



CONTENTS

- 2 Letter from the Mayor
- 4 Commissioner's Introduction
- 6 Accomplishments and New Goals
- 9 Safety
- 17 **Mobility**
- 25 World Class Streets
- 35 Infrastructure
- 41 Greening
- 49 Customer Service
- 55 Global Leadership
- 60 **Benchmarks**
- 75 Acknowledgments
- 76 **Credits**



Dear Friends:

A year ago, the Department of Transportation released Sustainable Streets, a new strategic plan that outlines in detail our Administration's goals for a more sustainable transportation system with better infrastructure and increased mobility. The plan emphasizes how an intelligent transportation policy can positively affect the quality of life in New York City and improve our neighborhoods in ways consistent with PlaNYC, our long-term plan to combat global warming and climate change.

This 2009 progress report provides a status update for each of the initiatives launched in the past year and presents new steps we're taking to achieve our goals. With Select Bus Service, Green Light for Midtown, and new provisions for bicycling, we've measurably increased mobility - while our popular Plaza and Summer Streets Programs have made the City an even more attractive place to live, work, and visit. In fact, these and other improvements have already made our City a national and global leader in creating a sustainable transportation system.

We're also finding new ways to make our streets safer and smoother. Having reduced traffic fatalities to historic lows, we're working to drive them down further with programs to make areas frequented by youth and seniors even more pedestrian friendly. We've steadily

expanded the resurfacing program in order to restore more streets to good condition, and city-owned bridges are in the best shape they've been in for more than a generation.

Transportation has always been key to unlocking New York City's potential, and as this report shows in detail, our Department of Transportation is a vital partner in helping to create a greener, greater New York.

Sincerely,

Mayor

nichal Klemter Michael R. Bloomberg





Dear fellow New Yorkers:

In the Spring of 2008, NYCDOT released *Sustainable* Streets, its new strategic plan. The plan laid out, for the first time ever, a clear and detailed transportation policy for New York City—one that promised a new direction.

I am very pleased to report that DOT is delivering on the promises of its plan, and is moving forward on every one of the 164 actions that we committed to undertake in *Sustainable Streets*. This annual update of our plan reports on that progress, and serves as a focal point for meeting targets and sustaining momentum across all of our programs. It also sets forth new goals that have emerged during the past year, ranging from development of an internal DOT car-sharing system to further reduce DOT's fleet, parking needs and miles driven, to issuing a request for proposals to establish a large scale public bicycle system in New York, similar to those in Paris and other cities.

Sustainable Streets elaborated on the transportation policy themes established by Mayor Bloomberg in PlaNYC 2030: a more mobile and attractive bus system, a bicycling network that increases ridership, more attention to the quality of the public realm and infrastructure in good condition.

The response to *Sustainable Streets* has been inspiring. First and foremost, the men and women of NYCDOT have embraced its vision with great enthusiasm and spirit. Their hard work, creativity and professionalism is allowing us to transform the City's streetscape before our eyes, implement mobility improvements that will allow New York to grow for years to come and show tangible evidence of progress toward a greater, greener New York. Leaders across many walks of life in New York have taken note of the clarity of direction our strategic plan establishes. Beyond the city, we have experienced

a broad and sustained interest in our plan, with requests for the document and follow-up discussion coming from city halls in a variety of American cities, as well as from both municipal and national governments in Europe, Australia and South America.

New Yorkers themselves are voting with their feet, pedals and transit passes to take advantage of the projects and new networks NYCDOT is creating within the frameworks of PlaNYC and Sustainable Streets. Our first Select Bus route, the Bx12, now carries 30% more weekday riders than the service it replaced, and is shaving 11 minutes off of its previous run. Bicycle commuting has more than doubled since 2000, and growth is accelerating. We saw a 35% increase in our counts of commuter bicycle volumes in 2008 alone, which is clearly linked to the rapid expansion and increase in quality of our bike lane network. 86% of residents, workers and business people recently surveyed in the Flatiron district were upbeat about the new public spaces that DOT created in Madison Square last summer.

Unusually for the transportation sector, we are making these positive changes quickly. NYCDOT's planning, paving, signing, marking and concrete teams have developed methods that allow us to create protected bicycle ways, bus lanes and public plazas without extensive digging and construction, so we are implementing functional and visible change on our streets in months rather than years or decades. The Green Light for Midtown program that we implemented along Broadway on Memorial Day Weekend will change the face of Manhattan's central business district, and will be fully implemented by September. These improvements are also flexible enough to change as needed.

COMMISSIONER'S INTRODUCTION

City government is also taking major steps to ensure that it is part of the transportation and sustainability solution. In 2008, Mayor Bloomberg directed DOT and the Police Department to overhaul the system for issuing parking placards for City-owned vehicles, and we have achieved an overall 53% reduction across all City agencies. DOT also recently cut its light duty vehicle fleet itself by 10%.

In addition to the strong accountability and direction that *Sustainable Streets* builds into NYCDOT's work, we are also tracking transportation trends and changes in the city—the outcomes of our actions—more closely than ever. We released the first *Sustainable Streets Index* in December, which showed how public transit has accommodated most of the growth in travel in New York during the past decade. We will be refining and expanding that report with each annual issue.

In 2009 we mark the centennials of the Queensboro and Manhattan Bridges. The creators of these spans were part of a generation of heroic builders that knit together the pieces of New York that we know today. Much of what gives New York its edge in sustainability - the density enabled by our intensive web of transportation links and connections — is the result of the era that saw the East River bridged at multiple points, the subways tunnel into Brooklyn, Queens and the Bronx and the regional railroads connected into the city center. We must honor this legacy and extend its benefits by taking care of fundamental infrastructure needs. This year, we were able to negotiate the most advantageous big-city allocation of federal economic recovery funding for transportation in the country. An infusion of over \$260 million will help keep today's downturn from impacting the City's investment in our collective future. It will sustain good jobs and deliver major projects from the

Bronx to Staten Island, while releasing city funding for additional capital projects across the five boroughs. The project choices and design decisions we make today can sustain and intensify New York's transportation advantages. In today's economic climate, preserving and adding jobs in our large transportation industry provides an immediate shot in the arm for the city's economy. Investing in future mobility, our quality of life and the basic foundations of our transportation system will prime the city for renewed growth.

Sincerely,

Janette Sadik-Khan Commissioner

ACCOMPLISHMENTS

Major NYCDOT Accomplishments in 2008–2009

The New York City Department of Transportation launched numerous new projects and initiatives over the past year, and saw positive transportation results in many areas. These are some of the highlights.

- Launched and expanded large-scale targeted safety programs — Safe Streets for Seniors and Safe Routes to Schools.
- Implemented complete-street roadway designs in many locations, including an award winning design for 9th Avenue. Safety benefits have been demonstrable within months in many cases.
- Developed and launched the Green Light for Midtown plan to reduce traffic congestion in the heart of Midtown Manhattan and improve safety and public space in Herald and Times Squares.
- Launched the Select Bus Service program with NYC Transit, implementing routes on Fordham Road in the Bronx and 34th Street in Manhattan.
- In 2008, implemented a record 90 miles of new bicycle lanes, contributing to an unprecedented 35% single-year increase in bicycle commuting.

- Created new public spaces in key city locations, including Madison Square, the DUMBO Manhattan Bridge arch, the Bronx Hub, Gansevoort Street and others.
- Launched DOT's Public Plaza program and application process to create new open spaces in every NYC community. Announced the program's first 9 sites.
- Launched the Summer Streets program that opened Park Avenue and connecting routes to pedestrians, cyclists and others on August Saturdays.
- Reduced parking placards for NYCDOT by 20% and DOT's light duty vehicle fleet by 10%.
- Established a clear, cutting-edge direction in sustainable transportation policy with publication of World Class Streets, Sustainable Streets Index and NYC Street Design Manual.
- Strengthened DOT communications via a refashioned and more substantive website and through directed outreach programs such as DOT Academy.

NEW GOALS

New Goals for 2009

Since publication of *Sustainable Streets* in 2008, NYCDOT has developed a range of new initiatives, and we have added new goals outlined here and throughout this report.

- NYCDOT will triple the number of 20 mph speed zones around schools from 25 to 75 by 2010.
- During 2009, NYCDOT and NYC Transit will issue a Phase II bus rapid transit plan recommending 8–10 new routes.
- NYCDOT and NYC Transit will test a real-time bus arrival information system on 34th Street in Manhattan.
- NYCDOT has accelerated its targets for increased bicycle commuting following the significant rise in bicycle counts in 2008 and developments such as passage of bicycle parking legislation by the NYC City Council. DOT now anticipates doubling bike commuting from 2007 levels by 2012 and tripling it by 2017.
- During 2009, NYCDOT will explore opportunities for a large scale public bicycle system in the Manhattan CBD and adjoining areas. Bike sharing would provide a new mobility option for short trips and increase bicycling's share of overall travel within the city.
- NYCDOT will expand installation of on-street bike parking by beginning to re-fashion single-space parking meter poles into bicycle racks as part of the muni-meter installation process.

- NYCDOT will expand the PARK Smart curbside management program to additional neighborhoods.
- With the NYC Economic Development Corp, NYCDOT will launch an expanded East River ferry network with six landings, including new docks in Greenpoint and North Williamsburg, by 2012.
- NYCDOT will begin to establish new rules and conditions for use of curb and layover space by private buses, whose presence on city streets has dramatically proliferated.
- NYCDOT will develop pilot projects for some of the new street designs recommended in the NYC Street Design Manual, such as "shared streets."
- NYCDOT will expand Summer Streets to additional days and areas in 2010.
- NYCDOT will launch a car share system for its headquarters in Lower Manhattan that will replace 57 DOT cars with a pool of 20 shared vehicles. The program could serve as a model for citywide adoption.
- DOT will provide new information on traffic speeds via traffic condition maps at www.nyc.gov/dot and will make more of its map-based data available in open source standards on its website.



SAFETY

Building Safe Streets

In the past year, NYCDOT has made significant strides to deliver safer city streets to New Yorkers, and to drive historically low levels of traffic fatalities even lower. Most significantly, the Department added a second large-scale targeted safety effort — DOT's Safe Streets for Seniors program — to its extensive Safe Routes to School initiative. Both young people and seniors are over-represented among traffic fatalities each year. These two programs will help drive down traffic deaths and injuries as they are implemented and expand into new areas.

Additionally, NYCDOT targets specific sites for safety improvements. Our new designs for city streets are developed under a "complete street" ethos that advances safe accommodation for all street users. Our projects are demonstrably improving safety on recently treated streets. For example, in summer 2008, DOT targeted Park Avenue and 33rd Street, an intersection with one of Manhattan's most persistent crash histories, for an aggressive redesign. Pedestrian crashes have been cut in half since the redesign was implemented.

Similarly, an early step in DOT's Safe Streets for Seniors program in Flushing, Queens was installation of a new pedestrian refuge island at the intersection of Northern Boulevard and Bowne Street. Injuries at this location were down 45% in the first eight months since installation.

DOT has completed safety improvements at the first 135 Safe Routes to Schools locations.

Design safe streets

- Slow speed zone tests have been completed at 20 schools on one-way streets. Slow zones may be put in place around schools where speeding is a problem in order to slow traffic and protect students. Tests for slow speed zones on two-way streets are now underway.
- Capital construction is 68%
 complete at 12 priority Safe
 Routes to Schools sites. The
 NYC Department of Design
 and Construction continues to
 coordinate this work with other
 agencies and utility companies.
 This round of construction
 should be complete by 2010.
- Operational safety improvements have been made at the first 135 Safe Routes to Schools locations.
- 135 elementary and middle schools have been selected as the next round of schools slated for Safe Routes to School improvements.
- Evaluation of traffic and crash data at every high school in the City is underway for selection of the first 40 high schools for DOT's Safe Routes to School program.
- In May 2009, NYCDOT released New York City's new Street Design Manual, which expands the City's menu of safety-oriented streets design elements (see page 39 for details about the Manual).
- Downtown Brooklyn Traffic Calming Phase A is under construction by the NYC Department of Design and Construction, scheduled for completion in May 2010.
- In the past year, DOT has installed six new leading pedestrian intervals (LPI), 12 new split phase operations and re-engineered existing LPIs at 26 locations to make them more effective.

- DOT modified the signal timing on two one-way corridors in Queens to discourage speeding: Skillman Avenue between 35th Street and Roosevelt Avenue and 43rd Avenue between 35th Street and Roosevelt Avenue.
- DOT improved safety for bus passengers under elevated trains by building seven curb-protected bus stops.

Improve data on pedestrian injuries & fatalities and target safety resources to high crash locations

- NYCDOT's Fatality and Severe Injury Study is underway, with a final report expected by the end of 2009. It is being conducted by the NYU Rudin Center in partnership with Calspan-University of Buffalo Research Center, Rensselaer Polytechnic Institute and Baruch College. It analyzes pedestrian fatalities and severe injuries during 2002-2006 to identify underlying factors that cause crashes or increase the danger of certain crashes. The findings will help inform DOT's engineering, design and education strategies, as well as assist the agency in prioritizing locations for safety interventions.
- NYCDOT's Effectiveness of Traffic Calming Measures study is being conducted by City College of New York and scheduled for completion in October 2009. This study will evaluate traffic calming measures implemented by DOT. It will allow the agency to evaluate the appropriateness of specific traffic calming treatments for future projects.







• NYCDOT is streamlining and improving its access to crash data, which is collected by the Police Department and processed and stored by the NY State Dept. of Motor Vehicles and the State Dept. of Transportation. DMV has agreed to transmit crash data more frequently to NYCDOT. DOT is also improving the storage of the data, and systems for internal

Cut the number of annual traffic fatalities by at least 50% from 2007 to 2030

access to it.

• Traffic fatalities increased by 6% in 2008 from New York City's all-time low in 2007 (from 274 to 292). 2008's level was the second-lowest traffic fatality rate in city history, and only the third year ever that traffic deaths were below 300. NYCDOT will work harder than ever in 2009 to reduce fatal incidents on our streets.

Curb dangerous behavior on city streets with strong public education campaigns

 DOT is contracting with an advertising agency to increase its communication capacity and allow for more extensive public information and educational campaigns on street safety and dangerous traffic behaviors.

- DOT has launched Phase 2 of the LOOK traffic safety campaign with a new television and internet public service announcement component.
- DOT is developing a marketing campaign to curb drunk driving.

Revise and expand Safety City education programs

- To give its education materials a more unified and updated look, DOT created a new design standard for all of its safety educational material.
- DOT is working with the NYC
 Department of Education (DOE) to extend the reach of its traffic safety education. Traffic safety training for DOE personnel will begin shortly, with instruction for students beginning in fall of 2009.
- DOT's Safety Education unit is working with Groundswell, a nonprofit organization, to create a new in-school program to encourage youth to explore traffic safety conditions around their schools. The project installs studentcreated signs urging drivers in the school area to act safely and responsibly. DOT fabricates the signs and installs them.



Expand safety enforcement programs

- NYCDOT helped convince the State legislature to extend the City's red light camera program beyond its 2009 legislative sunset date, and to allow the City to add cameras at 50 additional locations, bringing the City's total to 150. The City's existing red light cameras have reduced red light running up to 60% at intersections where they have been deployed. The legislation contains a new sunset date of 2014.
- NYCDOT is developing a proposal to obtain federal safety funding for

targeted traffic law enforcement activities.

Establish strong, explicit pedestrian safety measures as a condition of DOT construction permits and enhance monitoring unit for construction sites with high pedestrian volumes

DOT's Office of Construction
 Mitigation and Coordination
 (OCMC) has increased the safety
 measures for traffic stipulations
 for all building and roadway
 construction permits in the city.
 New measures implemented

during the past year include NYPD intersection agents and use of additional flaggers, signage, fencing and timber curbs to minimize pedestrian, bicycle and vehicular conflicts. Locations include Houston Street, 2nd Avenue Subway sites, and around World Trade Center reconstruction.

 OCMC now requires permit holders on major projects to use closed circuit television to monitor construction sites and areas where traffic flow has been altered to accommodate construction. CCTV observation allows OCMC to determine if additional safety measures are needed.

Enhance bridge inspection capabilities

 DOT is adopting state-of-theart bridge cable monitoring, starting with a federally funded pilot on the Manhattan Bridge. A mock-up of the cable has been undergoing laboratory testing since December 2008.

- Forty fiber-optic sensors provide real-time monitoring of the arches of the Manhattan approach to the Brooklyn Bridge. Fiber-optic sensors are also in use monitoring components of the Williamsburg, Manhattan and Paerdegat Basin Bridges.
- After the Minneapolis bridge collapse, DOT augmented its bridge inspection program with additional inspection personnel.
- DOT monitors the poorly-rated components of poor bridges every three months and the poorly-rated components of all bridges on a regular basis.

Implement truck-specific safety measures

 To better monitor wear-and-tear on City roadways and bridges, DOT has expanded its over-dimensional truck permitting unit. Single-use, non-divisible load permits allow the City to track the routes these trucks travel and ensure the infrastructure along these routes is maintained properly.

- DOT is seeking state legislation to require all trucks in New York City to install cross-over mirrors. These mirrors allow drivers to see shorter people such as children in front of truck cabs.
- DOT created and distributed truck route maps and summaries of truck access rules to all 76 police precincts to help them improve truck route enforcement.

Enhance construction zone safety

- The Department has adopted clear internal guidelines for demarcating and signing work zones on arterial roadways and surface streets under both night- and day-time work conditions.
- DOT is coordinating with NYPD precincts around the City to foster better communication and increased presence at DOT work sites.
- DOT promoted state legislation that was introduced in April (A7382 in the Assembly and

- S3862 in the Senate, by prime sponsors Assemblymember Michael Cusick and Senator Diane Savino) that would add criminal penalties for work zone intrusions and intrusions resulting in injury or death.
- NYCDOT has participated in National Work Zone Safety Awareness Week in April for the past two years. DOT created magnetic signs for all of its fleet vehicles and distributed posters to sites around the City to encourage drivers to slow down in work zones. DOT also ran radio public service announcements during Work Zone Safety Awareness Week.

Increase safety for DOT employees

 DOT is conducting hazard assessments at eleven of its facilities. Based on these assessments, DOT Facilities will work with the agency divisions housed in these facilities to make improvements as necessary.



8th Avenue bike lane

City officials...have created a seven-block experiment of a bike lane on Ninth Avenue. Here, concrete dividers and a row of parked cars shield a bike lane from the street and its traffic. Low minitraffic lights show when cyclists have the right of way. Bike commuters, messengers and delivery people peel down perfectly smooth paths.

It would be nice if that were everywhere.

said Mark Weiss (local cyclist).

Nashington Pos





- During the past year, DOT conducted general assessments of personal protective equipment (such as safety vests, hearing protection and footwear), completed an exposure assessment for crews working on paving, milling, and pothole repair, and assessed backhoe operations. Based on these assessments DOT's Human Resources has developed new procedures and additional requirements for Personal
- NYCDOT has developed a new "Working Safely Around Mobile Equipment" training. It is being deployed in summer 2009.

Protective Equipment (PPE).

 New information has been added to DOT's annual Safety Awareness/ Right To Know training program, especially targeting employees in milling, paving, and pothole repair operations.



This summer, DOT ran television ads on broadcast and cable networks reminding motorists to share the road with cyclists

Television PSAs ran on CBS, Fox, WB11 and NY1. They ran during three major league baseball games. The campaign garnered over 50,272,863 impressions through television alone.

Safe Streets for Seniors

Since 1990, pedestrian fatalities in New York City have decreased by 62%, but senior citizens remain a particularly vulnerable group. A study of pedestrian fatalities from 2002 to 2006 showed that people 65 and over made up about 12% of the City's population but were 39% of pedestrian fatalities.

To remedy this problem, which could worsen as the New York City's senior population increases in coming decades, NYCDOT examined crash histories across the city and launched the Safe Streets for Seniors program in January 2008. It identified 25 city neighborhoods that have both a high density of senior citizens and a high number of senior pedestrian severe injuries or fatalities.

Planners and engineers working on the program are evaluating pedestrian conditions from a senior perspective and making changes such as extending pedestrian crossing times at crosswalks, shortening crossing distances, altering curbs and sidewalks, restricting vehicle turns and narrowing roadways.

Improvements have already been made in Brighton Beach, Brooklyn; Flushing, Queens; the Lower East Side in Manhattan; Fordham/University Heights in the Bronx; New Dorp/Hylan Boulevard in Staten Island and are coming soon to Pelham Gardens in the Bronx.

Studies for ten "Phase I" areas have begun and will be completed by the end of 2009, and studies for the remaining "Phase II" locations will begin this summer. Neighborhoods to be addressed over the next year are:

Brooklyn: Borough Park, Bensonhurst, Sheepshead Bay, Midwood, Greenpoint, East Flatbush

Bronx: Mott Haven, East Concourse

Manhattan: Chinatown, Washington Heights, Hamilton Heights, Upper West Side, Yorkville, East Village, Chelsea/ 9th Avenue

Queens: Jackson Heights, Jamaica Hills, Rego Park, Sunnyside

DOT's Safety Education unit is also working with senior centers in the identified districts to explain safe use of the streets and to gather feedback about street conditions faced by local seniors.





New York City Department of Transportation



same way they would be

in any other workplace,"

said Commissioner

Sadik-Khan as she,

Cusick announced

the introduction of

legislation this spring.

workzone safety

State Senator Savino

and State Assemblyman

Work Zone Safety

Weak Work Zone Law — the Cost



DOT workers on the street continue to be menaced by dangerous drivers, who face little sanction for their behavior. The agency has stepped up efforts to increase public awareness about this important issue.

Nicky Antico was doing routine road repair on the overnight shift in Staten Island in September 2005. His wife Anna and eight-year-old daughter were sound asleep in the "dream home" the Anticos had purchased just a few months before. At 2 am, a speeding SUV driver plowed into Nicky's work zone, injuring two of his colleagues and sending Nicky flying 50 feet in the air. Nicky died after five days in a coma. The driver turned himself in days later.

"My heart aches, my bones hurt and my eyes are still scanning the room looking for him, I just seem to keep repeating the same question 'why?' The hardest part of that question is that I will never get an answer." — Anna Antico

In 2009, work zone safety legislation was again introduced in both the State Senate and Assembly. The new law would establish tough new penalties for injuring or killing a construction worker that will serve as a deterrent to driving carelessly in a work zone. These proposed penalties, as with those established for injuring or killing police officers, would give prosecutors and judges additional flexibility in punishing offenders.

DOT will seek to become a national sponsor of National Work Zone Awareness Week in 2010 to bring greater awareness to work zone issues in New York, including the legislation to criminalize work zone intrusions that the Department seeks in Albany.



MOBILITY

Moving New Yorkers Forward

It has been a good year for NYCDOT's mobility initiatives. The inauguration of Select Bus Service and the rapid extension of the city's cycling network both proved their effectiveness with substantial ridership increases. Developments in both of these areas set the stage for even more impressive results in the years to come. DOT also began a parking program aimed at reducing cruising for spaces, and is now expanding that pilot effort into additional districts. In 2009, the City's Green Light for Midtown project will substantially improve circulation for both motor vehicles and pedestrians in the heart of Manhattan. Over the past year, DOT also continued to implement truck route improvements to both facilitate freight delivery and to minimize the impact of truck traffic in city neighborhoods.



Implement Bus Rapid Transit

- With NYC Transit, DOT launched the City's first Select Bus Service in July 2008 on the Bx12 route on Fordham Road in the Bronx.

 The service features pre-boarding fare collection, new bus lanes and traffic signal priority for buses.
- DOT and NYC Transit inaugurated a second Select Bus route on the 34th Street in Manhattan in September 2008. It features new bus lanes, a test of "soft separation" lane markings and bus signal priority at 34th Street and 7th Avenue.
- o DOT and NYC Transit began a bus rapid transit planning process in Spring 2009 to identify a second set of BRT routes citywide. DOT and NYCT briefed each Borough Board on current BRT plans and the plans for Phase II, and began preparations to solicit public input for Phase II through a series

of borough-based workshops. The vision for this network is of a third system that complements and enhances existing subway and bus networks, since BRT is a relatively fast and cost-effective way to expand transit capacity. The BRT Phase II plan will guide development of the BRT network over the next 10 years.

- DOT initiated an environmental review for a robust 34th Street bus-way, with expected completion in late 2010.
- DOT began testing cameras to enforce rules against taxi encroachment of bus lanes. The cameras are only applied to taxis because penalties for taxi violations are within City jurisdiction. State legislation is required for camera enforcement against other classes of vehicles, and NYCDOT continues to seek such legislation in Albany. Photos will be used to issue administrative violations to taxi drivers.
- NYC Transit is working with NYCDOT to pilot real-time bus arrival information on 34th Street in Manhattan. The pilot will involve the installation of real-time information displays at eight bus shelters along 34th Street, as well as providing access to this information via wireless devices and online. If this pilot is successful, New York City Transit will consider expansion of the system to other routes around the system.

Improve streets for the existing bus network

- DOT successfully tested signal priority for buses on the NYC Transit bus routes along Staten Island's Victory Boulevard, beginning in late 2007. Travel times declined approximately 17% in the morning peak period and 11% in the evening peak.
- DOT's re-design of the Bronx Hub at 3rd Avenue and 149th Street reduced traffic congestion and eased bus movement in this very busy retail district and bus-subway transfer point. The project's

Commuter cycling is up over 35% from 2007–2008, thanks in part to innovative designs that improve cyclists' sense of safety.





commitment to employee cycling and stellar indoor bike parking room

sidewalk extensions and a new public plaza also improve walking conditions for transit users, shoppers, residents and those who work in the area.

- DOT successfully tested redcolored bus lanes on 57th Street in Manhattan, adopting this marking for future NYC bus lanes.
- DOT's redevelopment of Madison Square (see page 26) straightened the traffic path of the M2, M3 and M5 bus routes along Fifth Avenue, removing a time-consuming set of turns that buses previously had to make to navigate the intersection of Fifth Avenue and Broadway.
- In the past year, DOT's Safe Routes to Transit (SRT) initiative and Sidewalks Inspection and Maintenance unit has constructed sidewalks at three bus stops in Queens and Staten Island. The Staten Island location is a pilot rubber sidewalk. It is made from recycled rubber and plastic and avoids tree removal due to its permeability. The SRT Initiative also made permanent a street closure at 40th Street station under the 7 train, improving safety for people entering and leaving the station.

Double bicycle commuting by 2015

- DOT exceeded PlaNYC's goal of installing 200 new miles of bike lanes between 2006 and 2009.
- DOT bicycle counts show that commuter cycling has increased 35% from 2007 to 2008, putting the city one-third of the way to doubling bicycle commuting from 2007 levels.
- DOT installed 1,211 outdoor bicycle racks and 20 bicycle parking shelters whose designs are consistent with the City's Coordinated Street Furniture Franchise. DOT also held an international design competition that produced a new standard design for DOT's CityRacks program.
- DOT worked with the Department of Citywide Administrative Services to improve and expand secure bicycle parking for City employees in several City-owned buildings, and expanded bicycle parking capacity at its former 40 Worth Street headquarters.

- DOT promoted bicycle commuting and responsible commercial cycling with the City's first Bicycle-Friendly Business Award, presented to Credit Suisse and City Bakery in Mav.
- Commissioner Sadik-Khan testified in support of City Council legislation to require office buildings to provide indoor access for bicycle commuters and a City Planning zoning change that requires new buildings to create bicycle storage capacity. The legislation was approved by the City Council in July 2009.

Reduce congestion along key commercial corridors

 DOT identified ten Congested Corridors for study and action. Early action improvements, such as signal timing modifications and markings, will be implemented in 2009 on Amboy Road in Staten Island. Plans for West 181st, Woodhaven Boulevard, Amboy Road, White Plains Road and Church Avenue will be issued in 2010. East Gun Hill Road in the Bronx, Flatbush Avenue and Broadway in Brooklyn, 14th Street in Manhattan and Liberty Avenue in Oueens will be the next set of corridors to be studied.

Support new ferry routes

- EDC and DOT began pilot ferry service from the Rockways to Wall Street in May 2008.
- Slip 5 at the Battery Maritime Building opened for commercial passenger ferry service in May 2009.

Improve the High-Occupancy Vehicle network

- DOT created an HOV2+ lane on the Manhattan Bridge from 6-10am for Manhattan-bound traffic in October 2007. Travel times have improved substantially (17% to 33%) for most motorists, particularly those utilizing the HOV lane. Since the lane's creation, auto occupancy has increased by 46% in the HOV lane (from 1.36 to 1.99 persons per vehicle).
- NYCDOT is working with the State Department of Transportation to prioritize implementation of a south-bound bus/HOV lane on the Gowanus Expressway.

Improve freight mobility

• The Department is coordinating with the Port Authority of NY/NJ, the NY State DOT and MTA Bridges and Tunnels to assess the feasibility of permitting small commercial vehicle access on the Henry Hudson Parkway in Manhattan.

Use technology to fight congestion

- NYCDOT hosted the 15th Annual Intelligent Transportation Systems World Congress in November 2008. During the Congress, DOT installed in-roadway sensors on 11th Avenue and allowed vendors to bring vehicles equipped with special transponders to demonstrate applications such as in-vehicle signing, warnings and traveler information.
- DOT and the Taxi and Limousine Commission are using GPS data from taxicabs to estimate aggregate travel speeds in the Manhattan central business district. The agencies are exploring use of the data to track daily and seasonal changes in traffic speeds.
- With the NY State Department of Transportation and the New York Police Department, NYCDOT opened a new Joint Traffic Management Center (JTMC) in Long Island City in November 2008. The Center brings together in one room all of the agencies responsible for detecting and responding to roadway incidents within the five boroughs. Staff from NYSDOT, NYCDOT and NYPD observe camera feeds aroundthe-clock and share information on the exact nature of unplanned occurrences and the appropriate response. The JTMC also has several means for notifying the public of highway incidents. Staff can activate any of the nearly 100 electronic variable message signs along the roadways and provide Highway Advisory Radio announcements to notify travelers of area delays.

Develop and implement innovative parking management programs

• In October 2008 DOT launched its PARK Smart parking pricing program in Greenwich Village in partnership with the local community board and business

- groups. During peak parking times, meters charged \$2 (double the standard rate) to encourage vehicle turnover and create more parking opportunities for people doing business in the area. The program expanded to Park Slope, Brooklyn in May 2009.
- DOT continues to install multispace "muni-meters" across the city, thus making for more efficient use of street space. In addition, all muni-meters for passenger vehicle parking now allow drivers to pay by credit card.
- Over the last year, DOT expanded its commercial muni-meter parking program, whose pricing structure encourages quick turn-over of parked trucks. Since mid-2008, the Department installed muni-meters for truck parking from 23rd to 14th Street, between 3rd Avenue to 6th Avenue. In addition, the Department installed commercial muni-meters on Grand Street and West Broadway in Soho, along Canal Street, and approximately 14 will be installed in Chinatown this summer.



PARK Smart is a pilot program being tested in Greenwich Village and Park Slope to make parking easier while reducing congestion

• During the November 2008 ITS World Congress, DOT conducted a live parking information demonstration, providing real-time space availability at the DOT Municipal lot on Broome and Ludlow Streets via DOT's website. Real-time parking information can be used by NYCDOT to provide better information to motorists, optimize parking prices, and reduce congestion.



Safe Routes to Transit makes areas near bus and subway stops more pleasant for pedestrians, including here at 86th Street and 20th Avenue in Brooklyn



Center to coordinate responses to traffic incidents



LL I love it," said Javier Tano, 35, who was riding the Bx12 bus on a recent afternoon. "They made it run faster, more efficiently." He said that his typical trip, from the Grand Concourse to Pelham Bay Park, now took about half the time it once did. 77

Washington Post

Select Bus Service

In July 2008, NYCDOT and NYC Transit and the launched the first ever Select Bus Service route on the Bx12 line on Fordham Road in the Bronx. In just a matter of weeks, the combination of off-board fare collection, high-visibility bus lanes and Transit Signal Priority led to improved travel speeds (a cross-Bronx trip on the Bx12 now takes 20% less time) and a 10% increase in ridership over last year. An NYCT survey found 98% of riders were satisfied or very satisfied with the new service.

In September, the agencies launched the first elements of a 34th Street SBS route with high-visibility lanes, soft lane separation to keep motorists and taxi drivers from using the lanes and a turn-signal priority system at 34th Street and 7th Avenue. NYCDOT also began a camera enforcement program to prevent taxis from driving in the lanes.

New SBS lines are planned for 1st and 2nd Avenue in Manhattan and Nostrand Avenue in Brooklyn. Bus improvements are also slated for 5th and Madison Avenues. NYCDOT and NYC Transit have established a community-based master planning process to map out Phase II of Select Bus Service routes over the next decade, so that New Yorkers can begin to reap the benefits of an inter-connected SBS network, complete with links to subways, ferries and major destinations. The planning effort is described in detail at www.nyc.gov/brt.

New Goals for 2009

- Complete Select Bus Service Phase II plan.
- Explore opportunity for a bike sharing program.
- Use cameras on buses to catch taxicabs in bus lanes and partner with the TLC to summons drivers through Administrative Law system.
- Pilot use of GPS units on buses and electronic displays in bus shelter to provide bus locations on select routes.
- Explore the addition of new HOV lanes on highways or bridges as part of the Select Bus Service master planning process.

If You Build Them, Bikes Will Come...

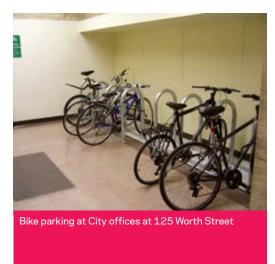
In the past year, DOT installed an unprecedented 90 miles of new bicycle lanes. NYCDOT is not only implementing more lanes than ever before, it is installing them at a faster pace than any other big city in the nation. The speed does not compromise design. In the past year, the DOT won the Institute for Transportation Engineers Transportation Planning Council Best Program Award for the design of the 9th Avenue bicycle path and created a version of the design for narrower streets such as Grand Street in Manhattan. DOT also installed 619 wayfinding signs to guide cyclists to the entrances to East River bridge paths. DOT is also increasing the availability and quality of bicycle parking.

DOT is working with other City agencies including DCAS, DOH and City Planning to increase bicycle access in City-owned and leased buildings. DOT and DCAS collaborated to identify and expand three existing bike parking locations for City employees and add two new parking facilities, turning 44 bike parking spaces into 132 total spaces.

For the general public, DOT installed 20 sheltered bicycle parking stands, 1,211 new outdoor bicycle racks and held an international design competition that led to the adoption of a new, elegant outdoor rack design that will become the new standard for DOT's CityRack program.

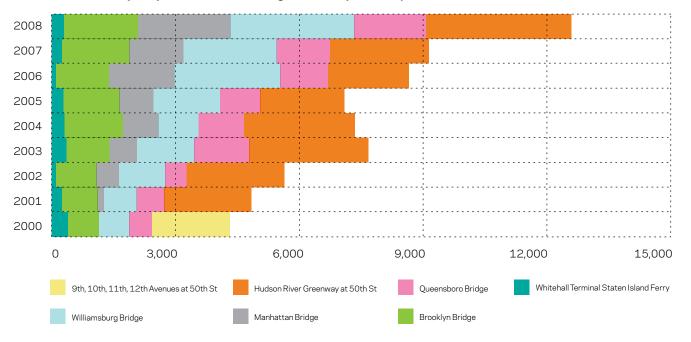
All of these improvements are yielding tremendous results. The bike lanes are filled with lines of cyclists moving down the street. DOT's 2008 bicycle counts (taken at selected entry points into the central business district) show a 35% increase from 2007 to 2008, and that bicycle commuting has more than doubled since 2000 (a 116% increase). At this rate, we will meet and significantly surpass our goal of doubling bicycle commuters by 2015 and tripling their number by 2020.







New York City Bicycle Counts on a Single Weekday (7am-7pm) at Selected Commuter Locations





New Life for City Streets

Last year, DOT committed to transforming the City's streets and sidewalks from simple utilitarian corridors into varied and lively streetscapes. In the past year, DOT created numerous new public spaces from underutilized space on roadways, in both local and in world-famous settings. We launched a new process for communities to propose, build and maintain new plazas throughout the city. DOT also provided New Yorkers with new ways to enjoy their streets on weekends, through events like Summer Streets and weekend pedestrian streets in all five boroughs. New Yorkers have greeted these developments with enthusiasm. New plaza areas are occupied as soon as streets are closed, and the weekend events have been well attended.

DOT detailed these new policies in its *World Class Streets* report, issued in November 2008. The report also contained an analysis of the ways New Yorkers use a variety of city streetscapes by Gehl Architects, one of the world's leading urban design firms.

In May 2009, DOT further raised the standard for urban design with the release of the New York City Street Design Manual. The Manual is the product of an inter-agency task force that provides clear guidance for City agencies, design professionals, private developers, and community groups as we renew and reinvent streets and sidewalks throughout the City.

New York City Department of Transportation

Develop "complete streets" that accommodate all users

- NYCDOT developed a Street
 Design Manual to establish
 street design policies and guidance
 for designing more efficient,
 sustainable, attractive and cost effective streets. The Manual
 is a guide to potential street
 geometries, materials, lighting
 treatments and street furniture.
- In tandem with the development of the Street Design Manual, NYCDOT has instituted an improved design review process so that the full spectrum of considerations is addressed early in the planning process. This will lead to better, less expensive capital projects. Traditionally there was not a standard process for capital project development in New York City. As a result some agency stakeholders did not see a project until late in the process, necessitating costly delays as plans were revised.
- o DOT is committed to achieving full compliance with the Americans with Disabilities Act (ADA). At present 75 percent of the City's nearly 160,000 crossing points have pedestrian ramps. Between April 2008 and April 2009, ramps were installed at over 2,800 crossing points, helping to make New York accessible to all.

Create and enhance public plazas throughout the city

• In 2008, DOT launched the NYC Plaza Program, in which the agency and local community groups identify new plaza locations. In April 2009, the City announced the nine sites selected in the first round of the application process; these projects will add the equivalent of 2.5 football fields worth of open space to the City. The Round Two application process began in April 2009.

- Mayor Bloomberg, Commissioner Sadik-Khan and Midtown Manhattan Business Improvement Districts unveiled over 65,000 square feet of new public space at Madison Square and along Broadway between Herald and Times Square during the summer of 2008. At the Madison Square project's heart, a significant new plaza offers 16,000 square feet of space.
- The new geometry of Broadway from 42nd to 35th Streets creates new plazas, a protected bike path running along the curbside and abundant pedestrian space furnished with tables, chairs and benches, protected by large planters.
- Commissioner Janette Sadik-Khan and former Bronx Borough President Adolfo Carrion unveiled a major intersection redesign and traffic-calming project at the Bronx Hub in October 2008. The project created abundant new pedestrian space and simpler traffic crossings at the five legs of 149th Street and Willis and Third Avenues in the South Bronx-the borough's busiest intersection. DOT is developing public-private partnerships for long term plaza maintenance.
- DOT has worked with established BIDs to maintain the new public spaces it is creating.

Create a beautiful city with space for people

• In 2008, DOT introduced Summer Streets, a car-free urban recreation corridor that connected the Brooklyn Bridge to Central Park. For three consecutive Saturdays, tens of thousands of New Yorkers cycled, roller bladed and walked the length of Park Avenue. The same summer, DOT partnered with neighborhood business and civic groups to sponsor smaller, neighborhood-oriented recurring weekend pedestrian streets in Brooklyn and Queens. Both programs have returned in the summer of 2009 and the pedestrian street program has expanded to all five boroughs.



Weekend Walks is a partnership between local business and community groups and DOT to create temporary pedestrian spaces in commercial districts citywide

DOT has partnered with local artists and community groups to install 20 temporary art projects citywide.









DOT's Urban Art program partners with community groups to create a mural at a newly refurbished pedestrian subway tunnel at 190th Street in Washington Heights

- In April 2009, DOT made Prospect Park safer and more inviting for pedestrians and cyclists by reducing the number of places where vehicles can enter or exit the park. The Department use operational materials to close both the Third Street entrance/exit and the Sixteenth Street exit.
- In Fiscal Year 2008, ten new sponsors adopted fifteen miles of highway as part of the Adopt-A-Highway program. As of February 2009, more than 60 percent of the total number of eligible miles was adopted by sponsors.
- In Summer 2008, DOT developed an urban beautification pilot project with the city departments of Sanitation, Environmental Protection and Human Services in Bedford-Stuyvesant, Brooklyn. DOT crews filled potholes, replaced missing or damaged traffic signs, refurbished pavement markings, fixed street lights and repaired parking meters.
- DOT was a proud participant in the "Love Your (NYC) Block Contest" which took place this spring. A joint effort between City agencies and the Citizens Committee for New York City. The program allows

- neighborhood groups to compete for grants to beautify their blocks.
- In 2008, DOT unveiled the Urban Art Program which has placed context-sensitive public art in Harlem, DUMBO, Chelsea, and Washington Heights. The Urban Art Program supports local artists and community groups.

Set a standard for design excellence

• Cemusa has installed 1,630 new-design bus shelters under the auspices of NYCDOT's Coordinated Street Furniture

- Franchise program, along with 130 newsstands and two automatic public toilets. Three toilets will be installed in 2009.
- To encourage bicycling to transit stops, DOT has installed twenty sheltered bicycle parking stands using the basic Cemusa/Grimshaw bus shelter template structures at busy subway stations, and will install another 16 shelters in 2009. One Grimshaw shelter will be tested as a taxi stand in a busy nightspot.
- DOT partnered with the Smithsonian's Cooper-Hewitt





DOT, the Fashion Institute of Technology and the 34th Street Partnership transformed this Jersey barrier on 31st Street Manhattan



DOT assisted with the temporary installation of artis' Robert Indiana's HOPE sculpture in Times Square





National Design Museum to hold a design competition for a new bicycle rack for New York City. The competition drew over 200 entrants from 24 states and 26 nations. The winning design, by lan Mahaffy and Maarten De Greeve, based in Copenhagen, Denmark, will become the new standard for DOT's CityRacks program.

 In 2008, artist, musician and cyclist David Byrne designed and fabricated nine new bike racks. DOT installed these clever and innovative racks that add attractive, temporary art to the City's streets in appropriate neighborhoods of Manhattan and Brooklyn.

Combine security and placemaking in Lower Manhattan

• DOT continues to work with DDC, EDC, NYPD, Parks and MTA to enhance Lower Manhattan's public realm while improving public safety. For example, the City is installing new custom security devices and distinctive streetscape elements around the NY Stock Exchange. The project will be completed by the end of 2009. Similarly, Peter Minuit Plaza, which began

construction in spring 2009, will incorporate the Whitehall Ferry Terminal's security needs. The Manhattan Greenway connection will be completed along the perimeter of the plaza.

• The City continues to improve pedestrian connections across Lower Manhattan between the World Trade Center site and the South Street Seaport. The City is reconstructing the Fulton Street corridor and will create and/or enhance three pocket parks along the street by 2012. In addition, DOT is working with EDC and Parks to develop new pocket

parks, improve pedestrian access to the East River Waterfront and develop an improved Manhattan Greenway connection (which began construction in Spring 2009).



David Byrne, left, and Lance Armstrong join Mayor Bloomberg and Commissione Sadik-Khan to announce the first ever Summer Streets

Summer Streets

In the summer of 2008, New Yorkers discovered a new way to use their streets. For three Saturdays in August the City created what Mayor Bloomberg referred to as a "seven mile ribbon of recreation" stretching from Central Park to the Brooklyn Bridge. Park Avenue and connecting streets were free of vehicular traffic and opened to cyclists, rollerbladers, joggers, and strollers. Over 150,000 New Yorkers enjoyed the sunshine and one another's company as they took advantage of the open space.

Summer Streets encouraged New Yorkers to dust off their bikes, or even to purchase cycles for the first time ever. Local gyms and studios offered free fitness and dance classes on the street, and companies offered free bike rentals. Some side streets were reserved for music performances, while children's play areas and "teach your child to ride a bike" classes were set up in others. Summer Streets earned rave reviews from the local press, and garnered the City positive international media attention. Summer Streets was modeled on successful events from around the world and has since inspired cities around the country. Chicago, Seattle and San Francisco all held similar events after New York's debut, and many other cities are contemplating them in 2009. Best of all, it offered New Yorkers of all ages a fun, healthy, and free way to enjoy their day.



If Saturday was any indication, New Yorkers are voting with their feet—in favor of more chances to displace the cars, trucks and taxis for a day, and go for a stroll.

NY Times Editorial

Sustainable Streets 2009: Progress Report





Broadway Boulevard

Broadway, perhaps New York's most famous street, has been a source of headaches for transportation planners for years. The avenue cuts across the Manhattan street grid, creating famous spaces such as Times and Herald Squares. However, these junctions are overrun by traffic. For example, 89% of the total space at Times Square is allotted to vehicles, and New Yorkers often complain that there is nowhere to catch one's breath in the midst of Midtown's frenetic activity. In addition, Broadway has had the worst safety record of any Midtown thoroughfare. As the City pursues the PlaNYC goals of reducing congestion and creating a more livable city, the re-creation of Broadway has emerged as a major initiative.

DOT initiated the changes in the summer of 2008, when it redesigned Broadway from 42nd to 34th Street. It converted two of Broadway's four lanes into a linear pedestrian plaza with a protected bicycle lane. At the same time, DOT transformed the wide expanse of pavement in Madison Square into a series of attractive public plazas. The new areas were landscaped, including a distinctive gravel surface, chairs, tables, brightly colored sun umbrellas, and large planters filled with flowers that served a dual safety and aesthetic purpose. New Yorkers immediately occupied Broadway's chairs and benches, and the sites became a favorite of office workers and tourists alike.

The projects proved to be so popular that during 2009, DOT is creating major new public and pedestrian areas in Times and Herald Squares, on a pilot basis, as well as a new linear plaza along the east side of Broadway between 59th and 57th Streets. Broadway is no longer accessible to motor vehicles from 47th Street to 42nd Street and between 35th Street and 33rd Street. Street designs which create more public and pedestrian space similar to the 2008 changes implemented between 42nd and 35th Streets will be extended from 47th to 57th Street and from 33rd to 24th Streets. Extensive traffic modeling has shown that traffic flow on 6th and 7th Avenues will improve significantly with the simplification of the intersection in the major squares.

The improvements on Broadway have created more space for people, a better streetscape and provide an economic shot in the arm by encouraging New Yorkers and tourists to visit and spend more time in an area whose streetscape will begin to equal the world-famous destinations it serves.



Before: Times Square



DOT is committed to improving public space in all five boroughs. Here, Lou Gerhrig Plaza near Yankee Stadium in the South Bronx gets a major facelift as part of a program that improved safety and the public realm along the Grand Concourse.









INFRASTRUCTURE

Investing in Our Future

New York's fortunes have always been tied to the success of its transportation system. To take the city's pulse, just look to its roads and rails. We thrived as our waterways, railroads and public transit systems emerged and expanded. We faltered when we neglected subways and bridges — and we prospered again when we restored investment in those critical systems.

The city's infrastructure supports New York's industries, entrepreneurs, commuters and its people's daily lives. Maintaining and running that infrastructure is an industry itself, while effective infrastructure investments can contribute to the lives and prosperity of New Yorkers for generations to come.

Infrastructure investment features prominently in Mayor Bloomberg's Five Borough Economic Opportunity Plan, and DOT set high standards for infrastructure in adopting *Sustainable Streets* in 2008. We're committing to bringing all of NYCDOT's bridges into good repair, and will accomplish this in 2010. In addition, DOT committed to an increased roadway resurfacing plan, new street designs and an improved ferry maintenance program.

In Fiscal 2009, DOT resurfaced 1,000 lane miles of City streets an increase from FY08's 900 lane miles.

Bridge and roadway maintenance

- DOT conducted a comprehensive study of its practice concerning street cuts and reconstruction, and has reviewed best practices from around the world. In December 2009, DOT will issue recommendations that will cover all aspects of the program, from asset management to stakeholder coordination to organizational change.
- At the time of its 2007 bridge inventory, three of the 789 bridges in DOT's inventory were rated "poor." Capital reconstruction projects scheduled for 2009 2011 will improve these bridges to a "fair" or "good" rating. DOT will continue its rigorous inspection schedule to ensure that it is aware of any changes in bridge condition.
- In FY2009, DOT resurfaced 1,000 lane miles of City streets — an increase from FY08's 900 lane miles.
- DOT's Highway Inspection and Quality Assurance unit inspects streets to ensure that utilities, builders, contractors, and government agencies properly repair them after construction or subsurface work. To ease this task, last year DOT outfitted 65 inspectors with hand-held computing devices. The wireless devices allow inspectors to access records of past and planned construction work, and to record and retrieve information in the central database while still in the field. This has significantly increased accuracy and efficiency. DOT plans to purchase hand-held devices for the remaining 110 inspectors by the end of 2010.

Asphalt recycling

 DOT mills more asphalt from City streets than it can reuse in its resurfacing program. DOT is working with the NY State Department of Environmental Conservation to gain approval for additional uses for reclaimed asphalt pavement (RAP). DEC

- has approved the use of RAP in utility street cuts, and DOT has requested that base fill and surface applications be considered as well.
- Although it is already a national leader in recycling asphalt, DOT's aging Hamilton Avenue asphalt plant cannot produce asphalt with more than 40% RAP content. DOT is now upgrading the plant to allow for 50% RAP production. DOT has reconfigured space to allow for increased RAP storage, and has submitted a capital project request to DDC to replace the asphaltmaking components of the plant. Construction will begin in early 2010 and the plant should be supplying the City with 50% RAP content asphalt by the following year.
- DOT is seeking to purchase an asphalt plant in Queens adjacent to the Department's Harper Street equipment yard. A second municipal asphalt plant will allow the Department to further extend its resurfacing work, increase the amount of recycled content in City paving work and reduce resurfacing costs per lane-mile. DOT has received land use approval for the acquisition from the City Planning Commission and City Council.

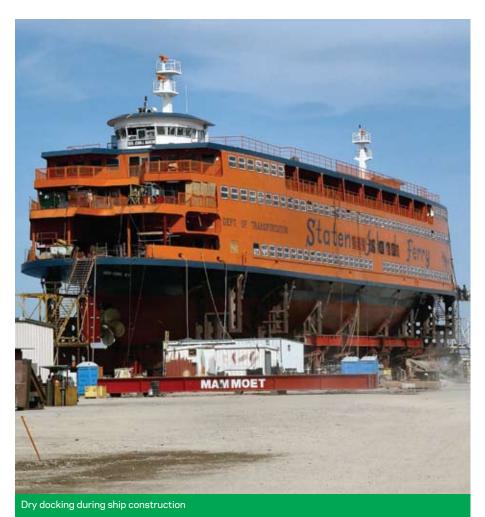
Street materials

 DOT's new Street Design Manual lists new construction materials that will be accepted for use on city streets going forward. The new materials were selected based on aesthetic qualities, capital cost, sustainability, durability and maintenance.

Truck damage

 DOT is using paper, GPS and internet mapping applications to provide drivers and trucking companies with information about bridge clearances and truck routes. The NYC truck route map is available from the DOT website. A downloadable version for GPS devices will be available this summer. A map of low bridges over the City's limited access highways







Installing strain gauges on a movable bridge — Pulaski Bridge over Newtown Creek



A DOT street inspector uses a handheld computer to report on road conditions

has been added to DOT's website and will be distributed to mapping companies in 2009. In addition, a GIS file of the Low Bridge Vertical Clearance file has been developed for sharing with data providers and mapping companies like Google.

 Over the last year, DOT installed new low clearance warning signage on four bridges with a history of frequent strikes by over-height trucks. The agency is tracking strike incidents to determine the effectiveness of its bridge strike prevention program. In addition, DOT is working with Westchester County, the NYPD and NY State DOT on additional bridge strike mitigation measures such as the use of Intelligent Transportation Systems.

Ferry maintenance and repair

- o DOT has traditionally released dry-docking contracts on an individual vessel or ferry class basis. This is a time consuming process, and has required that over 90% of all dry-dockings require a formal extension from the US Coast Guard. In April 2009, DOT signed a comprehensive five year dry-docking contract. The new system will ensure that DOT's ferries are dry-docked in a timely manner, which is safer for all users, and cost-effective for NYC taxpayers.
- DOT is awaiting NYC Comptroller approval to hire a contractor to assist with ferry fleet planning. The contractor will take a system-wide view of the Staten Island Ferry

system, including ridership trends, Staten Island demographics, and other factors which could affect ridership, schedules and vessel size.

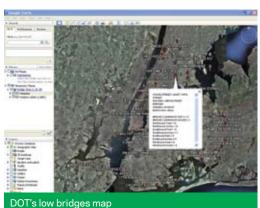
- DOT expanded its ferry preventive maintenance system, MAXIMO, to incorporate all vessels, terminals and its fuel pier. MAXIMO will assist DOT in complying with Coast Guard requirements and the Ferry's Safety Management System. Additional benefits include tracking of work orders, labor and specialized trade requirements, hours required for each work order, parts and inventory control and documentation of maintenance.
- In 2005 DOT conducted a study to determine the appropriate ferry fleet maintenance and repair

staffing plan. The next phase of maintenance staff expansion is pending a review of the results of the increased repair and maintenance work undertaken in phase one.

Normalize replacement cycle for the DOT vehicle fleet

 DOT has replaced the interagency procurement process to replace vehicles nearing the end of their useful lives. As a result, the average age of the Department's light duty vehicles has been reduced to 51 months, compared to 64 months two years ago. This has improved productivity and reduced costs and emissions.





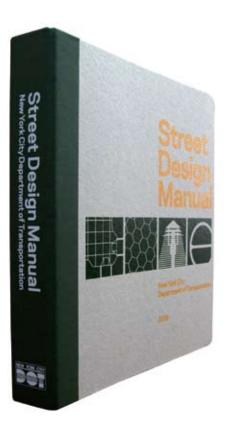




Federal Stimulus Funding

On March 30, 2009, Mayor Bloomberg announced the City's selections for infrastructure projects that will benefit from \$261 million of federal transportation funding from the American Recovery and Reinvestment Act. The infusion of transportation funding negotiated by NYCDOT and City Hall is the largest for any city in the U.S. Projects in all five boroughs will benefit from the funding, supplementing the City's current capital plan. The Bloomberg Administration is using the stimulus funding to support key economic development initiatives across the city. The total value of the transportation projects in the stimulus package is \$1.1 billion and the projects are expected to create or preserve approximately

32,000 jobs throughout New York City. Six projects, including rehabilitation of ramps on the Brooklyn Bridge and an overhaul of the St. George Ferry Terminal bus ramps, will receive direct stimulus funding. The existing funding for those projects will be used to support 25 projects such as the rehabilitation of the Greenpoint Avenue Bridge that would not otherwise have adequate funding to move forward. "The federal stimulus dollars mean that we can move projects that would have been on the chopping block and get shovels in the ground quickly — putting thousands of people to work and rebuilding our infrastructure," said Mayor Bloomberg.



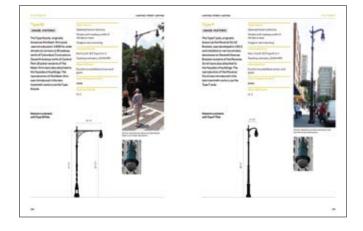
Street Design Manual

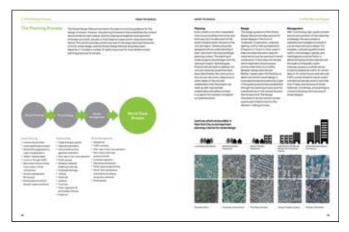
In May of 2009, DOT released the Street Design Manual, a landmark document that establishes policies and guidelines for streets and details a broad array of treatment options to create world-class streets in New York City. The 232-page document is New York's first comprehensive resource on street design and consolidates the various standards and specifications for street materials, lighting and furniture across agencies. The manual's goals are to create streets that are safer, last longer, and work better for a broader variety of activities, needs, and communities. It also promotes designs and materials that are better for the environment and improve the quality of life in the city's diverse neighborhoods while stimulating economic investment.

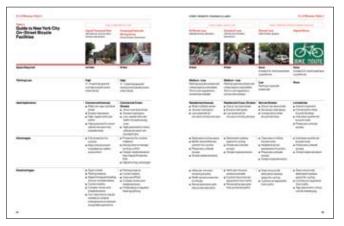
The manual provides detailed guidance on sidewalk, roadbed, lighting and street furniture treatments, ranging from more varied uses for concrete and asphalt to the layout of bus lanes, raised speed reducers, greening, medians and sidewalks. These treatments, most of which can be found on city streets today, support the long term vision for growth outlined in Mayor Michael Bloomberg's PlaNYC initiative. The book is intended for a broad audience, including stakeholders in the public and private sectors — City agencies, design professionals, private developers and community groups.

Inside the Manual











GREENING

Reducing DOT's Footprint

Sustainable Streets not only charted transportation policies that will green our streets and further reduce New York City's environmental footprint, but also pledged that NYCDOT would lead by example. Additionally, PlaNYC calls on city government to reduce energy consumption and cut its greenhouse gas emissions by 30% by 2017.

To meet these goals, DOT over the last year has reduced the amount of energy consumed by street lighting, expanded its asphalt recycling program and conducted energy efficiency audits throughout the agency.

DOT headquarters have been recently consolidated at 55 Water Street. At its new headquarters, DOT has done away with water coolers in favor of filtered water. Recycled carpets and cork flooring were installed to reduce the use of glue and vinyl.

DOT is also strongly committed to reducing its own use of vehicles. The agency has reduced its use of parking placards by 20%, and is investigating the feasibility of eliminating placards altogether in favor of a car share system. The agency recently purchased bicycles for staff to use when conducting agency business.

DOT has banned harsh and toxic cleaning products at its new 55 Water Street headquarters in favor of environmentally friendly products.

Better manage stormwater run-off from city streets

DOT's ongoing collaboration
 with the NYC Parks Department
 Greenstreets program on street
 projects creates numerous
 sites for runoff-absorbing green
 landscaping. DOT's Street Design
 Manual also includes a variety
 of stormwater best management
 practices such as porous
 pavements and connected
 tree pits.

Reduce vehicle emissions

NYCDOT's Alternative Fuels program continues to develop grant programs to assist public and private fleets in the city. Last year, DOT granted over \$6 million in assistance to private fleets, doubling the program's 2007 scale, and also invested \$3 million assisting other City agencies. The funding purchased hybrid-electric and CNG trucks as well as diesel particulate filters for trucks already on the road. All told, the 2008 program will result in savings of five tons of hydrocarbons, 18 tons of particulate matter, 790 tons of oxides of nitrogen and 2,791 tons of carbon dioxide emissions. Fuel savings are approximately 5.8 million gallons.

- DOT continues to incorporate clean vehicles into its fleet as part of its normal replacement schedule.

 Nearly 30% of the light duty vehicles and 10% of the heavy duty vehicles that the agency buys this year will be hybrids. 75% of the Department's passenger sedans are now hybrids.
- DOT asphalt paving machines currently use oil burning screeds, which are heated machine arms that level and shape asphalt. The Department is in the process of replacing oil burning screeds with electric ones. Two paving

machines with electric screeds will be purchased over the next year. Elimination of the open-air combustion of oil will reduce greenhouse gas emissions from DOT's paving operation by over 3,500 tons per year.

- Three Staten Island Ferry boats received emissions reduction engine upgrades over the last year. This means that four out of the eight Staten Island Ferry boats have now had engine upgrades or exhaust after-treatments. The remaining four boats will have engine upgrades by July 2011. All boats will also be retrofitted with diesel oxidation catalysts in the next 24 months.
- Staten Island Ferries run on ultra low sulfur diesel fuel, but are not currently using biodiesel because of cost escalation.
- NYCDOT continues to work with the Mayor's office to develop a comprehensive private ferry policy,

and to partner with private ferry operators to evaluate and install emissions control equipment.

Reduce DOT's energy and resource consumption

- DOT's administrative IT operation is moving to a greener data center. It uses the latest virtualization technologies to maximize processing and storage capacity while using efficient blade servers.
- DOT's 158th Street and 2144
 Webster Avenue Fleet Service
 shops have been approved for
 energy efficiency audits. These
 audits will be completed through
 the PlaNYC Energy Cost Reduction
 (ENCORE) program, and will be
 used to guide later rounds of
 energy efficiency upgrades at
 other DOT sites.
- NYCDOT's new 55 Water Street headquarter features a water filtration system instead of bottled drinking water. In addition to





Mayor Bloomberg signed Executive Order 109, directing the City to reduce its greenhouse gas emissions by 30 percent by 2017 through energy efficiency and other upgrades to City-owned facilities

environmental benefits, the system will save over \$90,000 a year.

- All chemicals and materials used to clean DOT offices at 55 Water Street are environmentally friendly. To ensure a better-quality workspace for DOT employees, harsh or reactive chemicals are no longer used.
- DOT's Ferry Division is working with Con Edison and EDC staff to activate a photovoltaic system at Whitehall Ferry Terminal. Some of the work may be contracted out during 2009.
- DOT's maintains a "living roof" at the St. George Ferry Terminal.
 The building's vegetated roof is irrigated by stormwater.
- The Ferry Maintenance Facility will undergo improvements to improve energy efficiency and reduce environmental impacts.
 These include an upgrade to high

efficiency lighting, replacement of the air conditioning unit and conversion of the boiler to reduce emissions.

Reduce employee use of light-duty vehicles

- DOT has reduced its in-house parking permits by 20% and has reformed the parking placard system for all City agencies other than law enforcement. The City's effort in 2008 resulted in an overall placard cut of 53%.
- In response to a recent mandate from City Hall, NYCDOT has reduced its light-duty fleet by 10% or 72 vehicles.

Maximize energy efficiency of all street lighting and signals

 NYCDOT is reducing the wattage of a quarter million light bulbs on city streets, highways, and East River bridges. The current contract

to replace approximately 82,000 street light fixtures in Brooklyn and Queens concluded in May 2009. The next contract to replace them in the Bronx, Manhattan and Staten Island, which covers approximately 84,000 street light "heads," is beginning as of this writing and has an 18 month duration. Before the end of 2009, DOT will start a similar contract for the highways (3,000 heads), and a fourth and final miscellaneous contract for 84,000 heads. When complete, the overall replacement effort will save nearly 110 million kilowatt hours of energy, over 55,000 tons of greenhouse gases and almost \$14 million annually.

o Over the past year, DOT's Street Lighting division has been testing light-emitting diode (LED) technology for pedestrian walkways and roadway lighting. DOT began with several small pilots, one in Central Park and at two locations in Queens. Planning has begun to expand these pilots.

Data from this effort is being submitted to an international Low Carbon Lighting Program coordinated by the Climate Group, which is comparing experiences of energy efficient street lighting initiatives in Europe, Asia and North America.

 DOT will replace the necklace lights on the four East River bridges with efficient light emitting diodes (LED), beginning in 2009. The overall replacement will reduce necklace lighting energy use by about 70%.

Maximize use of reclaimed asphalt

DOT is working with the NY State
 Department of Environmental
 Conservation to win approval to
 use recycled asphalt pavement
 (RAP) as fill. Over the last year DEC
 approved the use of RAP in utility
 street cuts.





NYCDOT provided safe and convenient access to a bus stop and signalized crosswalk while avoiding the removal of more than 60 trees on Hylan Boulevard by installing a rubber sidewalk, which is made of 100% recycled materials.

- DOT's Hamilton Avenue asphalt plant currently produces 40% asphalt with 40% recycled content. By 2011 the Department will have finished upgrading the plant so that its output will reach a 50% RAP rate.
- DOT's asphalt vendors now supply the Department with asphalt that contains, on average, 25% recycled content.
- The NYC Economic Development Corporation has released an RFP to rehabilitate the rail barge system in the area adjacent to the Brooklyn Army Terminal. This could provide an opportunity to transfer excess RAP to interested municipalities while reducing truck-miles traveled on local and regional roadways.

Pollution prevention

- Spill Prevention Control and Countermeasures Plans (SPCC Plans) are in place at 10 NYCDOT locations and will be updated as needed. Four plans are presently under development and two additional locations will be evaluated to determine if they require plans. Locationspecific SPCC training has been conducted at all DOT sites with final SPCC Plans.
- The Division of Ferries continues to update its practices based on new environmental standards and new rules as they are promulgated. For example, over the last year, NYCDOT implemented measures to respond to new regulations to reduce operational discharges - deck run-off, bilge and ballast water - from vessels.

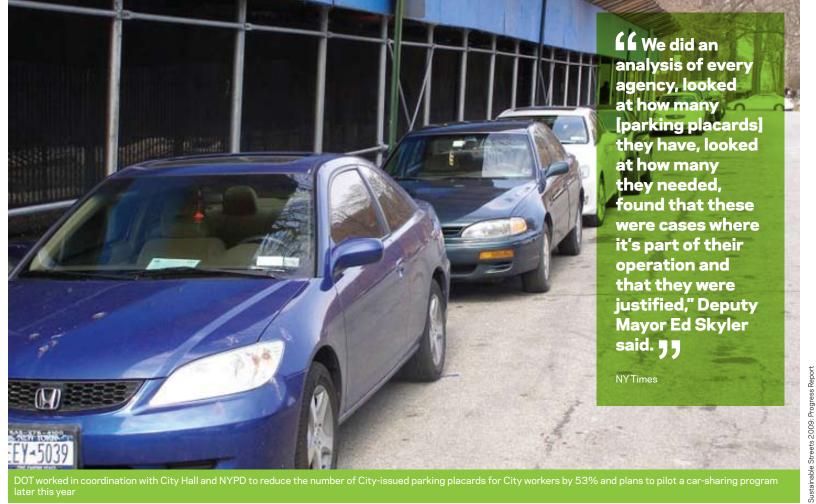
New Goals for 2009

- DOT is developing a car sharing system pilot for its Lower Manhattan-based units. When it is launched this year, the car share system will establish a vehicle pool of 20 shared vehicles that will replace 57 vehicles dedicated to specific units.
- NYCDOT will expand its large scale alkaline battery recycling program.

Reducing Parking Placards

Mayor Bloomberg announced an agency parking placard reduction program in January 2008 for the purpose of reducing the impact of agency parking in high impact areas like Lower Manhattan, Downtown Brooklyn, and around court complexes throughout the city. The initiative consolidated placard issuance under NYPD for law enforcement agencies and under DOT for all other agencies, and reduced the total number of placards issued by at least 20 percent. DOT's Planning and Sustainability division, IT and Telecommunications division, and Authorized Parking and Permits unit in the Traffic Operations division worked with City Hall, NYPD, and the affected agencies to reduce the number of issued placards by 53 percent. NYPD also established a special enforcement unit within the Internal Affairs Bureau. Going forward, DOT is overhauling its parking permit issuance software and is investigating the feasibility of a smart placard that would facilitate management of placard use and enforcement.

In support of the Mayor's announced 10 percent reduction of the municipal auto fleet, DOT is developing a car-sharing system pilot for its Lower Manhattan units. When it is launched in the second half of 2009, DOT will establish a vehicle pool of approximately 20 shared vehicles that will replace 57 vehicles dedicated to specific units based in Lower Manhattan. We expect this program will yield savings of more than \$700,000 over three years and will significantly reduce DOT's parking footprint in Lower Manhattan. We will simultaneously undertake a fleet utilization analysis, which will help us expand the program if the pilot is successful. We anticipate that the program can be expanded to other City agencies.







High Tech Asphalt — Saving Money, Cutting Pollution

Although DOT is already a national leader in the use of reclaimed asphalt pavement, it is still looking for ways to further green its street resurfacing operations. This search led to DOT's recent experiment with warm mix asphalt.

Traditional asphalt must be heated to 300–325°, and then quickly transported to the work site. However, DOT has recently been experimenting with warm mix asphalt technology that only requires heating to 200°, and can be applied at even cooler temperatures. Warm-mix asphalt is relatively new to the industry and New York City is one of the first cities to actively test it.

Widespread use of warm mix asphalt would decrease emissions, fumes, and odors both at asphalt plants and at resurfacing work sites, and would reduce the amount of energy needed for asphalt production. In addition, it would allow for greater RAP content, possibly up to 60%. It would also extend the paving season into the colder winter months. For DOT, a longer paving seasons means better roads, quicker response time for pothole repair, expanded job opportunities and a general improvement in overall street maintenance.

Over the last year, DOT used warm mix asphalt to resurface two low volume streets in Queens. One site was laid in the dead of winter, the other in the heat of summer. Thus far both sites are holding up well. DOT will continue to monitor their progress and will assess opportunities for expanded warm mix use.

DOT recently committed to recycling batteries from its parking meters and will continue and expand this program. NYCDOT operates and maintains 54,525 single space parking meters in the 5 boroughs. These parking meters use 2 alkaline batteries each that are changed approximately every 6 months, generating approximately 218,000 waste batteries. As part of NYCDOT's commitment to greening its operations, the agency instituted a program to recycle the batteries. This diverts them from landfills and allows reclamation of metals, conserving energy and virgin resources. It is one of the largest known alkaline battery recycling programs.



Parking meter batteries





CUSTOMER SERVICE

Expanding Access and Collaboration

Each day residents and visitors turn to NYCDOT for a vast array of information. From details on local projects to the Staten Island Ferry schedule, from alternate side parking regulations to the latest NYC cycling map, we provide the resources New Yorkers need to keep moving. At the same time, DOT launches dozens of new projects every year, from bridge replacements to changes in street markings that New Yorkers need to know about.

We are constantly striving to improve our service to city residents and visitors by using the most modern on-line communications, as well as increasing our capacities for both community and mass-media outreach.

In keeping with the Mayor's **Executive** Order 120, DOT has created a Language Access Plan to provide better service for limited English proficiency customers. **DOT** has already begun to translate key outreach materials including our "What's Going on Here?" cards used to advise communities of upcoming DOT projects.

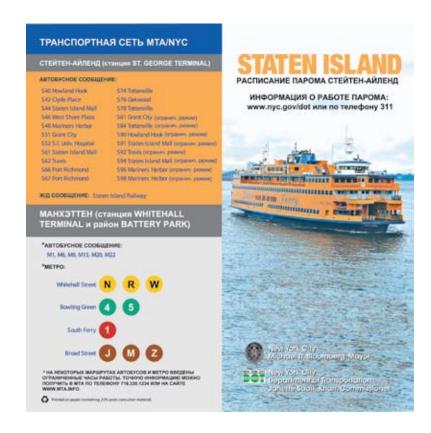
Improve community outreach on new projects

- DOT is refining its process for outreach to Community Boards and elected officials to ensure earlier notification about upcoming projects.
- DOT has organized professional presentation and speaking workshops for staff who make public presentations.
- DOT's Borough Commissioner's offices regularly distribute "What's Going on Here?" informational cards in neighborhoods and along corridors where new projects are planned to give better advance notification to the people who live and work in the area. These cards also provide points of contact in case the public has additional questions or concerns.
- DOT has translated a key set of agency documents into Spanish, Chinese, Russian, Korean, Polish and Urdu and is expanding the set

of translated documents—both basic public information such as traffic safety guidance, and project-specific materials—on an ongoing basis.

Better use of the Internet to foster collaboration

- In the past year, DOT has posted information about its projects online, creating better public and media access to this information.
 Many projects that require in-depth planning also feature feedback forms, allowing community members to provide input even if they cannot attend meetings.
- DOT has created and posted two videos for its website, a first for the agency.
- DOT created a Facebook page for its Summer Streets events and thousands of New Yorkers found out about Summer Streets through this social networking site.







connections between transportation, air quality and better health

- DOT created a blog for its CityRacks design competition, which generated over 200,000 views and hundreds of comments from around the globe.
- DOT has streamlined its online forms, creating a "report-aproblem" center where citizens can report anything from potholes to missing signs to streetlights on the blink with a few simple clicks.
- DOT has several e-mail lists to distribute information to residents. The number of subscribers for NYCycles, our bike information e-newsletter, has doubled this year.
- DOT is testing a protocol to provide information about unplanned traffic events to the NYC Taxi & Limousine Commission, so that it can rapidly update taxi drivers via in-vehicle devices to avoid congestion.
- DOT's Traffic Cameras will be presented in a new interface linked to Google maps. They will be more accessible and useful for trip planning.

Train community leaders

• The DOT Academy program, launched in early 2008, educates community leaders about DOT's core programs, policies and procedures, including traffic calming, street repair and sidewalk maintenance. This year, DOT invited Community Board leaders and elected officials in every borough to attend in-person sessions. The Department will post the training on-line as an audio-narrated presentation to allow even more New Yorkers to participate.

Enhance emergency response capabilities

• The new Joint Traffic Management Center NYCDOT operates with the NY State DOT and NY Police Department is equipped with the most modern emergency response technologies, and improves the City's capacity to respond rapidly to emergencies on roadways and bridges.

Better service for Staten Island Ferry riders

- The New York City Economic Development Corporation is letting a contract for the utility build-out of the retail spaces in the St. George Ferry Terminal. The first lease is also in progress and we anticipate the first retail shops will begin to open in Summer 2009.
- NYCDOT is committed to a strong relationship with the Staten Island Ferry Riders Association and will return to regular meetings and our "Ask the Ferry Program" upon conclusion of the Association's reorganization.

Improve the Neighborhood Transportation Study Program

• Starting in Jackson Heights, Queens, DOT will pilot a new methodology for conducting neighborhood transportation studies. It will be designed to deliver preliminary results more quickly so that short-term improvements can be started while capital improvements are planned.

New Goals for 2009

- Create a searchable database of citywide curbside parking regulations and make it available through DOT's website.
- DOT will provide a better user interface for computers and mobile devices for its traffic cameras and also provide new information about traffic speeds, allowing the public to make more informed travel decisions and avoid congested routes with real-time information on traffic conditions. DOT will also make more of its map-based data available in open source standards via its website.

Engaging the Online Generation

This year, NYCDOT and the Cooper Hewitt National Museum of Design held the CityRacks design competition to generate a new standard onstreet bike rack. The competition had a top-notch jury and small honoraria for the winning designs but no budget for marketing or promotion. Hopes were high that the competition would attract entries from the most talented designers, artists and engineers from around the country. But how would they find out about it?

DOT created the CityRacks Design Competition blog using a simple Wordpress template. DOT and Cooper Hewitt promoted the content through e-mail blasts, press releases and tips to bloggers that referred people to the blog for more information. The blog was a repository for official competition documents and schedule. It also allowed for an ongoing Q&A between designers and the competition staff. The blog received over 200,000 visitors and helped to generate hundreds of competition entries from around the globe.

As the competition unfolded, DOT also posted snapshots of the finalists' designs and allowed the public to comment on them. This expanded the dialogue beyond the jury room and generated even more interest in the contest.

The lessons DOT's communications staff learned from the creation and management of the blog will help in planning future projects. DOT has also given advice on blogging to a number of other City agencies. The CityRacks Design Competition blog was recognized by the Mayor's Customer Service working group as a model of excellence for its use of new technology to engage constituents.



A picture is worth a thousand words. DOT has expanded the use of photos, video and interactive media on its website to better communicate the goal

A Community Board District Manager recently gave her high school intern a challenge—to answer ten tough questions about DOT, using the DOT website as a reference. The result? She found the website "pretty easy to navigate" and was able to answer all ten questions.





Local Knowledge, Local Improvements

DOT's neighborhood transportation studies allow the agency to take a holistic approach to solving transportation problems. Programs such as Safe Routes to Schools and Safe Streets for Seniors often wind up focusing on specific locations and the improvements they bring are geared towards improving safety. Neighborhood transportation studies can bring area-wide solutions for mobility, sustainability and safety. One issue with these studies, however, has been their length. Many have gone on from two to four years, and neighborhoods have often had to wait even longer for improvements the studies identify. In Jackson Heights, Queens, NYCDOT will launch an effort that will conduct more small-group input sessions with key community stakeholders, go with these stakeholders on walking tours of neighborhoods, and using intercept surveys and other means to collect more qualitative data in addition to DOT's standard quantitative data. The study will have a stronger emphasis on improving conditions for bicycling and walking, and a special focus on improving access to transit. The Jackson Heights study will be conducted in phases, so that short term improvements can begin while consideration of longer-term measures is still underway. DOT is also committed to monitoring the effectiveness of these short-term improvements to ensure that it has taken appropriate actions to meet the study goals.



A 21st Century Transportation Department

NYCDOT's innovations such as Green Light for Midtown and Summer Streets are making a world-wide splash. In the past year, DOT has received inquiries and visitors from around the globe. From the Prime Minister's office in the United Kingdom to the Governor of Sao Paulo, Brazil, from Toronto to Boston, everyone wants to know what we are doing in New York City and how we are getting it done. Gehl Architects, the Copenhagen-based consultant specializing in urban improvement strategies, recently remarked that "Other cities that we are presently working with around the world, from Mexico City to Beijing, London and Sydney are all looking to Janette Sadik-Khan and New York for inspiration."

Implementation of new policies and ground-breaking projects is possible because NYCDOT is contantly researching and examining developments and applications from around the world, in technology, planning and communications, all while always pushing the envelope with our considerable home-grown resources. In the past year, DOT further expanded its capacities in this regard by building up the new Division of Planning & Sustainability and its Project Management Office.

The LOOK traffic safety campaign is expanding significantly, with new television and radio spots and an expanded run of outdoor poster ads. A new anti-DWI campaign will also be launched during 2009.

Build staff capacity and Division of Planning and Sustainability

• The Division of Planning & Sustainability is running at full steam, with staff devoted to Select Bus Service projects and the rapid bus master plan, creating a new Manhattan traffic model, innovative parking programs, freight mobility and truck management and alternative fuels programs, DOT's Urban Art Program and the NYC Plaza Program. Both the Urban Art and NYC Plaza program issued application criteria, materials and program guidelines in 2008 and recently announced the first rounds of projects for selection.

Elevate the profile of research in policy and operations

- DOT is compiling staff research on the DOT intranet to facilitate information exchange among staff. Staff presentations at major conferences are also now posted on DOT's external webpage.
- DOT has invited expert speakers to give several presentations to staff throughout the year. This year, DOT has been involved in organizing events open to staffers with urban expert Jan Gehl, Denis Baupin, Paris Deputy Mayor, Peter Newman, Sustainability Commissioner for New South Wales and others. A member of the U.S. DOT Commission on national transportation infrastructure financing briefed DOT's senior staff.
- DOT is collaborating with major research institutions through the University Transportation Research Center to conduct studies of both its traffic calming program and a more comprehensive study that seeks to identify root causes of crashes that result in pedestrian serious injuries and fatalities.

• DOT is developing a Manhattan Traffic Model to expand the agency's capability to assess the traffic impacts of street projects, taking into account mode shift and route shifting. The model will give DOT the ability to accurately assess system-wide adjustments that occur in response to major changes in the grid. It builds on the traffic analysis conducted to assess Green Light for Midtown. It will be the first of its kind in a major U.S. city, and will be used for environmental analysis for the 34th Street busway, and other projects as necessary.

Create strategic communications strategy

- The 2008 issue of Sustainable Streets, this update and the publication of the first and forthcoming editions of the Sustainable Streets Index are important elements of DOT's ongoing strategic communications effort regarding the City's transportation goals, policies, actions and the objective transportation trends on our streets, highways, rails and waterways.
- DOT has formed a communications working group that consists of staff from External Affairs, Borough Commissioners, the Press Office and the Policy group.
- DOT has issued an RFP for an advertising and marketing agency to assist the Department to create effective public safety campaigns and campaigns to promote increased use of sustainable transportation.
- The LOOK traffic safety campaign is expanding significantly, with new television and radio spots and an expanded run of outdoor poster ads. A new anti-DWI campaign will also be launched during 2009.



DOT staff led trainings on Jan Gehl's acclaimed public life survey methods for colleagues at DOT and other agencies

Implement agency-wide project management procedures

- DOT's Performance Management and Accountability office was established in 2007 and now has 5 staff members.
- DOT initiated the study of project management and project delivery through two case studies (street reconstruction and Staten Island Ferry-related contracts) that were completed in 2008.
- Project management consultants completed their work on a conceptual design and set-up for DOT's "Enterprize" project management system in May 2008. The remainder of the development and implementation continued in house and the system has been roughly 60% implemented as of June 2009. The system is allowing agency staff to better manage project delivery.

Implementation is slated to begin by the end of 2009. A project management Quality Assurance unit providing oversight on federally funded projects will be established during summer and fall 2009.

Overhaul data collection

• In 2008, DOT issued the first annual Sustainable Streets Index report, which set benchmarks for the City's progress towards achieving more sustainable mobility. Subsequent SSI reports, beginning in Fall 2009, will update these benchmarks and also contain before-and-after data about the impacts of DOT projects, including BRT and traffic congestion relief measures. Data collected and reported in the Sustainable Streets Index will achieve full compliance with requirements set out in Local Law 23 (Intro 199).

- DOT conducted public life surveys at 9 locations throughout New York City.
- DOT held a one-day training for its staff and staff from other City agencies in the public life survey methodology.
- DOT reviewed transportation performance measures in connection with both the Mayoral Citywide Performance Report (CPR) and City Council's Intro 199 initiatives. As part of CPR, new metrics stressing performance outcomes have been in place since July 2008. They include: street pavement ratings; percent of lane miles assessed in the 12 months ending this quarter; overall traffic accidents and a pedestrian volume index.
- DOT began a comprehensive review of all metrics and reporting methods and tools in March 2009. The purpose of this review is to provide scope for a new "business"

intelligence" tool for the agency and to develop automated links with the reporting systems of the Mayor's Office of Operations. The review is expected to be completed in the fall of 2009; the tool is expected to be in place by summer 2010.

- DOT and the NYC Taxi & Limousine Commission are using TLC's GPS-based trip sheet database to estimate aggregate travel speeds in the Manhattan CBD. The agencies are exploring ways to use this data to track daily and seasonal changes in traffic speeds.
- DOT is improving its coordination with the NY State Department of Motor Vehicles, the State DOT and the NY Police Department to facilitate more rapid exchange of crash data.

Attract and retain a top notch staff

- We have identified agency personnel whose roles are critical to the continuation of agency operations. In-house succession candidates for these individuals have been identified where such exist. We have identified managers who are eligible to retire within one year and continue this as an ongoing exercise.
- DOT attended over 15 recruiting events both in New York City and further afield to recruit talented new graduates and veterans returning from Iraq and Afghanistan.

Global Recognition



DOT accepts the International Sustainable Transport Award. L–R: Walter Hook (ITDP), Commissioner Sadik-Khan, Congressman Earl Blumenauer and former Mayor of Bogotá, Colombia, Enrique Penalosa

NYCDOT's work was acknowledged from many quarters over the past year, but perhaps foremost was the January 2009 presentation to the City of New York of the prestigious Sustainable Transport Award, chosen by a global selection committee of representatives from the Institute for Transportation and Development Policy, Environmental Defense Fund, the U.S. Transportation Research Board, Clean Air Initiatives for Asia, Latin America, and Africa; the Deutsche Gesellschaft für Technische Zusammenarbeit (part of Germany's foreign aid establishment); The World Resources Institute Center for Sustainable Transport; Local Governments for Sustainability, the International Association of Public Transport and the U.N. Centre for Regional Development. New York City was recognized for use of street space for rapid bus service, bike lanes, pedestrian areas and public plazas; the installation of 140 miles of new bicycle lanes (including new protected lane designs), a high use of recycled asphalt and the institution of Summer Streets. Beijing, Mexico City, Istanbul and Milan were runners-up in the selection. New York is the first American city to be so honored since the award was first presented in 2005.

Selected DOT Awards Since 2007

Municipal Art Society 2009 Certificate of Merit for Sustainable Streets Strategic Plan July 2009

Green Event Award from the Metro NYC Chapter of the International Special Events Society, for Summer Streets June 2009

American Institute of Architects Special Citation to Assistant Commissioner Wendy Feuer for promotion of quality design and art in public places June 2009

Finalist — Best New Innovative Practices, Best of ITS Awards

VTCS 2 Advancing State-of-the-Art Traffic Management using a Large Scale Wireless Network. For converting our traffic control signal management from hard-wired (via telephone lines) to the City's wireless network (NYCWIN) June 2009

NYU Rudin Center Annual Leadership in Transportation Award, jointly with NYC Transit, for launch of Select Bus Service February 2009

United States Coast Guard Certificate of Merit

Staten Island Ferry in recognition for services rendered to U.S. Air Flight 1549 Feb 18, 2009

Sustainable Transport Award to the City of New York — from the Institute for Transportation & Development Policy and a range of international organizations and institutions
January 2009

Platinum Award in the structural systems category

Design-Build re-decking project on the Belt Parkway Bridge over Mill Basin American Council of Engineering Companies of New York March 2008

Diamond Award, Special Projects

Construction management of the reconstruction of the Third Avenue Bridge over Harlem River American Council of Engineering Companies of New York March 2008

Best Bridge Project of 2008

Reconstruction of the Hamilton Avenue over the Gowanus Canal New York Construction Magazine December 2008

Outstanding Achievement Award

Andy Lalchandani, Director of DOT's Engineering Audit Bureau South Asian American Association, Inc. October 22, 2008

WorldTraffic Safety Symposium Award for Pedestrian Programs for Older Adults 2008

AAA Community Traffic Safety Gold Award 2008

Sol Gitlin Humanitarian Memorial Award

Captain James DeSimone and the Staten Island Ferry in recognition for assisting individuals with disabilities or maintaining their independence Staten Island Center for Independent Living April 25, 2008

Institute for Transportation Engineers Program of the Year Award

2008, to NYCDOT for the 9th Avenue protected bicycle lane

AAA Community Traffic Safety Gold Award 2007

AAA Best Practices Award 2007

Big City Transportation — Our Policy Roadmaps

DOT has produced a series of policy and research reports in the past year including Sustainable Streets, World Class Streets, the Sustainable Street Index and, mostly recently, the NYC Street Design Manual. DOT also publishes annual traffic safety and bridge reports detailing our many innovative projects in these critical areas. This growing body of work is a valuable roadmap for the agency and for the people of New York. The documents have also traveled far and wide, inspiring and informing transportation policy discussions around the world.

A few short years ago, if you wanted to learn about sustainable transportation, you might visit Copenhagen or London, or Portland, Oregon. These cities have made impressive steps to green their transportation systems.

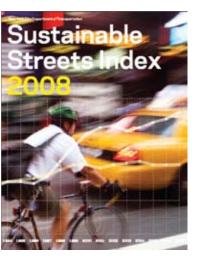
Now New York has risen to the top of this list. Our policies and projects are becoming the new model for governments around the world. Officials in the UK Prime Minister's office charged with developing an urban transportation strategy are interested in our approach to the public realm and the citywide bicycle network, and are looking closely into how we implement our vision. Even a Danish Member of Parliament has come to take a look at New York City's work to encourage bicycling.

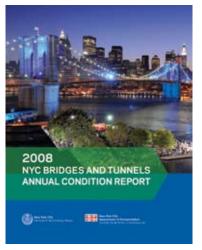
Over the past year, the DOT has been visited by governors from Brazil, mayors from Quebec, Denmark and Vancouver and the heads of agencies from U.S. cities from Boston to San Francisco. These visitors come to learn how we have been able to accomplish projects ranging from Select Bus Service to increasing commuter cycling, to achieving a world-class traffic safety record, to the transformation of Times and Herald Squares.

Filled with photographs and planning graphics, and written in an accessible way, NYCDOT's reports are meant to speak to anyone searching for new answers to the issues of congestion, sustainability and quality of life.

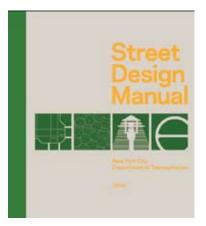
















STREET DESIGNS TO MAXIMIZE PUBLIC SAFETY

Implement more Safe Routes to Schools

Complete capital construction at 12 priority schools

Continue slow speed school zones pilot project

Short Term measures at 135 schools complete

Evaluate and initiate studies at 40 high schools

Identify 25 Senior Pedestrian Focus Areas (SPFAs) based on top senior pedestrian

Implement early action measure in five

Study, develop improvements, and implement early action items at 20 SPFAs

Traffic

Fxternal Affairs, BCs, NYCDDC Funding

Launch Safe Streets for Seniors

crashes in the five boroughs

pilot locations (i.e., signal timing for seniors, upgraded signage, marking and pedestrian refuge islands)

Traffic

External Affairs, BCs, NYCDFTA, NYCDOHMH

Make traffic safety measures a focus of neighborhood transportation studies

Develop scope of work templates that focus on traffic safety deliverables

Planning and Sustainability. Traffic

BCs

Streamline traffic calming projects

Create recommendations to speed project planning and delivery, create project management toolkit

Implement recommendations: including completion of Downtown Brooklyn Phase A PMO

BCs, Finance, Traffic,

Expand and improve safety-oriented signal strategies

Expand test of pedestrian countdown signals and evaluate results

Re-engineer leading pedestrian intervals (LPIs) giving 9 additional seconds for pedestrians to cross intersections

Implement one-way corridor signal timing patterns to increase pedestrian crossing time and discourage speeding

Traffic

Complete bus stops under elevated trains improvements

Finalize installation of raised concrete medians at 3 bus stops under elevated trains

Planning and Sustainability

SIM

BRIDGE INSPECTION

Implement "Safe Spans" bridge inspection program

Increase frequency of bridge component inspection

Bridges

Funding, FHWA Cable Monitoring Study

CHANGE PUBLIC BEHAVIOR

Expand marketing campaigns

Expand "Look" marketing campaign that includes pedestrian and motorist themes

External Affairs

NYCDPR, NYCDOHMH, NYC & Co., NYPD

Legend





In Progress





In Progress

Pending

Completed

Legend

Sustainable Streets: 2008 a

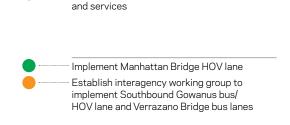
63

ACTIONS 2007-2009 **BUS RAPID TRANSIT Implement Bus Rapid Transit** Planning and External Affairs, Launch two BRT corridors Legislative approval of bus Sustainability, Finalize testing and implement queue Traffic lane cameras; jumps and traffic signal priority (TSP) in BRT implementation with NYC Transit Corridors Initiate legislative campaign for authorization of bus-camera enforcement system **BETTER BUS LANES** Improve streets for existing bus network Planning and Sustainability Traffic Funding, NYC Transit Launch 2 new Midtown bus priority corridors Sidewalks with NYC Transit SIM, CSFF Test new bus-priority elements such as colored lanes, and bus signal priority Address bus hot spots through queue jumps, signal improvements, and other measures Construct 15 new sidewalks at bus stops Identify underperforming bus routes PARKING MANAGEMENT Manage curb-side parking more effectively Planning and Traffic, Launch pilot parking program aimed at greater curbside vacancy rates Complete conversion of all multi-space meters to accept credit cards Manage municipal lots more effectively Traffic Develop a demonstration project to provide real-time space availability information in municipal parking lots **BICYCLING** Make bicycling safer and more convenient Traffic Planning and Funding, Test new lane designs and expand Sustainability, implementation of designs that work CSFF External Affairs, Install 37 bicycle parking shelters and 800 City Racks Complete installation of 200 bicycle lane miles by 2009 Install 15 additional miles of protected on street bike lanes Pursue indoor bicycle parking legislation at City level Install 5000 City Racks (1600 annually) **FERRY SERVICES** Ferries NYCEDC Better Improve access for all users of City-owned

Improve the quality and expand the availability of ferry services

HOV NETWORK

Expand the HOV network



Open Slip 5 at the Battery Maritime building

Completed

Work with EDC to launch new routes

ferry landings

Legend



RRM.

Bridges, Traffic

Planning and

In Progress

connections

promotion

NYSDOT, MTA Bridges and

Tunnels

with transit, More marketing/

New York City Department of Transportation

IMPROVE FREIGHT MOBILITY

Expand access for appropriately-sized trucks to limited-access parkways

Review Grand Central, Henry Hudson, and Belt Parkways as possible candidates

Conduct studies, public meetings, develop recommendations, and plans for 5 corridors Implement action measures at 5 corridors Initiate study for final 5 corridors

Planning and Sustainability External Affairs, Traffic

External Affairs

Work with NYSDOT and Port Authority

TECHNOLOGY

Use technology to fight congestion

Finalize testing of transit signal priority (TSP) pilot project on Victory Boulevard

Implement bus TSP on Fordham Road

Install VII TestBed that demonstrates invehicle signing, warnings, traveler information

Traffic Planning and Sustainability,

Funding, NYC Transit implementation of bus measures

New Goals for 2009

- During 2009, NYCDOT and NYC Transit will issue a Phase II bus rapid transit plan recommending 8–10 new routes.
- NYCDOT and NYC Transit will test a real-time bus arrival information system on 34th Street in Manhattan.
- NYCDOT has accelerated targets for bike commuting following the rise in bicycle counts in 2008 and developments such as bicycle parking legislation. DOT now anticipates doubling bike commuting from 2007 levels by 2012 and tripling it by 2017.
- NYCDOT will explore opportunities for a large scale public bicycle system in Manhattan and adjoining areas. Bike share would provide a new mobility option for short trips and increase bicycling's share of overall travel.
- NYCDOT will expand installation of on-street bike parking by re-fashioning single-space parking meter poles into bicycle racks as part of the muni-meter installation process.
- NYCDOT will expand the PARK Smart curbside management program to additional neighborhoods.
- With the NYCEDC, NYCDOT will launch an expanded East River ferry network with six landings, including new docks in Greenpoint and North Williamsburg, by 2012.
- NYCDOT will begin to establish new rules and conditions for use of curb and layover space by private buses, whose presence on city streets has dramatically proliferated.
- Use cameras on buses to catch taxicabs in bus lanes and partner with the TLC to summons drivers through Administrative Law system.
- Explore the addition of new HOV lanes as part of the Select Bus Service master planning process.

Legend Completed In Progress Pending

Planning and

Traffic,

BCs NYCDDC

NYCCAU

Funding

ADOPT COMPLETE STREETS DESIGNS TO ACCOMMODATE ALL USERS

Develop a Main Streets public life program

Improve street design process and methods

Use complete streets designs to create or revitalize public space in commercial districts

Move Main Street design templates into early action engineering projects

Implement projects from Public Life report Create weekend pedestrian streets

Partner with city agencies to make public life/ streetscape improvements

Streamline construction design review Define better streetscapes as a necessity

Continue progress towards full ADA compliance on ramps at street corners

Planning and Traffic. Finance,

NYCDDC, NYC Art Commission

PUBLIC PLAZAS

Develop and implement plaza program

Construct and improve pedestrian ramps

Develop plaza maintenance strategies

Create community-based process for development of 4 new plazas per year

Planning and Sustainability

SIM

Traffic

Funding maintenance agreements

ENJOYING THE CITY

Showcase alternative uses for public space

Increase beautification efforts throughout the city

Implement weekend pedestrian/bike corridors

Initiate temporary art program Reduce car use in major city parks

> Augment Adopt-a-Highway program with landscaping projects

Coordinate repairs in neighborhoods with other city agencies

Planning and

RRM, FD/C

SIM-Special Traffic NYPD, NYC & Co. Mayor's Office

NYCDPR, RRM, NYCCAU.

NYCDPR

Traffic,

Funding Commissioner's Office, Planning and Sustainability, Mayor's Office,

URBAN DESIGN

Continue to implement street furniture improvements

Install over 1,600 CEMUSA-designed bus shelters, 159 newsstands, 37 bike parking shelters and 9 automatic pay toilets

Launch CityRacks design competition Re-open historic Water Street Arch at the

Manhattan Bridge

Planning and Sustainability,

Legal,

LOWER MANHATTAN PEDESTRIANIZATION

Implement Lower Manhattan pedestrianization plan

Develop pedestrianization plan in conjunction with NYPD

Secure funding and support for the plan with city and district leadership and state and federal partners

Define pilot projects and implement

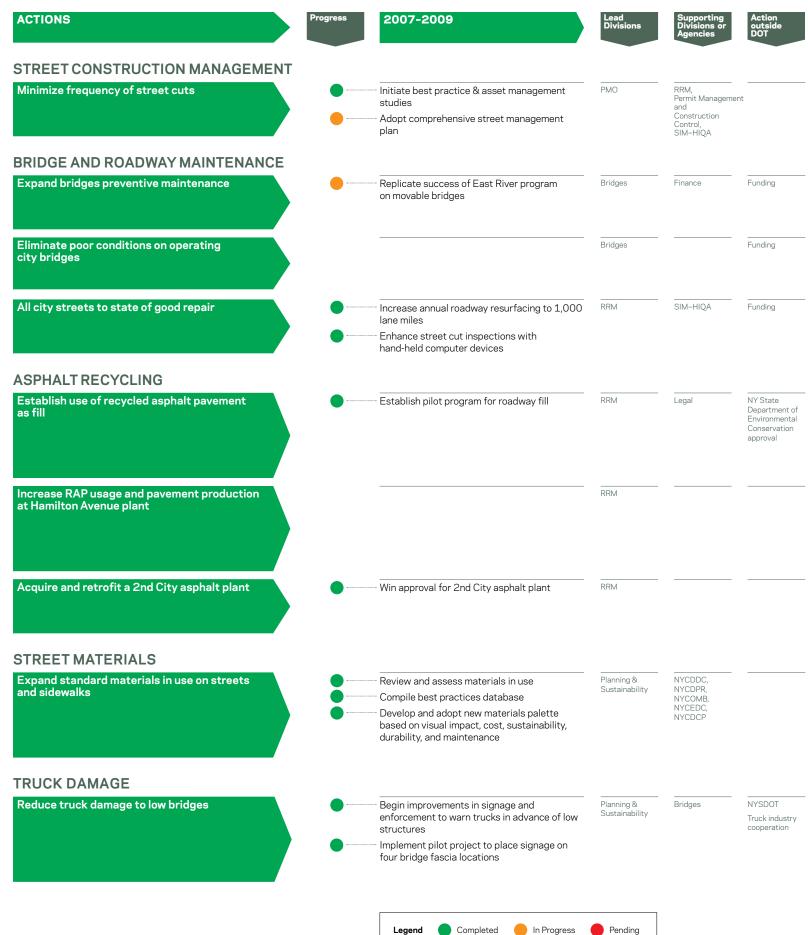
Planning and

Funding

New Goals for 2009

- NYCDOT will develop pilot projects for some of the new street designs recommended in the NYC Street Design Manual, such as "shared streets."
- NYCDOT will expand Summer Streets to additional days and areas in 2010.

In Progress Legend Completed Pending



ACTIONS 2007-2009 FERRY MAINTENANCE AND REPAIR Issue restructured contract for ferry Finance-ACCO Carry out all scheduled dry dockings on Ferries dry-docking schedule Issue RFP for fleet planning & replacement Issue RFP Ferries Finance-ACCO Ferries Funding Increase preventive maintenance for ferry Implement preventive maintenance program fleet, terminals, and support facilities for the ferry fleet, the Cosgrove, and service vessels, and the inclusion of maintenance work at Whitehall, St. George, the ferry maintenance facility, and the fuel pier

AGENCY VEHICLE REPLACEMENT

Review fleet, productivity problems of worn vehicles, and adopt new policy



VEHICLE REDUCTION

Reduce vehicle trips by DOT employees

Reduce agency parking placards by 30%, possibly with vehicle pool or car-sharing

Adopt an at-work agency travel policy urging DOT employees to use the most sustainable possible method of work-related transportation

Review city-wide parking placards and policies

Planning and FD/C, Traffic Sustainability

Funding

tainable Streets: 2008 and Beyond

REDUCE ENERGY AND RESOURCE CONSUMPTION

Reduce energy demands of DOT facilities

Conduct annual audits and generate reports for all DOT facilities to maximize reduction of electricity use, air pollution, and water use

Activate photovoltaic system at the Whitehall Ferry Terminal and continue to maintain "Living Roof" at the St. George Ferry Terminal

HR and Facilities

Ferries, DDC, DCAS

Improve efficiency of street lights and traffic signals

Replace street lights throughout Brooklyn and Queens with lower-wattage bulbs

Replace 250-watt lamps with 150-watt lamps along highways

Identify new DOT projects to reach citywide goals of 30% energy reduction

Traffic Mayor's Office Fundina

Reduce DOT's resource consumption

Cease purchasing plastic water bottles at the new 55 Water Street offices

Explore the feasibility of switching to non-toxic cleaning supplies at 55 Water Street and other DOT leased facilities as building maintenance contracts permit

HR and Facilities

FD/C

RECYCLED ASPHALT PAVING

Expand in-house and vendor use of recycled asphalt

Maximize use of Recycled asphalt pavement (RAP) to avoid use of nearly 840,000 barrels of oil and 321,000 local truck miles

Legal, Commissioner's Office

NYS Department of Environmental approval

SPILL PREVENTION

Achieve compliance with local, state, and federal regulations

Implement spill prevention control and countermeasure plans at 14 DOT locations

Conduct location specific training to emphasize proper waste management and spill prevention practices

Legal

HR and Facilities

New Goals for 2009

- DOT is developing a car sharing system pilot for its Lower Manhattan-based units. When it is launched this year, the car share system will establish a vehicle pool of 20 shared vehicles that will replace 57 vehicles dedicated to specific units.
- NYCDOT will expand its large scale alkaline battery recycling program.

Legend

Completed



In Progress



Pending

Develop bi-annual Ask the Ferry program

New Goals for 2009

- Create a searchable database of citywide curbside parking regulations and make it available through DOT's website.
- DOT will provide a better user interface for computers and mobile devices for its traffic cameras and also provide new information about traffic speeds, allowing the public to make more informed travel decisions and avoid congested routes with real-time information on traffic conditions. DOT will also make more of its map-based data available in open source standards via its website.

In Progress Legend Completed Pending strategies

universities

INCREASE CAPACITY FOR PLANNING, RESEARCH, AND COMMUNICATIONS

Build staff capacity of division of Planning and Sustainability

Created new units, Public Plazas, and Urban Art and Design

> Enhance and align strategic planning and alternative fuels units with new division

Initiate symposia featuring DOT personnel and guests, both within the department and in conjunction with other institutions-agencies &

Develop forward-looking research agenda

HR and Facilities

NYCOMB

Elevate the profile of research in policy and

Inventory major research activity within the Department, compile, and distribute

Commissioner's

FD/C, NYCOMB

operations

Create strategic communications strategy

and begin outreach to universities to explore collaboration

Create communications working group

Identify and develop marketing campaigns with Dept. staff and outside experts to promote safety and sustainable transportation Issue RFP for ad agencies to create campaign

content and adopt criteria to measure

External Affairs

IMPLEMENT AGENCY WIDE PROJECT MANAGEMENT PROCEDURES

Analyze project and portfolio management throughout the department

Created office of project management and develop scope of work

Initiate study of project management and delivery issues through a series of case

campaign efficacy

Implement preliminary recommendations from case studies

РМО Sustainability, Finance, Commissioner's

Office

Improve federal Planning and aid process

OVERHAUL DATA COLLECTION

Develop data collection needs and plans for new priorities

Develop and implement data tracking strategies for congestion relief and BRT

Conduct public life surveys at selected spots

MIS

Planning and Sustainability, PMO, Traffic

Create new performance measures

Review key agency-wide, divisional, and city transportation performance measures

Create new internal performance measures where necessary and a means of collecting and reporting additional data

Align Citywide Performance Reporting indicators with new agency initiatives

PMO

Mayor's Office of Operations

Coordinate data collection with partner agencies

Work with partner agencies to bring shared data such as accident reports closer to real-time

MIS

NYPD,

Legend







ATTRACT AND RETAIN A TOP NOTCH STAFF

Develop enhanced succession planning and recruitment strategies

Expand innovative professional development initiatives

Analyze essential operational roles and develop succession planning strategy

Strengthen university partnerships and augment recruitment strategies to increase the available pools of qualified candidates

Initiate internal "DOT Fellows" management program where a cohort of staff learn about different parts of the agency and City Government through site visits and speakers

Encourage employees to take advantage of professional development opportunities

HR and Facilities

HR and Facilities

DCAS

Funding

Funding



ACKNOWLEDGMENTS

This report updates NYCDOT's progress during 2008 and 2009 toward the goals outlined in the agency's 2008 Strategic Plan. The Department's considerable achievements over the past year are the result of the collective effort of nearly 5,000 people. Reporting on their work has has naturally included dozens of individuals. The following NYCDOT officials and staff members provided invaluable information, input and material to this volume.

Lori Ardito, First Deputy Commissioner

Tom Cocola, Staten Island Borough Commissioner Phil Damashek, General Counsel James DeSimone, Staten Island Ferry Chief Operations Officer

Margaret Forgione, Manhattan Borough Commissioner Leon Heyward, Deputy Commissioner, Sidewalks and Inspection Management

Marlene Hochstadt, Deputy Commissioner, Human Resources & Facilities

Joseph Jarrin, Deputy Commissioner, Finance Maura McCarthy, Queens Borough Commissioner Constance Moran, Bronx Borough Commissioner Galileo Orlando, Acting Deputy Commissioner, Roadway Repair & Maintenance

Joseph Palmieri, Brooklyn Borough Commissioner Henry Perahia, Deputy Commissioner, Bridges Luis Sanchez, Lower Manhattan Borough Commissioner Bruce Schaller, Deputy Commissioner, Planning & Sustainability

Gerard Soffian, Acting Deputy Commissioner, Traffic Operations

David Woloch, Deputy Commissioner, External Affairs

Trinity Abbott David Arcement **Ernest Athanailos** Joe Barr Joshua Benson Anthony Bordenca Alan Borock Patricia Browne Craig Chin **Emily Colasacco** Nevada Espinoza Yajaira Ferreira Mike Flynn Nicole Garcia Margaret Gordon Dalila Hall Jimmy Haro Russell Holcomb Jay Jaber Ed Janoff John Karras Sarah Keeville Vaidila Kungys

Jessica Levin Patricia Lyons Vincent Maniscalco Tim McCready Daniel Malonev Brooke McKenna David Moidel Frank Nicolosi Alan Olmstead **Edward Pincar** Hillary Poole Shawn Rae Kedari Reddy Heather Richardson Rvan Russo Mark Simon Seth Solomonow John Tipaldo Michele Vulcan Joseph Yacca Patricia Yee Ellen Zielinski

Special thanks to John Albin, Lou Calcagno, Ann Marie Doherty, Wendy Feuer, Stacey Hodge, Cordell Schacter, Bruce Schaller, Steve Weber and Andy Wiley-Schwartz for contributing written sections or passages.

DOT's report team was led by Nina Haiman, Margaret Newman, Jon Orcutt and Dani Simons.

Thanks to Pure+Applied for their exceptional creative conception and direction in the design of this document.

Photo Credits

All photos @ NYCDOT unless noted below. cover......Daniel Kukla page 16......Theodora Ravago page 19.....Kristen Artz page 20 (bottom right).......Daniel Kukla page 21.....Theodora Ravago page 22 (right). Edward Reed page 27 (left).....Spencer T. Tucker page 27 (bottom right)......Ryan Hartley Smith page 28 (top left)......Marco Castro page 29 (bottom)......Daniel Kukla page 38 (top).....Edward Reed page 40......Caroline Samponaro page 43.....Spencer T. Tucker page 48.....Lucy Wang page 51 (right). Health Plus page 54.....Ray Chong page 58......Institute for Transportation and Development Policy page 77......Daniel Kukla

Design: Pure+Applied | www.pureandapplied.com



