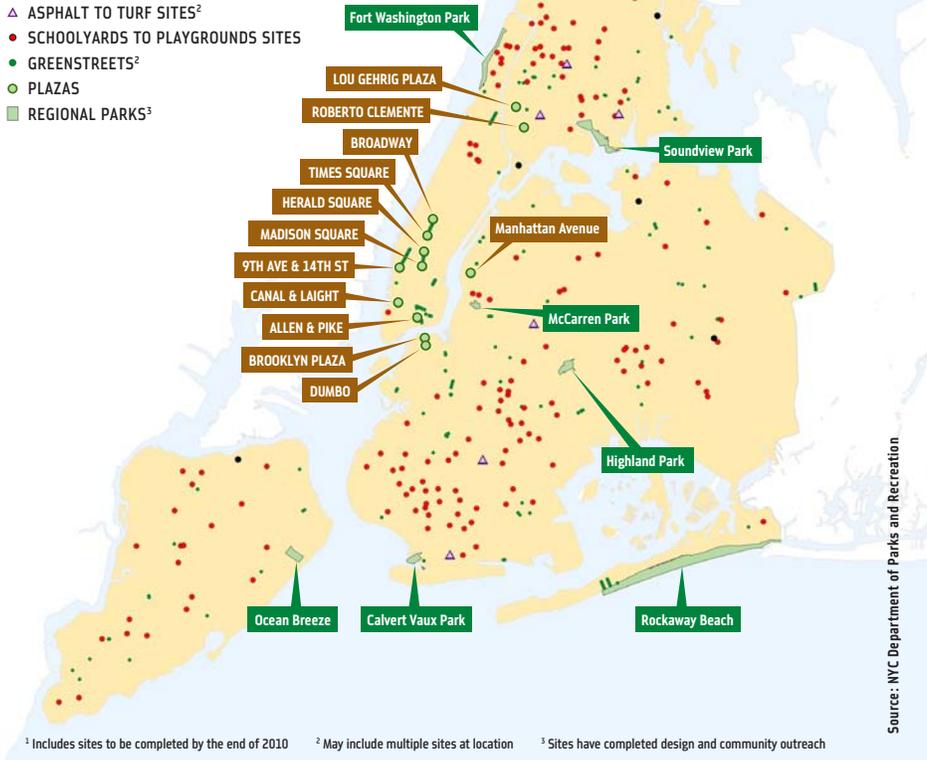
ahead of schedule. In addition, the Department of Parks & Recreation (DPR) has made significant progress on the efforts in PlaNYC dedicated to improving the usability of existing resources, including breaking ground on two PlaNYC regional parks: McCarren Pool and Calvert Vaux Park, both in Brooklyn. At present, the remaining six regional parks projects are on track to meet their stated milestones. However, due to their capital-intensive nature and current budget constraints, the City anticipates a phased process for the construction of these parks.

Key Progress

Progress on the Schoolyards to Playgrounds initiative has exceeded the timelines set forth in PlaNYC. Since 2007, 113 schoolyards have been opened, effectively adding 85 acres of open space available to New York’s children.

PlaNYC Open Space Initiatives Since 2007¹

- LIGHTED BALLFIELD SITES²
- ▲ ASPHALT TO TURF SITES²
- SCHOOLYARDS TO PLAYGROUNDS SITES
- GREENSTREETS²
- PLAZAS
- REGIONAL PARKS³



then, in partnership with the Trust for Public Land (TPL), the City completed renovations on 44 additional schoolyard sites and has opened them to the public after school and on weekends. An additional 30 playgrounds will likely complete construction by the end of summer 2010. The City has also completed the design phase for all 187 schoolyard sites requiring capital improvements.

The schoolyards program has succeeded because of strong interagency cooperation among the Department of Education (DOE), the School Construction Authority (SCA), DPR, and through the partnership with TPL. Design and construction teams forge relationships with each school administration through the initiative's focus on participatory design based on TPL's established outreach model. Each community receives amenities tailored to its needs and schoolyards designed directly for students and schoolchildren. At P.S. 205K in Bensonhurst, for example, the play equipment was designed to accommodate the school's substantial limited mobility population.

Although construction to date has proceeded well ahead of schedule, progress over the next year may be challenging. Many of the Type II schoolyards in the program—those which were identified as just needing new play amenities—have required intensive capital improvements

like new asphalt and fencing. This more extensive work, in addition to the budget constraints affecting all major capital investments, means that the full 256 playgrounds may not be opened on schedule by the end of 2015. It is expected, however, that the total number of sites completed and opened on time will exceed 230.

Despite budget cuts, the City has made substantial progress on its regional destination parks that will improve over 500 acres of parkland. The design and community outreach phase is complete at seven out of the eight destination parks in need of improvement and construction on two regional parks has begun. The timeline for the design and renovation of the High Bridge in northern Manhattan was extended due to technical challenges and the need to hire a restoration specialist for this historic project. These complexities led DPR to partner with the Department of Design and Construction (DDC) to bring their expertise in bridge design and construction to this project. Once restored, the bridge will serve as a vital link in New York City's expanding waterfront greenway and open pedestrian and bicycle access between northern Manhattan and the Bronx.

The City has been working closely with state and federal agencies to coordinate permits and approvals for each of the regional parks projects.

Over 20,000 cubic yards of soil have been removed in the past year of construction at Calvert Vaux Park and consultants are helping prepare testing plans and soil management protocols for projects at Soundview Park in the Bronx and Fort Washington Park in Manhattan.

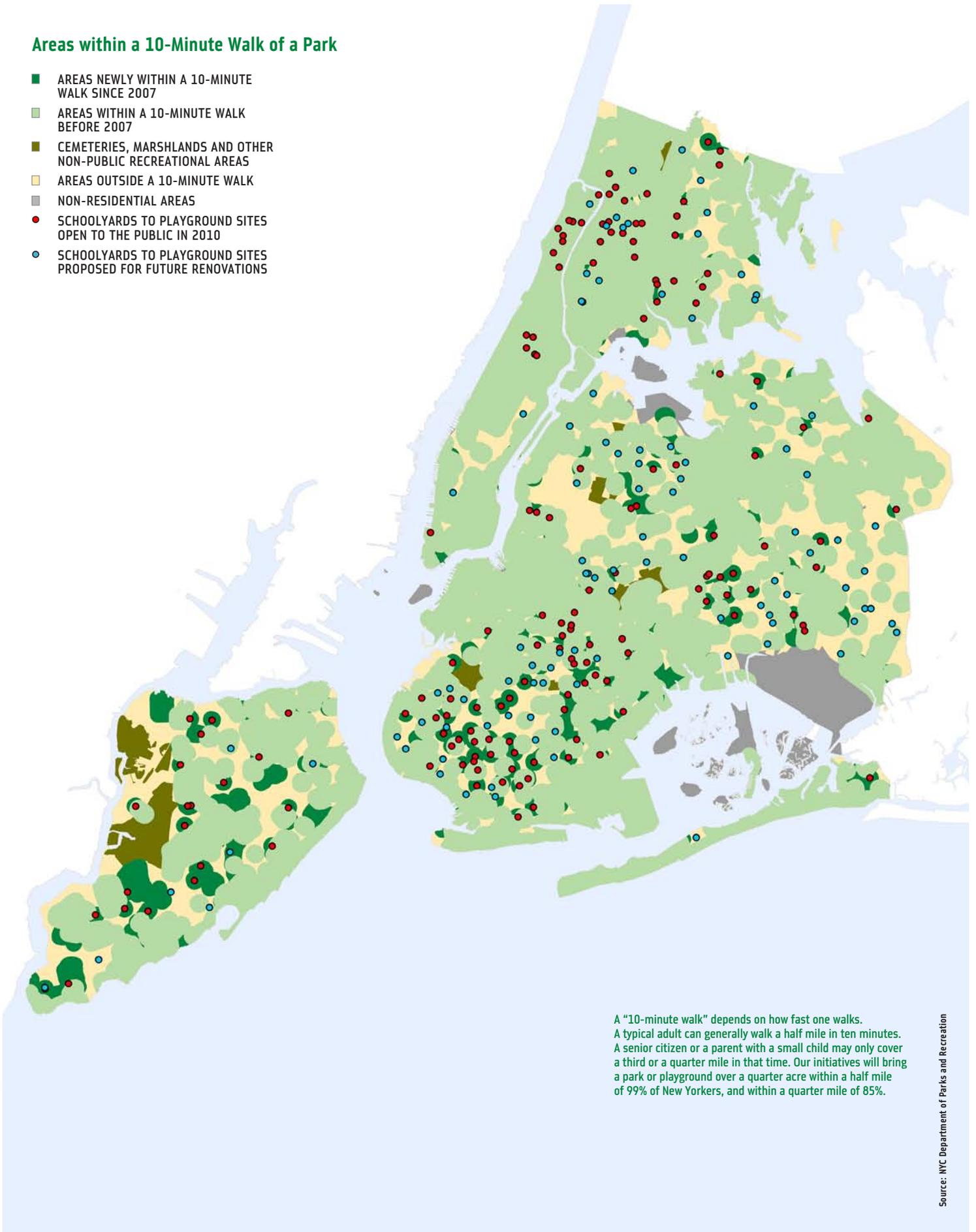
Fiscal constraints have led the City to redirect its initiative to increase options for competitive athletics and to achieve this objective through different paths. DPR is assessing City facilities and reviewing new and innovative ways to partner with DOE to make those facilities more readily available to schoolchildren and residents in areas where they are most needed.

Expand usable hours at existing sites

Through PlaNYC, the City sought to expand access to active recreation and use existing facilities more efficiently. The plan identified 26 asphalt sites to be transformed into synthetic turf fields and 36 sites were originally targeted for new field lighting in order to extend playing hours and accommodate additional users. Because of budget constraints, the asphalt-to-turf conversions have been phased and the number of field lighting sites has been reduced to 25. Despite these constraints, the City has completed designs for 25 asphalt fields and one field has been constructed

Areas within a 10-Minute Walk of a Park

- AREAS NEWLY WITHIN A 10-MINUTE WALK SINCE 2007
- AREAS WITHIN A 10-MINUTE WALK BEFORE 2007
- CEMETERIES, MARSHLANDS AND OTHER NON-PUBLIC RECREATIONAL AREAS
- AREAS OUTSIDE A 10-MINUTE WALK
- NON-RESIDENTIAL AREAS
- SCHOOLYARDS TO PLAYGROUND SITES OPEN TO THE PUBLIC IN 2010
- SCHOOLYARDS TO PLAYGROUND SITES PROPOSED FOR FUTURE RENOVATIONS



A "10-minute walk" depends on how fast one walks. A typical adult can generally walk a half mile in ten minutes. A senior citizen or a parent with a small child may only cover a third or a quarter mile in that time. Our initiatives will bring a park or playground over a quarter acre within a half mile of 99% of New Yorkers, and within a quarter mile of 85%.

Source: NYC Department of Parks and Recreation



Children playing at P.S. 108 in Queens

Credit: NYC Department of Parks and Recreation

and opened to the public. Designs are now complete for the installation of new lighting at 24 out of 25 fields. One field has new lighting and is now open to the public. Though it varies by season, this new amenity alone offers 21 additional hours of playing time per week for local users.

Re-imagine the public realm

Extensive progress is being made toward greening city streets and creating new public spaces. To make better use of underutilized open spaces on streets, the City's NYC Plaza Program allows not-for-profit organizations to apply to the Department of Transportation (DOT) to create new or enhance existing pedestrian plazas. The City selects the best sites and partners with organizations to redesign parts of streets to become neighborhood plazas. All together, 35 different sites throughout the city are either completed or in the planning or construction phase. These sites have helped create new public space, increased pedestrian safety, and enabled New Yorkers to re-imagine what their public spaces can be.

In partnership with the New York Restoration Project, the City has also made great strides toward planting one million new trees across the five boroughs. Now in its third year,

MillionTreesNYC is a critical component of PlaNYC as well as an ambitious city-wide greening effort. In December 2009, the City celebrated the planting of "Tree 300,000" and by the end of spring 2010, MillionTreesNYC will have planted over 350,000 trees. This includes over 50,000 street tree plantings, most of which occurred in areas with the highest need for additional canopy cover.

As the spring planting season begins this April, the City will target residents to get involved and plant trees in their yards and neighborhoods through a new "Put Down Roots" program. Through public service messaging and targeted outreach, this segment of the campaign will promote planting and care of trees and offer free trees to New Yorkers who wish to plant on their property. While DPR is planting in parks and public spaces across the city, it is the partnership with New Yorkers in the care and maintenance of trees and in the planting of trees on their property that will fuel the ongoing success of this initiative.

DPR's tree planting efforts have also focused on enhancing the urban forest and strengthening green infrastructure. By planting in large parks and under-resourced areas, the City has augmented other planting efforts through reforestation plantings, which include over 166,000



Rendering of McCarren Pool

Credit: NYC Department of Parks and Recreation

CASE STUDY: MCCARREN POOL

In December 2009, DPR started renovating the pool at McCarren Park, one of eight PlaNYC regional parks. The pool opened in 1936 and attracted over 6,000 bathers on a typical summer day. But in 1984, the site's deteriorating infrastructure forced it to close. Apart from its seasonal run as a venue for concerts, dance, and movies starting in 2005, McCarren Pool has sat unused. Construction crews are now restoring the one time social hub of Greenpoint and Williamsburg to its former glory with \$50 million in PlaNYC funding.

The project will create a regional destination to be used for more than just a summer cool-off. DPR worked with community organizations in northern Brooklyn to develop a design for year-round activities that adaptively reuses the site's historic structures. Come winter, the pool "beach" will be converted into an ice skating rink. A year-round recreation center with gym, weight and cardio rooms, multipurpose community rooms, and office space will occupy the historic bathhouse building.

DPR is seeking a LEED Silver rating for the project to comply with Local Law 86. Sustainability strategies employed by the design team include the use of salvaged wood from the Coney Island Boardwalk for interior partitions and exterior screens, optimized water use reduction for all toilet, bath, and shower fixtures, optimized energy performance, and the use of fly ash and/or slag concrete for all concrete work.

When opened to the public in spring 2012, the restored pool will complement other recently completed capital projects in the 35-acre McCarren Park that include a skate park, track, and lighted synthetic turf field. The facilities will enhance recreational opportunities and improve open space for the growing north Brooklyn community.

Trees Planted Since 2007

- STREET TREE PLANTINGS
- OTHER TREE PLANTING SITES



Source: NYC Department of Parks and Recreation



Volunteers dig in during the Million Trees Planting Day at Rainey Park in Queens

Credit: NYC Department of Parks and Recreation

trees since the campaign started. Much of this planting has been facilitated through large-scale volunteer planting days where New Yorkers and community and school groups have led the way in planting trees to strengthen and sustain the urban forest. In partnership with NYC Service—the City's effort to promote local service and volunteerism—over 2,500 New Yorkers each year help plant trees. Although the aggressive greening program has been impacted by fiscal constraints, cost reductions have been achieved through these large-scale volunteer plantings.

MillionTreesNYC not only engages New Yorkers in planting, but also teaches them the benefits that trees provide and encourages them to care for trees. Launched in spring 2009, the Stewardship Corps works with a broad cross-section of New Yorkers to build a community-based network of tree stewards across the five boroughs. Working with the major botanical gardens and other non-profit partners, MillionTreesNYC has offered over 85 free tree care workshops in which more than 1,000 New Yorkers have participated.

In addition to tree planting, the City has constructed over 224 Greenstreets since the inception of PlaNYC and is completing surveys for the

next 53 Greenstreet locations it will construct in 2010. Although the City originally planned to construct 80 Greenstreets each season until 2015, because of budget cuts, only 40 to 50 Greenstreets are now planned to be constructed each year.

For all these efforts, interagency coordination and extensive community engagement has been key to the City's success. Throughout its open space initiatives, the City has encouraged both innovative and sustainable design and has sought to educate New Yorkers about the benefits and challenges of enhancing open space. Through these efforts the City seeks to redefine open space as vital green infrastructure, which is as important to the health and vitality of the City as its roadways and transit systems.

Observations on Progress

The City has made significant progress toward increasing the number of New Yorkers who live within a 10-minute walk of a park. Much of its success has come from focusing on more targeted, less capital-intensive projects such as the Schoolyards to Playgrounds program. By carefully focusing on those neighborhoods most in

need of open space and making a targeted investment in that community, the City is able to leverage a relatively small amount of capital and make a large improvement in terms of access to open space.

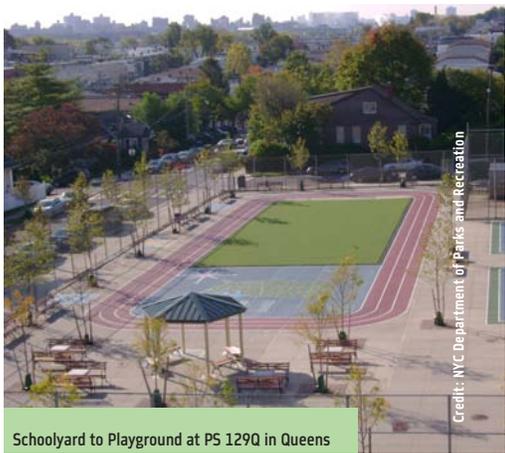
Major capital projects, due to both their complexity as well as the recent economic climate, have seen slower progress. The difficult financial climate has necessitated a 27 percent capital funding cut spread out over ten years for DPR, as well as for all other City agencies. Rather than eliminate entire projects, DPR chose to cut from many projects to maintain them all so that no area was disproportionately affected. Master plans have been developed so that design and construction can proceed once the economy improves. Despite funding obstacles, the City is making progress and remains committed to its historic investment in New York City open space.

To achieve its PlaNYC open space goals, the City targeted initial investments based on how far a given community was from a park. Newer and more sophisticated mapping technologies can allow the City to take issues of access and park quality into account. This can allow the City to better target its future investments to ensure that all New Yorkers have access to a wide variety of open space and recreation activities.



Putting the finishing touches on PS 299-K in Brooklyn

Credit: NYC Department of Parks and Recreation



Schoolyard to Playground at PS 129Q in Queens

Credit: NYC Department of Parks and Recreation



Rendering of proposed lawn and performance venue Rockaway Regional Park in Queens

Credit: NYC Department of Parks and Recreation

There are also a number of opportunities to explore for increasing open space access. Given the expansive park acreage in the City that is owned by the state and federal governments, further expanding linkages with state and federal agencies beyond existing efforts could expand recreational opportunities.

The City can further reclaim open space with innovative new projects such as enhancements to former industrial sites, landfills, and along the waterfronts. For example, Fresh Kills Park in Staten Island, once constructed, will be the City's second largest park and is being re-imagined as a research and development site for sustainable practices. The City can also look at reclaiming post-industrial sites and abandoned infrastructure such as the High Line in Manhattan or the waterfront in Brooklyn and in the Bronx. Through the redesign and adaptive reuse of the City's existing park resources, DPR is able to employ thoughtful and sustainable practices to bring exciting new amenities that re-imagine public open space and that have the potential to meet the diverse open space needs of all New Yorkers.

Next Steps

The City is on track to meet the PlaNYC goal of creating over 800 acres of upgraded parkland and open space throughout the five boroughs. Barring additional cuts to the City's capital plan, over the next year DPR will aim to break ground on five regional parks and will complete the design of the High Bridge. DPR will also complete improvements on nearly 50 schoolyards to playgrounds sites. DPR will continue expanding its tree-planting capacity and plant trees in parks, on city streets, and in partnership with property owners to plant a million trees by 2017. Outreach efforts with individuals, community groups, and neighborhood partners to raise awareness of the benefits to be gained from adding these new trees across the City will also continue. Through targeted outreach, a tree planting curriculum in schools, and a focus on building a city-wide stewardship network, the City will seek to educate New Yorkers and join forces with residents in the continued care and maintenance of trees.

DPR will continue working with other City agencies to assess existing park facilities and to develop partnerships with them, as well as with state and federal parks departments. As these partnerships grow, the City will continue to document the benefits of a more cohesive park system and expand on existing outreach efforts that involve residents in park design and access to open space. Research will continue to direct and support enhancements to green infrastructure to harness its full benefit, including stormwater management. Sustainability will be a guiding force for all of these efforts and will infuse all elements of park design and enhancements.

Open Space Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	OPEN SCHOOLYARDS ACROSS THE CITY AS PUBLIC PLAYGROUNDS			
	Open schoolyards as playgrounds in every neighborhood	Opened 69 schoolyards as playgrounds, completing commitment to open all Category 1 sites. In partnership with the Trust for Public Land, the City completed renovations on 44 additional schoolyard sites that are now open to the public after school and on the weekends, with an additional 30 playgrounds to complete construction by the end of 2010. The City has completed the design phase for all 187 schoolyard sites requiring capital improvements.	Open all Category 1 sites not requiring capital improvements	Achieved
2	INCREASE OPTIONS FOR COMPETITIVE ATHLETICS			
	Make high-quality competition fields available to teams across the city	Based on research done with DOE, DPR, and the Mayor's Office of Long-Term Planning and Sustainability, the cost associated with opening these sites as well as the additional resources required outweighed the benefit of opening these fields for public use.	Open fields up for community use on 43 fields	Reconsidered
3	COMPLETE UNDERDEVELOPED DESTINATION PARKS			
	Fulfill the potential of at least one major undeveloped park site in every borough	The City completed designs for seven of eight regional parks. Design of the remaining park, High Bridge, was delayed because of the complexity of securing a restoration specialist. Design began in February 2010 and final documents are expected in Winter 2011. Groundbreaking occurred at Calvert Vaux Park in February 2009 and at McCarren Pool in December 2009. The City expect to break ground at Ocean Breeze Park in Spring 2010 and at Fort Washington Park, Highland Park, Rockaway Park, and Soundview Park by the end of 2010.	Complete community outreach and designs for all regional parks	Mostly Achieved
4	PROVIDE MORE MULTI-PURPOSE FIELDS			
	Convert asphalt into multi-use fields	The City completed designs for 26 fields. One field has been completed and opened to the public. Eight fields are under construction, with an additional 11 fields expected to start construction by the end of 2010. Asphalt to turf construction has been phased because of the City's April 2009 capital budget cut.	Complete development of all proposed multi-purpose fields	Not Yet Achieved (City Budget)
5	INSTALL NEW LIGHTING			
	Maximize time on our existing turf fields by installing lights for nighttime use	The City completed design for 24 of 25 fields. One field is open to the public. Construction started on an additional 14 fields, of which 12 will open by the end of 2010. Field lighting construction has been phased because of the April 2009 capital budget cut.	Complete installation of all proposed field lights	Not Yet Achieved (City Budget)
6	CREATE A PUBLIC PLAZA IN EVERY COMMUNITY			
	Create a new or enhance an existing public plaza in every community	Launched New York City Plaza Program. Since the start of the program, the City completed twelve plazas: DUMBO, Brooklyn Plaza, 9th Ave & 14th St, Manhattan Ave, Lou Gehrig Plaza, Roberto Clemente Plaza, Broadway at Columbus Circle, Allen & Pike, Madison Square, Herald Square, Times Square, and Canal & Laight Plaza. Throughout the city, there are more than twenty plazas in various phases of planning, design, or construction, including temporary plazas as well as permanent, fully reconstructed public spaces.	Continue development of identified plaza initiatives and develop a process for community identification of potential new plazas	Achieved
7	GREEN OUR CITYSPACE			
	Fill every available street tree opportunity in New York City	The City celebrated the third year of MillionTreesNYC in partnership with the New York Restoration Project and planted "Tree 300,000" in December 2009. By the end of spring 2010, MillionTreesNYC will have planted over 350,000 trees. Street tree planting focuses on areas of highest need; 50,167 new street trees have been planted to date, or an average of 19,000 a year since the plan's inception.	Plant 15,000 street trees per year	Achieved
	Expand Greenstreets program	The City completed design and construction of 224 new Greenstreet sites since 2007. At present, the City is completing surveys for the next 53 Greenstreet locations it will construct in spring 2010. The total number of Greenstreet sites to be constructed by 2015 was reduced from 640 to 320 because of the April 2009 funding cut.	Complete 240 Greenstreets	Mostly Achieved (City Budget)

Open Space Sustainability Indicators

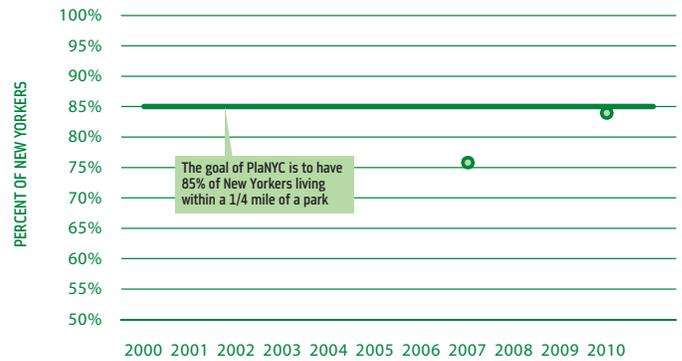
The open space goal of PlaNYC is to ensure that all New Yorkers live within a 10 minute walk of a park. To measure progress, the City looks at what portion of New Yorkers live within both a 1/4 and a 1/2 mile of a park or playground.

Park Distance

Because New Yorkers walk at different speeds, this goal has two components. One is to ensure that all New Yorkers (99 percent) live within a half-mile distance of a park, and the other is to ensure that most New Yorkers (85 percent) live within a quarter-mile distance of a park.

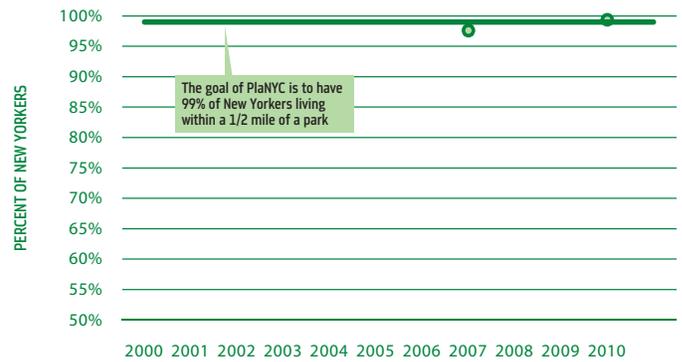
To create this metric, the Department of Parks and Recreation uses geographic information system (GIS) software to map all new and existing city, state, and federal parks against data showing where people live based on the most recent Census.

New Yorkers Living within a 1/4 Mile of a Park or Playground



Source: NYC Department of Parks and Recreation

New Yorkers Living within a 1/2 Mile of a Park or Playground



Source: NYC Department of Parks and Recreation



Clean up all contaminated land in New York City

As the need for space grows while the supply of land is fixed, the City must use its existing land more efficiently. Brownfields are vacant or underutilized properties that remain undeveloped because pollution from past land usage impedes redevelopment. Brownfields blight urban neighborhoods, often occurring in clusters that stifle community revitalization. Left unattended, these properties represent lost opportunities for job creation and economic development and may pose a threat to the environment or public health. PlaNYC defines a clear set of initiatives to create City-run cleanup programs, to build financial and other incentive programs, and to embrace New York City communities in the City's brownfield effort.

Make existing brownfield programs faster and more efficient

- 1 Adopt on-site testing to streamline the cleanup process
- 2 Create remediation guidelines for New York City cleanups
- 3 Establish a City office to promote brownfield planning and redevelopment

Expand enrollment into streamlined programs

- 4 Expand participation in the current State Brownfield Cleanup Program (BCP)
- 5 Create a City program to oversee all additional cleanups
- 6 Provide incentives to lower costs of remediation

Encourage greater community involvement in brownfield redevelopment

- 7 Encourage the State to release community-based redevelopment grants
- 8 Provide incentives to participate in Brownfield Opportunity Area (BOA) planning
- 9 Launch outreach effort to educate communities about brownfield redevelopment

Identify remaining sites for cleanups

- 10 Create a database of historic uses across New York City to identify potential brownfields
- 11 Limit liability of property owners who seek to redevelop brownfields

The City has made great progress over the last year in building its brownfield programs and expects to complete all PlaNYC brownfield initiatives in 2010. Establishing OER and its programs paves the way for the cleanup of the City's contaminated land. This is essential to achieving PlaNYC's goal of making land available for growth to meet New Yorkers' needs over the next twenty years. The City's ability to facilitate brownfield redevelopment and its capacity to oversee cleanups has grown substantially, as has the sophistication of its understanding of brownfields and land use. The City now recognizes that the principal driving forces behind brownfield cleanup and revitalization include the local community and other stakeholders who identify local needs and private parties who seek to develop brownfield properties. As the current financial crisis has slowed or stopped new development in many parts of the city, cleanup rates have also slowed. These difficulties, as well as those often faced by communities where brownfield clusters appear, make it even clearer that the City's new brownfield programs must be designed to address broader stakeholder needs.

The City has also learned that brownfield cleanup is integrally linked to development cycles, which vary in length, and indicate that brownfield programs must be designed for permanence and longevity. New programs go a great length toward reducing the burdens that contamination adds to development in New York City, but the City is now looking to develop a second tier of initiatives to further alleviate these burdens.

Key Progress

The City has made significant progress since 2007. OER's one-stop shop for cleanup, the Local Brownfield Cleanup Program, is the centerpiece of the institutional infrastructure that has been created. The LBCP is designed to deliver the streamlined cleanup process envisioned in PlaNYC, achieving high-quality cleanups that are protective of public health and the environment. Governmental release from liability for contamination is one of the most important incentives for developers on brownfield sites. The LBCP ensures that all brownfield projects in the city have access to governmental oversight and liability release for their cleanups, which for many properties was not previously available. The City is now working now to develop agreements with New York State to provide similar release from state liability.

Brownfields

OVERALL STATUS

The NYC Local Brownfield Cleanup Program and NYC Brownfield Incentive Grant Program will begin by summer 2010

Before PlaNYC, few City programs and little institutional infrastructure existed to support the redevelopment of brownfield properties. PlaNYC recognized that the most effective way to accelerate the cleanup of contaminated land in New York City was to create a municipally-run brownfield cleanup program—the nation's first—and consolidate and centralize the City's brownfield cleanup activities.

To accomplish this, Mayor Bloomberg created the Office of Environmental Remediation (OER) in June 2008 and in May 2009 signed into law

the New York City Brownfield and Community Revitalization Act. This law provides OER with broad authority to stimulate cleanup and redevelopment of brownfields. It contributes to economic recovery by authorizing OER to create and administer the City's new Local Brownfield Cleanup Program (LBCP) and the Green Property Certification Program. It also authorizes OER to administer financial incentive programs, community training and outreach initiatives, and provide broad local support for the New York State Brownfield Opportunity Area (BOA) grant program.



Mayor Bloomberg signs into law the NYC Brownfield and Community Revitalization Act in May 2009

Credit: NYC Mayor's Office



Brownfield cleanup of Atlas Park in Queens

Credit: NYC Office of Environmental Remediation

OER has developed a robust public outreach campaign and has actively reached out to the 17 community grantees in New York City under the New York State Brownfield Opportunity Area (BOA) program. OER also conducts a series of training workshops each year to build knowledge and capability among local brownfield stakeholders.

The City has released draft regulations for its Brownfield Incentive Grant (BIG) Program, which will help developers surmount the financial barriers that inhibit brownfield redevelopment. The BIG Program invests in brownfield projects at all stages, from project inception through the end of cleanup. It also provides higher amounts of funding for projects with community support, which is essential to ensuring that these projects can be successful in a difficult financial climate. The grants are designed to be flexible and easy to use and are expected to be available when the program opens later this spring.

To provide other incentives for enrollment in the city LBCP, OER launched the Green Property Certification Program in January 2010. This program is intended to do for brownfields what LEED has done for green building design. The certification is tangible evidence of the effective and protective nature of the cleanup and can help developers market the environmental quality they have established for their properties. Finally, the City is launching its Vacant Property Database (VPD) Portal, an online application that will allow the public to see historic uses and environmental data for a set of unimproved properties across New York City and help parties identify sites for redevelopment.

Make existing brownfield programs faster and more efficient

Cleanup and redevelopment of brownfields in New York City's urban landscape requires unique approaches that streamline the cleanup process, educate and train developers about cleanup programs, and keep the community informed.

OER has consolidated all City-run brownfield programs in one place and aims to provide all of the cleanup resources that developers need. The LBCP uses templates for all program documents and advanced project tracking to streamline program navigation. E-Government resources will guide LBCP enrollees through the cleanup process. Digital communications will facilitate the City's commitment to 30-day review periods, and face-to-face meetings will speed the review process.

OER's workshops educate land owners, developers and environmental professionals about the LBCP to help them quickly navigate the program. Additionally, to reduce the time and cost of private development, OER instituted the New York City Green Team and the Cleanup Hotline. The OER Green Team serves as a liaison to City agencies to assist LBCP enrollees, understand permit requirements and speed their acquisition for cleanup activities.

Finally, OER is including two progressive elements in the cleanup process. The Community Protection Statement describes the protective efforts at the work site for the community in easily understandable language. The Sustainability Statement describes green remediation measures planned for the site. These elements encourage the most advanced forms of community protection and green cleanup, respectively, and make cleanups more transparent and much more likely to garner community support. Acceptance will also accelerate redevelopment projects.

Expand enrollment into streamlined programs

The Brownfield Incentive Grant (BIG) Program, which will be launched this spring, is the most important effort to address the financial burden brownfields. These grants will enable more developers to pursue cleanup and redevelopment of brownfield properties and speed the pace of cleanup citywide.

The BIG Program prioritizes funding for projects that provide significant benefits to local communities. Eligible projects include affordable housing, BOA-compliant projects, community facilities, and open space. Grant caps are 70 percent higher for these community projects, and the BIG program also provides technical assistance to help community developers overcome the challenges that brownfield sites pose. These preferences support the value of these projects to a sustainable New York City.

The City's Green Property Certification will bring visibility to landowners' cleanups. The certification will communicate the City's confidence to future occupants and the surrounding community of the cleanup's protectiveness of public health and the environment. The Green Property Certification is issued as a certificate and plaque available for display at the owner's property. Over time it will become a recognizable symbol, like the LEED green building seal, and a marketable asset for the landowner and the environmental industry.

OER is now administering all City cleanup programs, including the e-Designation and related programs. OER is working to apply the same efficiency and e-Government management to these programs that has been established for the LBCP. Cleanups in this program will lead to a wide range of affordable and market-rate housing and commercial uses throughout the five boroughs.



Brownfield worker, Alex Gomez, on a site visit to a remedial project in New York City

Credit: NYC Office of Environmental Remediation



Atlas Park site during cleanup

Credit: NYC Office of Environmental Remediation

CASE STUDY: GREEN JOBS

An important product of brownfield programs is the creation of green jobs. Cleaning up and redeveloping brownfield properties requires workers trained in hazardous waste operations and construction. To this end, the New York City Brownfield Partnership built upon the brownfield worker training programs of its workforce training members by making efforts to hire their graduates. In fall 2009, OER created the Brownfield Worker Subsidized Employment Program by working with the New York City Human Resources Administration to obtain a \$400,000 New York State grant to subsidize workers in the brownfield industry. Participating employers hire qualified workers for three months of full-time work and receive reimbursement of \$12 per hour. Experience and on-the-job training from environmental employers is vital to helping local communities develop skilled labor for brownfield cleanup. OER believes that this program will prepare new members of the workforce needed to meet the brownfields goal of PlaNYC.

Encourage community involvement in brownfield redevelopment

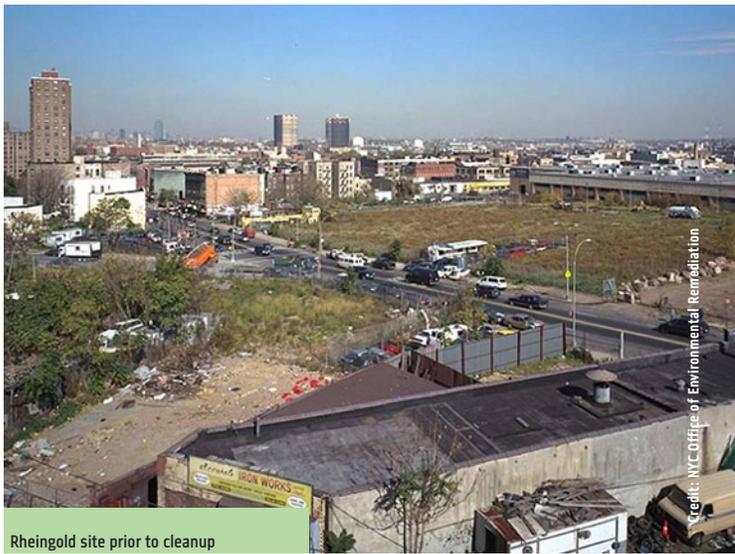
The Brownfield Opportunity Area (BOA) program is the most important community-driven effort in New York City dedicated to the identification, planning, and redevelopment of brownfield areas. In addition to offering enhanced BIG Program grants for favored projects in BOA study areas and local match funding up to \$25,000 to BOA grantees, the City continues to expand upon the BOA program locally. In late 2009, OER received a \$1.2 million BOA grant from the State. The City will use these funds to further assist current community-based grantees and to identify new BOA areas and communities that have an interest in revitalizing their neighborhoods. The grant will help communities engage with the private sector by documenting the economic benefits of brownfield redevelopment and identifying best practices for engagement with landowners and developers. The BIG Program will also fund technical assistance grants to complement these efforts.

Community outreach efforts continued in 2009 with the Big Apple Brownfield Workshop series. The series brings stakeholders together to help small developers obtain the technical capacity to cleanup and redevelop brownfield sites. Last year, OER held two workshops covering brownfield financial incentives and green cleanup. These outreach and training efforts are integral to advancing brownfield reclamation as a viable opportunity for satisfying New York City's land use needs.

In addition to its own efforts, in late 2008, OER founded the New York City Brownfield Partnership. The Brownfield Partnership, now an independent association of 46 member organizations and an elected board, is currently seeking non-profit status. Member organizations represent the environmental industry, community groups, and developers. An important partner to the City, the partnership offers a number of programs to support brownfield stakeholders. It sponsors a scholarship program for City University of New York (CUNY) students pursuing brownfield-related careers, and members offer internships to local college students. Consultant members provide pro bono counseling on cleanup plans for communities. In 2009, the Brownfield Partnership established a green job training program for graduates of community-run job readiness training programs (see case study). Finally, the Brownfield Partnership holds an annual awards ceremony to acknowledge excellence in brownfield redevelopment projects in New York City.

Identify remaining sites for cleanups

As its programs and community outreach continue to stimulate interest in brownfields, the City will be ready to assist developers and community groups to find project sites in a completely new way. The Vacant Property Database (VPD) Portal has been developed and will be launched in spring 2010. The online application will provide previously difficult-to-access historic land use and environmental information for unimproved commercial and manufacturing sites, displayed on searchable maps. The VPD will be an important tool to promote brownfield cleanup and economic development and, over time, will provide important information on progress toward PlaNYC's goals.



Observations on Progress

Since 2007, the City has developed the first municipally administered brownfields program in the nation. Developing a comprehensive municipal cleanup program has been a particularly challenging task that required clear vision and a comprehensive approach to program development. The City recognized the strengths and limitations of a municipal brownfield office in addressing all of the community, jurisdictional, land use, and real estate issues inherent in brownfield redevelopment. To ensure that the institutional infrastructure that has been developed works in New York City, OER has made stakeholder participation a hallmark of its operations and worked to develop cooperation and collaboration with the state's environmental agency. OER has also begun to seek additional means to equalize brownfield redevelopment opportunities with greenfield development, with the knowledge that City programs must be designed to accommodate varying development and economic cycles.

By building programs that have value and appeal to all sectors of New York City's brownfields community, the City has been able to garner wide support for its efforts. Stakeholders provide the impulse to clean up brownfields, and the City is committed to working with all stakeholders to identify opportunities and challenges to brownfield reclamation and to prioritize brownfields for redevelopment. The City has successfully mobilized disparate brownfield interests in New York City, coalescing diverse parties into a community with a broad pool of resources by fostering the creation of new entities like the New York City Brownfield Partnership. OER has brought this diverse community together in forums for dialogue, training, and sharing of resources, and made them an integral component of the City's efforts to accomplish PlaNYC's brownfield goals.

In addition to City stakeholders, OER has worked hard with state environmental authorities to see that the LBCP and other City programs satisfy all New York State requirements. While reaching out into the broader community and to state authorities, OER has continued to expand City interagency efforts to advance broader PlaNYC goals. Land use needs and strategies identified in PlaNYC, including affordable housing, open space, and transit-oriented development overlap significantly with brownfield revitalization efforts. There are enormous opportunities in linking brownfield initiatives with other PlaNYC goals as the City moves toward the future.

The City has also made significant progress in understanding how land use and real estate cycles present challenges to brownfield redevelopment. As existing property uses in the City become obsolete and are abandoned, more brownfields are created. Also, as the current financial crisis provides a contrast to the building boom of recent years, it is clear that economic cycles significantly impact brownfield cleanup. The competitive disadvantage for brownfield redevelopment compared to development on previously undeveloped land (greenfields), is greater in a weak economy due to higher relative impact of cleanup costs, the environmental liability and tight credit. OER has done much to address these difficult circumstances through the LBCP and BIG programs. However, the LBCP is a voluntary program, and City incentives may not completely offset the additional costs of cleanup. Despite efforts to reduce the financial burden of cleanup and the time required to satisfy program requirements, some developers may continue to perceive governmental oversight as an obstacle to redevelopment rather than as an asset. The City knows that incentives are vital to the success of brownfield projects, and OER will seek to

expand its programs with new financial and non-financial incentives to further encourage brownfield redevelopment. OER will also continue to seek new ways to clarify the cleanup process and accelerate project reviews.

Next Steps

Over the next twelve months, OER will continue to strengthen its brownfield cleanup programs, educational resources, and community and sustainability program components. OER will accept applications to the LBCP and evaluate the program to make sure that it is functioning as anticipated. OER will also advance Mayor Bloomberg's Connected City Initiative by integrating several programs and databases into a unified e-Government platform. This will ensure that all of OER's stakeholders have seamless access to information about the cleanup and redevelopment in New York City. OER will build out its new initiatives to advance community benefits, outreach, protection, financial incentives, marketing, and program resources that will streamline cleanups and make them more sustainable.

Brownfields Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	ADOPT ON-SITE TESTING TO STREAMLINE THE CLEANUP PROCESS			
	Pilot the "Triad" program on two sites	OER is completing a multi-year effort to pilot the "Triad" approach to managing contaminated sites, which incorporates a new approach to site management that produces more confident and defensible environmental characterization and remediation decisions in a cost- and time-efficient manner. The program has been completed at a Brooklyn site and a report on the Triad approach will be produced by early summer 2010.	Conduct first two Triad pilots and evaluate their effectiveness in the city environment	Mostly Achieved
2	CREATE REMEDIATION GUIDELINES FOR NEW YORK CITY CLEANUPS			
	Analyze New York City's soil and develop a set of standard cleanup remedies appropriate to the city	New York City has adopted State Department of Environmental Conservation standards for its LBCP cleanup standards. OER has redirected this initiative to incorporate LBCP elements that will increase acceptance of brownfield redevelopments in the community. These include a comprehensive Community Protection Statement that describes approximately 25 site-specific measures that ensure impacts of a cleanup are mitigated and a voluntary Sustainability Statement describing the integration of green cleanup and redevelopment efforts.	Complete urban soil study; city-specific remediation guidelines under development	Reconsidered
3	ESTABLISH A CITY OFFICE TO PROMOTE BROWNFIELDS PLANNING AND REDEVELOPMENT			
	Create a new City office to increase resources dedicated to brownfields planning, testing and cleanups	The Mayor's Office of Environmental Remediation (OER) was established in June 2008 following the hire of its new director, Dr. Daniel Walsh. Staffing of the office was completed in summer 2009.	Establish and fully staff office; regularly evaluate city applications and E-designated sites	Achieved
4	EXPAND PARTICIPATION IN CURRENT STATE BROWNFIELD CLEANUP PROGRAM			
	Ask the State to redistribute BCP tax credits to relieve budgetary pressures, and begin covering New York City-specific contamination	OER actively and successfully advocated for reform of NYS Brownfield legislation resulting in an improved State tax credit structure.	Enact recommended changes to State law	Achieved
5	CREATE A CITY PROGRAM TO OVERSEE ALL ADDITIONAL CLEANUPS			
	Create a City-sponsored program to provide oversight of cleanups for any sites not enrolled in other programs	In March 2009, City cleanup programs were consolidated in OER. In fall and winter, regulations for the new LBCP were finalized and the program is expected to launch in spring 2010. OER is currently finalizing negotiations with the State Department of Environmental Conservation to develop an agreement that would enable OER to provide technical assistance for certain state cleanup programs in New York City.	Establish City BCP; oversee all voluntary clean ups and E-designated (Council legislation, State DEC approval, and regulations promulgated)	Not Yet Achieved
6	PROVIDE INCENTIVES TO LOWER COSTS OF REMEDIATION			
	Dedicate \$15 million to capitalize a fund to support brownfields redevelopment	In March 2010, OER released draft BIG Program regulations for a broad set of financial incentives and expects to issue the final rule in May 2010. The City hired a program manager to administer the BIG Program, which will provide approximately \$10 million for investigation and cleanup of brownfields over the next two-and-a-half years. In December 2009, OER finalized the rule for its Green Property Certification Program, a marketing incentive for cleanup.	Establish a revolving loan fund; issue first loan for City remediation project	Not Yet Achieved
7	ENCOURAGE STATE TO RELEASE COMMUNITY-BASED REDEVELOPMENT GRANTS			
	Advocate for State to reform the Brownfields Opportunity Area (BOA) program and release planning grant funds to community groups	A memorandum of understanding (MOU) was signed between the state legislature and the governor for the release of Brownfield Opportunity Area (BOA) funds in 2007. BOA program administration has been concentrated under the Department of State.	Allocate funds to all previous BOA awardees; advocate for a new process to streamline state grants to BOAs	Achieved
8	PROVIDE INCENTIVES TO PARTICIPATE IN BROWNFIELDS OPPORTUNITY AREA (BOA) PLANNING			
	Advocate for financial incentives for developments constructed in coordination with a BOA	State legislation in 2008 created a Brownfield Cleanup Program (BCP) bonus tax credit for properties redeveloped in accord with the plan of a BOA grantee. The City will offer fee waivers to BOA properties that enter the LBCP, and BOA properties are eligible for bonus grants in OER's BIG Program.	Enact State tax incentives for private developers working in coordination with BOA applications	Achieved
9	LAUNCH OUTREACH EFFORTS TO EDUCATE COMMUNITIES ABOUT BROWNFIELDS REDEVELOPMENT			
	Educate, outreach, and provide technical assistance to communities, private developers, and City agencies to promote brownfields redevelopment	Launched website and "Brownfields for Beginners" workshop series. OER fostered establishment of the NYC Brownfield Partnership, a stakeholder association providing community benefits including pro-bono community counseling, scholarships, and green job opportunities for newly trained environmental workers.	Begin outreach campaigns and liaison services to private developers and nonprofit organizations	Achieved
10	CREATE A DATABASE OF HISTORIC USES ACROSS NEW YORK CITY TO IDENTIFY POTENTIAL BROWNFIELDS			
	Conduct a historic use assessment for all city sites in order to measure long-term progress toward goal	OER has compiled a database of environmental information on vacant properties in the five boroughs that are zoned for commercial and manufacturing uses and developed an application to view them, the Vacant Property Database (VPD) Portal. The VPD will be available publicly in spring 2010.	Launch study to aggregate all relevant data for a City environmental database	Achieved
11	LIMIT LIABILITY OF PROPERTY OWNERS WHO SEEK TO REDEVELOP BROWNFIELDS			
	Create an insurance program and legal protections to limit the liability of developers willing to clean up land they did not pollute	The March 2010 draft financial incentive regulations include grants for LBCP project landowners with OER-approved cleanup plans to purchase environmental insurance. OER established City liability release for the LBCP in Local Law 27 in May 2009 and continues to work with the State Department of Environmental Conservation on an agreement to provide state liability relief to LBCP projects.	Design and launch a market-feasible supplemental insurance policy	Not Yet Achieved

Brownfields Sustainability Indicators

The brownfields goal of PlaNYC is to clean up all contaminated land in the city. To measure whether it is meeting this goal, the City estimates the number of brownfield sites that currently exist, and how many sites have been successfully cleaned up in an official city, state, or federal program.

Number of Current Sites

Based on a preliminary review of historic filling patterns and other environmental features on vacant properties, OER estimates that there are approximately 1,500 - 2,000 current brownfields in New York City.

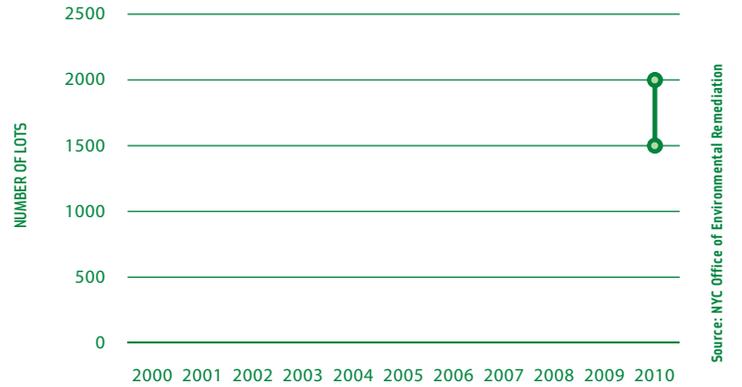
Since the number of brownfields is a measure of potential or actual contamination on vacant properties—a fraction of the total property stock in New York City—it is anticipated that new brownfield sites will continue to emerge in the future as buildings on properties reach the end of their useful life. The number of current brownfield sites is a measure of the total number of vacant properties known at a given time whose redevelopment may be impaired by potential or known contamination. This number will fluctuate as the existing stock of brownfields are cleaned up through OER's brownfield programs and new brownfields emerge as part of the normal real estate cycle.

Number of Sites Remediated

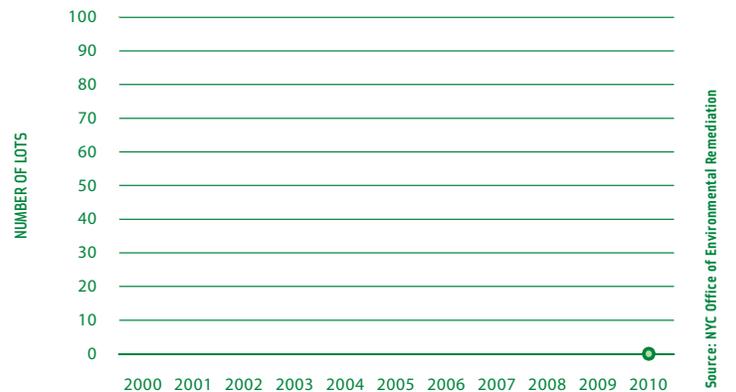
This indicator looks at how many lots have been cleaned up through several programs available to landowners in the city.

The number of remediated sites will increase progressively as properties are cleaned up, and it is an indicator of the cumulative progress toward the PlaNYC brownfields goal. It is currently at zero because the office has just been established.

Estimated Number of Potentially Contaminated Vacant Lots



Cumulative Number of Tax Lots Remediated in New York City Annually





Open 90% of our waterways to recreation by preserving natural areas and reducing pollution

Water quality in New York Harbor is cleaner than it has been in over a century, due to billions of dollars that have been invested in the sewer system and wastewater treatment plants. The biggest remaining challenge is managing stormwater, which can overwhelm sewers and cause combined sewer overflows (CSOs) that discharge a diluted mix of sewage and surface runoff to New York City waters. PlaNYC laid out steps to reduce CSOs through enhancing infrastructure to capture stormwater and treat greater quantities of wet weather flow in addition to protecting wetlands and designing buildings, open spaces, and the street network with features that retain or detain water on-site. By eliminating runoff through infiltration, or holding it back until storm surges pass, the City can reduce CSOs and improve water quality.

Continue implementing infrastructure upgrades

- 1 Develop and implement Long-Term Control Plans
- 2 Expand wet weather capacity at treatment plants

Pursue proven solutions to prevent stormwater from entering the system

- 3 Increase use of High Level Storm Sewers (HLSS)
- 4 Capture the benefits of our open space plan
- 5 Expand the Bluebelt program

Expand, track, and analyze new Best Management Practices (BMPs) on a broad scale

- 6 Form an interagency BMP Task Force
- 7 Pilot promising BMPs
- 8 Require greening of parking lots
- 9 Provide incentives for green roofs
- 10 Protect wetlands

Water Act standard of pollutant removal harbor-wide. As a result, New York Harbor is cleaner than it has been in over 100 years.

Water quality in New York Harbor has improved to the point that significant portions of the city's surrounding waters are available for recreation. Over 130 square miles, or 95 percent, of New York Harbor is available for boating. New Yorkers also have access to swimmable waters adjacent to the city's 14 miles of public beaches in the Bronx, Brooklyn, Queens, and Staten Island.

Despite major improvements, the city still faces water quality challenges. Several waterways contain pollutants from years of industrial use, while others suffer from frequent CSO events. The City is focusing its efforts on the tributaries that constitute 7.3 square miles, or 5 percent of the harbor. These are the city's most constrained waterways because they have undergone significant alteration over the centuries.

To further reduce pollution, the City will continue to upgrade water infrastructure, increase the use of sustainable stormwater best management practices (BMPs), and protect wetlands. These efforts will continue to improve water quality and enable the City to reach its goal of having 90 percent of New York City's tributaries meet standards for recreational use.

Key Progress

The City has made significant progress on its water quality initiatives by focusing on two types of investments: hard infrastructure and green infrastructure.

The City has continued to invest in hard infrastructure by expanding the capacity of existing wastewater treatment plants. The Newtown Creek Water Pollution Control Plant is currently undergoing a \$5 billion upgrade to meet secondary treatment requirements. In addition, wet weather treatment capacity of the plant is being increased from 620 million gallons per day (MGD) to 700 million MGD.

The City is also constructing two new facilities to capture and hold CSOs until storms pass and they can be pumped to a wastewater treatment plant. The first is a \$137 million facility at Alley Creek in northeast Queens, which will have the capacity to capture 5 million gallons of CSOs upon completion in 2010. The second is a \$427 million facility at Paerdegat Basin in southeast Brooklyn, which will have the capacity to capture 50 million gallons of CSOs upon completion in 2011.

Water Quality

OVERALL STATUS

All 14 wastewater treatment plants now able to meet Clean Water Act's standard of pollutant removal harborwide and released the Sustainable Stormwater Management Plan

Since the Clean Water Act was established in 1972, over \$35 billion has been dedicated to water quality improvements in New York City. These investments have enhanced sewage handling and treatment, resulting in less pollution, bacteria, and water-borne litter and debris. The City has improved the capture rate of combined sewer overflows (CSOs) from approximately 18 percent in the 1980s and 67 percent in 1994 to 73 percent today, and the potency of CSOs has decreased as well.

The amount of sanitary waste in CSOs has declined from 30 percent in 1994 to 12 percent in 2008, which means that the composition of overflows is now primarily rainwater.

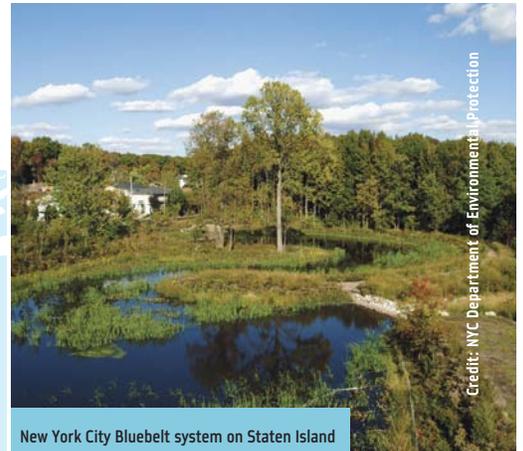
Since PlaNYC was released, the City has invested \$2.1 billion to further improve wastewater treatment. These investments continue to pay off. In January 2010, the City reached a major milestone of having all 14 wastewater treatment plants meet the monthly Clean

New York State Water Quality Classifications

- YOU CAN EAT THE SHELLFISH
- YOU CAN SWIM
- YOU CAN GO BOATING
- HIGHLY POLLUTED



Paerdegat Basin CSO Facility



New York City Bluebelt system on Staten Island

Source: NYC Department of Environmental Protection

Credit: NYC Department of Environmental Protection

The City is seeking to shift future water quality improvement investments away from hard infrastructure and toward green infrastructure. To create a framework for a greener approach, the City released the Sustainable Stormwater Management Plan in December 2008. This plan identifies opportunities to use vegetation and permeable surfaces to keep water out of the City's sewer system. Controlling stormwater at its source offers cost savings versus building future hard infrastructure. The use of green infrastructure to capture stormwater also offers multiple other benefits such as improving air quality, providing cooling, and increasing property values.

The City has taken several key steps to implement the Sustainable Stormwater Management Plan. The City has launched stormwater pilot studies and expanded the amount of green, permeable surfaces through its open space initiatives. The City has continued to plan for green infrastructure by developing additional on-site detention standards for new development, undertaking a BMP design manual, and initiating a green infrastructure watershed modeling process. The City has also initiated discussions with state and federal regulators about implementing sustainable stormwater management strategies. These efforts require time and careful consideration, but the City is making progress toward using green infrastructure as a central component of its water quality improvement efforts.

Continue implementing infrastructure upgrades

The City's progress on infrastructure upgrades to reduce CSOs goes beyond the Newtown Creek expansion and the construction of the Paerdegat Basin and the Alley Creek CSO facilities. The current 10-year budget for the CSO program is slightly over \$1.1 billion, and includes a range of projects to improve waterbodies throughout the city. Funded projects include pumping station upgrades, dredging, aeration, and other facilities enhancements. The City's CSO investments from 2002 to 2019 are expected to reduce CSO discharges by approximately 9.6 billion gallons per year, increase capture to at least 82 percent citywide, and get the City much closer to meeting water quality standards. And the CSO program is just one part of an overall 10-year capital plan that also includes \$2.1 billion for sewer work and \$3.7 billion for wastewater treatment plant upgrades.

For the past three years, the City has analyzed additional opportunities to reduce CSOs through a multi-step planning process that will lead to the creation of a citywide Long-Term Control Plan by 2017. The first step in this process has been the creation of 18 individual plans for each of the city's waterbodies. These Waterbody/Watershed plans were initially submitted to the New York State Department of Environmental Conser-

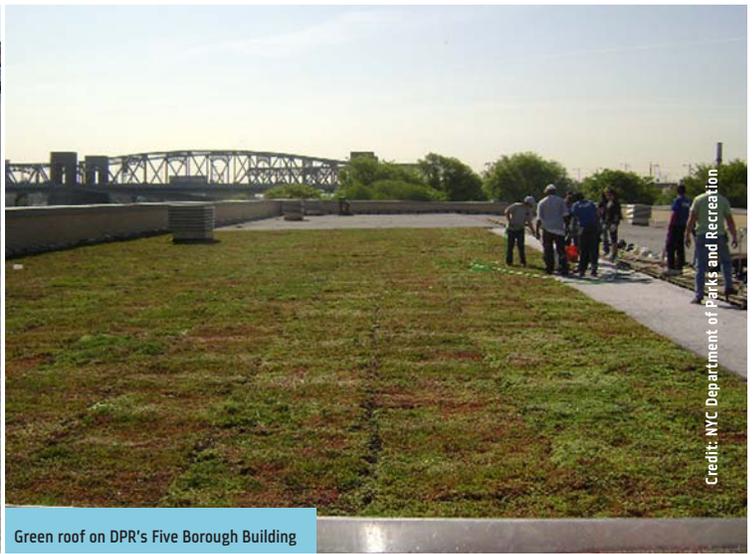
vation (DEC) in 2007, and the City continues to work with the State to complete the plans. The creation of the citywide Long-Term Control Plan provides the City with an opportunity to consider ways to increase the use of green infrastructure to complement existing and future investments in hard infrastructure projects. Building on progress made on other collaborative efforts with the State, this process offers the potential to work with DEC to create a new paradigm that results in the types of investments that best meet the needs of New York City.

In February 2010, the City reached an agreement with DEC, the National Resources Defense Council, and other environmental groups to reduce the amount of nitrogen that is discharged into Jamaica Bay. The City will dedicate \$100 million to install new nitrogen control technologies at wastewater treatment plants and another \$15 million for marshland restoration projects. As part of the agreement, DEC will exempt the City from \$45 million in potential penalties for construction delays in nitrogen upgrades at other wastewater treatment plants and those dollars will be invested in future clean water projects. These investments, made in concert with \$95 million the City has already committed for nitrogen control upgrades, will reduce the nitrogen loads discharged into Jamaica Bay by nearly 50 percent over the next ten years. This agreement is a model of what can be achieved when



Credit: NYC Department of Parks and Recreation

Greenstreet at Church Avenue and 14th Street



Credit: NYC Department of Parks and Recreation

Green roof on DPR's Five Borough Building

CASE STUDY: GREENSTREETS

Since 1996, nearly 2,500 Greenstreets have converted paved, vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs, and groundcover. To increase the environmental benefits of these vegetated areas, the City has adjusted the design of several Greenstreets to actively capture stormwater runoff from the street. By incorporating channels into the vegetated areas and increasing the depth of the planting beds, these recent installations are able to retain significantly greater quantities of stormwater.

In September 2009, the City secured \$2 million in Federal stimulus funding through the American Recovery and Reinvestment Act (ARRA) to install at least 26 Greenstreets that are designed to capture stormwater. Collectively, they will add 58,000 square feet of planting area, with the ability to capture approximately eight million gallons of stormwater per year. These sites will be located in flood-prone neighborhoods and in watersheds with compromised water quality. The construction of the first six stimulus-funded Greenstreets will take place this spring in the neighborhoods of Cambria Heights, Laurelton, and the Far Rockaways in Queens.

the City, State, and environmental stakeholders work together to tackle complex problems. Further collaboration of this type will be needed to achieve the City's water quality goal.

Pursue proven solutions to prevent stormwater from entering the system

The City has continued to implement proven strategies to keep stormwater out of the City's wastewater treatment plants and to increase the use of natural areas to treat stormwater. Since 2007, the City has expanded the Staten Island Bluebelt by acquiring 42.8 acres in New Creek, 7.4 acres in South Beach, and 15.6 acres in Oakwood Beach. When the City completes the Mid-Island Bluebelt land acquisition, the watershed areas that drain into all Bluebelt wetlands will amount to 14,000 acres. The Bluebelt program has saved the City an estimated \$80 million in infrastructure costs. Since the creation of PlaNYC, the City has also increased stormwater capture through the construction of 224 Greenstreets, many of which are designed specifically to capture stormwater (see case study).

The City has learned valuable lessons from the creation of the Bluebelt system and by designing Greenstreets to capture stormwater. These installations are proving to be cost-effective, and they offer additional benefits by improving air quality and increasing open space. But the City has also learned that obstacles still impede progress. Due to budget constraints, the City has implemented fewer Greenstreets than initially planned. The City's ability to increase both Bluebelts and Greenstreets is also limited by a lack of funding for maintenance of these installations.

Expand, track, and analyze new Best Management Practices (BMPs) on a broad scale

In December 2008, the City released the Sustainable Stormwater Management Plan as the culmination of the City's interagency BMP Task Force. This plan lays the groundwork for expanding the City's use of green infrastructure by quantifying the potential cost savings and benefits of pursuing a more sustainable approach to stormwater management.

The City has taken several important steps to implement the Sustainable Stormwater Management Plan. The City has released design guidelines to incorporate sustainability through the Department of Transportation (DOT) Street Design Manual and the Department of Design and Construction (DDC) Sustainable Sites Manual. In 2010, the City will publish the Department of Parks and Recreation (DPR) High Performance Landscape Guidelines and the first phase of the Department of Environmental Protection (DEP) BMP Design Manual.

The City has launched over 30 sustainable stormwater pilots to test innovative stormwater approaches, which is a significant increase over the three BMP pilots originally included in PlaNYC. The majority of these projects are slated for construction in 2010, while the rest are in the design or permitting stages. In 2010, the City will construct streetside swales and expanded tree pits; introduce ribbed mussel beds at the 26th Ward wastewater plant near Jamaica Bay; and install pilots for permeable pavement, rain gardens, and rooftop detention systems.

Pilot projects are a critical step toward understanding the effectiveness and true costs of implementing green infrastructure in New York City. Several cities have installed sustainable stormwater source controls, but the City is conducting its own pilots to better understand



Newtown Creek Water Pollution Control Plant



New York City wetlands

their effectiveness when applied to the unique challenges posed by New York City's density, climate, geological conditions, and historical land use. As the City evaluates the results of these innovative stormwater projects, including the impacts of initiatives to require greening of new parking lots and provide financial incentives for green roofs, the City will better understand the feasibility, costs, and benefits of implementing a citywide program for green infrastructure.

The City is also taking steps to protect and restore the wetlands within the five boroughs. These invaluable natural features filter pollutants, provide flood protection, and offer wildlife habitat. Since the launch of PlaNYC, the City has released a study identifying regulatory gaps to wetlands protection and initiated a citywide wetlands mapping effort. The City carried out field inspections of more than 100 properties, encompassing 373 acres in all five boroughs, that were identified for follow-up assessment in the recommendations of the Wetlands Transfer Task Force. In Jamaica Bay, the City acquired a 9-acre property in Broad Channel, directly adjoining and part of the Big Egg Salt Marsh Complex, as well as a 3-acre former privately-owned waterfront property in Rockaway. The City also secured \$20 million in ARRA stimulus funding for the restoration of 38 acres of wetlands and natural grasslands in Paerdegat Basin. Finally, the City has partnered with the City Council on a law that will lead to the creation of a comprehensive wetlands strategy by March 2012.

Observations on Progress

PlaNYC is a long-term endeavor, and the City's water infrastructure projects are among those initiatives that will take the longest to implement. Given the size and complexity of the infrastructure involved, and the long lead times for planning, design, and construction, improvements will not be fully realized for many years.

Wastewater infrastructure is also very costly. The City's capital budget for infrastructure improvements is at a record level, and the City has largely maintained this commitment through difficult economic conditions. Water rates have been increased by double digits in each of the last three years, in large part to fund these projects, but also due to increases in non-discretionary expenses such as energy and chemicals. The City's ability to further improve water quality must be balanced against the impact that increased water costs would have on the affordability and economic competitiveness of New York City.

Water quality improvements also depend on collaboration with DEC, which monitors and approves the City's wastewater treatment operations and water quality improvement projects. The City will need a strong partnership with DEC to ensure that it is able to implement the sustainable strategies that are most effective for New York City.

The federal government also has a major role to play as the City seeks to implement innovative projects. For example, the City's ability to implement a citywide green infrastructure program will require the support of the U.S. Environmental Protection Agency (EPA). In addition, the City has joined with the State to request that the federal government increase funding for the New York-New Jersey Harbor Estuary and commit to at least \$52 million for ecosystem restoration efforts. The Harbor is located within one of the most densely populated areas in the country, and it deserves funding on par with restoration efforts in Long Island Sound, Puget Sound, and Chesapeake Bay.

While the initiatives of PlaNYC have focused on increasing wet weather treatment capacity and reducing CSOs, other factors create water quality challenges. Even if the City were able to somehow stop discharges from its wastewater

and sewer systems, some waterbodies would still fail to achieve water quality standards. Certain waterbodies, such as the Gowanus Canal and Newtown Creek, suffer from a legacy of industrial pollution and the presence of contaminated soils. While it is critical for us to improve wastewater treatment and stormwater management, it is important to recognize that CSO reductions and stricter effluent limits at wastewater treatment plants come at a high cost and will not ensure water quality standards will be met in all areas.

Next Steps

In the next year, the City will continue to increase its wet weather treatment capacity by continuing expansion of the Newtown Creek Water Pollution Control Plant and completing the CSO facilities at Paerdegat Basin and Alley Creek. The City will continue to collaborate with its State partners to explore opportunities to increase the use of green infrastructure in its program for reducing CSOs. As funding allows, the City will acquire additional acres for the Bluebelt system and construct High Level Storm Sewers. The City will also install additional Greenstreets and add green roofs to ten DPR buildings.

The City will continue to implement the Sustainable Stormwater Management Plan by constructing pilots and monitoring initial results. The City will propose a new performance standard to require new development to use additional on-site management of stormwater through rooftop detention and other low impact development methods. The City will improve public notification of CSO events by installing new warning signs. The City will enhance wetlands protection efforts by continuing the transfer of City-owned wetlands to the DPR and creating preliminary wetlands maps. Finally, the City will continue to seek federal funding for restoration efforts in New York Harbor and Jamaica Bay.

Water Quality Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	DEVELOP AND IMPLEMENT LONG-TERM CONTROL PLANS			
	Complete Long-Term Control Plans for all 14 New York City watersheds, as required by law	All of the Waterbody/Watershed (WB/WS) Plans were submitted to DEC in June 2007. Comments from DEC have been received on most of the plans. The City has gained DEC approval of preliminary plans and is progressing to Long-Term Control Plans for Alley Creek, Coney Island Creek, and Gowanus Canal. The City resubmitted preliminary plans for Flushing Bay, Flushing Creek, and Bronx River during 2009.	Submit WB/WS plans for 18 waterbodies to NYSDEC, detailing strategies for CSO reduction	Achieved
2	EXPAND WET WEATHER CAPACITY AT TREATMENT PLANTS			
	Reduce Combined Sewage Overflow (CSO) discharges by more than 185 million gallons per day (mgd) during rainstorms	Newtown Creek wet weather expansion from 620 mgd to 700 mgd is nearing completion. 26th Ward wet weather expansion from 170 mgd to 220 mgd remains delayed primarily due to budgetary and site constraints. Jamaica wet weather expansion from 200 mgd to 250 mgd has been deferred pending the outcome of Long-Term Control Plan negotiations with DEC.	Continue construction	Achieved
3	INCREASE USE OF HIGH LEVEL STORM SEWERS (HLSS)			
	Convert combined sewers into HLSS and integrate HLSS into major new developments, as appropriate	The City completed the drainage plans for high level storm sewers in the Laurelton section of Queens, the Throgsneck area of the Bronx, and the Gowanus area of Brooklyn. As capital projects are scoped for these areas, high level storm sewers will be installed. Over the next 3 years, construction is programmed for Fairfax Avenue, Pratt Avenue, Commerce Avenue, Waterbury Avenue, and Hook Creek Boulevard.	Create standardized process to analyze proposed sites for possible HLSS (process for HLSS will always be dictated by the unique characteristics of the site)	Achieved
4	CAPTURE THE BENEFITS OF OUR OPEN SPACE PLAN (SEE OPEN SPACE INITIATIVES, PAGE 22)			
5	EXPAND THE BLUEBELT PROGRAM			
	Expand Bluebelt in Staten Island and other boroughs, where possible	The City continued to expand the Bluebelt system on Staten Island by acquiring 42.8 acres in the New Creek Bluebelt, 7.4 acres in the South Beach Bluebelt, and 15.6 acres in the Oakwood Beach Bluebelt. Design is underway for Bluebelts in Springfield Gardens and Baisley Pond in Queens and Tibbets Brook in the Bronx.	Begin expanding Bluebelt to other parts of Staten Island	Achieved
6	FORM AN INTERAGENCY BMP TASK FORCE			
	Form an interagency BMP task force	The BMP Task Force concluded its work with the release of the Sustainable Stormwater Management Plan in December 2008. The implementation of over 30 stormwater management pilot projects continues.	Complete comprehensive BMP plan and associated budget	Achieved
7	PILOT PROMISING BEST MANAGEMENT PRACTICES (BMPs)			
	Reintroduce 20 cubic meters of ribbed mussel beds	The City held a workshop of regional mussel restoration experts held in January 2010 and developed a plan to salvage mussels from on-going Elder's West marsh island restoration. A collector's permit from DEC and the NPS was issued in February 2010. The creation of a final location plan and permit application to place new mussel beds is in progress.	Complete pilot and plan for additional mollusk habitats	Not Yet Achieved
	Design five expanded tree pits and monitor impacts	The City completed site selection for all locations and designs for two enhanced tree pits. Designs for three additional tree pits are in progress. Construction will begin spring 2010.	Complete pilot	Not Yet Achieved
	Pilot one swale to collect rainwater from roadways	The City completed site selection for all locations and designs for two streetside swales. Designs for four additional swales are in progress. Construction will begin spring 2010.	Complete pilot and identify additional appropriate locations	Not Yet Achieved
8	REQUIRE GREENING OF PARKING LOTS			
	Modify the zoning resolution to include design guidelines for off-street parking lots for commercial and community facilities	This initiative was completed when the City Planning Commission passed the green parking lot zoning amendment in November 2007. The Department of City Planning continues to implement these requirements for new parking lots.	Complete ULURP process; zoning requirement in effect	Achieved
9	PROVIDE INCENTIVES FOR GREEN ROOFS			
	Encourage the installation of green roofs through a new incentive program	The New York State Assembly passed NYC's green roof tax abatement legislation in June 2008, and Governor Paterson signed the law in August 2008. The Green Roof Tax Abatement Rules were released in March 2009, and the City continues to offer tax abatements for eligible green roofs.	Launch initiative	Achieved
10	PROTECT WETLANDS			
	Assess the vulnerability of existing wetlands and identify additional policies to protect them	The City released <i>New York City Wetlands: Regulatory Gaps and Other Threats</i> in January 2009 to recommend policy options for wetland protection. The City continued efforts to protect 158 wetland properties through transfer to the Bluebelt system or to DPR. The City received a grant from the New York State Department of State to obtain satellite images for wetland mapping. The preliminary survey of likely wetland areas based on satellite imagery and aerial photography is expected to be complete by September 2010.	Complete wetlands study and draft policy	Mostly Achieved

Water Quality Sustainability Indicators

The water quality goal of PlaNYC is to open 90 percent of our waterways to recreation. New York State sets water quality standards, and the City monitors the Harbor's water quality on an annual basis through the Harbor Survey. To measure progress, the City is tracking changes in dissolved oxygen and fecal coliform levels from year to year in New York Harbor.

Through the City's Harbor Survey Program, the Department of Environmental Protection (DEP) monitors the Harbor's compliance with annual standards created by New York State. The Survey consists of 55 sampling stations: 36 stations located throughout the open waters of the Harbor and 19 stations located in smaller tributaries within the City. The survey stations take water samples every month and their results are tested for a number of contaminants. The City monitors the Harbor's water quality by using many measures on an annual basis. Average dissolved oxygen levels and fecal coliform concentration levels are two of the most commonly-accepted indicators of harbor health.

Dissolved Oxygen

Sufficient concentrations of dissolved oxygen in the water are critical for the respiration of most aquatic life forms, including fish and invertebrates such as crabs, clams, and zooplankton. Dissolved oxygen concentration is, therefore, one of the most universal indicators of overall water quality and a means of determining habitat and ecosystem conditions.

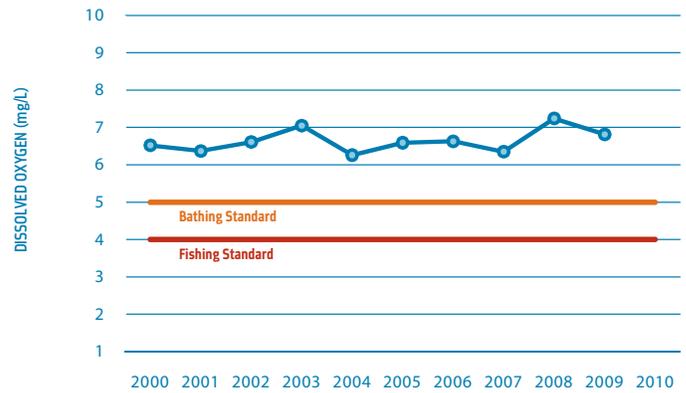
This metric reports the average levels of dissolved oxygen, harborwide, from surface and bottom water, on an annual basis. Rising dissolved oxygen levels, and levels above State standards (5.0 mg/L), are indicators of a harbor suitable to most aquatic life forms. For approximately 20 years, surface and bottom water dissolved oxygen levels have been above the State standard of 5.0mg/L and are continuing to improve.

Fecal Coliform

Fecal coliform concentrations are measured in New York Harbor as human-health-related indicators of sewage-related pollution. Fecal coliform is a group of bacteria primarily found in human and animal intestines, and their concentration in water is considered an accurate indication of sewage-related pollution. Though most coliform bacteria do not cause disease, fecal coliform concentrations are the best indicator of pathogenic (disease-producing) bacteria.

This metric measures the annual rate of fecal coliform concentrations; declining concentrations indicate a cleaner harbor. For approximately 20 years, harbor-wide surface water fecal coliform levels have been below the State standard, (monthly geometric mean less than or equal to 200 cells/100mL from 5 or more samples). Overall water quality throughout the harbor is better than the standards the vast majority of the time. Short-term spikes are present after some rain events. The City is committed to addressing these spikes and is working toward a goal of opening 90 percent of waterways to recreation by 2030.

Harbor-Wide Dissolved Oxygen Rates



Source: NYC Department of Environmental Protection

Harbor-Wide Fecal Coliform Rates



Source: NYC Department of Environmental Protection



Develop critical backup systems for our aging water network to ensure long-term reliability

The New York City water supply system is a unique network of reservoirs, aqueducts, and water mains that provide some of the nation's purest water. Though New York City has an abundant water supply for the foreseeable future, the supply system faces serious challenges. Certain critical elements such as aqueducts and water tunnels currently cannot be taken out of service for long-term repair and maintenance—the kind of work that only needs to be done once a generation. In addition, as development continues to encroach on the city's upstate watersheds, the City must continue to be vigilant in monitoring and protecting source waters.

Ensure the quality of our drinking water

- 1 Continue the Watershed Protection Program
- 2 Construct an Ultraviolet Disinfection Facility for the Catskill and Delaware systems
- 3 Build the Croton Filtration Plant

Create redundancy for aqueducts to New York City

- 4 Launch a major new water conservation effort
- 5 Maximize existing facilities
- 6 Evaluate new water sources

Modernize in-city distribution

- 7 Complete Water Tunnel No. 3
- 8 Complete a backup tunnel to Staten Island
- 9 Accelerate upgrades to water main infrastructure

As New York City looks to the future, a renewed era of capital investment is underway to ensure that these systems can remain viable for generations to come. To protect drinking water quality and ensure reliable delivery, the City is spending \$6.73 billion over the next ten years. The current level of capital investments in the water system is virtually unprecedented since the Croton system went into service in 1842.

These investments have brought the City closer to achieving long-term reliability for the water supply system. The City has continued to protect its water supply source, and now controls over 15 percent of our watershed through land ownership or conservation easement; another 19 percent is under State control. Major projects to enhance drinking water quality, such as a filtration plant for the Croton system and an ultraviolet disinfection plant for the Catskill and Delaware systems, are scheduled to open in 2012 and 2013, respectively. The City is also making critical investments to shore up our ability to convey water from the Catskill/Delaware watersheds and deliver it to end users. Planning to repair the 35 million gallon per day (MGD) leak in the Delaware Aqueduct is well underway, and the City will soon activate Stage 2 of City Tunnel No. 3, which will provide critical redundancy for the in-city distribution network.

These projects are ambitious and forward-thinking. Even in a time of economic downturn, it is important to invest in the water network, both to maintain the system and to avoid even greater rehabilitation costs in the future.

Key Progress

The City has made substantial progress in three main areas. First, the City has made significant investments to ensure the quality of drinking water. Since 1997, the City has invested \$1.5 billion in source water protection programs, and in the next ten years the City will invest \$1.9 billion more. These investments have allowed the City to keep its status as one of only five large cities in the country with an unfiltered water supply system, thus avoiding the need to build a filtration plant that would potentially cost over \$10 billion to construct and \$100 million per year to operate. The City has also taken steps to enhance the quality of the water supply by constructing an ultraviolet disinfection plant for the Catskill and Delaware systems and a filtration plant for the Croton system. These

Water Network

OVERALL STATUS

Received new Filtration Avoidance Determination from the EPA, purchased more than 28,600 acres to protect the watersheds, and made \$6.7 billion capital commitment to water supply infrastructure

New York City has an abundant supply of high-quality drinking water that meets demand now and will likely do so far into the future. In 2009, water consumption in New York City was lower than at any time in recent history. The city's current average use of just over 1 billion gallons per day is well below the nearly 1.6 billion gallons per day that New Yorkers used in the 1980s. Having an ample supply in and of itself is not enough, however. The City must be able to effectively convey and distribute this high-quality water from its source to end users.

New York City's water supply system is comprised of infrastructure that was largely built before World War II, much of which has not been closely inspected since opening more than 70 years ago. Without the ability to take portions of the system offline for inspection and repair, long-term reliability is threatened. The water supply system also faces continual pressure from development proposals near the sources of our drinking water.



Construction of Water Tunnel No. 3



The Cannonsville Reservoir in the New York City watershed

two projects, totaling \$4.8 billion, will improve public health protection and further enhance the quality of the city's drinking water.

Second, the City has made progress on increasing the redundancy for the aqueducts that bring drinking water into New York City. Building redundancy into the water system is important because it will allow the City to conduct critical repairs without reducing the water supply. A critical component of this work will involve repairs to the 85-mile long Delaware Aqueduct, the longest continuous tunnel in the world, which has had a stable but continuous leak since the 1980s. The City has nearly completed a comprehensive dependability study for the water supply system and budgeted \$2.2 billion over the next ten years for projects to improve reliability and develop alternative sources needed in the event of a prolonged shutdown of the Delaware Aqueduct for repairs.

The City's third priority has been to modernize in-city distribution to ensure the reliable delivery of water to all New Yorkers. The City has continued construction on Water Tunnel No. 3, which is one of the largest capital projects in New York City's history. Begun in 1970, Water Tunnel No. 3 is expected to be fully activated in 2020 at a total cost of \$6 billion. The completion of Water Tunnel No. 3 will allow the City to conduct a much-needed analysis and repair of Water Tunnel No. 1 and No. 2.

Ensure the quality of our drinking water

New York City's drinking water is among the best in the world, and the City currently meets all health-related state and federal drinking water standards. In July 2007, the United States Environmental Protection Agency (EPA) renewed its previous decision and issued a 10-year Filtration Avoidance Determination (FAD) for the City's two largest watersheds, the Catskill and the Delaware. Federal law requires that all surface drinking

water supply systems filter the water delivered to consumers, unless the system can meet strict conditions for "filtration avoidance," including protection of the watershed from where the surface water originates. Maintaining this critical designation will ensure that the City will not need to build a filtration plant for water originating from these watersheds.

Since the launch of PlaNYC, the City has invested over \$175 million in watershed protection programs, including \$104 million to purchase land and easements in the watershed, nearly \$12 million to help watershed homeowners repair or replace failing septic systems, almost \$12 million to construct new wastewater infrastructure in communities with concentrated areas of substandard septic systems, and more than \$30 million to upgrade existing wastewater treatment plants to provide the highest levels of treatment. The City has acquired over 28,600 acres of watershed land and easements since PlaNYC was launched to bring the City's total holdings to 108,000 acres. The City has remained vigilant against potential threats such as natural gas drilling and taken action to oppose those activities that could irreparably harm the water supply (see case study).

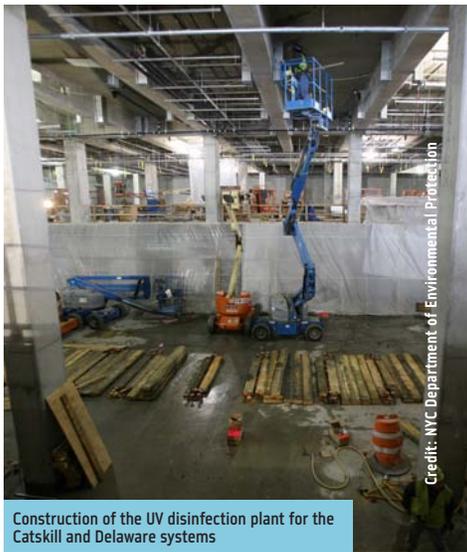
To further improve drinking water quality, the City has begun construction of an ultraviolet (UV) light disinfection facility for the Catskill and Delaware water supplies. This facility, located in Westchester County, will meet or exceed the mandates of the Safe Drinking Water Act. Once operational, this facility will be able to disinfect as much as 2.4 billion gallons of water per day and provide an additional barrier of microbiological protection by inactivating potentially harmful organisms, such as *Cryptosporidium* and *Giardia*. Site preparation for this facility began in 2006, and construction started in January 2008. The City expects this \$1.6 billion plant, the largest facility of its kind in the world, to begin operation in 2013.

CASE STUDY: NATURAL GAS DRILLING

The Marcellus Shale is one of the largest potential sources of natural gas in the United States and covers 18,700 square miles in New York State alone. This formation underlies the Delaware and Catskill watersheds that supply drinking water to 8 million residents of New York City and 1 million residents in Westchester, Rockland, Orange, and Ulster Counties. Though natural gas in the Marcellus Shale is a possible source of relatively clean energy, the location of the resource and the method of extraction pose serious threats to drinking water.

In December 2009, the Department of Environmental Protection (DEP) released a scientific analysis that drilling in the shale using current technology would pose "unacceptable risks" to the unfiltered drinking water that provides 90% of water supply. Extraction of natural gas in the shale, through the process of hydraulic fracturing, could have negative impacts upon the water supply by introducing hundreds of tons of chemicals into the watershed. Harm could also occur through the potential construction of up to 6,000 extraction wells, the clearing of thousands of acres of land, and the increased possibility of damage to water distribution tunnels. The known and unknown impacts associated with drilling simply cannot be justified, especially because the watershed lands represent only 6% of the Marcellus formation in New York State.

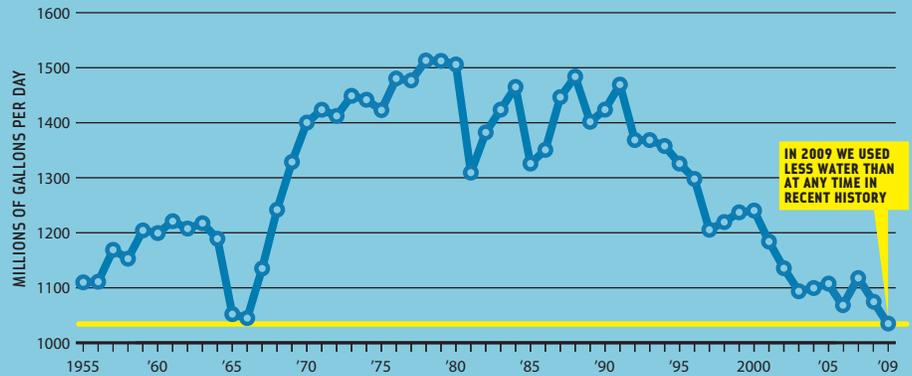
The City has called on the New York State Department of Environmental Conservation (DEC) to rescind their draft Generic Supplemental Environmental Impact Statement that would allow natural gas extraction with inadequate and nonbinding safeguards. The City continues to oppose natural gas drilling in the watershed and will advocate against any proposal that threatens the water supply and risks the public health of all New Yorkers.



Construction of the UV disinfection plant for the Catskill and Delaware systems

Credit: NYC Department of Environmental Protection

New York City Average Daily Water Consumption 1955 – 2009



Source: NYC Department of Environmental Protection

Unlike the Catskill and Delaware system, drinking water from the Croton watershed (supplying about 10 percent of the City's annual drinking water, and up to 30 percent during shorter periods of drought) must be filtered to protect against contamination and meet standards for drinking water quality. Although Croton water currently meets all existing health-based water quality regulations, it frequently violates the aesthetic standard for color. The City is currently constructing a \$2.8 billion filtration plant beneath Van Cortlandt Park in the Bronx. Site preparation for the Croton plant began in 2004. There are now more than 1,000 personnel on-site working to complete construction by 2012. Once complete, the filtration plant will enable the City to receive as much as 30 percent of its water from the Croton watershed and will ensure the long-term viability of this critical water supply system. The total cost of the project is estimated at \$2.8 billion, including approximately \$242 million for parks and other community improvements.

Create redundancy for aqueducts to New York City

The aqueducts that bring drinking water from the Catskill and Delaware watersheds to New York City have been in continuous operation since they were activated in 1915 and 1944, respectively. Since the late 1980s, the City has been monitoring two leaks in the Rondout-West Branch portion of the Delaware Aqueduct that collectively release between 10 and 36 million gallons of water a day, or 4 percent of daily volume peak flows. Repairing the tunnel is crucial to the reliability and long-term sustainability of New York City's water infrastructure since the Delaware Aqueduct delivers 50 percent of the city's water supply.

Since the leak was detected, the City has continuously monitored, studied, and tested its scope and impact to determine the best methods to repair the Delaware Aqueduct. In November 2008, a team of divers inspected mechanical and structural components of a tunnel shaft and performed pipe and needle valve demolition. In June 2009, an underwater vehicle completed a successful inspection of the Rondout-West Branch Tunnel portion of the Delaware Aqueduct to observe the condition of the tunnel and to collect approximately 180,000 photographs. Monitoring has shown that the leakage rate is stable and has not grown.

To repair the Delaware Aqueduct, the City will need to shut down the Round-West Branch tunnel for at least 24 months, which means that the City must increase reliance on other water supplies, implement stringent measures to encourage conservation, or build a parallel tunnel to the Delaware water system. The City is currently examining the feasibility and the costs of all of these options.

The City is also still considering strategies to reduce water consumption in advance of a potential Aqueduct shutdown, but the water conservation initiative identified in PlaNYC has been deferred because it is premature to spend public funds on such a program at this time. New York City's water consumption today is 9 percent lower than in 2007, which is lower than at any time in recent history.

The City is taking steps to enhance its water billing system, evaluate alternative water rate structures, and use new technologies to improve operations and customer service. A major component of this effort is the installation of an Automated Meter Reading (AMR) system that consists of small, low-power radio transmitters connected to individual water meters that send readings to a network of rooftop receivers throughout the city.

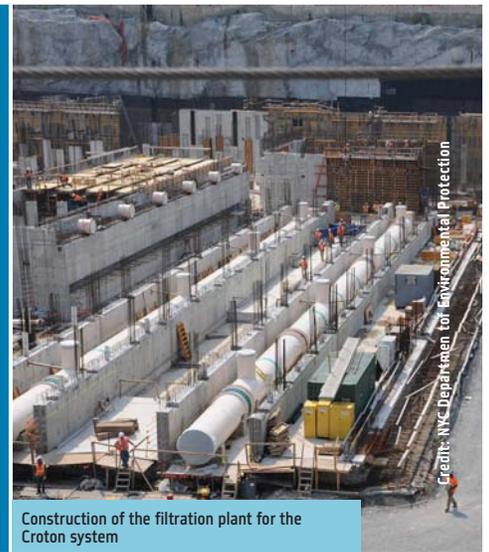
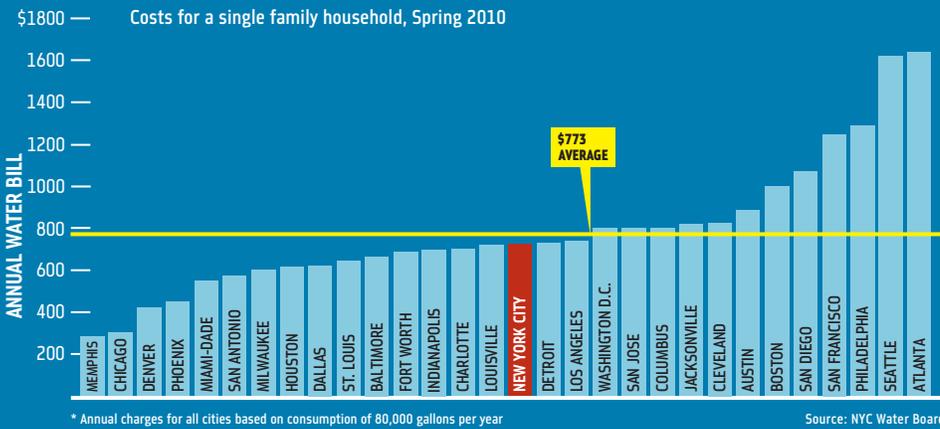
These receivers will provide the City with all relevant billing information and eliminate the need for meter readers to visit homeowners and other ratepayers. AMR technology will end the use of estimated water bills, giving ratepayers themselves the ability to identify leaks and conserve water. AMR will also help the City more closely monitor citywide consumption and identify leaks before they become costly problems. As of April 2010, the City has installed over 278,000 AMR units, putting the City more than 33 percent on the way to connecting all of its 834,000 customers by January 2012. The cost of citywide AMR installation is \$252 million and includes the replacement of 400,000 older meters.

Modernize in-city distribution

Since 2007, the City has made progress on the construction of Water Tunnel No. 3, which will enhance and improve the City's water distribution network and allow for the inspection and repair of Water Tunnel No. 1 and No. 2 for the first time since they were put into service, in 1917 and 1936, respectively.

The 13-mile Stage 1 section of Water Tunnel No. 3 went into service in August 1998, and construction on Stage 2 is currently underway. Stage 2 consists of the Brooklyn/Queens leg and the Manhattan leg. Work on the Brooklyn/Queens leg, which will deliver water to Staten Island, Brooklyn and Queens, is substantially complete. Tunneling on the Manhattan portion of Stage 2 began in 2003 and was completed in 2008. Almost nine miles were excavated and lined with concrete. In addition, on the Manhattan leg ten new supply shafts have been constructed that will integrate the new tunnel section with the water main network just beneath the city's streets. Work continues on the distribution chambers, which are underground facilities.

Average Annual Water Rate



ties atop the shafts. The Manhattan leg of Water Tunnel No. 3 will be activated by 2013, and the Brooklyn/Queens leg will be activated by 2020.

Facility planning for Stage 3 of Water Tunnel No. 3, a 16-mile section that extends from the Kensico Reservoir to a valve chamber in the Bronx, is ongoing, with a final facility plan and conceptual design expected by 2011. Given the long-term nature of Stage 4, a 14-mile section running from the Bronx under the East River into Queens, design has not yet started. Because of the number of large water infrastructure capital projects underway, additional work on Stages 3 and 4 has been delayed.

In Staten Island, the City is partnering with the Army Corps of Engineers to construct a \$300 million water tunnel to provide critical redundancy for Staten Island's water supply. This project will be funded through a 50-50 cost sharing with the U.S. Army Corps of Engineers. The City is also moving forward with upgrades to water main infrastructure. The City has been replacing sewer mains, reaching 22 miles in 2009. The City anticipates meeting its goal of replacing 80 miles in 2010 due to the influx of \$144 million in federal stimulus funding for other projects.

Observations on Progress

Over the past three years, the City has made great progress enhancing its water network by investing in watershed protection, improving drinking water quality, increasing long-term reliability, and modernizing water distribution infrastructure. These efforts will help to ensure that New Yorkers enjoy a reliable water supply into the next century. In addition to the fundamental benefits that these investments will provide for the system, they also have a tremendous economic benefit. The City's three large

water network projects alone—the Croton Filtration Plant, the UV disinfection plant, and Water Tunnel No. 3—together provide work for approximately 6,100 construction and construction-related jobs.

The City's unprecedented investments in water supply infrastructure will greatly modernize the system, but they may not be the only long-term investments that are necessary to achieve a full state of good repair. The completion of Water Tunnel No. 3 sets the stage for future repairs to Tunnels No. 1 and No. 2. The City's efforts to analyze potential fixes for the Delaware Aqueduct leak may lead to significant capital investments such as the construction of a bypass or parallel tunnel. Additionally, any failure to protect the upstate watershed may require that the City build a filtration plant, which would be among the largest capital projects in the City's history.

Most of the City's current major capital investments are mandated by state and federal regulators. The City must build these projects on a set schedule, which means that in some cases the City ends up paying significant debt service on several large projects at once. The City has also raised water rates by over 10 percent for each of the past three years to pay for these mandates. Despite these increases, the cost of New York City's water is still below the national average.

The way the City pays for water infrastructure has changed dramatically over time. In particular, over the last decade unfunded federal and state mandates have become the single largest driver of the City's capital budget and therefore the water rate. During the 1970s and 1980s, when the City was upgrading its wastewater treatment plants to meet rigorous new water quality standards, the same regulatory agencies mandating this multi-billion dollar work were

also helping to pay for it. Since then, mandates have only become more stringent and projects more costly, but federal and state aid has all but disappeared. New York City is now left to finance its critical water and sewer projects almost entirely through water and sewer fees paid by 834,000 customers citywide. The City continues its efforts to work with regulators to find flexible, cost-effective solutions that do not compromise public health or environmental quality.

Next Steps

In the next year the City has committed \$665 million to continue to protect the water supply and enhance infrastructure. The City will continue the watershed protection program by acquiring more land, collaborating with upstate stakeholders, and advocating against threats such as natural gas drilling. The City will continue construction of the Croton Filtration Plant, the UV disinfection plant, and Water Tunnel No. 3. The City will continue preparations for the repair of the Delaware Aqueduct. The City will break ground on the backup tunnel to Staten Island and replace 80 miles of water mains. The City will continue to promote water conservation by installing AMR units and evaluating alternative water rate structures. Finally, the City will continue to advocate for financial support and will seek to collaborate with its regulators to make investments that have a measurable impact on water quality over a reasonable period of time.

Water Network Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	CONTINUE THE WATERSHED PROTECTION PROGRAM			
	Aggressively protect our watersheds as we seek to maintain a Filtration Avoidance Determination (FAD) for the Catskill and Delaware Water Supplies	In July 30 2007, the EPA issued a new 10-year FAD. Since the launch of PlaNYC, the City has invested over \$1.5 billion in watershed protection programs and acquired over 28,600 acres of watershed land and easements to bring the total amount of protected land to 108,000 acres. In January 2010, the City submitted its request to DEC for a water supply permit and is preparing to begin negotiations on the second five years of the FAD.	Renew the City's Filtration Avoidance Determination and fulfill its commitments	Achieved
2	CONSTRUCT AN ULTRAVIOLET DISINFECTION PLANT FOR THE CATSKILL/DELAWARE SYSTEMS			
	Construct an Ultraviolet Disinfection Facility to destroy disease-causing organisms in our upstate watershed	The construction of the Catskill/Delaware UV Disinfection Facility began in April 2008 and is currently ahead of schedule. The underslab piping and the base slab of the facility are in place. Work continues with the installation of valves, electrical conduit, plumbing, and fire protection piping. Validation testing of the UV reactors was completed and modeling is underway. The City anticipates completion of the facility in 2012.	Begin construction of Ultraviolet Disinfection Facility	Achieved
3	BUILD THE CROTON FILTRATION PLANT			
	Construct a water filtration plant to protect the Croton supply	In August 2008, the City began construction of the Croton Filtration Plant. To date, work has included the placement of over 65% of the structural concrete; continuation of the electrical service ductbanks; and installation of large diameter piping and valves, sluice gates, pipe sleeves, embedments, drainage piping, sprinkler piping, ductwork, and electrical conduit. More recently, the City has completed the raw and treated water connections between the New Croton Aqueduct and the Croton Filtration Plant.	Continue to construct Croton Filtration Plant	Achieved
4	LAUNCH A MAJOR NEW WATER CONSERVATION EFFORT			
	Implement a water conservation program to reduce citywide consumption by 60 million gallons a day (mgd)	Since 2007, water consumption in the city has decreased by over 100 million gallons per day; the lowest water consumption rate in over 50 years. As of April 2010, the City has installed over 278,000 Automated Meter Reading (AMR) units, putting the the City more than 33% on the way to connecting all of its 834,000 customers by January 2012. Plans for additional water conservation programs have been developed and put on hold as a contingency.	Launch water conservation program	Reconsidered
5	MAXIMIZE EXISTING FACILITIES			
	Add 245 mgd to our supply potential through increased efficiency	Rehabilitation of the Croton Aqueduct is in progress, with anticipated construction completion in 2011. Construction of the Cross River Pumping Station is ongoing, and design of the Croton Falls Pumping Station will commence in 2011. The City is currently evaluating the condition of existing Jamaica Water Supply system wells.	Begin installation of new hydraulic pumps; begin designing enhanced filtration plant for greater use of Jamaica groundwater	Not Yet Achieved
6	EVALUATE NEW WATER SOURCES			
	Evaluate 39 projects to meet the shortfall needs of the city during a prolonged shutdown of the Delaware Aqueduct	The short list of projects for further consideration has been finalized. Since 2007, the City has begun facility planning for 3 infrastructure projects expected to be most effective, including the use of in-city groundwater (up to 55 mgd), optimization of the Catskill Aqueduct (up to 60 mgd), and construction of a parallel tunnel (minimum of 440 mgd).	Finalize a short list of projects for piloting and design	Achieved
7	COMPLETE WATER TUNNEL NO. 3			
	Complete construction of Stage 2 of Water Tunnel No. 3, and begin repairing Water Tunnel No. 1	Since 2007, the City has continued construction of the shafts and the lining of the Manhattan leg of Water Tunnel No. 3. The Brooklyn/Queens leg is substantially complete. Planning and design for the water mains to connect the shafts to the distributions system is underway. The Manhattan leg of Water Tunnel No. 3 will be activated by 2013, and the Brooklyn/Queens leg will be activated by 2020.	Open Brooklyn/Queens leg	Not Yet Achieved
	Complete Stages 3 and 4 of Water Tunnel No. 3	Preliminary design (10%) for the construction of Stage 3, also known as the Kensico City Tunnel, is nearly complete. Given the long-term nature of Stage 4, design has not yet started.	Complete design of Stage 3 ¹	NA
8	COMPLETE A BACKUP TUNNEL TO STATEN ISLAND			
	Replace pipelines connecting Staten Island to Tunnel No. 2	Design of the new tunnel connection between Staten Island and Brooklyn is complete. Construction is anticipated to begin in fall 2010.	Begin replacing pipelines	Not Yet Achieved
9	ACCELERATE UPGRADES TO WATER MAIN INFRASTRUCTURE			
	Increase replacement rate to over 80 miles annually	The City constructed 22 miles of water mains in 2009 and anticipates the construction of 80 miles of water mains in 2010 due to the influx of \$144 million in federal stimulus funding for other projects.	Continue to replace water mains	Achieved

¹ 2015 milestone set--no 2009 milestone

Water Network Sustainability Indicators

The water network goal of PlaNYC is to develop critical backup systems for the city’s aging water network to ensure long-term reliability. To measure the reliability and performance of the water network, the City tracks drinking water quality, as measured by New York State standards, and potable water consumption.

Drinking Water Quality

If the City’s water network is properly maintained and operated, then it should deliver consistently clean and potable water throughout the city. To ensure that the city’s water supply is potable, during 2009, the Department of Environmental Protection (DEP) collected over 14,500 drinking water samples and performed over 216,000 analyses of water quality. From this process, the metric the City tracks is the percentage of samples that are below the maximum contaminant level (MCL). The MCL, as calculated by DEP, is the highest level of a contaminant allowed in drinking water. It should be noted that just because samples are above the MCL, they are not necessarily out of compliance with State standards.

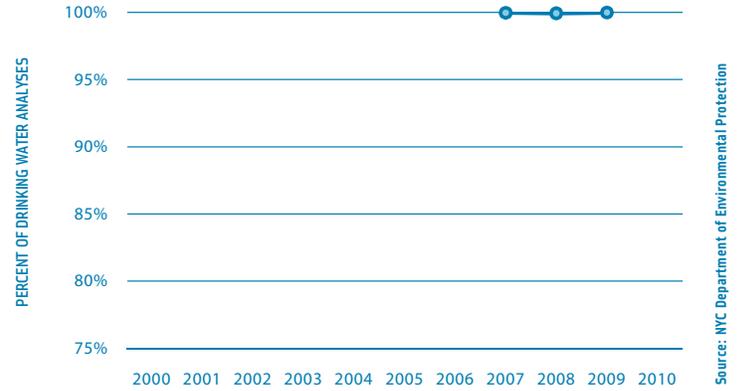
This metric demonstrates that the quality of New York City’s drinking water remains high and meets all health-related state and federal drinking water standards. During 2008, the metric decreased slightly from 99.97 percent to 99.93 percent due to unique circumstances surrounding repair work on the Delaware Aqueduct. During the three-month long repair, DEP increased its reliance on water from the Croton system, which is currently not filtered and tends to be affected by seasonal water quality conditions related to aesthetics. These conditions did not have an impact on health.

Drinking Water Consumption

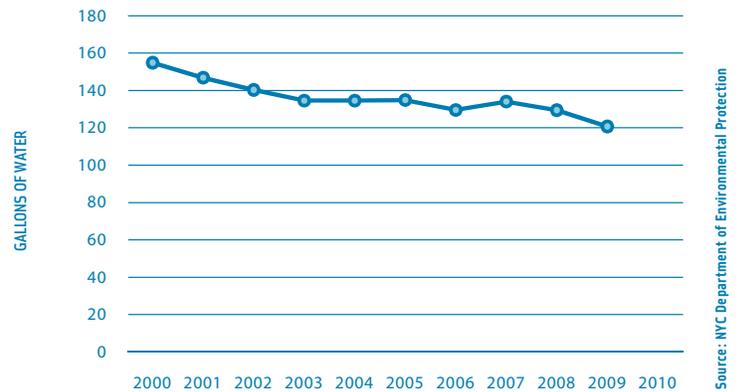
The less demand the city puts on its water network, the more able the water network will be to meet the city’s needs. For this reason, decreasing city water consumption is a critical component to ensuring long-term water reliability. The indicator used to assess progress toward this goal is the amount of water used by the city annually (as measured by the average daily diversion to in-city supply), divided by the annual population estimate for the city. Water usage is calculated by DEP and population is estimated by the Department of City Planning.

Per capita water usage has been declining for much of the past decade as a result of the widespread adoption of more efficient plumbing fixtures, the installation of meters, and leak detection.

Percent of Drinking Water Analyses Below Maximum Contamination Levels



Average Daily Water Use Per Capita





Improve travel times by adding transit capacity for millions more residents, visitors and workers



Reach a full “state of good repair” on New York City’s roads, subways, and rails for the first time in history

Although New York’s economic prosperity has always been driven by the quality and reach of its transportation system, for the last 50 years the City has underinvested in maintaining and developing that network. In the coming years, subways and commuter rail lines will strain from population growth in the region and one million additional New Yorkers, and ridership will reach near record levels. To address these issues, PlaNYC called for initiatives ranging from enhancing bus service and building bike lanes to expanding capacity on congested routes and reaching a state of good repair.

Build and expand transit infrastructure

- 1 Increase capacity on key congested routes
- 2 Provide new commuter rail access to Manhattan
- 3 Expand transit access to underserved areas

Improve transit service on existing infrastructure

- 4 Improve and expand bus service
- 5 Improve local commuter rail service
- 6 Improve access to existing transit
- 7 Address congested areas around the city

Promote other sustainable modes

- 8 Expand ferry service
- 9 Promote cycling

Improve traffic flow by reducing congestion

- 10 Pilot congestion pricing
- 11 Manage roads more efficiently
- 12 Strengthen enforcement of traffic violations
- 13 Facilitate freight movements

Achieve a state of good repair on our roads and transit system

- 14 Close the Metropolitan Transportation Authority’s state of good repair gap
- 15 Reach a state of good repair on the city’s roads and bridges

Develop new funding sources

- 16 Establish a new regional transit financing authority

Muni-Meters, governing more than 33,000 parking spaces, throughout the five boroughs, which have increased parking capacity by 10 to 20 percent at existing curbs. At the same time, the City has launched Park Smart, a pilot program that promotes parking turnover in busy commercial areas like Greenwich Village and Park Slope. The City has expanded the number of traffic enforcement agents (TEAs) and, with passage of state legislation, all of the City’s TEAs can now issue citations for “blocking the box” offenses. It is also easier and safer to walk through the city’s neighborhoods because of the Safe Routes to Transit, Safe Routes to School, and Safe Streets for Seniors programs and with projects like Green Light for Midtown, which has simplified the traffic network, improved pedestrian safety, and created new public plazas in neighborhoods teeming with residents, workers, and visitors.

These improvements have led to clear and tangible results. For example, new SBS services have attracted increased ridership while patronage on other, slower bus routes has declined. The number of bicycle commuters into the Manhattan central business district increased 26 percent from 2008 to 2009 and 126 percent since 2003.

At the same time, many initiatives—maintaining and improving the current transit network as well as expanding the system to accommodate future demand—have been subject to dynamics largely out of City control. In particular, the greatest national recession in more than 60 years has impacted businesses and families across the region. The Metropolitan Transportation Authority (MTA) and the City have not been spared from these effects.

While the State passed a funding package for the MTA in spring 2009 that included a payroll tax and several other taxes and fees, it has fallen far short of revenue expectations. By December 2009, state cuts and the loss of revenue stemming from the economic recession forced the MTA to propose a series of service reductions, the elimination of free student Metrocards, and changes to bridge and tunnel charges to close a \$383 million budget shortfall. Since this package was introduced, lower than expected payroll tax collections eroded the MTA’s budget by a further \$400 million, so that the agency’s deficit currently stands at nearly \$800 million. These impending service cuts threaten to lengthen travel times and increase crowding for millions of subway, bus, and commuter rail riders.

The City also faces its own difficult budget situation. Although not as bad as feared, tax collections are still running well below pre-recession levels. As a result, the City will continue to

Transportation

OVERALL STATUS

Installed 200 miles of bike lanes and 4,500 Muni-meters, launched first Bus Rapid Transit route with future lines planned, and piloted Green Light for Midtown

The last three years have seen substantial progress toward achieving and surpassing PlaNYC’s transportation goals in areas under the City’s control. In partnership with the MTA, the City launched its first bus rapid transit system—the Fordham Road Select Bus Service (SBS)—and is moving ahead with SBS projects on First and Second Avenues and 34th Street in Manhattan

and Nostrand and Rogers Avenues in Brooklyn. The bike route network has nearly doubled with more than 200 additional lane miles. The installation of fully-protected bike lanes on Eighth and Ninth Avenues and Grand Street in Manhattan and on Sand and Tillary Streets in Brooklyn has also improved the City’s bike infrastructure. The City installed more than 4,500



Rendering of proposed Select Bus Service on Nostrand Avenue

Credit: NYC Department of Transportation



Mayor Bloomberg inspects the 34th street cavern for the 7 Line extension

Credit: NYC Mayor's Office

control spending and do more with less—identifying and implementing efficiencies that improve the City's essential services. For instance the New York City Department of Transportation (DOT) recently acquired a second asphalt plant, which will increase usage of reclaimed asphalt pavement (RAP), significantly reduce costs to dispose of milled asphalt, and produce new material for its paving program. At the same time, budget cuts have reduced DOT's bridge maintenance and repair budget by 18 percent. The City's road resurfacing budget also faces reductions after next year, jeopardizing recent improvements in bridge and roadway conditions.

Despite these near-term political and fiscal difficulties, the City must stay focused on developing and implementing long-term strategies to increase capacity and renew its infrastructure. In PlaNYC, the City noted that transportation was the greatest single barrier to achieving the region's growth potential. Three years later, it is clear that this remains true. New York City cannot thrive without a network that gets people and goods where they need to go quickly, efficiently, and cost-effectively. Even with the successes over the last year, a comprehensive solution to the overall funding crisis is key to meeting New Yorkers' long-term transportation needs.

Key Progress

Over the past year, the City continued its efforts to reduce congestion on streets and to build a more efficient and sustainable transportation network that increases mobility and access to jobs. The City also continued to promote other sustainable modes of transportation to provide New Yorkers with more choices in moving about the region. Unfortunately, the state legislature's inability to vote on congestion pricing has meant that the City has had to look elsewhere for funding for many of its planned initiatives, such as bus and subway improvements. In some cases, DOT and the MTA have been successful in obtaining funding from the federal government through the economic stimulus bill passed in 2009 and other grant programs. Although this search for funding has necessarily resulted in planning and implementation delays, the City is hopeful that progress will continue using these alternate sources of funding.

Build and expand transit infrastructure

The MTA continued work on its capital construction projects such as the Second Avenue Subway, East Side Access, the Fulton Street Transit Center, and the 7 Line subway extension. In December 2009, the MTA and Mayor Bloomberg announced the completion of the first phase of the 7 Line subway extension to Manhattan's

west side, when the second of two tunnel boring machines reached the southern wall of the 34th Street station cavern. Funded through City bond issuances, the project is expected to be completed in December 2013, helping to transform the Hudson Yards area into a vibrant mixed-use community.

Experience indicates that these investments have paid and continue to pay dividends. After two decades of reinvestment in the transit system, bus and subway ridership increased by 12.3 percent from 2003 to 2008. This increase was accompanied by a 3.4 percent decline in weekday traffic volumes citywide. Despite the economic downturn, the MTA reports that average weekday transit ridership was still near record highs in 2009, with 7.4 million weekday riders—the second highest ridership since 1969.

The key challenge facing the MTA continues to be securing the revenues necessary to maintain operations and fund a multi-year capital program, including state of good repair and capacity expansion projects. The funding package passed by the State in spring 2009 only included funding for two years of an eventual five-year capital program. As the State has already cut funding from the operating budget of this package, it remains to be seen whether funding for this limited capital program will remain in place.



Herald Square - Before Green Light for Midtown



Times Square - Before Green Light for Midtown



Herald Square - After Green Light for Midtown



Times Square - After Green Light for Midtown

CASE STUDY: GREEN LIGHT FOR MIDTOWN

The Mayor and DOT recently announced that the changes made to Times Square and Herald Square for the “Green Light for Midtown” pilot project will be made permanent. Launched in May 2009, the pilot created expanded pedestrian plazas in both areas and made changes to traffic patterns as part of a program for reducing congestion and improving pedestrian safety in Midtown. Overall, the City has seen improvements for both pedestrians and traffic. GPS tracking data collected from taxicabs showed a 7 percent overall improvement in taxi speeds in the area. In addition, the program produced a 63 percent reduction in injuries to motorists and passengers and a 35 percent reduction in pedestrian injuries. According to a Times Square Alliance survey, 76 percent of all New Yorkers and 68 percent of area retailers surveyed are supportive of the project. The City is currently initiating a capital process for a permanent world-class design.

Improve transit service on existing infrastructure

DOT, in partnership with the MTA, has continued to make progress on SBS and other improvements to the bus system. Planning is underway for an SBS route along First and Second Avenues in Manhattan, with Phase 1 to be completed in fall 2010. Currently served by the M15 bus route, which carries more than 57,000 weekday riders over an 8.5 mile stretch of the East Side, SBS will provide faster and more reliable service to a route that in recent years has seen reduced bus speeds and ridership.

Progress is also being made on the Nostrand Avenue and Rogers Avenue SBS in Brooklyn, as well as the second phase of the 34th Street SBS in Manhattan. The Nostrand-Rogers route will begin service by mid-2012, and the transitway proposed for 34th Street will be implemented between 2012 and 2013. With dedicated bus lanes, strategically placed stops, real-time information displays, easy transfers to multiple subway lines and off-board fare collection, these SBS services are expected to make bus transit more convenient, faster, and more comfortable.

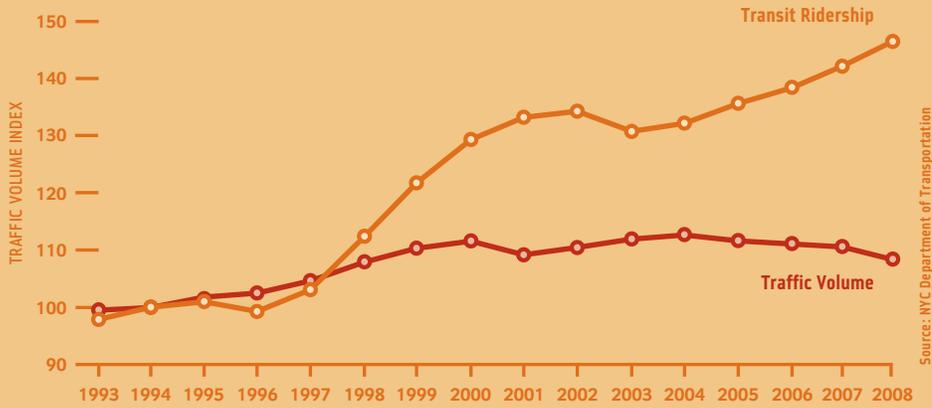
The City originally anticipated using federal Urban Partnership Agreement funds tied to the implementation of congestion pricing to develop

these services. Instead, the City is now pursuing federal “Small Starts” grants to develop the Nostrand-Rogers and 34th Street projects. This more deliberate pursuit of funding has allowed the incorporation of a full “complete streets” design into the projects, which will incorporate improvements for cyclists and pedestrians while also preserving on-street parking on these busy commercial corridors.

In addition, in August 2009, the MTA and the City announced a pilot program to provide real-time bus arrival information at eight bus shelters serving two bus routes on 34th Street in Manhattan, which carry 17,000 passengers daily. The real-time information signs, which will also be a feature of future SBS projects, are updated every 30 seconds and display the number of minutes until the next bus arrives using computer-assisted GPS satellite technology installed on the buses.

In addition to SBS routes, the MTA has outlined a plan for bringing real-time travel information to bus and subway stations throughout the system to ease rider uncertainty. In 2010, the MTA will activate Customer Information Signs in 75 subway stations and will expand the system to all stations on the numbered lines in 2011. The MTA plans to test bus arrival information from several

New York City Traffic Volumes and Transit Ridership 1993 – 2008



Select Bus Service along Fordham Road in the Bronx

vendors throughout 2010 to enable a full rollout beginning in mid-2011. These types of improvements have the potential to increase utilization, which is consistent with PlaNYC goals.

At the same time, to successfully implement these projects, the City will need the ability to enforce new and existing dedicated bus lanes. Last year, the City won an important victory when the State reauthorized the existing red light camera program through 2014 and added 50 new cameras to the program for a total of 150. The City will use this renewed authority, as well as continue to seek state authorization to mount cameras on MTA buses and street poles, so that speeding laws and bus lanes can be adequately enforced.

Promote other sustainable modes

DOT has made tremendous progress in building out its bicycle network and improving bicycle parking, installing a record number of bike racks in 2009. Commuter bicycling in New York City continues to see unprecedented growth, with an increase of 26 percent in the last year, spurred by a doubling of the number of bike lanes installed in the last three years. In fact, in June 2009, DOT met the City's ambitious target of building 200 bike-lane miles in all five boroughs in just three years.

This year also marked the passage of the landmark Bikes in Buildings law and the installation of the City's new on-street bicycle racks. The Bikes in Buildings law establishes a clear process for tenants of commercial office buildings to apply for bike access to freight elevators. By helping to eliminate one of the primary barriers for commuter cyclists—the lack of a safe place to park a bike—the Bikes in Buildings law and the continued installation of bike racks will help encourage more New Yorkers to bike to work.

Work also continues, albeit at a slower pace, to develop improved ferry service in the city. Although the launch of the East River Ferry Service has been delayed until spring 2011, the City has already approved funding to support the service's operating costs. In addition, a construction agreement has been executed for the development of a ferry landing at Greenpoint and the landing at North Williamsburg is in design. Both landings, which are critical components of the East River Ferry Service, are expected to be operational by spring 2011. As the City improves the level of ferry service, ensuring that this planning is strategically integrated into a larger system of transit improvements to facilitate greater ease of mobility across the region will continue to be important.

Average Travel Time to Work (in minutes)*

2003	2008
1. Queens, NY (41)	1. Staten Island, NY (42)
2. Staten Island, NY (41)	2. Brooklyn, NY (42)
3. Bronx, NY (40)	3. Queens, NY (42)
4. Brooklyn, NY (39)	4. Bronx, NY (41)
5. Prince William County, VA (36)	5. Prince William County, VA (38)
6. Prince George's County, MD (35)	6. Prince George's County, MD (36)
7. McHenry County, IL (35)	7. Will County, IL (34)
8. Nassau County, NY (33)	8. Monmouth County, NJ (33)
9. Orange County, NY (32)	9. McHenry County, IL (33)
10. Contra Costa County, CA (32)	10. Nassau County, NY (33)
11. Will County, IL (32)	11. Gwinnett County, GA (32)
12. Montgomery County, MD (32)	12. Montgomery County, MD (32)
13. Middlesex County, NJ (32)	13. Orange County, NY (32)
14. Monmouth County, NJ (32)	14. Cook County, IL (32)
15. Rockland County, NY (31)	15. Plymouth County MA (31)
16. Dutchess County, NY (31)	16. Contra Costa County, CA (31)
17. Ocean County, NJ (31)	17. Westchester County, NY (31)
18. Riverside County, CA (30)	18. Riverside County, CA (31)
19. Gwinnett County, GA (30)	19. Middlesex County, NJ (31)
20. Cook County, IL (30)	20. Ocean County, NJ (31)
21. Westchester County, NY (30)	21. Essex County, NJ (30)
22. Fairfax County, VA (30)	22. Fairfax County, VA (30)
23. Solano County, CA (30)	23. Solano County, CA (29)
24. Plymouth County, MA (30)	24. Rockland County, NY (29)
25. Essex County, NJ (30)	25. Dutchess County, NY (29)

* Orange colored counties are in the New York City metropolitan area.
Source: U.S. Census Bureau, American Community Survey

Improve traffic flow by reducing congestion

One of the major causes of traffic congestion is double-parking from vehicles that cannot find a legal parking space at the curb. To address this challenge, the City has launched two pilots of the ParkSmart metered parking program in Greenwich Village and Park Slope. Under this program, meter rates are increased during periods of peak demand (noon to 4 PM) to encourage more turnover, discourage meter feeding and thus increase parking availability. In Greenwich Village, the program saw a six percent improvement in availability and was expanded and made permanent with strong support from the community. DOT is still analyzing the results in Park Slope and investigating opportunities to implement four more pilots in select areas over the next two years. The ideal candidate locations are commercial strips that have congested on-street parking.

Develop new funding sources

PlaNYC laid out a clear proposal that would have created a new, dedicated revenue stream balanced by contributions from both transit users and drivers. The state legislature failed to act on this proposal, although it ultimately settled on a payroll tax increase proposal. Unfortunately, the recession has not only eroded this revenue



Separated bike lanes protect cyclists from vehicle traffic on 9th Avenue in Manhattan



On-street bike racks make bike parking easier and safer



Bike parking inside City offices at 125 Worth Street in Manhattan

stream, but also other taxes and fees the MTA relies upon to meet its operating and capital needs. The State's fiscal crisis has exacerbated the situation, leading to further cuts to the MTA's budget. In addition, the MTA lacks a funded and approved capital program. In spite of this situation, the MTA has adopted new strategies toward station maintenance to try to stretch existing resources and develop more cost-effective cleaning programs.

As discussed earlier, this situation, as well as City budget cuts, has impacted efforts to achieve a state of good repair on the roads and transit system. As the economy recovers in the coming months and years, the City will continue to support efforts to maintain its existing transportation assets. But ultimately, the choice is one that state political leaders will have to make to support a viable, sustainable funding program for the MTA.

Observations on Progress

In PlaNYC, the City set forth ambitious targets to expand its transportation network and to bring it to a state of good repair. Three years later, initiatives under City control, such as building bike lanes and related infrastructure, have been highly successful, with growing bus and bike ridership and exciting new public spaces. Despite reductions in capital funding, 72 percent of

paved roads are now rated "good," a significant improvement since the release of PlaNYC. Efforts have also continued to maintain the 786 bridges owned by the City, with all but four now rated in "very good," "good," or "fair" condition and the remaining either undergoing construction to repair deficiencies or scheduled for future repair.

On the other hand, initiatives that required state action, like congestion pricing, have encountered significant resistance. The City continues to seek alternate funding to get some of these initiatives back on track. Doing so is essential to continuing the mode shift that was apparent from 2003 to 2008, a period with growing bus and subway ridership and declining traffic congestion. Partly because of political and fiscal dynamics out of the City's control, PlaNYC's goal to reduce average travel times for New York commuters has met with limited success. Yet, it is also true that, based on efforts over the last three years, New Yorkers have more compelling choices for how to get to their desired destinations. More transit options, along with improved infrastructure for bicycles, have helped to shift people out of their cars and onto public transit or other sustainable modes. Arguably, mode shift is as important an indicator of success as average travel time – something that the City will continue to promote in the coming years.

Next Steps

The successes over the last 20 years in restoring and improving the transportation systems will be challenged by continued increases in travel demand as the economy recovers and the continuing shortfalls in capital investments to maintain and improve infrastructure. The City continues to believe that reaping the economic benefits of the next million people in New York by 2030 requires strengthening and building the capacity to move people and goods. More transportation choices and more reliable travel will not only improve commute times and environment; they will also promote jobs and expand the economy.

In the current economic and fiscal climate, identifying stable, long-term revenue sources for the MTA remains a critical—and challenging—part of any future strategy. This is the central unanswered question that must be revisited as the City undertakes an update of PlaNYC. Nonetheless, in the coming year, the City will continue to pursue strategies to increase mobility and create and retain jobs in the region. Phase 1 of the SBS route along First and Second Avenues will be completed. The MTA will continue to expand its Customer Information Signs in subway stations throughout the system and pilot bus arrival information signage. And the City will continue to invest in existing roads and bridges to achieve a state of good repair.

Transportation Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	INCREASE CAPACITY ON KEY CONGESTED ROUTES			
	Seek to fund five projects that eliminate capacity constraints	Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and state officials regarding the MTA's capital needs and funding sources for its 2010-2014 Capital Plan.	Have funding mechanism in place	Not Yet Achieved (State or Fed Inaction)
2	PROVIDE NEW COMMUTER RAIL ACCESS TO MANHATTAN			
	Seek to expand options for rail commuters	Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and state officials regarding the MTA's capital needs and funding sources for its 2010-2014 Capital Plan. Meanwhile, the MTA has secured federal funding and continues construction of East Side Access and Second Avenue Subway.	Continue construction of East Side Access and Second Ave. Subway; move other projects into engineering phase	Not Yet Achieved (State or Fed Inaction)
3	EXPAND TRANSIT ACCESS TO UNDERSERVED AREAS			
	Seek to provide transit to new neighborhoods	The City has initiated a land use and transportation study of Staten Island's North Shore, to be completed in summer 2010, in coordination with the MTA's more in-depth Alternatives Analysis study of the North Shore right-of-way (ROW).	Complete Staten Island study and study of potential subway expansion	Not Yet Achieved
4	IMPROVE AND EXPAND BUS SERVICE			
	Initiate and expand Bus Rapid Transit	DOT, in partnership with the MTA, completed implementation of the Bx12 Select Bus Service on Fordham Road in the Bronx. The City and MTA continue the planning process for the remaining four pilot BRT routes. First & Second Ave SBS Phase I is to be completed in fall 2010. Nostrand Ave is to be completed in mid-2012, and 34th Street Phase 2 in 2012-13. Planning and environmental work for Hylan Blvd will begin in spring 2010. Implementation delays have resulted from the need to identify alternate sources of funding (congestion pricing revenues were originally anticipated to support SBS) and from expanded capital improvements identified as part of the planning process.	Open five SBS routes	Not Yet Achieved (State or Fed Inaction)
	Dedicate Bus/High Occupancy Vehicle (HOV) lanes on the East River Bridges	Manhattan Bridge HOV lane has been completed. Queensboro Bridge study will be completed by fall 2010 and the Williamsburg Bridge study will be undertaken by early 2011.	Operate bus service lanes on all three bridges	Not Yet Achieved
	Explore other improvements to bus service	DOT has implemented Transit Signal Priority (TSP) on Fordham Road in the Bronx and Victory Boulevard in Staten Island. The City has secured federal funding to implement additional TSP corridors citywide and is initiating an engineering study.	Complete implementation of operating improvements for 22 locations	Not Yet Achieved (State or Fed Inaction)
5	IMPROVE LOCAL COMMUTER RAIL SERVICE			
	Seek to make better local use of Metro-North and Long Island Rail Road (LIRR) stations	Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and state officials regarding the MTA's capital and operating needs, including funding sources for its annual operating budget as well as its 2010-2014 Capital Plan.	Improve local connectivity	Not Yet Achieved (State or Fed Inaction)
6	IMPROVE ACCESS TO EXISTING TRANSIT			
	Facilitate access to subways and bus stops citywide	There are currently 21 locations across all 3 programs in preliminary design at the Department of Design and Construction, with several locations completed. Budget cuts have forced DOT to put Subway/Sidewalk Interface (SSI) and Sidewalks to Buses projects (STB) on hold to focus on Bus Stops under Els (BSE) implementation. The City has applied for USDOT funding to complete remaining BSE locations.	Complete construction of up to three bus stops under Els, up to two Sub-Side interface, and up to 15 new sidewalks to bus stops	Mostly Achieved (City Budget)
7	ADDRESS CONGESTED AREAS AROUND THE CITY			
	Develop congestion management plans for outer-borough growth corridors	Amboy Road recommendations were completed and reviewed with community representatives, with implementation of initial improvements completed in 2009 and long-term measures are being advanced as capital improvements. The other corridor reports will be completed in 2010, with the implementation of short-term improvements scheduled for late 2010. The release of final reports is delayed due to expansion of the study areas to include: additional locations based on community input; extensiveness of the outreach process; and complexity of the analysis and technical issues. Funding was received and DOT is initiating studies along these corridors. Additional funds are needed for implementation.	Complete studies for nine corridors and begin implementation	Not Yet Achieved (City Budget)
8	EXPAND FERRY SERVICE			
	Seek to expand ferry service and better integrate it with the city's existing mass transit system	The launch of the East River Ferry Service was delayed until spring 2011 to revise ridership and subsidy figures to account for the recession's impact on development along the Brooklyn-Queens waterfront. A construction agreement was executed for the development of a ferry landing at Greenpoint (developer is building) and the landing at North Williamsburg. Both landings, which are critical components of the East River system, are expected to be operational by spring 2011. Negotiations for service providers are also underway. EDC has also completed a new ferry landing at Schaeffer Landing, Queens. Equally important, plans for a crosstown SBS route on 34th Street will make ferry service attractive to commuters who do not work within easy walking distance of the river.	Issue contract and launch service; study crosstown BRT	Not Yet Achieved
9	PROMOTE CYCLING			
	Complete the City's 1,800-mile bike master plan	DOT announced completion of 200 new directional lane miles of bicycle lanes throughout the City in 2009, ahead of schedule.	Complete 200 directional lane miles of bike routes	Achieved

Transportation Progress (Continued)

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
	Facilitate cycling	In 2009, the City installed 2,758 bike racks. Most of these used the CityRack design, but the figure also includes 116 of the HoopRack, the winner of DOT's bike rack design competition. This production far exceeds the number of racks the City has installed in any previous year. 2009 also saw the passage of the landmark Bikes in Buildings Law, which took effect on December 11. The new law establishes a process for tenants of commercial office buildings to apply for bike access to freight elevators.	Install 400 new CityRacks per year; improve and update maps annually	Achieved
10	PILOT CONGESTION PRICING			
	Seek to use pricing to manage traffic in the Central Business District (CBD)	Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and State officials regarding the MTA's capital needs and funding sources for its 2010-2014 Capital Plan.	Install and run congestion pricing system by spring 2009	Reconsidered (State or Fed Inaction)
11	MANAGE ROADS MORE EFFICIENTLY			
	Expand the use of Muni Meters	The City replaced all Single Space meters in Manhattan south of 60th Street and has accelerated its Muni-Meter conversion project on commercial strips citywide. To date, approximately 4,510 Muni-Meters have been installed citywide, governing 33,230 spaces. The City has also expanded its Commercial Muni-Meter Program in Manhattan. All Muni-Meters for passenger vehicles now allow for credit card payment.	Install Muni-Meters in most outer borough central business districts	Mostly Achieved
	Create an integrated traffic management system	Consolidated TMC opened in 2009. To date, DOT has installed close to 5,000 Advanced Solid-State Traffic Controllers (ASTC), with more than 6,500 additional ASTCs pending. The City has also upgraded communications to these units by adding New York City Wireless Network modems.	Consolidate TMC	Achieved
12	STRENGTHEN ENFORCEMENT OF TRAFFIC VIOLATIONS			
	Expand the force of Traffic Enforcement Agents (TEAs)	The City funded 90 new Level 2 TEAs in its FY09 budget. NYPD filled these positions by the end of FY09.	Hire 100 TEAs and deploy	Mostly Achieved (City Budget)
	Enable all TEAs to issue blocking-the-box tickets	State legislation has reclassified "blocking the box" from a moving violation to a parking violation, a switch that enables all 2,800 of the City's traffic agents to issue citations for the offense.	Obtain authority to issue tickets ¹	Achieved
	Expand the use of traffic enforcement cameras	The City continues to seek State authority to mount cameras on MTA buses and street poles to enforce bus lane and bus stop regulations. The State has reauthorized the existing red light camera program until 2014 and added 50 new cameras for a total of 150.	Install cameras	Mostly Achieved (State or Fed Inaction)
13	FACILITATE FREIGHT MOVEMENTS			
	Improve access to John F. Kennedy International Airport (JFK)	Permanent travel time signage, to be placed on the Whitestone Bridge to provide comparative travel time to JFK Airport, has been delayed due to state budget difficulties. Following appropriate community outreach and approvals, the pilot program to improve roadway access to JFK along the Van Wyck Expressway is expected to be launched later in 2010.	Implement short-term recommendations from JFK Access Task Force	Not Yet Achieved (State or Fed Inaction)
	Explore High Occupancy Truck Toll (HOTT) Lanes	The City continues to work with the New York State Department of Transportation on its Managed-Use Lane Study.	Complete study	Not Yet Achieved (State or Fed Inaction)
14	CLOSE THE METROPOLITAN TRANSIT AUTHORITY'S STATE OF GOOD REPAIR GAP			
	Seek a grant from the SMART Authority to cover the MTA's funding gap	Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and state officials regarding the MTA's capital needs and funding sources for its 2010-2014 Capital Plan.	Have funding mechanism in place ¹	NA
15	REACH A STATE OF GOOD REPAIR ON THE CITY'S ROADS AND BRIDGES			
	Seek a grant from the SMART Authority to cover the City Department of Transportation funding gap	Through City funding, the City resurfaced 935 lane miles in FY07, 964 lane miles in FY08, and 1,025 lane miles in FY09. However, the economic downturn may result in cuts to the City's road resurfacing efforts, threatening future progress. The current target for FY10 is 825 lane miles. The FY 11 budget will include 1,000 lane miles, but that will be reduced to 700 lane miles for FY12 and beyond unless budget conditions improve.	Resurface 1,925 lane-miles of city streets is exceeding our current pace of resurfacing by 125 lane-miles	Mostly Achieved (City Budget)
	Seek a grant from the SMART Authority to fund accelerated capital repairs	The City continues to maintain its bridges in a state of good repair. However, the economic downturn has resulted in cuts to the City's bridge maintenance and repair efforts by 18%, threatening future progress. The City continues to complete the most critical projects with the remaining funds.	Complete scheduled 10-year bridge capital plan on schedule	Mostly Achieved (City Budget)
16	ESTABLISH A NEW REGIONAL TRANSIT FINANCING AUTHORITY			
	Seek to create a SMART Financing Authority to advance new projects and achieve a state of good repair	PlaNYC's intent – to create a new, dedicated source of funding for the City's transportation network – was maintained in the Ravitch Commission's recommendations. Following the State Legislature's refusal to vote on congestion pricing, the City continues to monitor discussions between MTA and State officials regarding the MTA's capital needs and funding sources for its 2010-14 Capital Plan.	Establish SMART Fund	Reconsidered (State or Fed Inaction)

¹ 2015 milestone set – no 2009 milestone

Transportation Sustainability Indicators

There are two transportation goals for PlaNYC. One is to reach a full “state of good repair” (SGR) on New York City’s roads, subways, and rails for the first time in history. To measure whether it is meeting this goal, the City is tracking whether its bridges, roads, and subway stations are in a SGR.

Bridges and Roads

New York City owns and maintains 786 bridges and structures. In the 1970s and 1980s, the City’s dire financial situation led to decisions to defer bridge maintenance, which in turn led to declining conditions. Today the City applies lifecycle analyses to make strategic investments in maintenance and component replacement. This approach has yielded better bridge conditions and longer life expectancy for some bridges, both of which will save the City money in the long run and provide the highest safety and service for customers. The Department of Transportation (DOT) has spent \$3 billion in capital construction on city bridges since 2000. With stepped up maintenance, it has led to the near elimination of bridges in “poor” condition and an increase in bridges rated “good” or “very good.” DOT’s goal under this program is to have all of its bridges rated in “very good,” “good” or “fair” condition and none rated “poor.” Bridges in “fair” condition (or better) receive routine maintenance and component replacement. As they approach the low end of “fair,” bridges are then reconstructed or rehabilitated. This is the most cost-effective approach for the long-term maintenance of the city’s bridges.

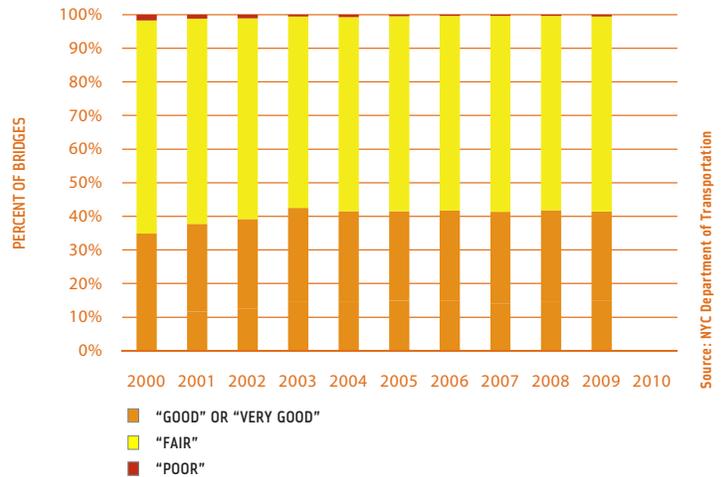
Street conditions are assessed on a scale of one to 10. Ratings of seven or above indicate good condition, while ratings below seven qualify a street for resurfacing or reconstruction. The City’s goal is to have at least 85 percent of its streets rated at or above seven, which assumes that the remaining 15 percent can be scheduled for resurfacing within the next two years. A certain amount of streets will also be rated below seven because of utility work or other issues unrelated to the road itself. This translates to about 1,050 lane miles resurfaced each year. Over the past few years, the number of roads meeting a “state of good repair” has begun to rise after falling for much of the decade.

Subway Stations

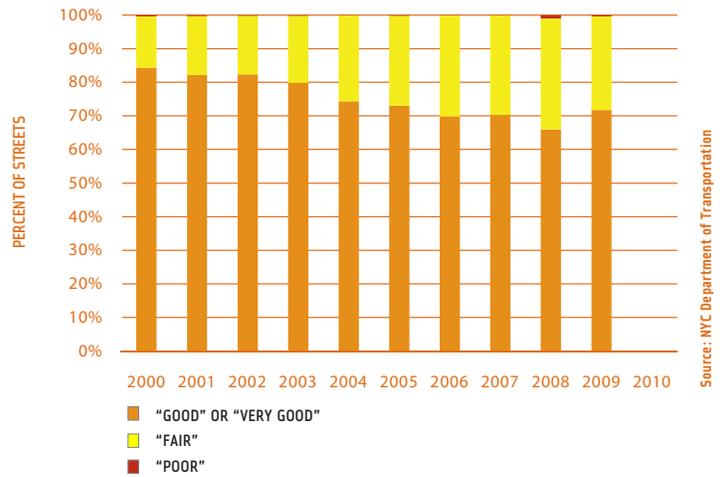
The MTA considers a subway station, or any other asset, in a “state of good repair” when the infrastructure components are replaced on a schedule consistent with its life expectancy. The indicator specifically tracks how many stations have been renovated by the end of their expected useful life.

The MTA calculates the useful life of its stations and then tracks how many have been renovated by the end of that time period. Since 2007, the MTA has had success in implementing its capital plan, and the number of stations meeting a “state of good repair” has risen. The PlaNYC goal is for the percent of stations meeting a “state of good repair” to eventually reach 100.

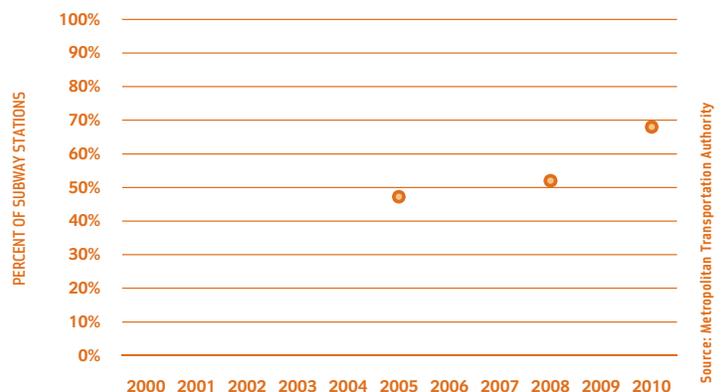
Bridges Maintenance Ratings



Streets Maintenance Ratings



Percent of Subway Stations Meeting a State of Good Repair



Transportation Sustainability Indicators (Continued)

The other transportation goal of PlaNYC is to reduce congestion and improve travel times by adding transit capacity for millions more residents, visitors, and workers. This goal has three components: modal shift, commuting times, and capacity.

Commuting Times

To measure whether travel times have improved, the City is tracking average commute times as reported in the American Community Survey (ACS), which is conducted annually by the U.S. Census Bureau. The ACS, considered the best data available to estimate average travel times, asks participants the average length of their commute to work.

Although the City is tracking average commute times, this is an imperfect metric for many reasons. A person's commute will depend both on the distance between their home and work, as well as the speed with which they can get between the two points. The City's goal of reducing travel times relates only to the second of these factors. Additionally, transit trips tend to take slightly longer than auto trips, since unlike a car, transit rarely takes a person door-to-door to their destination. It is unsurprising then, that as more New Yorkers switch to transit, travel times may increase slightly.

Data from the survey is considered valid on a three year rolling average that is updated annually. This means that the 2007 number includes data averaged from 2005, 2006, and 2007. The 2003 individual survey result is included for reference but is a less reliable reference point and not directly comparable to the three year rolling averages used in 2007 and 2008.

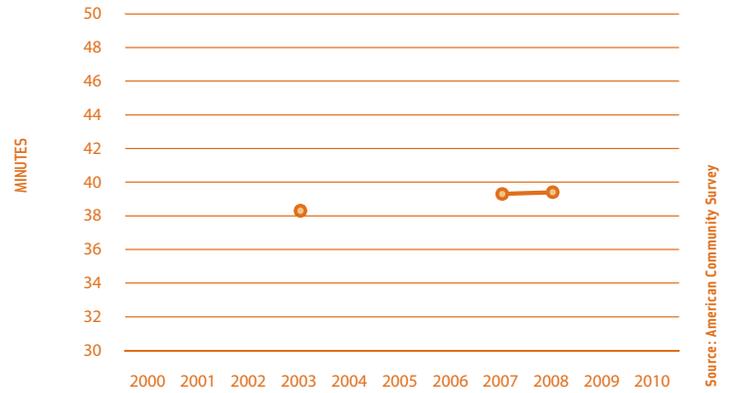
Capacity

To measure whether the region has added transit capacity, the City is tracking the total vehicle revenue miles (VRM) scheduled or traveled by all transit agency vehicles in the New York metropolitan area.

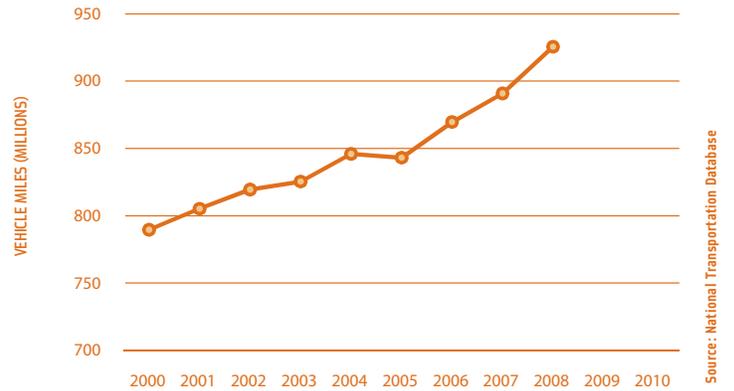
VRM measures the number of miles that transit vehicles are scheduled to, or actually, travel while in revenue service. In other words, VRM does not include situations when a bus or subway car travels without passengers back to its storage depot; only miles that transit vehicles travel while providing service to potential passengers count toward the total measure. In this way, VRM helps measure whether the amount of transit service is increasing or decreasing. Because many non-City based agencies provide significant transit service to and from the city, such as Long Island Rail Road, Metro North Rail Road, and New Jersey Transit, VRM from all transit agencies within the metropolitan area have been included. All transportation modes provided by all providers in the metropolitan area have been included to ensure a complete count.

The City has a target of increasing VRM, and VRM within the metropolitan area has gone steadily up as agencies throughout the region have increased service to meet the growing transit needs of the region. However, the service cuts planned by the MTA, New Jersey Transit, and other providers in response to their fiscal crises will inevitably reduce their VRM going forward.

Average Commute Times (Minutes)



Transit Vehicle Revenue Miles in New York Metro Area



Modal Shift

To measure whether useful transit capacity has been added, the City is tracking whether more New Yorkers are using transit. Two indicators are used to measure this; one that measures the way people travel to the central business district (CBD) (Manhattan below 60th street), and the other that estimates the way people travel citywide.

To measure trips only to the CBD, the City uses data compiled by the New York Metropolitan Transportation Council (NYMTC) that estimates trips to and from the CBD on a typical fall morning by travel mode, such as auto, subway, or bus. This metric tracks the percentage of people who make their journeys to the CBD by non-automobile modes, such as bus, bicycle, subway, from year to year.

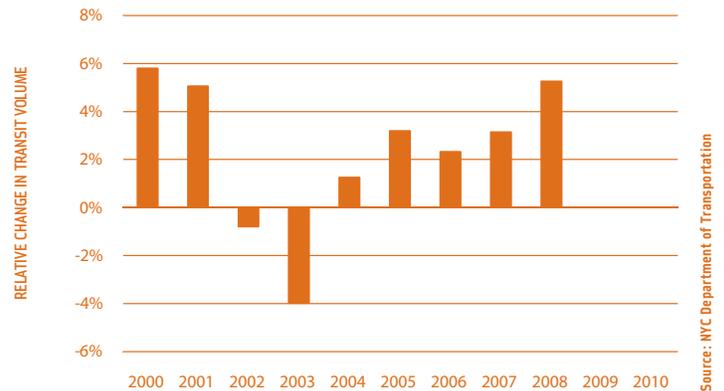
To calculate the larger shift to transit, regardless of whether the trip is to the CBD, the City is looking at the relative growth of auto and transit travel demand. Travel demand is highly correlated to economic activity—it tends to decrease during recessions and increase during periods of economic growth. In order to measure whether people are shifting to transit, the City controls for this economic impact and measures the change in transit volumes (including other non-motorized travel) minus the change in auto traffic volume. This measurement indicates if more people are taking transit regardless of the changes in traffic related to the economy. A positive percent change means that transit volumes grew faster than auto volumes.

The City's goal is to increase the transit and non-motorized share travel in New York City. For trips to the CBD, the non-auto share of the morning commute to the CBD has risen rapidly in nearly every year from 2003 to 2008, indicating that travelers have shifted to transit and non-motorized forms of transportation and that the transit system has absorbed additional travel demand through these modes. The City's improvement of bicycle and pedestrian infrastructure has contributed to the increase in non-motorized mode share and has also improved opportunities for walk-to-transit and bike-to-transit journeys. At a citywide basis, transit volume has increased more than auto traffic in nearly every year over the past decade. This means that nearly all the growth in travel demand associated with the economic expansion of the late 2000s has been absorbed by transit and non-motorized modes.

Transit (Non-Auto) Mode Share (CBD-Bound AM Commute)



Change in Transit Volume Minus Change in Auto Traffic Volume





Provide cleaner, more reliable power for every New Yorker by upgrading our energy infrastructure

For years, New Yorkers' energy use has been rising, driven by new development, population growth, and the increasing use of electronics and other equipment. This has put pressure on the energy supply, limiting the availability of natural gas and electricity, especially at peak times. At the same time, energy costs have been rising. PlaNYC laid out an approach to manage consumption by making the city more efficient and easing supply challenges by re-powering existing plants for cleaner electricity generation, expanding supplies of imported electricity and natural gas, and promoting the development of distributed generation and renewables. It also proposed significant changes to the energy planning structure in New York State. Greater efficiency and new generation will lead to lower energy costs for everyone, a more reliable grid, cleaner air, and a smaller carbon footprint.

Improve energy planning

- 1 Establish a New York City Energy Planning Board

Reduce New York City's energy consumption

- 2 Reduce energy consumption by City government
- 3 Strengthen energy and building codes for New York City
- 4 Create an energy efficiency authority
- 5 Prioritize five key areas for targeted incentives
- 6 Expand peak load management
- 7 Launch an energy awareness and training campaign

Expand the city's clean power supply

- 8 Facilitate re-powering and construct power plants and dedicated transmission lines
- 9 Expand Clean Distributed Generation ("Clean DG")
- 10 Support expansion of natural gas infrastructure
- 11 Foster the market for renewable energy

Modernize electricity delivery infrastructure

- 12 Accelerate reliability improvements to the city's grid
- 13 Facilitate grid repairs through improved coordination and joint bidding
- 14 Support Con Edison's efforts to modernize the grid

Despite increased planning coordination among the City and State's critical energy institutions through an ad hoc New York City Energy Planning Board, the organizational and institutional reforms that PlaNYC identified as critical to realizing a cleaner, more reliable energy supply have not materialized. The most serious issue is the absence of a long-term power purchasing mechanism, which is hindering several re-powering projects at inefficient existing plants. A second hurdle that the City is in the process of trying to overcome is the lack of an easily accessible financing system to fund energy-efficiency measures in the building sector. Progress in both of these areas will be necessary to achieve the goals of cleaner, more reliable power and a 30 percent reduction of greenhouse gas emissions by 2030.

Key Progress

Improve Energy Planning

When PlaNYC was released in 2007, a number of structural barriers prevented comprehensive energy planning in New York City. Most significant was the lack of a single entity capable of addressing the city's energy challenges, while prioritizing air quality, greenhouse gas reduction, and energy affordability. In 2008, the City began to address the fragmented energy planning structure through creating an informal New York City Energy Planning Board. Representatives from the City and State, Con Edison, National Grid, the New York Power Authority (NYPA), and the New York State Energy Research and Development Authority (NYSERDA) came together to discuss emerging energy policy needs and share respective plans. The Board submitted its recommendations to the New York State Public Service Commission (PSC), and they informed the 2009 State Energy Plan. Despite this progress, the City still lacks an entity that has the authority to address energy supply and demand issues in coordination or to make long-term contracting decisions on behalf of local rate-payers.

PlaNYC called for the creation of a New York City Energy Planning Board that would bring together critical energy stakeholders and have the power to direct NYPA to undertake long-term power purchase agreements on behalf of ratepayers. Currently, the only institutions with the discretion to enter into long-term contracts are the City itself and other sizable organizations that purchase large amounts of energy. This was precisely the mechanism that was used to construct the new SCS II power plant in

Energy

OVERALL STATUS

Passed landmark Greener, Greater Buildings legislation, created Division of Energy Management that has completed over 80 audit and retrofit projects, and expanded clean distributed generation by over 64 MW

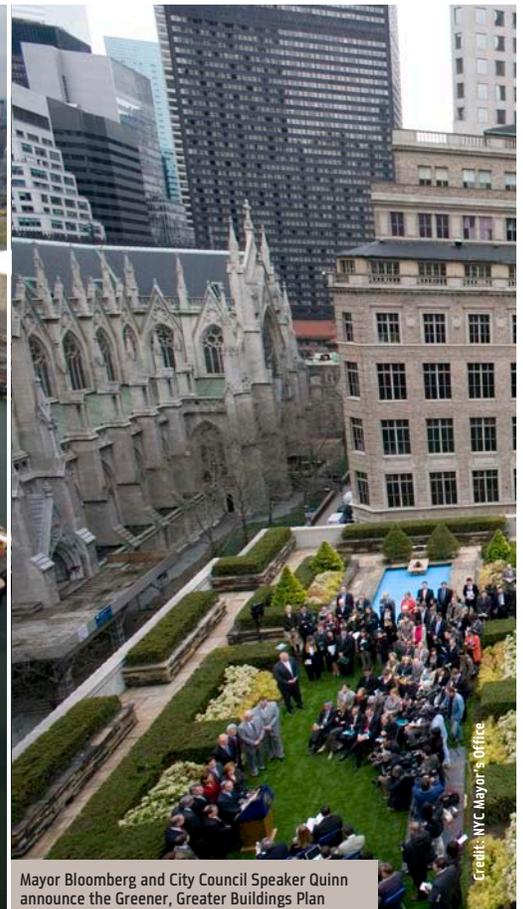
PlaNYC laid out four strategies for providing New York City with cleaner, more reliable power: coordinated energy planning, increased efficiency in buildings, expanded clean power supply, and modernized delivery infrastructure. Over the past three years, the City has implemented energy efficiency projects in its own building portfolio and passed citywide

policies, most recently the landmark Greener, Greater Buildings laws, which will require cost-effective efficiency upgrades in the city's largest buildings. The City has also made supply gains through plant re-powering projects, the development of new transmission lines and natural gas infrastructure, and the spread of less-polluting distributed generation.



Construction of the Astoria 2 repowering project in Queens

Credit: Astoria Energy LLC



Mayor Bloomberg and City Council Speaker Quinn announce the Greener, Greater Buildings Plan

Credit: NYC Mayor's Office

Astoria, a highly efficient natural gas repowering project that serves NYPA clients and is expected to reduce the city's carbon footprint by almost two percent. The PSC also has the authority to require utilities to enter long-term contracts, but it has not exercised this authority recently. Since government and private institutions are not able to conduct long-term contracting on behalf of New York City residents—who consume the majority of the city's energy—an alternative entity with this authority is needed.

The ad hoc Energy Planning Board assembled in 2008 is not a legal entity and has no power to implement its recommendations or to initiate the long-term clean energy supply contracts that are needed to reduce the risk of private investment in clean power projects. If granted the ability to initiate long-term supply contracts on behalf of New York City residents, the Board, NYPA, or another entity could unlock as much as 1,500 megawatts (MW) of new transmission lines and upgrades to old power plants. Without such authority, the Board will need to take on the challenge of identifying other practical mechanisms to replace aging in-city power plants.

The City has progressed in advocating for a more geographically equitable distribution of state energy funding—which in the past has disproportionately benefited the upstate region—though

more needs to be done. Since the creation of the State's Renewable Portfolio Standard (RPS) in 2004, the City has contributed more than \$300 million but has received back less than \$5 million in funding incentives. This imbalance stemmed from the fact that the PSC failed to account for both the greater costs and greater benefits of clean energy generation in New York City. To begin to correct this situation, the City successfully advocated for the creation of a \$30 million annual fund over five years to undertake renewable energy projects in the New York City and Lower Hudson Valley market area. While the fund's creation is an important step, it will fall short of eliminating the gap between downstate and upstate RPS funding. The City will continue to pursue a long-term solution to geographically equitable financing.

A broader constraint limiting the development of cleaner energy sources is the fact that the existing power market does not adequately price externalities, such as community impacts and greenhouse gas emissions from aging in-city power plants. As a result, it is economically attractive for power generation owners to continue to operate the older, less efficient plants. The PSC needs to recognize this situation and take an active role in developing a strategy to modernize in-city power plants while preserving competitive power markets.

Reduce Energy Consumption

Buildings dominate New York City's carbon footprint. Approximately 75 percent of New York City's carbon emissions stem from energy used in buildings, and today's existing buildings will make up 85 percent of all real estate in 2030. Therefore, increasing the energy efficiency of the city's existing buildings has been, and will continue to be, a central PlaNYC focus. Indeed, the full effects of the City's energy efficiency efforts launched to date are expected to reduce annual citywide greenhouse gas emissions by 4.5 million metric tons of CO₂e by 2030, which is equivalent to nearly 7.5 percent of citywide 2005 baseline emissions.

To address the critical area of energy use in existing buildings, the City has enacted a set of efficiency requirements for existing private sector buildings. In December 2009, Mayor Bloomberg signed the four legislative components of the Greener, Greater Buildings Plan, the most comprehensive set of efficiency laws in the nation. Together these laws remove a loophole in the energy code to ensure that it applies to all construction projects, require annual energy efficiency benchmarking that will be disclosed to the public, and mandate a set of cost-effective energy efficiency upgrades and evaluations of the city's largest buildings, both public and

The Greener, Greater Buildings Laws

Requirements of the Laws

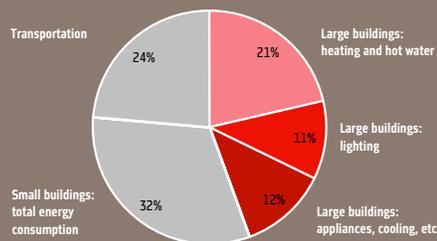
- 1 Establishes a New York City Energy Code that applies to all renovations that impact energy use (LL 85)
- 2 Requires annual benchmarking of energy and water use by large buildings (LL 84)
- 3 Requires audits and retro-commissioning in large buildings every ten years (LL 87)
- 4 Requires code-compliant lighting and sub-meters in large non-residential buildings by 2025 (LL 88)

Buildings Covered by the Laws

- BUILDINGS OVER 50,000 SQUARE FEET OR LOTS WITH 2 OR MORE BUILDINGS OVER 100,000 SQUARE FEET TOTAL

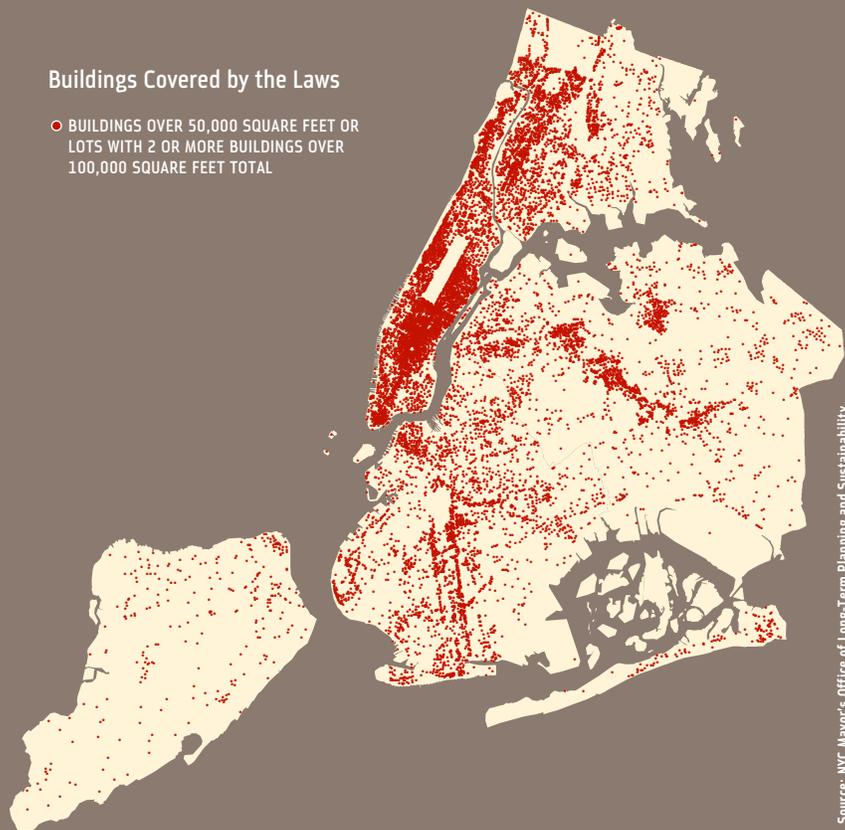
Energy Use in New York City*

Large buildings consume nearly half of the city's energy



TOTAL = 725 MILLION MMBTU

* Energy use (MMBTU) and carbon emissions are closely related but not exactly the same
Source: Mayor's Office of Long-Term Planning and Sustainability



Source: NYC Mayor's Office of Long-Term Planning and Sustainability

private. By focusing primarily on 22,000 of the city's largest buildings, which constitute roughly half of citywide square footage and 45 percent of citywide greenhouse gas emissions, the Greener Greater Buildings Laws will result in an emissions reduction of almost five percent. It will also reduce citywide energy costs by \$700 million annually by 2030 and create roughly 17,800 construction-related jobs over ten years.

Before requiring efficiency upgrades in the private sector, however, the City led by example. In 2007, the City mandated a 30 percent greenhouse gas emissions reduction within its own portfolio, to be achieved in an accelerated time span of ten years and managed by a newly created Division of Energy Management (DEM) within the Department of Citywide Administrative Services (DCAS). The City developed a rigorous and comprehensive plan to achieve these reductions, including supporting structures such as a state-of-the-art energy database, real-time metering and monitoring of building consumption, and systematic improvements to operations and maintenance. Since its creation, DEM has completed 84 energy efficiency retrofit projects in City buildings, and it currently has an additional 124 retrofit projects and 100 energy audits in the pipeline. This program sets a new standard for an integrated, sophisticated approach to energy efficiency across a large portfolio.

The City has worked with large universities and hospitals to match its efforts to reduce greenhouse gas emissions. Since 2007, over 40 institutions have accepted the Mayoral Challenge and completed greenhouse gas inventories of their operations. These institutions are now developing plans and implementing portfolio-wide strategies to realize a 30 percent reduction in ten years.

As important as existing buildings are, new buildings must also become more efficient, and their other environmental impacts, such as water consumption and waste, must be reduced. Some cities have tackled these issues by requiring new buildings to achieve the U.S. Green Building Council's (USGBC) LEED standards; instead, PlaNYC proposed to enlist New York City's world-class community of building professionals to develop proposals to green the City's construction codes. Amending the City's existing codes offers greater enforceability, a sharper focus issues specific to New York, and a broader reach of applicability to all buildings. To fulfill this PlaNYC initiative, the Mayor and City Council Speaker asked the Urban Green Council—the New York chapter of USGBC—to establish and manage a Green Codes Task Force. The effort ultimately spanned 18 months and involved over 200 building professionals. All 111 Task Force proposals were delivered to the Mayor and City Council Speaker in February 2010. The City is now reviewing the

proposals for potential implementation. One proposal that calls for the establishment of an Innovation Review Board at the Department of Buildings (DOB) to facilitate the piloting and approval of new green technologies has already been signed into law.

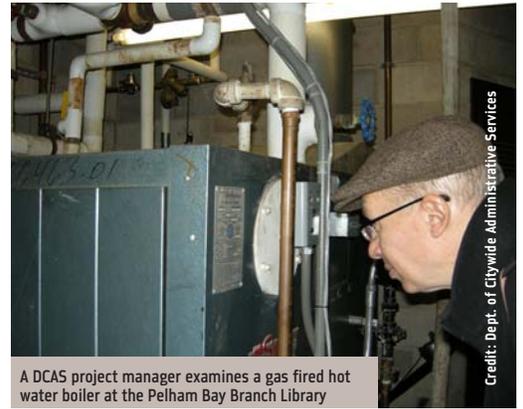
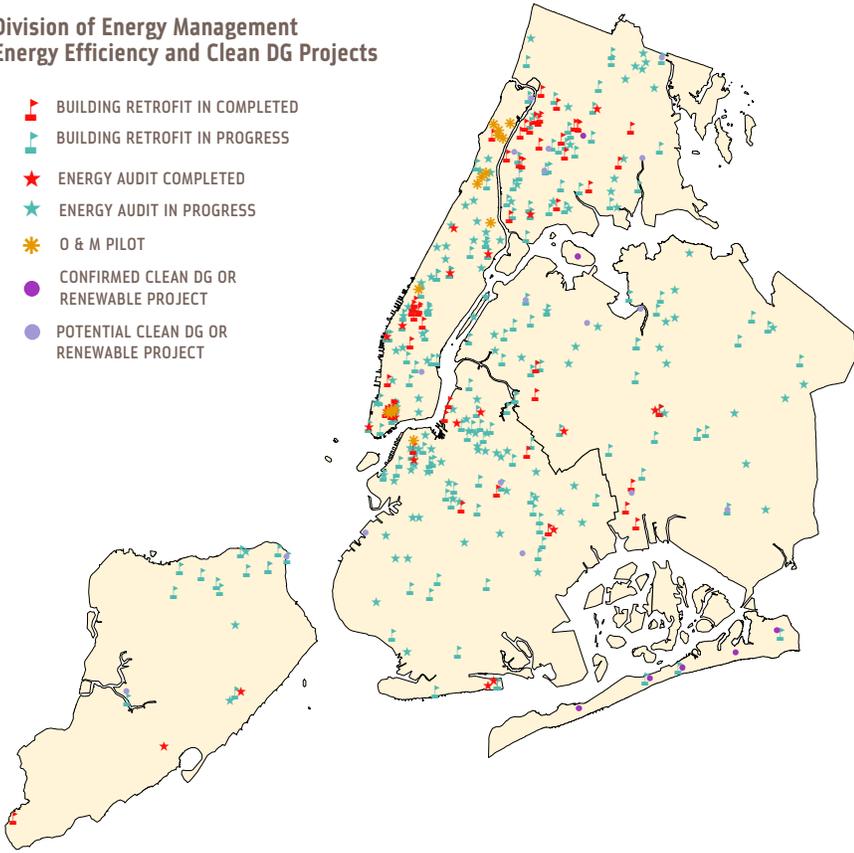
PlaNYC also identified the enforcement of the existing energy code as a critical step in improving efficiency. To that end, DOB has launched several initiatives to improve code compliance during design and construction. The DOB now requires documentation of compliance at the time designs are submitted for approval, including details that substantiate the calculations. In addition, it has developed a rule, currently undergoing public review that will require progress inspections during construction to ensure that projects are being built as they were designed.

Expand the City's Clean Power Supply

PlaNYC set a target to increase the capacity of cleaner energy supply by 2,000 to 3,000 MW. A number of re-powering and transmission projects that were already under development in 2007 are now at or near completion. The City has also expanded clean distributed generation in the form of cogeneration and renewable energy, with at least 64 MW of capacity added within the Con Edison distribution network. However, further progress on plant re-powerings and transmission

Division of Energy Management Energy Efficiency and Clean DG Projects

- ▶ BUILDING RETROFIT IN COMPLETED
- ▶ BUILDING RETROFIT IN PROGRESS
- ★ ENERGY AUDIT COMPLETED
- ★ ENERGY AUDIT IN PROGRESS
- ✱ O & M PILOT
- CONFIRMED CLEAN DG OR RENEWABLE PROJECT
- POTENTIAL CLEAN DG OR RENEWABLE PROJECT



A DCAS project manager examines a gas fired hot water boiler at the Pelham Bay Branch Library

Credit: Dept. of Citywide Administrative Services



Solar thermal panels on the roof of EMS Battalion 14 Station House in the Bronx

Credit: Dept. of Citywide Administrative Services

Source: Dept. of Citywide Administrative Services

is uncertain unless some entity is empowered to engage in long-term energy supply contracts on behalf of New York City ratepayers. Currently, developers are seeking approval and financing for five major energy supply projects—all currently stalled or in limbo—that would significantly benefit New York City residents if only an entity existed to facilitate their implementation.

The City has pursued three main strategies outlined in PlaNYC to expand clean power supply: increasing the importation of cleaner sources of electricity and natural gas to replace the use of dirtier fuels; re-powering outmoded in-city power plants with state-of-the-art facilities; and promoting clean and efficient distributed power generation. In 2009, two major electricity transmission projects—from Yonkers to Upper Manhattan and from Linden, New Jersey, to Staten Island—increased the City's ability to import electricity from surrounding regions. A third transmission project initiated by NYPA has the potential to supply an additional 600 MW of electricity, but it has yet to receive funding or approval. The City is currently working with Con Edison, the Long Island Power Authority (LIPA), NYPA, and several state agencies to assess the feasibility of constructing a 700 MW commercial scale wind power facility more than 13 miles off the shore of the Rockaway Peninsula. To supply cleaner burning natural gas, the City is working

with Con Edison and National Grid on permitting and property acquisition for new pipeline infrastructure. Potential projects include a new pipeline from Staten Island to Manhattan, as well as the Rockaway Delivery Point Project, which will serve consumers in Brooklyn and Queens.

Some progress has been made on re-powering existing plants. In 2010, NYPA closed the heavily polluting 875 MW Charles Poletti Power Plant in Astoria, Queens. In its place, NYPA is constructing a state-of-the-art 500 MW power plant that, when brought online in 2011, will reduce city-wide greenhouse gas emissions by almost two percent. Several other highly efficient power plant projects—either new construction or re-powerings—are in the development phase, but in the absence of long-term contracts it is unclear whether they will find financing. The City is currently working with NYPA and industry stakeholders to evaluate additional clean re-powering opportunities and explore techniques for incentivizing construction of new plants while reserving the integrity of the deregulated wholesale power market.

The City is pursuing two forms of clean distributed generation. The first is the use of highly efficient on-site power generation systems such as cogeneration and trigeneration, which capture and reuse the “waste heat” created during elec-

tricity production. The New York City Economic Development Corporation (EDC) is conducting feasibility and engineering studies for cogeneration and steam-driven micro-turbines at a number of municipal facilities, including the North River Wastewater Treatment Plant and buildings in Lower Manhattan, with funding from the American Recovery and Reinvestment Act (ARRA). In addition, a planned 15 MW cogeneration plant on Riker's Island will save over \$6 million in annual energy costs and eliminate over 24,000 tons of CO₂e annually. To remove barriers to wider use of distributed generation at private facilities, DOB has developed the nation's first set of rules for the use of micro-turbines in dense urban environments and is working with Con Edison to streamline permitting procedures for cogeneration.

The second form of clean distributed generation that the City is pursuing is renewable power. Responding to public interest in small scale wind power, DOB has issued technical guidance for building mounted turbines and the EDC is funding the installation of several vertical axis turbines as part of an “Urban Wind Demonstration.” In addition, the Fresh Kills Landfill in Staten Island is under consideration for a commercial scale wind project.



NYC Service volunteers covering the 114th Police Precinct roof in Queens with a reflective white coating



Executive Summary
February 2010

NYC GREEN CODES TASK FORCE

A REPORT TO MAYOR MICHAEL R. BLOOMBERG & SPEAKER CHRISTINE C. QUINN

The 111 Green Codes Task Force proposals were presented to the Mayor and Speaker in February 2010

Credit: Urban Green Council

CASE STUDY: NYC° COOL ROOFS

New York City's existing roofs are typically dark or black in color, which causes them to retain sunlight as heat and leads to rooftop temperatures as high as 150 degrees in the summer. This heat retention contributes to a six to eight degree increase in the city's ambient air temperature compared to surrounding non-urban areas, a phenomenon known as the "urban heat island effect." Covering all eligible rooftops in New York City with a reflective white coating is an inexpensive method that could reduce ambient temperatures by up to 1 degree, while reducing cooling costs, energy usage, and greenhouse gas emissions. New York City's recently updated building code requires cool roofs for all new construction and re-roofing.

On September 24, 2009, Mayor Michael R. Bloomberg and former Vice President Al Gore launched NYC° Cool Roofs. The initiative mobilizes volunteers to coat the rooftops of participating buildings with reflective white coatings. Under the leadership of NYC Service and the Community Environmental Center, nearly 250 volunteers came together last year to coat 100,000 square feet of roofs in Long Island City, Queens, a neighborhood with elevated temperatures due to a large number of industrial rooftops. Participating buildings include the Community Boat House, YMCA, MoMA, Film Biz Recycling, Flux Factory, and the 114th Police Precinct. Coating materials and supplies were donated by APOC, a division of Gardener-Gibson and distributed by Bradco Supply Corporation.

To build on the pilot's success, the Mayor has announced a plan to coat one million square feet of roofs in 2010. Columbia University's Center for Climate Systems Research will monitor cool roof temperatures and energy savings, and guide the City's development of a longer-term cool roof strategy.

To overcome barriers to solar power deployment, the city is partnering with Con Edison and the City University of New York (CUNY) under the U.S. Department of Energy's (U.S. DOE) Solar America Cities initiative. A \$1 million U.S. DOE grant will be used in part to create a rigorously designed, online "solar map" that will enable New Yorkers to evaluate the potential for solar power production on the buildings in which they live and work. Several "Solar Empowerment Zones" will also be established and staffed by "solar ombudsmen" to target outreach efforts, streamline permitting and inspection procedures, and analyze solar power integration into the electrical grid. Con Edison will lead a parallel effort to reduce the average permitting time for a solar installation from nearly one year, to less than 100 days. Finally, EDC has launched a \$1 million solar thermal pilot program to promote the installation and monitoring of clean energy technologies that use sunlight to heat water.

Modernize Electricity Delivery Infrastructure

Since the launch of PlaNYC, the City has advocated successfully for increased funding for grid repairs, and Con Edison has worked aggressively to improve system reliability. In 2009 alone, Con Edison invested \$1.4 billion to improve its electricity delivery system, completing the installation of 2,000 miles of cable, 27 new feeders, and approximately 3,000 transformers. The utility energized a new substation in Manhattan to support area growth and is currently undertaking improvements in Long Island City. Con Edison also reports that it has implemented 175 of the recommendations that were made in response to the 2006 Long Island City blackout, including the installation of advanced meters that enable rapid assessment of power outages. Overall, the city's electricity infrastructure is significantly closer to a state-of-good repair. However, additional coordination among utility stakeholders is needed to facilitate future grid improvements and ensure that a high level of repair is maintained.

The City has also made progress toward a twenty-first century electrical grid through efforts to improve communications between customers and the utility. Although still an emerging concept, smart grid technology promises to increase the responsiveness of electrical power systems to local network problems and demand fluctuations. Con Edison received \$181 million in stimulus funds from the U.S. DOE and is currently testing a smart grid pilot project in Queens. The EDC also received U.S. DOE support to pilot demand-side price-response systems at several City facilities. Over time, these research endeavors and investments will enhance the City's ability to accommodate changing electricity demand pressures and to incorporate clean distributed energy technologies.

Observations on Progress

The City faces the same overarching challenge today as it did in 2007: a lack of coordinated, authoritative energy planning that involves both supply and demand. Despite this obstacle, the City has made significant progress over the past three years. The City Council passed the Greener, Greater Buildings Laws; the new Division of Energy Management made efficiency improvements at numerous City facilities; and hospitals and universities have committed to reducing their greenhouse gas emissions to meet the municipal goal of 30 percent by 2017. However, a coordinated policy that coordinates City, State, and utility actions is still critically needed.

Since the release of PlaNYC, energy efficiency in existing buildings has emerged as being more crucial to carbon reduction and energy reliability than originally envisioned, suggesting that the City's energy goals should incorporate demand as well as supply objectives. In the area of energy efficiency, the Greener, Greater Buildings Laws—combined with the aggressive efforts of municipal and private institutions—will significantly reduce consumption in the city's largest



Solar power installation at Kips Bay Tower Condominiums in Manhattan

Credit: Solar Energy Systems, LLC



Department of Buildings Commissioner Robert LiMandri speaking at the 2010 Earth Week kick-off event

Credit: Department of Buildings

buildings, which together consume half of its energy. Addressing the other half of the city's energy consumption in its 950,000 smaller buildings, however, will require a different approach. The discipline of energy efficiency was developed by enterprising and dedicated practitioners but requires greater professionalization, standardization, and research; it is unclear what role in this the City should play, but New York City is a logical place for it to happen. Likewise, the lessons from stimulus-funded smart grid pilot projects should inform a comprehensive and realistic vision for the future of the city's electrical grid.

The Green Codes Task Force, along with the Department of Design and Construction's recent Active Design Guidelines, demonstrate how cross-cutting building design strategies not only address energy efficiency but also public health, emergency preparedness, and urban ecology, among other issues. PlaNYC considered buildings as a part of the city's "energy infrastructure", but it may be that buildings will need to be addressed more comprehensively in the future.

Next Steps

Over the coming year, the City will renew its efforts at the state and local level to enhance long-term energy planning authority and develop market-based mechanisms to realize PlaNYC's clean energy goals. This effort is critical to ensuring that the City meets its goal of replacing its aging power plants with modern, efficient generation by 2030.

Key objectives for enhancing energy supply in the near term include: facilitating the siting of proposed gas pipelines to serve Manhattan and Brooklyn; developing stakeholder consensus on future electric transmission projects; promoting distributed generation and district energy at City-owned facilities and major new developments like Hudson Yards; promoting the relicensing of Indian Point; and aligning New York City power

market rules with consumers' interests. The creation of Solar Empowerment Zones, the pursuit of offshore and onshore wind installations, and the utilization of increased state funding for renewables will also help move the City closer to its clean power goal, while contributing to local economic development.

Next year's efforts on energy efficiency will focus largely on implementation. Groundwork has already been laid for the accelerated 30 percent emissions reduction efforts of the City and its institutional partners, but these multi-year efforts will require persistent commitment and financial support. Implementing the Greener, Greater Buildings Laws will require the Department of Buildings to issue rules clarifying intent and establishing compliance processes. The City will work with key partners to conduct outreach and training on the energy code, benchmarking, auditing, retro-commissioning, and lighting systems to facilitate compliance with the laws. Since much stands to be gained through the installation of energy efficient lighting systems, the City is partnering with Natural Resources Defense Council (NRDC), NYSERDA, Con Edison, the Illuminating Engineering Society of New York (IESNY), and others, to create a state-of-the-art lighting resource center in New York City.

Although studies show that energy efficiency in buildings is the most cost-effective way to reduce carbon emissions, little will happen if buildings do not have access to the capital required to make these improvements. Therefore, the City will continue working to solve the critical financing issues that are stunting the energy efficiency market. In 2009, the City received \$16 million in funding from ARRA to create a revolving loan fund for energy efficiency. The City is also working to evaluate the concept of Property Assessed Clean Energy (PACE) financing, which will enable property owners to finance energy retrofits and small distributed generation systems through an

annual assessment on their property tax bill. To overcome a key barrier to energy efficiency in the commercial sector—the misaligned incentives for energy conservation between building owners and tenants—the City is working to develop and pilot "energy aligned leases." Finally, the city will work with NYSERDA and the not-for-profit sector to develop a resource center where building owners can get information about energy efficiency regulations, as well as available incentives and technical assistance.

The 111 proposals of the Green Codes Task Force, which address the multiple impacts of buildings on the environment, will be reviewed and sorted by the Mayor's Office and City Council over the coming months. This process has begun with a series of meetings to garner feedback from the Industry Advisory Committee, as well as standard consultation with all affected City agencies. In conjunction with new green building standards issued by entities such as the International Code Council and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the Green Codes Task Force report raises issues and concepts that will likely shape the City's green building agenda for the next several years.

Energy Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	ESTABLISH A NEW YORK CITY ENERGY PLANNING BOARD			
	Work with the State and utilities to centralize planning for the city's supply and demand initiatives	Launched ad hoc Energy Planning Board that submitted recommendations to State Energy Planning Board in December 2008 and October 2009 on energy planning, power and natural gas infrastructure, energy efficiency, renewables and clean DG. Board has not yet acquired authority to coordinate energy supply and demand measures or to undertake long-term energy contracting.	Establish NYC Energy Planning Board	Not Yet Achieved (State or Fed Inaction)
2	REDUCE ENERGY CONSUMPTION BY CITY GOVERNMENT			
	Commit 10% of the City's annual energy bill to fund energy-saving investments in City operations	Energy Conservation Committee released plan to reduce City's energy consumption and greenhouse gas emissions. \$280 million has been allocated since 2007, with more than 80 retrofits completed, saving the City \$2.8 million annually in energy costs.	Begin investing approximately \$80 million a year into improving the energy efficiency of City buildings	Achieved
3	STRENGTHEN ENERGY AND BUILDING CODES IN NEW YORK CITY			
	Strengthen our energy and building codes to support our energy efficiency strategies and other environmental goals	At the request of the Mayor and City Council Speaker, USGBC-NY convened the Green Codes Task Force, a group of over 200 building professionals to make code improvement recommendations. The Task Force delivered 111 proposals to the City in a final report. The City is reviewing all the proposals with the relevant agencies and an Industry Advisory Committee.	Complete and adopt first rounds of code changes (2008, 2010)	Mostly Achieved
4	CREATE AN ENERGY EFFICIENCY AUTHORITY FOR NEW YORK CITY			
	Create the New York City Energy Efficiency Authority (NYCEEA) responsible for reaching the City's demand reduction targets	New York City Energy Efficiency Authority (NYCEEA) was not created. However, EDC created and led the New York City Energy Efficiency Working Group in 2008. The group worked to achieve some level of coordination between city, state and utility energy efficiency programs and policies.	Create a new authority responsible for the implementation of NYC energy conservation and efficiency programs	Reconsidered (State or Fed Inaction)
5	PRIORITIZE FIVE KEY AREAS FOR TARGETED INCENTIVES			
	Use a series of mandates, challenges, and incentives to reduce demand among the city's largest energy consumers	Signed into law the Greener, Greater Buildings Plan – four laws addressing energy efficiency in existing buildings - that will improve transparency of energy consumption and institute continuous improvement through energy efficiency measures. Pushed PSC for additional energy efficiency program funding. Expanded Mayoral Challenge to more universities, hospitals and Broadway theaters.	Pass necessary local laws, building codes, and energy code	Achieved
6	EXPAND PEAK LOAD MANAGEMENT			
	Expand participation in Peak Load Management Programs through smart meters	EDC issued RFP for a metering consultant – a competitive procurement to advance a 10-year plan. Con Edison submitted smart meter proposal to PSC, which remains under review.	Ensure Con Edison begins deployment of advanced meters with plan for greater deployment	Not Yet Achieved (State or Fed Inaction)
	Support expansion of real-time pricing (RTP) across the city	Supported advanced metering infrastructure (AMI) installations to facilitate real-time pricing and provide additional consumer benefits, such as rapid power outage assessments. Through the NYC Solar America Cities partnership, completed study on real-time pricing and solar distributed generation.	Establish appropriate rate	Not Yet Achieved (State or Fed Inaction)
7	LAUNCH AN ENERGY AWARENESS AND TRAINING CAMPAIGN			
	Increase the impact of our energy efficiency efforts through a coordinated energy education, awareness, and training campaign	Submitted recommendations to PSC outlining proposed outreach programs. Hired GreenNYC public awareness coordinator. Launched winter energy awareness campaign on how to conserve energy and lower energy bills, a summer campaign to reduce wasteful air conditioning practices, and a CFL campaign to increase awareness about the benefits of these bulbs.	Launch energy awareness campaign; set up training, certification, and monitoring programs	Achieved
8	FACILITATE REPOWERING AND CONSTRUCTION OF POWER PLANTS AND DEDICATED TRANSMISSION LINES			
	Facilitate the construction of 2,000 to 3,000 MW of supply capacity by repowering old plants, constructing new ones, and building dedicated transmission lines	NYPA signed long-term power purchase agreement with Astoria Energy LLC to build state-of-the-art 500 MW plant to serve the City, MTA and Port Authority. EDC prepared a Master Transmission Plan for economic transmission projects to serve New York City region and is pursuing various options from the study. The City has encouraged Con Edison to repower its Hudson Avenue steam plant through negotiations with the company and the pursuance of a regulatory mandate from the PSC. EDC is currently examining whether it can properly structure an incentive for repowering Hudson Avenue plant.	Establish NYC Energy Planning Board	Not Yet Achieved (State or Fed Inaction)
9	EXPAND CLEAN DISTRIBUTED GENERATION (CLEAN DG)			
	Increase the amount of Clean DG by 800 MW	To facilitate the installation of more clean DG systems, DOB is completing a guide on permitting and inspections required by utilities and City agencies for natural gas-fueled Combined Heat and Power (CHP) systems. EDC and DCAS continue their efforts to find public sites where CHP is feasible. They have identified the six most likely City buildings and are moving forward with feasibility studies.	Study the capacity to increase interconnection limits in each network and work with manufacturers on new circuit breaker technologies	Reconsidered
	Promote opportunities to develop district energy at appropriate sites in New York City	Worked with developers to study the potential for advanced cogeneration systems for new residential and office towers in major land developments. Studies for Hudson Yards and Riverside South completed, but the district energy options were not favored by the recommendations. The preferred option from the study was individual building cogeneration units.	Review completed Con Edison Hudson Yards District Energy Study and move forward on district energy projects based on report findings	Achieved

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
10	SUPPORT EXPANSION OF NATURAL GAS INFRASTRUCTURE			
	Support critical expansions to the city's natural gas infrastructure	Working with Con Edison and National Grid to identify infrastructure requirements for switch to natural gas for space heating by liquid fuel customers. The 182-mile Millennium Pipeline completed. State rejected Broadwater LNG proposal. EDC is working with Spectra Energy and Con Edison on property issues for a major new gas pipeline from Staten Island to Manhattan. EDC is working with Williams/Transco and National Grid on property issues for a major new gas pipeline from New Jersey to the Rockaways.	Support appropriate natural gas expansion proposals	Achieved
11	FOSTER THE MARKET FOR RENEWABLE ENERGY			
	Create a property tax abatement for solar panel installations	The City began accepting applications for solar installations put into place since the August 2008 effective date. Five applications were received in 2009 and up to 50 are expected in 2010.	Launch the solar incentive	Achieved
	Study the cost-effectiveness of solar electricity when evaluated on a real-time pricing scenario	Launched study in January 2009 evaluating the impact of real-time rates on a variety of installation types. Consultants' findings and recommendations were published in July 2009.	Complete study	Achieved
	Support the construction of the city's first carbon-neutral building, primarily powered by solar electricity	Solar 2 Green Energy, Arts and Education Center in Manhattan is expected to break ground in 2010. Due to capital budget cuts, City's contribution to Solar 2 decreased to \$1 million, from PlaNYC target of \$3 million. City continues to support Solar One's efforts to find other funding opportunities.	Begin construction of the city's first carbon-neutral building	Not Yet Achieved (City Budget)
	Increase use of solar energy in City buildings through creative financing	Released RFP for solar developer to purchase, install, own, and operate 2 MW of solar capacity in exchange for a long-term power purchase agreement and received proposals in fall 2008. DCAS completed an evaluation in spring 2009	Select solar developer to install solar panels; enter into long-term solar power purchase agreement	Not Yet Achieved (City Budget)
	Work with the State to eliminate barriers to increasing the use of solar energy in the city	In August 2008, the State expanded its net-metering regulations to allow for larger solar and wind installations to net-meter. Study to identify solutions to technical barriers to solar grid connection was completed in December 2009. In February 2010, new legislation was signed into law that increased the cap on solar and wind distributed generation up to 2 MW.	Increase/remove solar cap in New York City and increase net-metering opportunities statewide	Achieved
	Pilot one or more technologies for producing energy from solid waste	EDC will complete a feasibility study in April 2010 for an anaerobic digester at Hunt's Point to use waste from the food market to produce biogas and on-site electricity. DPR, in conjunction with NYPA, is exploring the feasibility of installing a biomass power plant to provide heat and/or electricity to the Flushing Meadows Corona Park Aquatic Center. The system will consist of a 200-300 horse power boiler burning wood chips the agency produces.	Begin designing at least one pilot alternative waste technology facility	Mostly Achieved (State or Fed Inaction)
	End methane emissions from sewage treatment plants and expand the productive use of digester gas	DEP continues to work toward ending methane leaks and putting that gas to beneficial use. There is a design contract underway to stop emissions at four water pollution control plants (WPCP) and send the gas to fuel cells. DEP has begun to negotiate terms to send methane gas from one of its WPCPs into the natural gas distribution system.	End methane emissions from wastewater treatment plants	Not Yet Achieved
	Study the expansion of gas capture and energy production from existing landfills	DEP continues to look for practical landfill gas use alternatives. An initial study to assess the feasibility of using landfill gas did not yield any viable projects because the yield from DEP's landfills has passed its peak. NYPA completed feasibility study on gas use from Fountain Avenue Landfill to produce electricity for 26th Ward WPCP. Found operating costs outweighed the anticipated savings. Continue to investigate other opportunities.	Complete initial study; begin to follow up on recommendations	Achieved
12	ACCELERATE RELIABILITY IMPROVEMENTS TO THE CITY'S GRID			
	Advocate for Con Edison to implement recommendations from the City's report on the northwest Queens power outages	A final order was issued by the PSC. The City advocated for the Order to include authorized spending for reliability and crisis management programs. Con Edison implemented the order and exceeded its infrastructure development requirements.	Begin implementation of City recommendations and all other appropriate recommendations to improve grid reliability	Achieved
13	FACILITATE GRID REPAIRS THROUGH IMPROVED COORDINATION AND JOINT BIDDING			
	Pursue the passage of joint bidding legislation	The Con Edison Management and Operations audit was completed, and the company has since presented a long-term plan. EDC is supporting them in this plan and is providing input to ensure it is aligned with PlaNYC.	Approve joint bidding citywide, improve coordination, and begin work on pilot multi-utility tunnel with location identified by formalized team of City, State, and utility representatives	Not Yet Achieved
	Ensure adequate pier facilities are available to Con Edison to offload transformers and other equipment	City has had preliminary discussions on this with Con Edison governmental affairs personnel.	Initiate a working group with relevant parties ¹	NA
14	SUPPORT CON EDISON'S EFFORTS TO MODERNIZE THE GRID			
	Support Con Edison's 3G System of the Future Initiative	Con Edison, along with EDC and other City stakeholders, applied and won a U.S. DOE grant to establish a smart grid demonstration. This project will introduce smart meters, building management systems, solar PV, and technologies designed to support plug-in hybrid vehicles, among others.	Continue to support Con Edison's 3G initiative ¹	Achieved

¹ 2015 milestone set--no 2009 milestone

Energy Sustainability Indicators

The energy goal of PlaNYC is to provide cleaner, more reliable power for every New Yorker by upgrading energy infrastructure. The goal has three components: whether energy is becoming cleaner, whether buildings are becoming more energy efficient, and whether the network is becoming more reliable.

Cleaner Energy

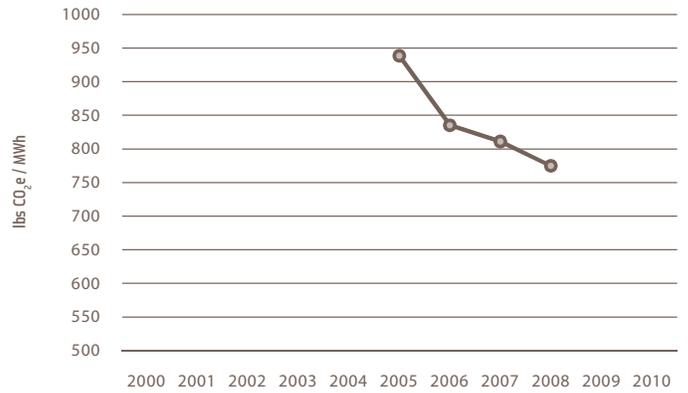
To calculate whether the energy in New York City is getting cleaner, the City is tracking the carbon intensity of the electricity supply, also known as the “emissions coefficient.” The emissions coefficient measures the number of pounds of emissions—normalized in terms of carbon dioxide equivalent (CO₂e)—divided by the citywide electric usage in megawatt hours. A decrease in the emissions coefficient indicates a cleaner energy supply, since each megawatt of electricity is generating fewer pounds of CO₂e emissions.

The City can lower its emissions coefficient by getting more of its electricity from cleaner fuels or renewable sources, improving the efficiency of its power plants, or upgrading its distribution network so that less energy is wasted through grid loss. Over the past few years, the CO₂e emissions coefficient for the City has fallen as the City has replaced dirtier power plants with cleaner, more efficient ones and imported cleaner sources of energy.

Efficient Use

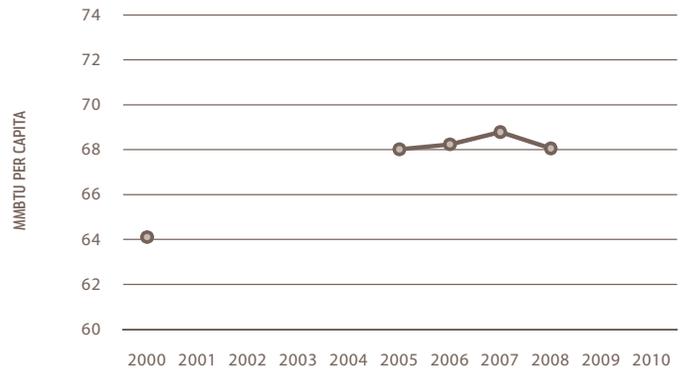
To measure whether New York City is using energy more efficiently, the City is tracking building energy usage per capita, normalized for changes in weather. To calculate this indicator, the amount of fuel oil, electricity, natural gas, and steam power used in the city’s building stock is converted to million British Thermal Units (MMBTU) and then divided by the city population. Because a warmer or colder summer or winter can have a significant impact on energy usage, this metric removes the effects of weather to get a better measure of whether the city is becoming more energy efficient. Over the long-term, the City is working on ways to make buildings use energy more efficiently, so energy usage per person should go down. This would reverse recent trends, which have shown a slight increase in per capita usage.

CO₂e Coefficient for Electrical Power



Source: NYC Mayor's Office of Long-Term Planning and Sustainability

Building Energy Usage Per Capita, Normalized for Weather



Source: NYC Mayor's Office of Long-Term Planning and Sustainability

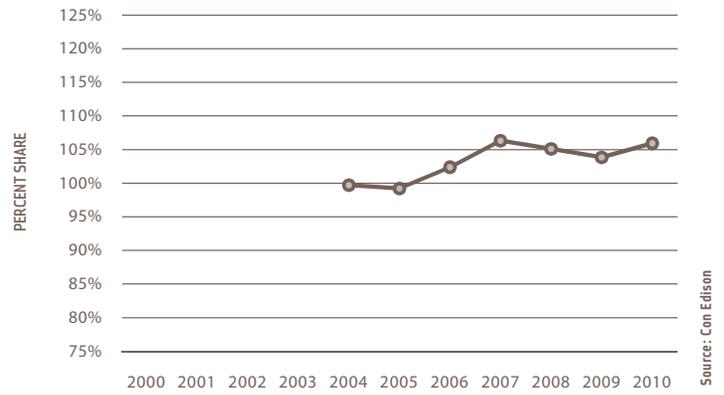
Reliable Energy

To measure whether the city's electricity has become more reliable, the City is looking at two metrics: whether the energy network provides enough power to deal with peak demand, and whether the infrastructure itself is in good repair. To measure whether the energy network provides enough power to deal with peak demand, the City calculates the ratio of generating capacity to peak demand. Ideally, the city would be able to generate and import more power than is needed during times of peak demand. To ensure that the system is in good repair, the City is tracking the amount of outages that occur from year to year. To accomplish this, Con Edison calculates a System Average Interruption Frequency Index (SAIFI), which measures the average number of power outages per 1,000 customers.

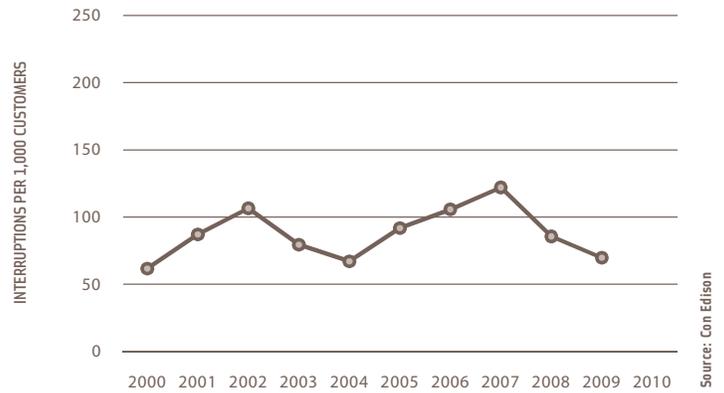
The higher the ratio of generating capacity to peak demand, the more reliable the system. A ratio close to or below 100 percent indicates insufficient capacity to meet demand. In the past few years, the City has managed to increase its generating capacity at a faster rate than it has increased its peak demand for electricity, indicating improvement on this indicator.

Similarly, a decrease in SAIFI indicates a lower percentage of power outages in a utility's service area. Since 2007, SAIFI has been steadily falling, indicating a diminished likelihood of service interruptions.

Generating Capacity as a Share of Peak Demand



System Average Interruption Frequency Index





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

Despite decades of progress, levels of fine particulate matter (PM_{2.5}) and ozone (O₃) in the New York City metropolitan area remain among the highest of any large U.S. city. These air pollutants result mainly from fuel combustion emissions of on-road and off-road vehicles, heating oil, other building sources, and electric power generators. PlaNYC's air quality strategy seeks both to address the largest local sources of pollution that are susceptible to cost-effective reductions, but also to begin to measure ground-level air pollution systematically – something no American city had ever done.

Reduce road vehicle emissions

- 1 Capture the air quality benefits of our transportation plan
- 2 Improve fuel efficiency of private cars
- 3 Reduce emissions from taxis, black cars, and for-hire vehicles
- 4 Replace, retrofit, and refuel diesel trucks
- 5 Decrease school bus emissions

Reduce other transportation emissions

- 6 Retrofit ferries and promote use of cleaner fuels
- 7 Seek to partner with the Port Authority to reduce emissions from Port facilities
- 8 Reduce emissions from construction vehicles

Reduce emissions from buildings

- 9 Capture the air quality benefits of our energy plan
- 10 Promote the use of cleaner-burning heating fuels

Pursue natural solutions to improve air quality

- 11 Capture the benefits of our open space plan
- 12 Reforest targeted areas of our parkland
- 13 Increase tree plantings on lots

Understand the scope of the challenge

- 14 Launch collaborative local air quality study



Air quality monitoring equipment

Credit: NYC Department of Health and Mental Hygiene

larly important for local policies. To gather this data, the Department of Health and Mental Hygiene (DOHMH) launched the New York City Community Air Survey (NYCCAS) in December 2008. NYCCAS is one of the largest local air quality studies ever conducted in a U.S. city, measuring the variation in concentrations of street-level pollutants at 150 locations during every season of the year, then modeling the degree of association between measured pollutant levels and factors such as distance from roads, truck traffic, and building density, and finally projecting the results throughout the city. By showing where air quality is better or worse, and identifying the most important local contributors to harmful air pollutants, NYC-CAS will help focus future efforts on the areas and sources that have the most direct impact on the air New Yorkers breathe.

PlaNYC's air quality improvement agenda is being implemented against a backdrop of federal regulations and other actions that should drive continued national improvements in air quality. U.S. Environmental Protection Agency (EPA) regulations on PM_{2.5}, NO₂, and SO₂ emissions from large fossil-fuel combustion sources are projected to reduce air pollution levels in the eastern U.S. The EPA also set stringent emissions standards for heavy duty trucks and buses and gasoline passenger vehicles while reducing the sulfur content of diesel fuel and gasoline. Many of these new emission standards and fuel sulfur restrictions have come into effect since the release of PlaNYC and, by the end of 2010, most will be fully implemented, which will significantly reduce pollution from the transportation sector and contribute to the improvement of New York City's air quality. Even with aggressive national action, however, it will take time for the City to achieve its PlaNYC goal.

Air Quality

OVERALL STATUS

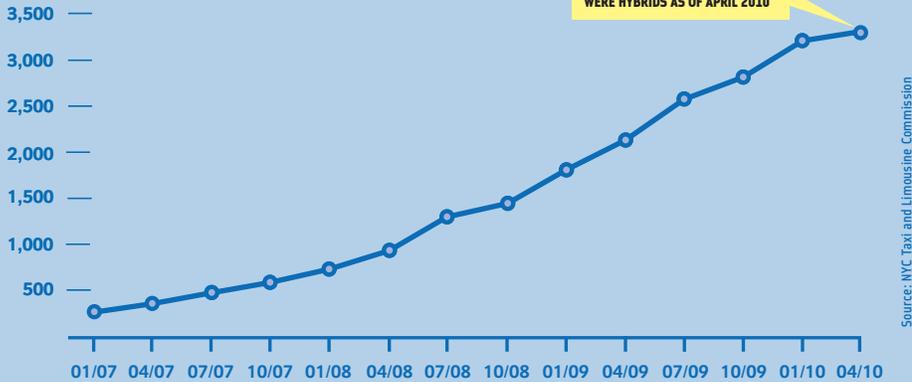
Enacted clean air school bus law, converted 25% of yellow taxi fleet to hybrids, switched 72 trucks from dirty diesel to hybrid electric or compressed natural gas, and released comprehensive local air quality report

New York City's overall air quality has improved in recent decades, but pollution levels are still high enough to harm people's health. In PlaNYC, the City set the goal of achieving the best air quality in any large American city. Since then, the City has made progress in measuring air quality, in legislating emissions reductions from school buses and for-hire cars, and in reducing pollution from ferries, private trucks, and construction vehicles. At the same time, fiscal constraints have slowed

or prevented the implementation of a number of initiatives aimed at reducing air pollution.

Prior to PlaNYC, a major obstacle to smart local air quality policies was the lack of data measuring the levels of air pollution occurring at street level. Pollution originating far from the city tends to impact air quality relatively evenly across the five boroughs, but local sources and their effect on air pollution vary across neighborhoods – making local data particu-

Number of Clean Air Taxis January 2007 – April 2010



One of New York City's hybrid taxis

Key Progress

The City's strategy to achieve the cleanest air quality of any U.S. city required a combination of administrative decisions, legislative action, and the development of better information to create policies that targeted the right pollution sources. To reduce vehicle pollution, the City Council passed legislation requiring all diesel-powered school buses to be retrofitted with cabin air pollution filters and lowered the retirement age for the oldest buses. In response to a federal court ruling against mandates and incentives for fuel efficient taxicabs, the City has supported legislation in Congress to amend federal law to allow local jurisdictions to regulate fuel economy and emissions standards for taxicabs and for-hire vehicles, and it is currently appealing the court's decision. NYCCAS also released the results of its winter air quality study, providing valuable local information on the sources of winter air pollutants.

Reduce road and vehicle emissions

While progress has been made on several fronts, the City has faced many challenges in cleaning up road vehicles and in securing the necessary funding to implement its initiatives. Though state legislators introduced PlaNYC's proposed legislation to exempt hybrid cars from sales tax, the legislature did not approve the bill in 2007 or 2008. In light of declining municipal and state revenues and an increase in hybrid vehicle sales, the City refocused its efforts on other clean vehicle initiatives, and did not resubmit the bill in 2009 or 2010.

Current fiscal constraints have hindered several initiatives to incentivize fuel efficient, hybrid or low-emission vehicles or to fund diesel retrofit technologies, which delayed implementation of several initiatives. In order to assist black car drivers in the replacement of their vehicles with

hybrids, for example, the City had developed a voluntary loan and loan-guarantee fund; however, the economic crisis of late 2008 eliminated some expected sources of funding; since then, the City has pursued the expansion of an existing Congestion Mitigation and Air Quality (CMAQ) grant to achieve the same goal, but it is unclear whether private loans will be available. State and federal budget issues have prevented the state from activating the CMAQ grants that would fund several City projects, leading to a delay in the full implementation of our initiative to retrofit privately-owned trucks. While most of the projects funded through the 2008 CMAQ solicitation were completed, with 72 trucks being converted to cleaner fuels, a few have been delayed because the Federal Highway Administration eliminated several million dollars in funds. Until the funding is restored, the next solicitation for these and additional projects has also been delayed.

Aside from funding challenges, the City has also encountered legal obstacles to reducing emissions from road vehicles. A federal court ruled that the City's attempts at setting fuel economy standards and offering financial incentives to increase the use of hybrid taxis were preempted by federal law. The City has appealed the ruling and has not only worked to pass federal legislation to improve vehicle fuel economy but also supported California's efforts to adopt greenhouse gas standards for vehicles. The Green Taxis Act of 2009, introduced by Senator Kirsten Gillibrand (NY) and House Representative Jerrold D. Nadler (NY), would amend both the federal Energy Policy and Conservation Act (EPCA) and the Clean Air Act (CAA) to allow local governments to regulate fuel economy and emissions standards for taxicabs and for-hire vehicles. Under the bill, local jurisdictions can only set standards if the vehicles are commercially available or are manufactured pursuant to a contract with a state or political subdivision. Even absent of a mandate,

however, almost 25 percent of the city's 13,237 yellow cabs are hybrid or clean diesel vehicles, giving New York the largest fleet of clean vehicle taxis in the country. These vehicles have proven themselves able to provide reliable service with dramatically lower emissions and fuel costs.

The City Council enacted Local Law 61 in 2009, allowing the Department of Education (DOE) to take the oldest and most polluting buses off city streets and reduce emissions from existing buses. Local Law 61 requires all diesel-powered school buses to be retrofitted with filters to keep pollution out of bus cabins by 2011 and lowers the retirement age of buses to 16 years starting in 2010. Older buses make up just 11 percent of the fleet but are responsible for a disproportionate amount of pollution. By requiring that replacement buses comply with the latest EPA emissions standards and protecting children and school bus drivers from diesel pollution inside of school buses, this law decreases air pollutant emissions and limits exposures in the city.

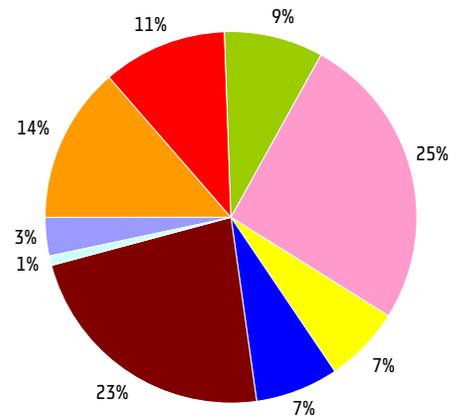
Reduce other transport emissions

To reduce other transportation emissions, PlaNYC contains initiatives to ensure that public and private ferries receive cleaner engines and pollution control equipment to achieve stricter emission standards. To date, the Staten Island Ferry service has undergone significant pollution reductions via upgrades and engine retrofits and the City fuels the ferries with Ultra Low Sulfur Diesel (ULSD), which contains no more than 15 parts per million of sulfur as a means of further reducing emissions from this sector. The switch to ULSD has produced immediate benefits to City residents with no operational problems, well in advance of the EPA's 2012 deadline for the use ULSD by ferries and similar vessels.



New York City PM_{2.5} Emissions Sources 2005

- HEATING FUEL
- POWER PLANTS
- ROAD
- NON-ROAD
- MISCELLANEOUS
- CONSTRUCTION
- COMMERCIAL COOKING
- INDUSTRIAL STATIONARY SOURCE FUEL COMBUSTION
- INDUSTRIAL OTHER



Values adjusted by NYC DOHMH to address inaccuracies for a number of source categories in New York City

Source: NYC Department of Health and Mental Hygiene

CASE STUDY: ELECTRIC VEHICLE ADOPTION STUDY

PlaNYC noted that in addition to using fewer automobiles, the city could also become more sustainable by promoting more efficient technologies, such as electric vehicles. Over the last year, the City conducted a robust market research study, in partnership with McKinsey & Company, to project which New Yorkers may first adopt this new technology and identify ways to facilitate adoption of electric vehicles in the short-term. The study found that there is a potentially large group of New Yorkers across all five boroughs who are willing to change their behavior to accommodate electric vehicles and become “early adopters.” Given limited manufacturer production capacity in the next few years, the study suggests that the City and other stakeholders focus on key first steps, such as educating consumers about the benefits and challenges of electric vehicles, facilitating the installation of charging infrastructure, and working with local utilities to plan for the impact these vehicles may have on our electrical grid. Notably, incentives such as curbside charging or local tax subsidies may not be necessary to attract demand in the next five years. In the coming months, the City will seek to formalize coordination between auto manufacturers, Consolidated Edison, and other partners to implement these next steps.

In PlaNYC, the City recognized the need to work with the Port Authority of New York and New Jersey (PANYNJ) to develop a clean air strategy for its port facilities. Over the past year the City, the PANYNJ, the EPA, the States of New York and New Jersey, and the industry participated in an unprecedented partnership to produce an actionable and transparent plan for reducing maritime emissions. In October 2009, the PANYNJ released its Clean Air Strategy, demonstrating that emission reductions are feasible and measurable. In March 2010, the EPA and the PANYNJ unveiled a comprehensive agreement that will cut harmful pollution from the East Coast’s busiest port by launching a \$28 million truck replacement program, partially funded by \$7 million from the American Recovery and Reinvestment Act to replace old trucks with vehicles that meet stricter pollution standards. The agreement, signed by a wide array of federal, state, and local partners, details the specific steps the partners will employ to reduce harmful diesel pollution from the Port of New York and New Jersey. The City also has obtained funding to install plug-ins for refrigerated containers at New York City’s marine terminals and other locations and is studying the feasibility of a hybrid-powered tug and ferry program.

Finally, the City amended its rules for selecting retrofit technology for construction equipment, allowing contractors to use a wider range of technologies that further eliminate pollution. In the upcoming year, the City will continue to analyze alternative approaches for reducing emissions from non-road vehicles and engines at construction sites that would not be preempted by state or federal law.

Reduce emissions from buildings

Buildings contribute significantly to the City’s local air pollution. Residual oil (#4 and #6) is the dirtiest fuel permitted to heat buildings and is used for that purpose in New York City more than anywhere else in the country. This is a sig-

nificant concern because, unlike other sources, boilers have emissions that are not regulated. Many boilers are inefficient, wastefully oversized and designed, and poorly maintained. The heating sector is also responsible for 14 percent of PM_{2.5} emissions within the city while NYCCAS winter 2008-09 monitoring indicated that SO₂ levels were 150 percent greater in areas of high, compared to low, density of residual oil burning units. These units are concentrated in densely populated neighborhoods, increasing exposure during the winter months. In addition, research suggests that high concentrations of metals such as nickel in emissions from residual oil burning may produce PM_{2.5} that is especially harmful.

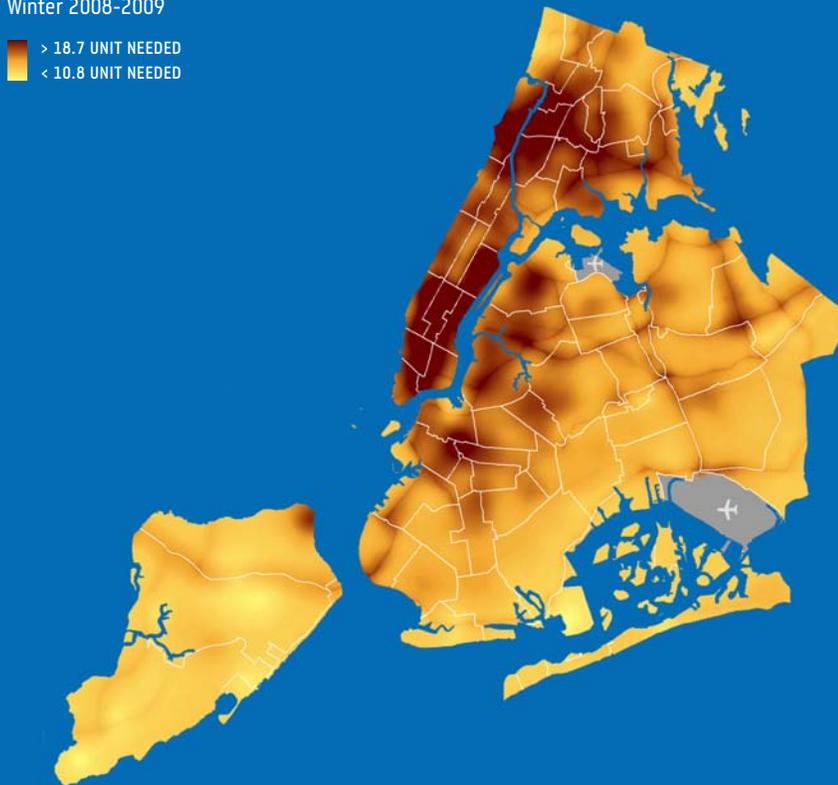
Roughly one-third of the City’s public schools rely on #4 and #6 fuel oils for heat and hot water. To lower costs and pollution, the City has made progress on a PlaNYC initiative to replace boilers in many schools with clean fuel systems starting with schools in neighborhoods with the highest asthma rates to maximize public health benefits. To date, the School Construction Authority (SCA) has completed boiler conversions at 3 schools and will have completed conversions at a total of 7 schools by June 2010. In addition, 25 school boiler conversion projects are underway and are either in construction or in design. The City’s replacement of old, dirty boilers with new, clean fuel, efficient models will lead to a 50 percent reduction in CO₂ and a 44 percent reduction in soot emissions at these locations.

To complement the boiler conversions, the Department of Education has begun installing fuel catalysts and economizers at 19 additional schools. Previous trials attained a minimum 5 percent decrease in fuel use at facilities equipped with boiler catalysts and a 17 percent to 62 percent decrease in fuel consumption at facilities equipped with economizers. In all trials, improved combustion led to less soot and other by-products, improving boiler performance and

Estimated PM_{2.5} Concentrations

Winter 2008-2009

> 18.7 UNIT NEEDED
< 10.8 UNIT NEEDED



Source: NYC Department of Health and Mental Hygiene



Boilers using residual oil #4 and #6 create emissions that release PM_{2.5} into the city's air

Credit: Isabelle Silverman/EDR

lowering maintenance costs. These will reduce the City's fuel costs and proportionally reduce emissions of greenhouse gases and criteria air pollutants as fuel not burned is pollution not emitted. Securing funding is a significant challenge to replacing schools boilers; however, the City continues to seek funding in order to realize this environmental and public health priority.

Pursue natural solutions to improve air quality

DPR identified six Trees for Public Health (TPH) Neighborhoods: Far Rockaway, East Harlem, Morrisania, East New York, Stapleton, and Hunts Point. These neighborhoods were selected because they have fewer than average street trees and higher than average rates of asthma among young people. It is believed that additional trees in these neighborhoods will reduce the pollutants that trigger respiratory disorders. The goal is to completely green these neighborhoods with newly planted trees on both public and private land. Since the initiative started, the City has fully stocked East Harlem, Far Rockaway, Stapleton, and Morrisania with street trees. To date, 10,368 street trees have been planted in TPH neighborhoods.

Understand the scope of the challenge

Neighborhood groups, environmental organizations, and New York City residents have long been concerned about neighborhood disparities in air quality. To understand actual air quality conditions at street level in a systematic way, PlaNYC proposed a citywide monitoring effort. DOHMH launched the New York City Community Air Quality Survey (NYCCAS) in late 2008 and released the first report describing wintertime air pollution in 2009. The report documented large geographic differences in the concentration of PM_{2.5}, NO₂, and elemental carbon, and offered counterintuitive findings that suggested that many high-income neighborhoods in the city suffer from some of the city's worst street-level pollution. Further, it identified the main drivers of street-level air pollution in the winter to be high traffic volume and the use of residual fuel by buildings.

Observations on Progress

PlaNYC has achieved significant progress on air quality, but the City is still far from achieving the goal of the cleanest air of any large city. Economic conditions have affected the availability of funding to undertake emission reduction strategies – particularly those that do not rely on fuel savings that create self-funding paybacks. As a result, the City has focused on self-funding

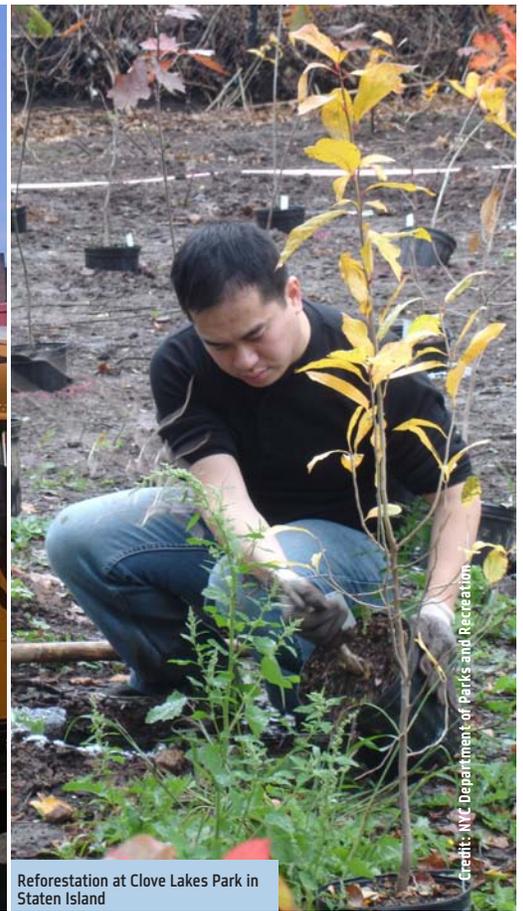
and applications for grants to undertake retrofit projects – ranging from school bus retrofits to electrification stations for refrigerated trucks at Hunts Point Produce Market, to engine upgrades in private ferries. However, it is likely that grant applications are not a robust approach to achieve reliable, strategic emissions reductions. Either more self-funding, savings-based strategies are necessary, or a stable, dedicated funding source must be identified.

PlaNYC largely focused on PM_{2.5}, as it remains the most important criteria pollutant with respect to public health, while still recognizing other types of emissions in the air. However, recent proposed changes in the national regulatory standards for certain criteria pollutants such as NO₂ and SO₂ have made it clear that these and other pollutants may require greater attention. The City was already in non-attainment of national ozone standards when the EPA adopted tighter standards for ozone in March 2008, leading the number of people living in non-attainment areas to nearly double nationally. Similarly, the City will likely be in non-attainment of pending national NO₂ and SO₂ standards. Proposed standards for these pollutants include new limits on peak levels (1-hour) that often occur near sources and may be more sensitive to local initiatives and control strategies. As a result, targeting important neighborhood-level factors, as revealed by NYCCAS, will be even more critical.



Local Law 61 removes the oldest and most polluting school buses from the streets

Credit: Carlos M. Jusiner/WEACT



Reforestation at Clove Lakes Park in Staten Island

Credit: NYC Department of Parks and Recreation

Similarly, it is increasingly clear that areas outside PlaNYC's original focus are important. The City's recent initiatives have not addressed emissions from commercial cooking operations, which state inventory estimates have suggested may significantly contribute to PM_{2.5} emissions in New York City. The City's Air Code has not undergone a comprehensive overhaul and revision since 1975, having been revised in a sporadic and piecemeal manner over the years. Above all, with much of our local air pollution – including over 50 percent of PM_{2.5} – originating from sources outside the city, national air quality policy affects New York City's local quality of life directly.

As the City's PlaNYC framework evolves, it is critical to develop accurate emissions inventories to identify the most significant opportunities to reduce air pollution and to establish a baseline against which to measure progress. Increasing evidence suggests that several pollution sources are far more important than existing national information suggests. EPA's National Emissions Inventory (NEI) and the New York State Department of Environmental Conservation's (NYSDEC) emissions inventory provide for each county an estimate of the emissions of air pollutants, including PM₁₀, PM_{2.5}, NO₂, SO₂, carbon monoxide (CO),

and volatile organic compounds (VOCs) from various sources. Although comprehensive and useful for identifying emissions across the state and nationally, these inventories include potentially inaccurate estimates at the county level and for New York City in particular. Emissions estimates are commonly derived from pro-rata adjustments of state level data and can mischaracterize emissions in the city due to operational and economic differences between the city and the rest of the state. Mobile source inventories rely on models to estimate emissions from general sources of information, a methodology that includes a significant amount of uncertainty. As with the lack of street-level air quality data prior to NYCCAS, these data gaps prevent the most focused targeting of emissions sources and emission reduction strategies that would have the biggest impact at the lowest cost.

Next Steps

Over the next year, the City will continue urging Congress to enact the green taxis law, installing pollution controls on school buses, and finish upgrades to the engines of the Staten Island Ferry fleet. The most important area of focus over the coming year will be in heating oil. Since early

2009, the City has been in discussions with stakeholders about approaches to reduce the emissions from heating oil – particularly the disproportionately high emissions from the 9,896 buildings that burn the highly polluting residual oil.

Over the next year, the City will continue to develop a clear, fact-based framework for its air quality initiatives, including a more comprehensive inventory of air pollution sources by refining future versions of the NEI to better identify the major sources of pollution affecting New York City and to prioritize interventions. The City will continue collecting local data via NYCCAS monitoring and develop appropriate indicators to assess status and progress toward its air quality goal. The City will track indicators related to ambient concentrations of PM_{2.5} measured at monitors within the City limits and compare the City to the National Ambient Air Quality Standards and to levels in other large U.S. cities. In striving toward the PlaNYC goal, the City will also consider other criteria pollutants, such as NO₂, SO₂, and O₃, as critical pieces of a comprehensive air quality strategy to decrease emissions and increase compliance with existing laws and regulations.

Air Quality Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	CAPTURE THE AIR QUALITY BENEFITS OF OUR TRANSPORTATION PLAN (SEE TRANSPORTATION INITIATIVES, PAGE 47-48)			
2	IMPROVE FUEL EFFICIENCY OF PRIVATE CARS			
	Waive New York City's sales tax on the cleanest, most efficient vehicles	State Senator Lanza and Assemblyman Espaillat introduced the hybrid sales tax legislation in 2007; however, the state legislature did not approve the bills. Given declining municipal and state revenues and an increase in the market share of hybrid vehicles, the City has since refocused its efforts on other clean vehicle initiatives.	Offer incentive	Reconsidered
	Work with the MTA, the Port Authority, and the State DOT to promote hybrid and other clean vehicles	Absent congestion pricing, there is no mechanism to provide preferential pricing for fuel-efficient, low-emission vehicles. However, the City has supported national legislation to improve vehicle fuel economy and California's efforts to adopt greenhouse gas standards for vehicles.	Release assessment of policy options and begin implementation	Not Yet Achieved (State or Fed Inaction)
	Pilot new technologies and fuels, including hydrogen and plug-in hybrid vehicles	Hydrogen fuel stations were built at John F. Kennedy Airport and at a DSNY garage and are operational. GM has provided two fuel cell vehicles and Toyota will also provide vehicles. Plug-in hybrid vehicles due in 2010. Fuel-cell program is in operation.	Have an operational hydrogen station in New York City	Achieved
3	REDUCE EMISSIONS FROM TAXIS, BLACK CARS, AND FOR-HIRE VEHICLES			
	Reduce taxi and limousine idling	Because hybrid vehicles do not idle, the City was pursuing expanding an existing CMAQ grant for black car anti-idling technologies to include financing for the purchase of new hybrid vehicles. Although the funding program has been delayed as a result of the economic downturn, the City still plans to assist the black car industry make a shift to more fuel-efficient vehicles.	Equip participating yellow taxis and black cars with anti-idling equipment	Reconsidered
	Work with TLC and the taxicab industry to double the taxi fleet's efficiency	A Federal District Court ruling prohibited the City from mandating the use of cleaner taxis. In response, the TLC adopted lease cap modifications to offer financial incentives to increase the use of fuel efficient taxicabs, but these too were overruled in court. Green Taxis Act of 2009 introduced in Congress to allow cities to set standards for taxicabs and for-hire vehicles. Since 2007, 25% of the yellow taxi fleet have converted to hybrids voluntarily.	Work toward completing new standards for taxis	Not Yet Achieved
	Work with stakeholders to double the fuel efficiency of black cars and for-hire vehicles	Rules requiring hybrid black cars were imposed in 2008, but implementation has been delayed until creation of a financial assistance program for black car owners.	Work toward completing new standards for for-hire vehicles by 2010	Not Yet Achieved
4	REPLACE, RETROFIT, AND REFUEL DIESEL TRUCKS			
	Introduce biodiesel into the City's truck fleet, go beyond compliance with local laws, and further reduce emissions	DPR uses B20 biodiesel in all diesel vehicles and equipment and began piloting B50 blends. DSNY, DOT, and DEP use B5 on its diesel fleets while switching to B20 during the summer. Further, 100% of DOT, DPR, DEP, and DSNY diesel fueling stations dispense at least B5.	Dispense a biodiesel blend at all city-owned diesel fueling stations	Achieved
	Accelerate emissions reductions of private fleets through existing Congestion Mitigation and Air Quality (CMAQ) programs	In 2008, the City awarded \$6.7 million to 14 private fleets to convert to alternative fuels or to retrofit trucks with diesel particulate filters. Though some projects have been completed, and 72 trucks have been switched from dirty diesel to hybrid electric or compressed natural gas, the private fleet program has been on hold since 2009 given funding issues by state and federal agencies. The Federal Highway Administration's removal of several million dollars in funds from the CMAQ program prevented the State from activating the City's CMAQ grants. The City anticipates releasing new funds later this year.	Upgrade additional vehicles	Mostly Achieved (State or Fed Inaction)
	Work with stakeholders and the State to create incentives for the adoption of vehicle emission control and efficiency strategies	Despite ongoing discussions to identify funding mechanisms to create a state diesel retrofit fund, the state budget crisis impedes progress through 2010. However, in July 2009, the federal government awarded \$17 million for diesel reduction projects across the state via the American Recovery and Reinvestment Act, including \$2 million to retrofit construction equipment used at Columbia University, and \$2.86 million to support the installation of the first shore power system on the East Coast at the Brooklyn Cruise Terminal. An EPA request for proposals was released in fall 2009 from the Diesel Emissions Reduction Act program, and the City submitted applications totaling \$6 million for diesel projects across the city. Awards are anticipated in 2010.	Draft proposed parameters of fund	Not Yet Achieved
	Improve compliance of existing anti-idling laws through targeted educational campaign	The City launched a public education campaign to increase issue awareness, generating over 194.6 million media impressions among New Yorkers. There was an 111% increase in the number of 311 calls related to idling during the peak of the campaign. The City adopted rules that enable 2,300 TEAs to issue tickets for idling violations.	Launch anti-idling campaign	Achieved
5	DECREASE SCHOOL BUS EMISSIONS			
	Retrofit both large and small school buses and reduce their required retirement age	The City was awarded \$7.6 million in CMAQ funds to install diesel particulate filters on the school bus fleet starting in 2009. However, the implementation of the retrofit contract was delayed by several unanticipated procurement issues, and completion is expected in 2011. Still, the City enacted a mandatory retirement age for all school buses and a requirement that cabin air pollution filters be installed in all school buses.	Begin retrofits on smaller school buses	Mostly Achieved
6	RETROFIT FERRIES AND PROMOTE USE OF CLEANER FUELS			
	Retrofit the Staten Island Ferry fleet to reduce emissions	Three ferries received cleaner engines and one vessel was retrofitted with an emissions reduction system. Four remaining vessels are still in the process of receiving engine upgrades or pollution reduction technology and are scheduled to be completed in 2011.	Complete engine upgrades to Staten Island Ferry fleet	Mostly Achieved

Air Quality Progress (Continued)

INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
Work with private ferries to reduce their emissions	The City is encouraging ultra low sulfur diesel (ULSD) fuel use in private ferries. The City received Federal Transit Administration grants to install custom-built pollution catalysts, which have been successfully installed on two vessels in 2009. In 2010, eight vessels will receive new, cleaner engines. Legislation covering private ferries failed to be agreed upon by the City Council and the industry. The City continues to partner with ferry companies to raise funds to retrofit private ferries.	Install diesel oxidation catalysts (DOCs) in ferries; pass legislation promoting the use of ULSD	Not Yet Achieved
7 PARTNER WITH THE PORT AUTHORITY TO REDUCE EMISSIONS FROM PORT FACILITIES			
Seek to work with the Port Authority (PANYNJ) to reduce emissions from its marine vehicles, port facilities, and airports	The City, PANYNJ, EPA, the States of New York and New Jersey, and industry took part in an unprecedented partnership to produce an actionable and transparent plan for reducing maritime emissions in the New York/New Jersey harbor, the East Coast's busiest port. The resulting Clean Air Strategy was released in October 2009, and in March 2010, the states launched a \$28 million truck replacement program to replace old trucks with vehicles that meet stricter pollution standards.	Begin creating a plan	Achieved
8 REDUCE EMISSIONS FROM CONSTRUCTION VEHICLES			
Accelerate adoption of technologies to reduce construction-related emissions	The City amended its rules for selecting Best Available Technology for construction equipment, allowing contractors to use a wider range of technologies that further eliminate pollution. DEP's Croton water filtration plant contract specifies the LL 77 requirements and used best available technologies (BATs) and ULSD fuel even before it was required. The contract for DEP's Catskill/Delaware UV Facility in Valhalla, New York includes similar provisions.	Require, through contracts, applicable on-road vehicles used in city construction projects to follow requirements of Local Law 77	Not Yet Achieved
9 CAPTURE THE AIR QUALITY BENEFITS OF OUR ENERGY PLAN (SEE ENERGY INITIATIVES, PAGE 58-59)			
10 PROMOTE THE USE OF CLEANER-BURNING HEATING FUELS			
Lower the maximum sulfur content in heating fuel from 2,000 parts per million (ppm) to 500 ppm	Because NYSDEC regulatory action to amend the state code to reduce the sulfur content in #2 heating oil did not take place, the City is actively supporting state legislation that would achieve this goal. However, a vote on the bill by the state legislature keeps being delayed. In the meantime, the City is developing regulations to reduce emissions from heating oil – particularly the disproportionately high emissions from buildings that burn the highly polluting residual oil.	Draft new sulfur content requirements for State Code	Reconsidered (State or Fed Inaction)
Reduce emissions from boilers in 100 City public schools	The SCA has completed boiler conversions at three schools to date and will convert the boilers in a total of seven schools by June 2010. Conversion projects at eleven school sites are in construction and fourteen are in design. The City and DOE also began installation of fuel catalysts and economizers at schools with #4 and #6 oil to reduce fuel consumption.	Begin replacing boilers	Achieved
11 CAPTURE THE AIR QUALITY BENEFITS OF OUR OPEN SPACE PLAN (SEE OPEN SPACE INITIATIVES, PAGE 22)			
12 REFOREST TARGETED AREAS OF OUR PARKLAND			
Reforest 2,000 acres of parkland	With the close of fall 2009, reforestation tree plantings exceeded 165,000. Many plantings have focused on large reforestation areas in the following parks: Kissena Corridor and Alley Pond Park, Queens, Pelham Bay and Riverdale Park, the Bronx, Canarsie and Marine Park, Brooklyn, Clove Lakes and the Greenbelt, Staten Island. The City also partnered with NYSDEC and the National Park Service for several plantings on state and federal properties.	Begin reforesting 2,000 acres of parkland	Achieved
13 INCREASE TREE PLANTINGS ON LOTS			
Partner with stakeholders to help plant one million trees by 2017	By the end of spring 2010, MillionTreesNYC will plant 350,000 trees across the city. Working with the New York Restoration Project and other partners, MillionTreesNYC has led an aggressive outreach campaign to have more trees planted on private property—including homeowner tree giveaways in targeted neighborhoods through the Put Down Roots program.	Launch partnership and begin planting trees	Achieved
14 LAUNCH COLLABORATIVE LOCAL AIR QUALITY STUDY			
Monitor and model neighborhood-level air quality across New York City	In December 2009, DOHMH, Queens College, and the Mayor's Office released the first report of their comprehensive survey of street-level air quality in New York City. The survey reveals wide variations in wintertime air quality across the City and is available at www.nyc.gov/health/nyccas .	Launch Study	Achieved

Air Quality Sustainability Indicators

The air quality goal of PlaNYC is to achieve the cleanest air of any big city in America. To measure whether the City is meeting this goal, it tracks the average concentration of particulate matter (PM_{2.5}) in the atmosphere and compares that measurement to other cities in the United States with populations greater than one million.

Three-Year Average of PM_{2.5}

To measure whether the City is achieving the cleanest air of any big city in America, it is tracking the levels of particulate matter less than 2.5 micrometers in diameter (PM_{2.5}) within its atmosphere. Particulate matter pollution is a complex mixture of very small solids and droplets suspended in air. Some particles are produced directly by vehicles, power plants, and other sources that burn fuel. Others are formed in the atmosphere when pollutants react with sunlight.

The City has a goal of decreasing the amount of PM_{2.5} in the atmosphere. In order to remove year-to-year statistical noise that may arise because of changes in weather or other factors, the City is tracking a three-year rolling average of concentrations of the pollutant.

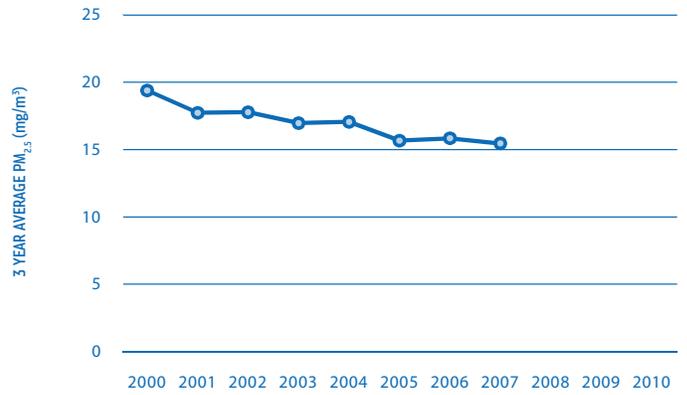
Monitoring is coordinated by the Department of Health and Mental Hygiene (DOHMH).

City Ranking

The City also tracks how its rate of PM_{2.5} compares to other cities in order to determine whether it is achieving the cleanest air of any big city in America. Using the same three-year rolling average, the City compares itself to eight other large cities with more than one million people.

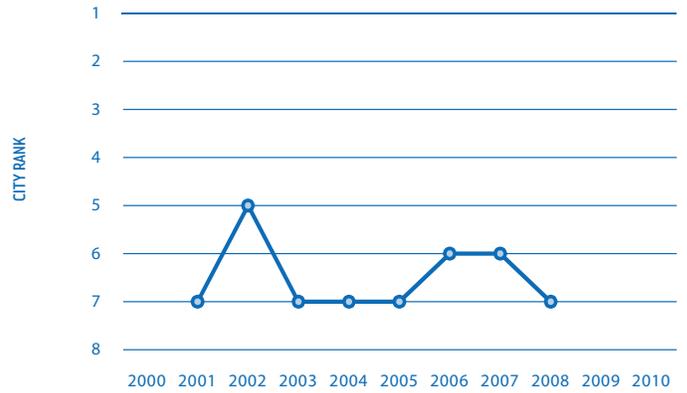
Although the City seeks to be ranked first in air quality (and thus last in terms of PM_{2.5} concentrations), its ranking has stayed fairly steady from year to year. Although it realized modest improvements, many peer cities have enjoyed similar reductions. Data from other cities is obtained from the U.S. Environmental Protection Agency.

Three-Year Annual Average of PM_{2.5}



Source: NYC Department of Health and Mental Hygiene

Ranking of New York City in Air Quality among Eight Largest U.S. Cities*



Source: NYC Department of Health and Mental Hygiene

* #1 indicates the cleanest air out of all cities



Reduce global warming emissions by more than 30%

Climate change poses real and significant risks to New York City. While PlaNYC has ambitious goals to reduce the city's greenhouse gas emissions by 30 percent by 2030, it is expected that some of the impacts of climate change will be felt regardless of the city's ability to reduce its emissions—including hotter temperatures, increased precipitation, and rising sea levels, as well as more frequent and intense extreme weather events (i.e. heat waves, intense rainstorms, and storm surges). These impacts can be decreased by reducing the city's emissions, but they cannot be avoided. Adapting to climate change and increasing our climate resilience not only ensures the city's long-term economic vitality, but it will encourage public and private investments in the city's infrastructure, support green jobs, and improve the quality of life and level of service enjoyed by New Yorkers today.

- 1 Create an intergovernmental Task Force to protect our city's vital infrastructure
- 2 Work with vulnerable neighborhoods to develop site-specific strategies
- 3 Launch a citywide strategic planning process for climate change adaptation

Climate Change

OVERALL STATUS

Put in place initiatives to achieve a 21% reduction in emissions, developed city's first official climate change projections, and completed assessment of climate change impacts on infrastructure

New York City has made significant progress toward achieving the goal of a 30 percent reduction in greenhouse gas (GHG) emissions by 2030. Citywide carbon emissions decreased 3.5 percent in 2008 compared to 2007; since 2005, they have declined 9 percent, falling from 58.6 to 53.3 million metric tons of carbon dioxide equivalent. Adjusted for weather—a key driver of annual variations in energy consumption—the total decline was 4.4 percent. At this pace, the City is on track to achieve its 2030 emissions reduction goal (using data from the most recent carbon inventory for New York City, which covers citywide emissions for calendar year 2008 and municipal emissions for both calendar year and fiscal year 2008).

Several factors contributed to the decrease in citywide carbon emissions in 2008, including milder weather, new efficient in-city electricity generation, increased importation of cleaner

electricity, a decrease in total per capita energy consumption, and decreased fugitive sulfur hexafluoride (SF₆) emissions. Of all these factors, perhaps the most important is that per capita total energy consumption declined for the first time in recent years—New Yorkers themselves are beginning to get more efficient. The decrease in emissions was achieved despite increases in population and building floor area.

In October 2007, Mayor Bloomberg signed Executive Order 109, which mandated even more aggressive GHG reductions for municipal facilities and operations of 30 percent below fiscal year (FY) 2006 levels by 2017. This effort is mainly overseen by the Department of Citywide Administrative Services (DCAS), which in 2009 created a new unit, the Division of Energy Management, to run this program. GHG emissions from municipal operations and facilities

decreased 2.6 percent in FY 2008 compared to FY 2007, from 3.86 to 3.76 MMTCO₂e. While FY 2008 municipal GHG emissions were 2.1 percent above the FY 2006 base year levels, this increase is largely reflective of the significant increase in municipal GHG emissions from FY 2006 to FY 2007.

Citywide and municipal GHG emissions reductions that have already been achieved and those expected through ongoing and proposed initiatives are due to action at the City, state, and federal level. Details of these initiatives are presented at the end of this chapter. Because most PlaNYC initiatives have some impact on reducing GHG emissions, other sections of this document detail those initiatives.

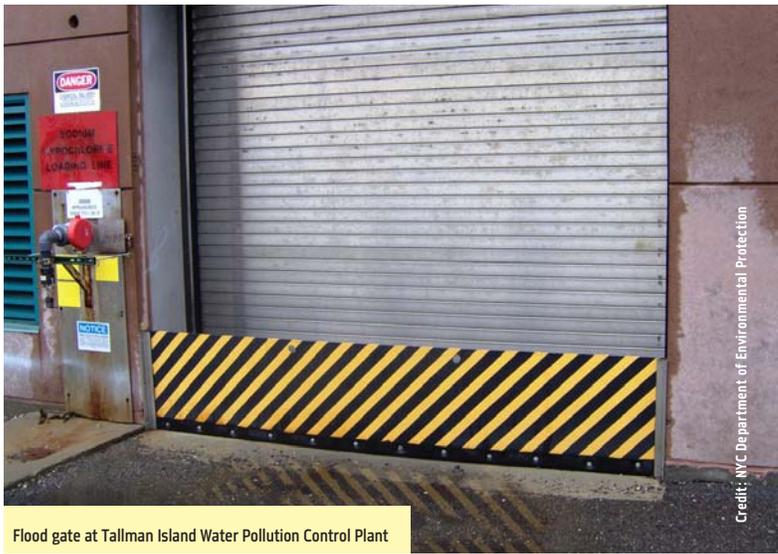
Adapting to Climate Change

While the City is taking aggressive action to reduce greenhouse gas emissions, scientific evidence is irrefutable that even if emissions are cut, some level of climate change is inevitable. Greenhouse gas mitigation efforts can reduce the severity of future climate change, but they cannot prevent it from occurring. As a result, the city must not only decrease carbon emissions, but increase its climate resilience—the ability to withstand changes in climate, including more frequent and intense severe weather events.

Key Progress

PlaNYC outlines a three-staged approach to increase the city's climate resilience. The first need is the development of an understanding of how climate change is likely to affect the city. Second, this information would be used to conduct a technical assessment of the potential impacts of climate change on critical infrastructure. The results of this effort would identify those actions that individual entities could take to increase their climate resilience and those that are beyond the scope of individual actors or sectors. Third, the planning efforts would be expanded beyond infrastructure to all potential impacts to develop a comprehensive strategy to increase the city's overall climate resilience.

Through the work of the New York City Panel on Climate Change (NPCC), which is made up of leading experts in climate science, social sciences, economics, risk management, and law, the City developed the first official New York City-specific climate change projections. The NPCC projected that by the end of the century New York City's mean annual temperatures will



Flood gate at Tallman Island Water Pollution Control Plant

Credit: NYC Department of Environmental Protection



Mayor Bloomberg, Wisconsin Governor Jim Doyle, and White House Council on Environmental Quality Chair Nancy Sutley speak at a panel during the UN Climate Change Conference in Copenhagen

Credit: NYC Mayor's Office

increase by 4 to 7.5 degrees Fahrenheit. Annual precipitation is also projected to increase by five to ten percent and sea levels are projected to rise by 12 to 23 inches. However, recent evidence, including accelerated ice melt in Greenland and Antarctica, suggests that sea levels could rise at a faster rate than projected by the existing models—potentially by 41 to 55 inches by the end of the century. While this “rapid ice-melt” scenario does not have the same level of confidence associated with it as those developed by the global climate models, it was included in the NPCC’s projections, given the large impact it would have on the city should it occur. The NPCC also projects that extreme events—such as heat waves, short periods of intense rain, droughts, and coastal flooding—are likely to become more frequent and more intense. These projections, as well as the complete findings of the NPCC and tools to assist in climate resilience planning, were published by the New York Academy of Science in its 2009 Annals.

Create an Intergovernmental Task Force to protect our city’s vital infrastructure

In 2008, the City launched the New York City Climate Change Adaptation Task Force, which was the first effort of its kind to include public and private sector members, to conduct a technical assessment of the impacts of climate change of the city’s critical infrastructure. The Task Force, which consists of 40 city, state, federal, and private sector infrastructure operators and regulators, used the NPCC’s projections to identify over 100 types of infrastructure that could be impacted by climate change. The results of this assessment, which is completed, are being used by Task Force members to develop coordinated actions to increase the climate resilience of the city’s critical infrastructure. The Task Force’s report, which will detail these impacts and strategies, will be released later this year.

The City has already begun to take steps to increase the resilience of its infrastructure. Following the release of its Climate Change Assessment and Action Plan in 2008, the Department of Environmental Protection (DEP) is raising critical equipment at its Rockaway water pollution control plant, from the basement to elevations above projected flood levels. This will ensure that the facility can operate during, or quickly recover from, a flood event. In addition, DEP installed movable flood gates on its Tallman Island facility in Queens to prevent flooding from intense precipitation events.

Work with vulnerable neighborhoods to develop site-specific strategies

One of the challenges faced in developing strategies to address climate change is quantifying the risks that New Yorkers face and clearly communicating this information to enable effective planning. In 2008, the City held five pilot workshops on climate change adaptation in partnership with local community-based organizations in vulnerable communities. Further work on this effort was put on hold until the NPCC and Task Force completed their work. The NPCC and Task Force have provided a greater understanding of the changes to the climate likely to occur and the impacts of these changes on the city’s critical infrastructure. This information will be used to inform a comprehensive and inclusive planning process.

Launch a citywide strategic-planning process for climate change adaptation

Climate change will have significant and far-reaching impacts beyond critical infrastructure. To understand the risks associated with sea level rise and coastal storms, the City is acquiring high-resolution Light Detection and Ranging (LiDAR) data for New York City. This information, which is the most accurate data of this kind collected for a municipality, could be used as the

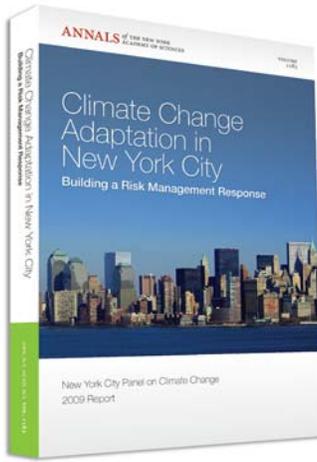
basis for new Federal Emergency Management Agency (FEMA) flood maps for the City. These maps would be more accurate than current maps and take into account recent sea level rise. The Green Codes Task Force also included several recommendations to increase the climate resilience of buildings as part of its final report to the City.

These efforts will help shape a citywide strategic planning process for climate resilience that would extend beyond infrastructure and explore the need for non-structural and structural city-wide protective measures. Given the scope and complexity of the work of the Task Force, the scoping of this process has not yet occurred and will take place later this year.

Observations on Progress

The City’s work on climate change has already yielded significant insights. The most important is the recognition that climate risk is a factor that New York City already faces, and current practices are a guide for how to deal with future climate change. Already, New York experiences heat waves that cause health problems; snowstorms that cause power failures; nor’easters that cause flooding. The city can and should be protected against some of these risks, but it is not feasible, or even possible, to protect New York City against all the climate risks our infrastructure faces. Some impacts are frequent but minor, so that the cost of protecting against them would be more expensive than their cumulative impact. Others are so significant—like a major snow storm—that they are impossible to fully protect against. In these cases, what matters is resilience: the ability to prepare for, operate during, and respond to a climate event in ways that minimize disruption.

As the climate changes, the frequency and intensity of these events are likely to increase; as a result, improving the city’s resilience to these



The forthcoming final report of the New York City Panel on Climate Change

Credit: New York Academy of Sciences



Chillers like this one at the 6th police precinct in Manhattan will help the City conserve energy and reduce carbon emissions

Credit: NYC Department of Citywide Administrative Services

events will become even more necessary. The City's goal cannot be to create a "climate proof" city, but to reduce the impacts of current or short-term risks while constantly incorporating the best science into planning that can help minimize long-term risks. Therefore, the need is to incorporate the concept of climate resilience into all capital, operational, maintenance, land use, emergency management, and resource planning processes, so that climate resilience is not a stand-alone planning process.

A critical factor in developing climate resilience will be ensuring that the risk of flooding in New York is fully understood, both today and in the future when sea levels are expected to rise. The city's flood maps, as designated by FEMA, are out of date and based on data with a high margin of error. Updating the FEMA Flood Insurance Rate Maps (FIRMs) is critical as buildings and projects within the FEMA-designated flood zones may be subject to additional requirements in addition to purchasing federal flood insurance to mitigate the impacts of flooding. The LiDAR data being acquired by the City is a critical first step in this process and will provide the city with numerous other potential applications.

Next Steps

This year, the City will work with the Climate Change Adaptation Task Force to complete its report and to identify impacts that are beyond the ability of individual entities to address. This information will create the base for a citywide strategic planning process to look beyond infrastructure to the risks associated with climate change for the city and its residents. A key component of this is the economic impacts associated with climate change and a cost-benefit analysis of potential adaptation strategies. The City will also continue to work with FEMA to update its FEMA flood maps.

CASE STUDY: 30 x 17

In October 2007, Mayor Bloomberg signed Executive Order 109, which mandated a 30 percent GHG reduction for municipal facilities and operations below FY 2006 (July 1, 2005 to June 30, 2006) levels by 2017. To meet this goal, the City developed the Long-Term Plan to Reduce Energy Consumption and Greenhouse Gas Emissions of Municipal Buildings and Operations (the "Long-Term Plan"), which was released in July 2008. In FY 2008, the most recent year for which data is available, GHG emissions from municipal operations and facilities decreased 2.6 percent compared to FY 2007, from 3.86 to 3.76 MMTCO₂e.

The City's municipal emissions dropped due to the increased importation of cleaner electricity, reductions in electricity and heating fuel consumption, reduced fugitive methane leaks from wastewater treatment plants and landfills, and a decrease in transportation emissions. While the rate of emissions reduction is not yet that which is necessary to achieve a 30 percent reduction by 2017, the Long-Term Plan was not completed until July 2008, after the fiscal year was over, and results from the first year's projects will begin to be seen in the 2010 GHG inventory.

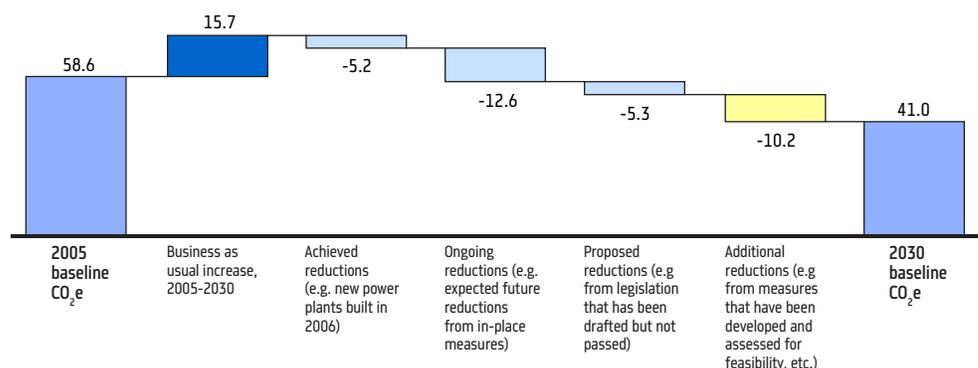
To meet the municipal emissions reduction goal, the Division of Energy Management was created to oversee the implementation of the Long-Term Plan. Approximately \$280 million has been allocated from FY08 to FY10 to meet the 2017 goal, with the majority of funds going toward energy efficiency retrofits. Over 200 projects have been initiated as part of this effort, over 80 of which have been completed. The completed projects cost \$16 million and will pay for themselves within seven years by saving the City \$3 million a year in reduced electricity, natural gas, and fuel oil bills while eliminating an estimated 10,700 MTCO₂e annually.

An additional 118 projects, currently in the pipeline, will save the City an additional \$29 million a year and reduce annual GHG emissions by an estimated 117,000 MTCO₂e. In addition, the Department of Education completed energy benchmark studies for all of its 1,300 buildings and DCAS is currently benchmarking the City's other 3,000 buildings that are 10,000 square feet or larger. The City is also moving forward with plans to support more energy efficient building operations and preventative maintenance, including greater use of metering and monitoring facilities' energy consumption.

In only three years, measures are in place or have been proposed that will achieve more than two-thirds of the greenhouse gas emissions reductions laid out in PlaNYC

The City and its partners have already put in place measures that will reduce the city's greenhouse gas (GHG) emissions from its power supply, building energy demand, and transportation sectors. Without these measures, New York City's GHG emissions would have risen to almost 75 million metric tons of CO₂e by 2030. If all ongoing and proposed measures are completed, the City will have achieved more than two-thirds of its goal by 2030. Additional measures in PlaNYC—such as increased energy efficiency standards and renewable energy sources—will bring the City the rest of the way to its goal.

SUMMARY OF GHG EMISSIONS REDUCTION PROGRESS (MMTCO₂e)



SUMMARY OF GHG EMISSIONS REDUCTION PROGRESS (MMTCO ₂ e)	
2005 baseline	58.60
2030 business as usual forecast (0.95% increase per year)	74.29
30% below 2005 baseline reduction target	41.02
Total reductions needed	33.26
City reductions	14.63
State reductions	3.21
Federal reductions	5.23
Total reductions achieved, ongoing, or proposed	23.07
Percent of 2030 CO₂e emission reduction target achieved, ongoing, or proposed.	69%

Progress Toward 30% GHG Reduction by 2030 (million metric tons CO₂e)

POLICY	CO ₂ e REDUCTIONS			
	ACHIEVED	ONGOING	PROPOSED	ADDITIONAL
SUPPLY				
City				
NYPA Astoria Combined Cycle and SUEZ Energy Astoria I power plants	1.18			
Suez Energy Astoria II power plant		0.38		
Decommissioning of NYPA Poletti power plant	0.40			
Increased importation of cleaner power*	2.51			
Improved efficiency in steam generation	0.45			
Solar Request for Proposals (RFP) and solar panel tax abatement		0.02		
Phase out of #6 heating oil			0.21	
Offshore wind collaborative			0.43	
SUBTOTAL OF SUPPLY	4.53	0.40	0.64	5.08
DEMAND (BUILDINGS)				
City				
NYC government 30% by 2017 plan	0.12	1.00		
University Challenge		0.39		
Hospital Challenge		0.28		
Greener, Greater Buildings Plan laws		2.72		
Green Codes Task Force - existing buildings			1.68	
Green Codes Task Force - new buildings			1.70	
State				
Energy efficiency standards (ASHRAE 2001-2004)		1.07		
Energy efficiency standards (ASHRAE 2004-2007)			0.21	
System Benefit Charge (SBC)	0.19		0.66	
Energy Efficiency Portfolio Standard (EEPS)	0.13	0.95		
Federal				
Energy Independence and Security Act - lighting		1.32		
Energy Independence and Security Act - appliances		0.34		
SUBTOTAL OF DEMAND	0.44	8.06	4.25	3.32
Transportation				
City				
New York City government vehicle fleet		0.08		
Medallion and black car hybrids	0.07		0.39	
Solid Waste Management Plan	0.07	0.15		
Federal				
CAFE standards		3.57		
Subtotal of Transportation	0.14	3.81	0.39	1.79
Other				
City				
DEP methane reduction		0.26		
MillionTreesNYC campaign	0.05	0.11		
Subtotal of Other	0.05	0.36	-	-
TOTAL	5.16	12.63	5.27	10.20

* The completion of the Neptune transmission line between New Jersey and Long Island in 2008 allowed New York City to increase the amount of clean power it was able to import from upstate New York.

To achieve additional GHG reductions needed to reach the City's 30% carbon emissions reduction goal, other anticipated initiatives are anticipated, including:

- Repower power plants
- Continue to expand clean distributed generation/cogeneration
- Increase generation of renewable energy
- Expand Challenge to city's large energy users to match the City's 30 percent greenhouse gas reduction target
- Modernize the electricity grid infrastructure
- Reduce urban heat island effect
- Increase state-mandated funding for energy efficiency measures
- Expand peak load management efforts through use of smart meters and real-time pricing
- Increase federal energy efficiency standards for appliances
- Increase federal vehicle fuel economy standards (CAFE)
- Continue to promote transit-oriented development
- Further reduce traffic congestion by managing roads more efficiently
- Further expand access to mass transit for underserved areas
- Implement national and international greenhouse gas reduction regimes

Climate Change Progress

	INITIATIVE	PROGRESS SINCE APRIL 22, 2007	IMPLEMENTATION MILESTONE FOR DECEMBER 2009	2009 MILESTONE PROGRESS
1	CREATE AN INTERGOVERNMENTAL TASK FORCE TO PROTECT OUR CITY'S VITAL INFRASTRUCTURE			
	Expand our adaptation strategies beyond the protection of our water supply, sewer, and wastewater treatment systems to include all essential city infrastructure	The City launched the NYC Climate Change Adaptation Task Force in August 2008 to conduct a technical assessment of the potential impacts of climate change on the city's critical infrastructure and to develop coordinated strategies to increase the climate resilience of these assets. The Task Force, which consists of 40 City, state, and federal agencies and private companies, completed its assessment in 2009, identifying over 100 types of infrastructure that could be impacted by climate change and is in the process of developing resilience strategies. A report on the Task Force's efforts will be released later this year.	Complete an inventory of all at-risk infrastructure with a priority list of high-risk components	Achieved
2	WORK WITH VULNERABLE NEIGHBORHOODS TO DEVELOP SITE-SPECIFIC PROTECTION STRATEGIES			
	Create a community planning process and "toolkit" to engage all stakeholders in community-specific climate adaptation strategies	Five pilot workshops were held in each borough—in Sunset Park, Brooklyn; East Harlem, Manhattan; Broad Channel, Queens; the North Shore, Staten Island; and Hunts Point, the Bronx—in partnership with local community-based organizations. Given the scope and complexity of this effort and the need to coordinate with other climate resilience efforts, community climate adaptation planning will be integrated into the citywide strategic planning process.	Complete community planning toolkit and create a climate change adaptation plan with UPROSE	Not Yet Achieved
3	LAUNCH A CITYWIDE STRATEGIC PLANNING PROCESS FOR CLIMATE CHANGE ADAPTATION			
	Create a strategic planning process to adapt to climate change impacts	Due to the scope and complexity of the work of the NYC Climate Change Adaptation Task Force, the scoping process for creating a strategic planning process has not yet occurred. This delay will enable the comprehensive planning process to build upon the work and findings of the New York City Panel on Climate Change and the Task Force.	Release scoping study for a comprehensive climate adaptation planning process	Not Yet Achieved
	Ensure that New York's Federal Emergency Management Agency (FEMA) 100-year floodplain maps are updated	The City continues to work with FEMA to update its Flood Insurance Rate Maps (FIRMs) and has begun to collect new, highly-accurate Light Detection and Ranging (LiDAR) data for New York City, which would serve as the base for new FIRMs.	Complete remapping of NYC 100-year floodplain	Not Yet Achieved
	Document the City's floodplain management strategies to secure discounted flood insurance for New Yorkers	The City held discussions with FEMA and NYSDEC on the National Flood Insurance Program's (NFIP) Community Rating System (CRS) application. An analysis of the costs/benefits demonstrated the potential for minimal reductions in premiums; therefore, application efforts are on hold.	Complete application to FEMA	Reconsidered
	Amend the building code to address the impacts of climate change	The Green Codes Task Force, convened by the Mayor and City Council Speaker, completed a report with 111 recommendations to "green" the City's codes in February 2010. This report included 9 recommendations to increase the climate resilience of buildings.	Create a Task Force to evaluate necessary changes to the Building Code	Achieved

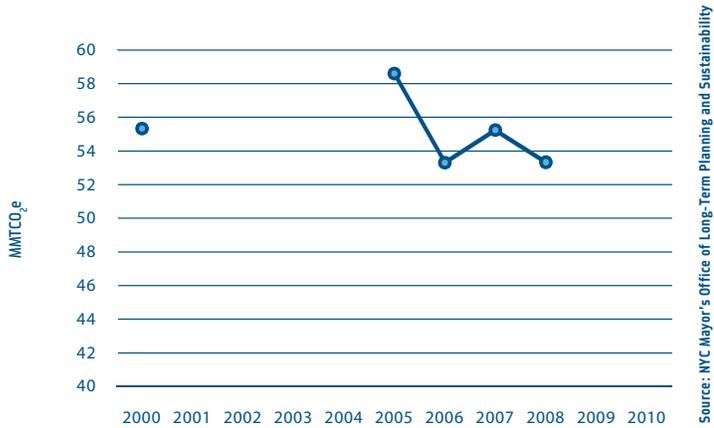
Climate Change Sustainability Indicators

The climate change goal of PlaNYC is to reduce emissions that lead to global warming by more than 30 percent below 2005 levels by 2030. To monitor progress toward this goal, the City is tracking its annual greenhouse gas emissions.

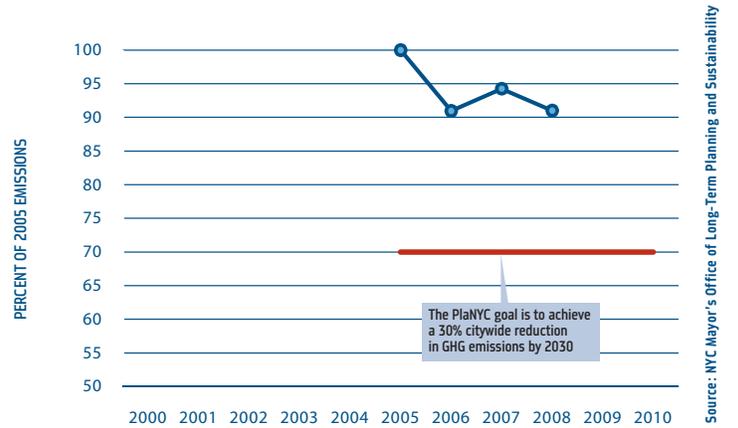
To measure whether the City is meeting its goal of reducing greenhouse gas emissions, it tracks emissions output on a yearly basis. In addition to monitoring greenhouse gas emissions, the City is also tracking emissions output per capita and per unit of Gross City Product (GCP) to ensure that it is growing sustainably.

The City has had success in meeting its reduction targets so far due to factors outside of its control, such as milder weather, as well as conscious actions such as reduced emissions from solid waste export and other entities such as building new in-city power plants. This overall reduction has led to a decline in the city's per capita GHG emissions, though the recent recession has stalled progress on reducing emissions on a per GCP basis.

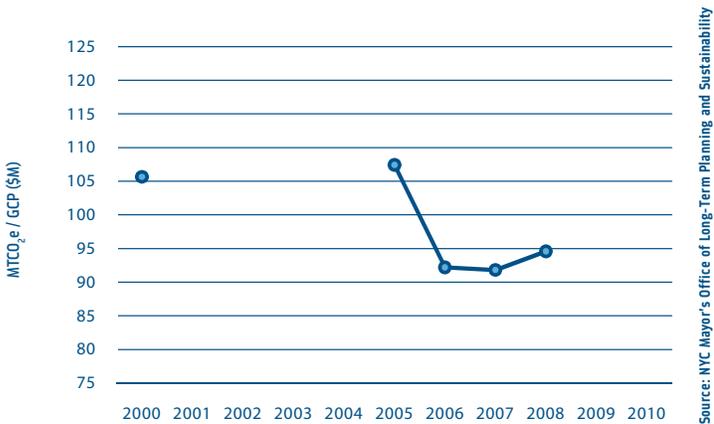
New York City Greenhouse Gas Emissions (MMTCO₂e)



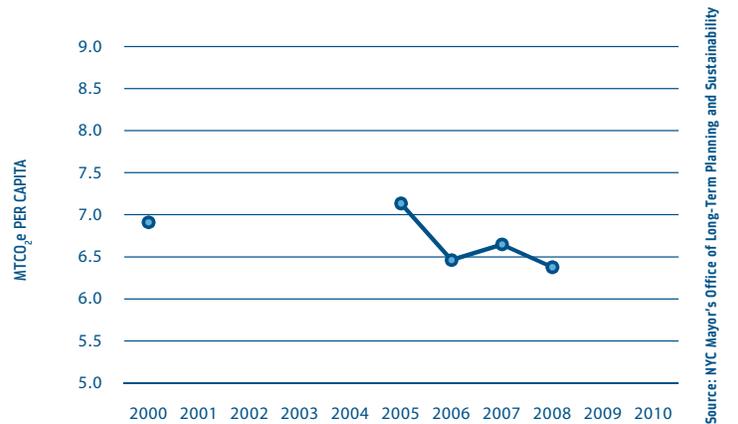
Reduction in New York City Greenhouse Gas Emissions From 2005



New York City Greenhouse Gas Emissions (MTCO₂e) Per GCP (\$M)



New York City Greenhouse Gas Emissions (MTCO₂e) Per Capita



GreeNYC is the public education campaign arm of PlaNYC. GreeNYC's mission is to encourage New Yorkers to adopt sustainable practices in their own daily lives – to complement the policy initiatives outlined in PlaNYC. Using strategic messaging and media through targeted public education campaigns, GreeNYC urges individuals and households to take actions that help meet the City's sustainability goals.

GreeNYC campaigns support a wide array of PlaNYC initiatives, ranging from air quality to energy efficiency to public transit. Since 2007, GreeNYC has run seasonal public awareness campaigns to teach New Yorkers about the small steps they can take to make big strides in improving the city's environment. These have evolved from a general "green tips" campaign to an action-orientated brand using increasingly sophisticated marketing strategies.



OVERALL STATUS

GreeNYC's early efforts involved promoting lists of seasonal green tips communicated via advertising on bus shelters and telephone kiosks. In 2008, GreeNYC worked to increase environmental awareness through partnerships with NBC Universal on an electronics recycling event, General Electric for compact fluorescent light-bulb (CFL) discounts, and both Whole Foods and Macy's on reusable bag efforts. Targeted public education efforts have greater impact than multiple tips, so in 2009, GreeNYC redesigned its communications to impact one behavior at a time. Rather than list multiple messages, GreeNYC public outreach campaigns now have strong, accessible top-level action supported by compelling facts and statistics.

By highlighting facts, tips, and resources through multiple media platforms, GreeNYC campaigns seek to present a compelling case for behavioral change at the individual and household level using simple, action-oriented messages. Incorporating distinct artwork featuring Birdie, the GreeNYC mascot, these campaigns have built brand recognition and GreeNYC's reputation as the source for New Yorkers navigating the often confusing greenscape.

Cultivating strategic partnerships is also important to advance GreeNYC's mission. Collaborating with private companies, advocacy groups, and other City agencies has increased GreeNYC's visibility and maximized its impact.

Key Progress

Over the last two years, GreeNYC has undertaken a number of significant marketing campaigns.

"Turn It Off" Anti-Idling Campaign April 2009 - May 2009

In response to the serious environmental, health and financial consequences of idling vehicles in New York City, GreeNYC partnered with the Environmental Defense Fund, EcoDriving, and NYC Department of Transportation to develop a public service campaign to educate New Yorkers about the negative impacts of idling and encourage drivers to "Turn it Off." GreeNYC targeted both local drivers and commuters into Manhattan by strategically placing public service announcements where and when they would reach the greatest number of drivers. The announcements explained the legal, health, financial and environmental consequences of idling and prompted drivers to

call 311 (the City's hotline for non-emergency services) to report idling vehicles. By educating New Yorkers about the impact of idling, the campaign aimed to reduce drivers' idling tendencies (thereby decreasing total particulate matter, ozone and CO₂ emissions from vehicles) and, ultimately, change their attitudes toward adopting environmentally-friendly behaviors.

"Be Cool & Smart" Air Conditioning Energy Efficiency Campaign June 2009 - July 2009

As air conditioning accounts for the largest percentage of residential energy consumption nationwide and often represents over half of a household's summer energy use, GreeNYC and its partners, Best Buy and Energy Star, developed a public education campaign in summer 2009 encouraging New Yorkers to reduce their electricity consumption by using their air conditioners more efficiently. The campaign, "Be Cool and Smart," provided simple, accessible steps for energy efficiency related to air conditioning use. Using media impressions on subways, buses, billboards, phone kiosks, on the radio and online, the campaign emphasized both the economic savings and environmental benefits of efficient air conditioner usage and generated over 861 million media impressions among New Yorkers to increase issue awareness.

Mulchfest December 2009 - January 2010

GreeNYC collaborated with the New York City Department of Parks and Recreation (DPR) to publicize Mulchfest, an annual City event where New Yorkers recycle their Christmas trees at parks across the five boroughs and get free mulch. The Department of Sanitation (DSNY) reported that the individual participation in 2010 Mulchfest increased by 38 percent from the previous year.

"Switch & Save" Compact Fluorescent Light (CFL) Bulb Campaign March 2010 - April 2010

In early 2010, GreeNYC launched the "Switch & Save" CFL Campaign. Lighting represents up to 20 percent of a household's energy use. By switching from traditional lightbulbs to CFLs, New Yorkers will use less electricity at home, save money on monthly electricity bills, and reduce greenhouse gas emissions. In partnership

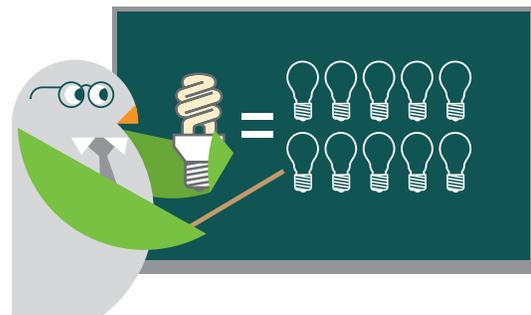


Mulchfest campaign with the NYC Department of Parks and Recreation



"Be Cool & Smart" Air Conditioning Energy Efficiency Campaign

Credit: NYC Mayor's Office



"Switch & Save" Compact Fluorescent Light Bulb Campaign

SWITCH TO CFLs & SAVE MONEY.

1 compact fluorescent lightbulb lasts as long as 10 standard bulbs.

For more info & recycling locations visit nyc.gov/greenyc



Credit: NYC Mayor's Office

with The Home Depot, GreenNYC's multi-faceted campaign empowered New Yorkers to "Switch & Save." Messages were comprised of several simple actions emphasizing economic benefits, soft warm light, and energy saving from CFL lightbulbs.

Upcoming campaigns

In 2010, GreenNYC will continue to provide simple, smart, and accessible actions New Yorkers can take to improve the city's environment. Upcoming campaigns will focus on energy use, reducing waste, and promoting zero emission transportation.

Bike to Work Campaign

May 2010 - June 2010

GreenNYC is launching a public education campaign to highlight cycling as a smart, healthy, and environmentally-friendly choice for commuting to work. With over 620 miles of bike lanes, 8,500 bicycle racks, and legislation facilitating bike storage in parking garages and commercial buildings, New York City has never been so hospitable to cyclists. Commuter cycling levels have more than doubled since 2002, and more than half a million New Yorkers now bicycle regularly. The City has provided the infrastructure for safe biking, and the campaign will seek to raise awareness of the many benefits associated with cycling in the city.

Reducing Plastic Bag Consumption

GreenNYC is partnering with DSNY, DPR, the Department of Small Business Services, the Department of Education, and Business Improvement Districts to reduce the amount litter in New York City. The first phase of the effort, focused on reducing plastic bags, will launch in early fall. Research shows that New Yorkers consume more than 5 billion plastic bags each year. Not only do plastic bags litter neighborhoods, their production depletes global natural resources and contributes to carbon emissions and climate change.

Observations on Progress

The current design and prioritization of GreenNYC campaigns represent the state-of-the-art in terms of public education around energy efficiency and related themes. However, GreenNYC is currently not sufficiently data-driven to be certain enough of its impacts to count directly toward the PlaNYC strategy to reduce carbon emissions citywide by 30 percent by 2030. Doing so would require a fact-based, market-research study that provides a fundamental understanding of the relative environmental impacts of actions such as drinking New York City tap water,

recycling electronics, and converting to CFLs, as well as the barriers to their adoption. This information is essential for providing GreenNYC with the data it needs to create high-impact, targeted campaigns. If GreenNYC understood its target audience better, it could focus its efforts on those actions, messages, and audiences most likely to take action as a result of the campaign, and thus achieve a concrete, measurable impact on energy efficiency and other green behaviors. Such an effort would provide the baseline information necessary to change both short-term individual behavior and shift long-term collective ethos.

Additionally, while GreenNYC has successfully used multiple types of conventional media in coordinated campaigns, it has thus far not made use of the social media that are increasingly important, especially for specific groups of New Yorkers. Similarly, GreenNYC has been effective with paid media but less so with news coverage and other "earned" media. In addition, GreenNYC could make better use of the world-class expertise in media and marketing here in New York, either formally or informally, to guide its efforts and increase its impact.

Next Steps

In the three years since Mayor Bloomberg released PlaNYC, the City continues to launch and implement its initiatives toward nurturing a greener, greater New York City. We have made exceptional progress with the combined efforts of more than 20 City agencies, the Mayor's Sustainability Advisory Board, the City Council and other elected officials, partners and supporters from all across New York City, and indeed from around the world. From the passage of the Greener, Greater Buildings Plan and the school bus retrofit law, to the opening of the 100th schoolyard-to-playground, to the planting of the 300,000th tree, we have sustained momentum and made progress.

This coming year will see additional milestones. DCP, EDC, and other agencies will continue moving forward with transit-oriented rezonings and preparing a new Comprehensive Waterfront Plan that will establish a vision for a 21st century waterfront. To help ensure the long-term viability of New York City's affordable housing supply and contribute to a cleaner, healthier environment, HPD will require that all new construction projects financed by the agency achieve Green Communities Certification. DPR will continue developing its regional parks, transforming schoolyards into playgrounds, and expanding its aggressive tree-planting program. OER will launch its local brownfield cleanup program. DEP will issue on-site stormwater requirements promised in the Sustainable Stormwater Management Plan and continue to acquire land to protect the watershed, guard against unacceptable risks from natural gas drilling, and continue construction of the Croton Filtration Plant, the UV disinfection plant, and Water Tunnel No. 3.

The Office of Long-Term Planning and Sustainability will work with the Climate Change Adaptation Task Force to complete its report and to identify climate change impacts that are beyond the ability of individual entities to address. DOT and the MTA will launch bus rapid transit service in Manhattan. The City will continue to pursue legislative and regulatory action where it is needed to achieve its goals, through urging Congress to enact the green taxis law and pursuing heating oil regulations to phase out the use of dirty heating oil. And we will continue to advocate for a set of stable, protected, long-term revenue sources for the MTA to ensure that critical transit infrastructure gets built and maintained.

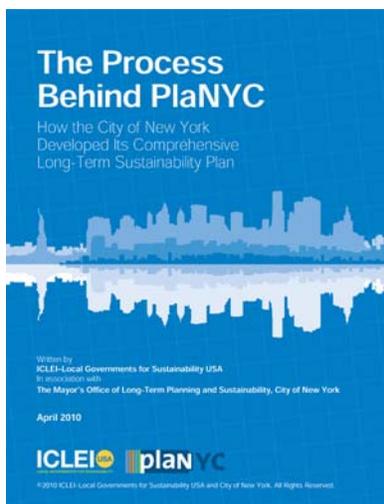
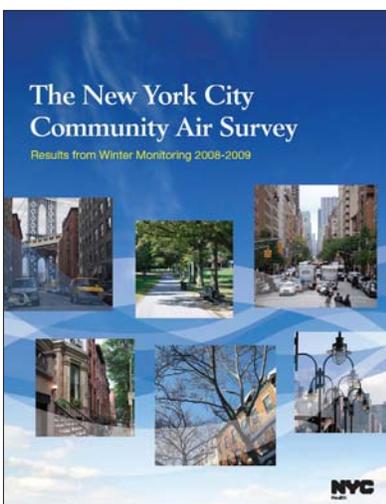
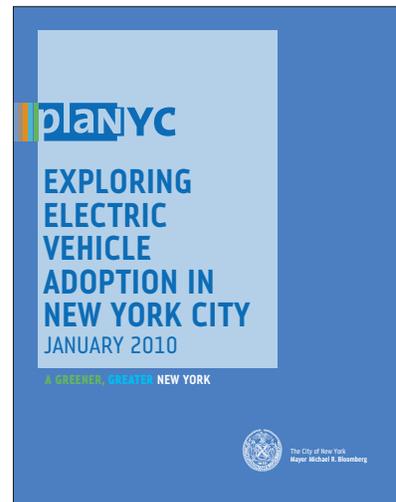
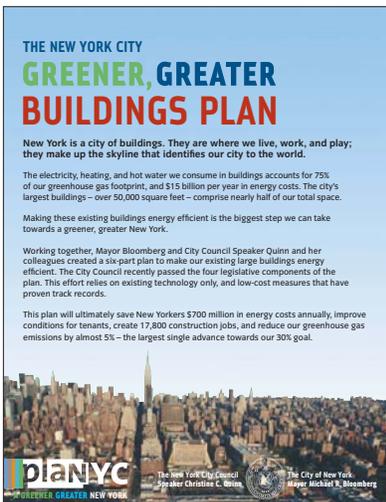
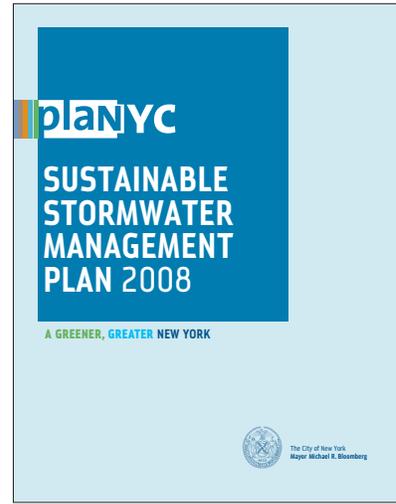
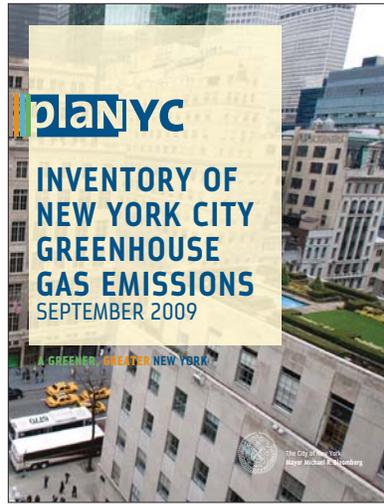
PlaNYC's biggest milestone over the coming year will be its legally-required update in 2011. Any long-term vision must be refreshed over time, and the City supported the passage of Local Law 17 of 2008, which requires an update to PlaNYC every four years. As a long-term plan, much of PlaNYC is still not complete; that is appropriate. But, once every four years, it is equally appropriate to ask: what has worked well? What can go farther? What did not work as well? What more needs to be addressed?

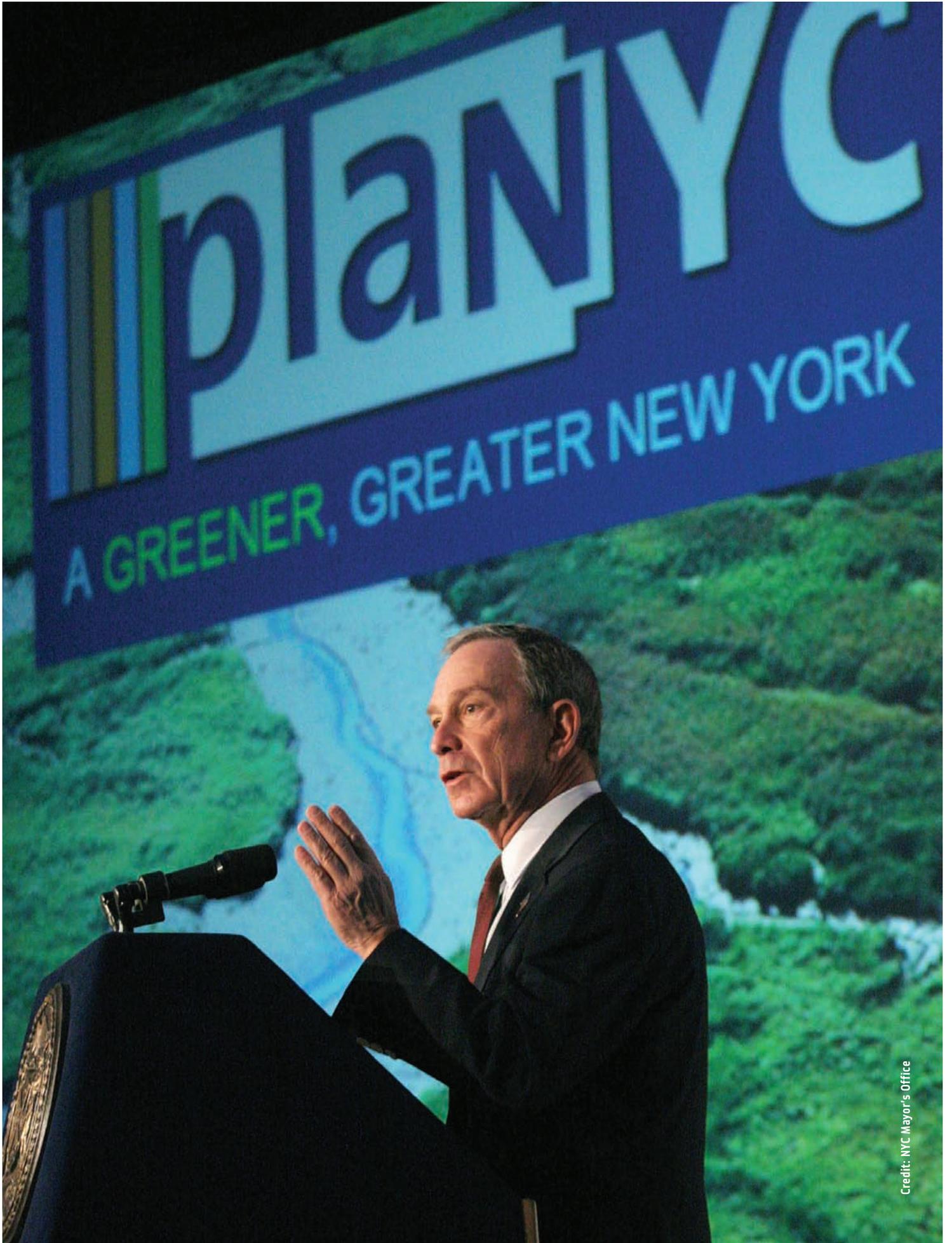
During 2010, we will ask the public to identify emerging ideas and help update the City's long-term sustainability plan while we continue to implement and report on the status of its initiatives. Engaging New Yorkers was central to the development of PlaNYC. In 2006 and 2007, we listened to community members and experts, convened roundtables, town hall meetings, and working groups throughout the city, and solicited email and web-based suggestions. Through a similar process this year, PlaNYC can be kept as innovative as the city it serves, while retaining the central goals and the ongoing initiatives that should be continued.

Four years ago, when PlaNYC began to be developed, there were 8.2 million New Yorkers; today there are 8.4 million. Four years ago, few New Yorkers would have considered their city to be an environmental model; today, people around the world know that New York City is America's most carbon-efficient society. Four years ago, it would have been unrealistic to think that New York would be a leader in green building policy and air quality efforts, or that we would have the largest fleet of hybrid taxis in America; today, all are true. Unfortunately, four years ago, budget surpluses made government investments easier; today, budget constraints require us to do more with less.

But the central challenges of PlaNYC remain the same. We must work together to plan—and act—to make our city, which will have 9.1 million residents in 2030, easier to live in, healthier, and more equitable than it is today. We must work together today to make the changes we need so that the lives of those who come after us are even better than our own. We must work together to share ideas, to promote innovation, to make pragmatic change, to balance short-term costs and long-term benefits. Above all, we must continue to make progress to ensure that New York is a greener, greater city in 2030.

Visit www.nyc.gov/planyc2030 to download the plans, reports, and publications released as part of PlaNYC.





Credit: NYC Mayor's Office

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

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